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INDIA—OUTBREAK OF PLAGUE.

P A P E R S

RELATING TO THE

OUTBREAK OF BUBONIC PLAGUE

IN

I N D I A ;

WITH STATEMENT SHOWING THE

QUARANTINE AND OTHER RESTRICTIONS RECENTLY
PLACED UPON INDIAN TRADE,

UP TO MARCH 1897.

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INDIA—OUTBREAK OF PLAGUE.

P A P E R S

RELATING TO THE

OUTBREAK OF BUBONIC PLAGUE IN INDIA;

WITH STATEMENT SHOWING THE

QUARANTINE AND OTHER RESTRICTIONS RECENTLY PLACED UPON

INDIAN TRADE,

UP TO MARCH 1897.

TELEGRAMS.

From GOVERNOR, BOMBAY, 30th September 1896.

You may have heard reports of bubonic plague in Bombay City. As a matter of fact, Surgeon-Major-General reports he has seen about 20 cases mild type bubonic plague in Bombay City. Preventive measures in active operation. Municipal Commissioner considers no cause for very serious alarm at present. Committee composed of medical experts is to be assembled to report on disease and situation.

From VICEROY, 2nd October 1896.

Officially reported by Bombay Surgeon-General that true bubonic plague prevails in Mandvi Bunder, Bombay, but of mild type. About 11 deaths daily. Repressive measures combating disease have been adopted. Government of India await further information from Professor Haffkine, who has been sent to the spot.

From VICEROY, 12th October 1896.

One case of plague reported, Howrah. Patient came from Bombay. Mortality decreasing at Bombay, about six deaths daily. Quarantine at Aden and Karachi.

From VICEROY, 15th October 1896.

After bacteriological examination of 10 cases, Haffkine reports identity of Bombay disease with bubonic plague undoubted.

From VICEROY, 30th December 1896.

Officially reported by Medical Board, Karachi, that bubonic plague epidemic in that city. Thirty-nine cases reported from 10th to 26th. Repressive measures adopted to combat spread of disease.

From SECRETARY OF STATE to GOVERNOR, BOMBAY, 30th December 1896.

Newspapers report increase of plague at Bombay, and exodus of inhabitants on a large scale. Please telegraph latest figures.

From GOVERNOR, BOMBAY, 1st January 1897.

Your telegram of 30th December. Twenty-four hours up to yesterday morning, cases, 72; deaths, 46; and deaths more than doubled in December. Total cases to date, 2,430, deaths, 1,725. Exodus is estimated roughly at 100,000 to 150,000.

From GOVERNOR, BOMBAY, 2nd January 1897.

In continuation of my telegram of yesterday. November plague cases, 333; deaths, 268; December cases, 1,655; deaths, 1,160.

From SECRETARY OF STATE to VICEROY, 5th January 1897.

Egypt is discouraging pilgrims going to Mecca in view of danger of plague, and asks whether India would similarly discourage pilgrims. Please telegraph if you propose action of the kind.

From SECRETARY OF STATE to GOVERNOR, BOMBAY, 6th January 1897.

(Telegraphic)

Criticisms have appeared in Bombay journals on the action of the Municipality in combating plague. Is it clear that remedial and preventive measures are adequate? Are you convinced that segregation is impracticable, and, if so, what alternative means have been taken to prevent plague from spreading? Do you contemplate any measures under the Municipal Act besides appointment of a Research Committee? What measures are being taken in regard to Karachi and other towns which are attacked or threatened by the plague?

From GOVERNOR, BOMBAY, 8th January 1897.

(Telegraphic.)

Your telegram of 6th January. The action taken by the Executive for combating the plague is directed by the Municipal Commissioner. The Corporation fully supports his action, provides ample funds, and in no way causes obstruction. It is believed that the measures are sufficient, that the plague must take its course, and that we cannot hope for early extinction. Wholesale enforced segregation is not, I am advised, within practical limits of possibility. Alternative measures, now being tried, are disinfection, separation of sick, and encouragement of voluntary segregation. When the plague began in October, and ever since, steps have been taken under Section 434 of the Municipal Act. The critical state of affairs is not due to the shortcomings of the city authorities, but to the unreadiness of the inhabitants, their great dislike and distrust of sanitary measures, and their fear of being separated from their families. Experts tell me that severe measures which would be acceptable to an European community would here cause a general exodus of the people and might lead to violent popular outbreaks. In Karachi energetic steps have been taken as in Bombay. The Commissioner in Sind advises strongly against attempts at compulsory segregation. For some time municipalities in the interior have adopted the precaution of inspecting passengers and treating plague-stricken travellers at selected stations on railways.

From SECRETARY OF STATE to VICEROY, 12th January 1897.

My telegram of 5th January. Two plague deaths reported among pilgrims, steamer "Pekin" from Bombay, during voyage.

From SECRETARY OF STATE to VICEROY, 14th January 1897.

My two telegrams about plague and Moslem pilgrims. Russia now presses Her Majesty's Government to prohibit pilgrimage from India this year. Turkey, on religious grounds, declines to prohibit. Austria apparently shares Russian fears. In present circumstances, Bombay is not good rendezvous. Please telegraph early reply, as answer must be given to Russia.

From SECRETARY OF STATE to GOVERNOR, BOMBAY, 14th January 1897.

Plague. Egyptian delegates. Please give all possible assistance to Rogers and Bitter. Will arrive on 24th January.

From SECRETARY OF STATE to GOVERNOR, BOMBAY, 16th January 1897.

Fifty-one plague deaths reported from Poona. Has plague appeared in epidemic form at other places besides Bombay and Karachi? Send, for the future, a weekly telegram of mortality, with any explanations that may be necessary.

From SECRETARY OF STATE to VICEROY, 18th January 1897.

Have considered Bombay plague and issued instructions to Bombay, who will repeat to you. Meanwhile, on following matters of general application we suggest, (1) Moslem pilgrimage from infected Indian ports should be stopped for present year, full information being published in provinces of and outside India, whence pilgrims go through Bombay; (2) should not additional powers be given to town, cantonments, and stations on railways from Bombay and Karachi, analogous to Section 434 of Bombay City Municipal Act, for examining arrival passengers and for stopping and segregating those suspected of plague.

From SECRETARY OF STATE to GOVERNOR, BOMBAY, 18th January 1897.

Continuance of plague epidemic in Bombay has made several European powers press for restrictive measures to prevent passage of plague to Europe. In interest of Bombay and its trade matter most important. After consulting experts, local and scientific, I consider (1) that all plague cases should be segregated apart in separate hospitals; due allowance should be made for sex and caste; if opposition arises it should be faced; (2) that house-to-house visitation and inspection should be put in force in manner least repugnant to feelings of people, a special staff being organised under medical men; (3) that we should send you temporary staff of doctors and nurses if you require them; (4) that steps should be taken to give full trial to Yersin's system of treatment. Please repeat to Government of India.

From GOVERNOR, BOMBAY, 19th January 1897.

Your telegram of 16th January. Civil Surgeon suspects epidemic plague at Poona. Almost without exception cases so far reported, except Poona, have gone from Bombay or Karachi. Large emigration from Bombay. Detection sometimes evaded.

From SECRETARY OF STATE to GOVERNOR, BOMBAY, 19th January 1897.

Please telegraph full account for publication in Europe of remedial and preventive measures already taken, and now to be taken, against plague in Bombay, Karachi, and Poona, and for prevention of its spread to other countries and to other parts of India.

From VICEROY, 20th January 1897.

Your telegram of 18th January to us and Government of Bombay. Latter will reply on four points alluded to in it. We are arranging that Bombay and Karachi shall cease to be ports for departure of pilgrim ships 1st February. Widest publicity will be given to this decision, as you suggest. Government of Bombay estimate that one-fourth of the pilgrims who leave Bombay are Russian subjects, and urge that Russia should be asked to exert influence to prevent their coming through Arabia to India. We trust that Her Majesty's Government will adopt suggestion. Section 434 Bombay City Municipal Act has been applied to Poona, Kirkee, Deesa, and Ahmedabad cantonments. We have consulted Bombay as to need for extending it to other cantonments and towns. Latter impossible without legislation. Arrangements have been made at numerous stations on all railway lines from Bombay and Karachi for medical inspection and removal of sufferers from plague. These we believe are working well, but we have asked Government of Bombay whether they are efficient or require to be added to. We are suggesting, on advice of Director-General of the Indian Medical Service, who recently visited Bombay, that infected houses should be at once evacuated, and accommodation provided for persons removed from them. This course favoured by medical opinion at Bombay.

From GOVERNOR, BOMBAY, 20th January 1897.

(Telegraphic.)

Your telegram of the 18th. We have prepared hospitals for Jains, Parsees, Khojas, and certain other classes, for domestic servants and for staff of the Port Commissioner and tramways, while for Brahmins and Muhammadans hospital accommodation is being provided. As far as possible all plague patients are sent to hospital for treatment; but where the relatives object, it is not deemed advisable to resort to force. To do so would create general panic, and thereupon all scavengers and others employed in conservancy work might leave the city at once, and thereby measures for combatting the plague would be arrested. Possibly also rioting might ensue. Endeavours are being made to secure more native doctors, as they are most useful in house visiting. Should more nurses and doctors be required application will be made for them. The services of Army Medical doctors who served in Hong Kong during the plague would be acceptable. Steps have been taken for securing a supply of Yersin's serum, and its arrival is expected.

From GOVERNOR, BOMBAY, 21st January 1897.

Your telegram of 19th January. Following remedial measures against plague in Bombay City:—Thorough cleansing and disinfecting buildings, where plague, fever, or suspected fever occur, flushing and washing with disinfecting fluid discharged from steam engines and pumps, disinfecting drains, privies, and connections, burning bedding, clothes and infectable articles, burning dead rats and refuse, removal of tiles and partitions to admit light and ventilation, withdrawal of water supply inside buildings where dampness caused, washing infected buildings with quicklime, and free use of disinfectants also in adjoining buildings, distribution of disinfectants where outbreak apprehended, increase of sanitary staff and medical officers, free treatment of poor by municipal medical officers in hospital and their houses, relief of destitute and suffering poor, removal to municipal hospital of affected persons from crowded buildings where possible, or those who cannot be isolated or are destitute or deserted.

Preventive measures:—Quicklime washing localities in which plague apprehended, free distribution of disinfectants to public, cremation of Hindu dead irrespective of castes, burning of infected huts and temporary structures, erection of shelters for those leaving infected houses, condemnation of buildings unfit for occupation, medical inspection of passengers leaving Bombay by through trains, restriction of use of warehouses or shops in or under infected buildings, and disinfection, provision of segregation hospitals for castes and classes controlled and managed by caste committees, constant inspection of buildings, &c. by Health Department, restriction of road watering in lanes and small streets to avoid dampness.

Remedial and preventive measures at Karachi are cleansing and disinfecting streets and lanes, vigilant house-to-house inspection, supervision of burial and burning grounds,

thorough disinfection of infected houses, destruction of clothing, burning infected huts, good isolation hospital arrangements, large camps ready, and healthy being induced to leave infected quarters and migrate to camps, large numbers already left by rail, power taken to enter infected houses and cleanse, ventilate, or destroy, migration of sick persons without permission forbidden, police and military cordon protects cantonments, lady doctor treating females, rigorous and effective inspection of railway passengers by European inspectors and doctors.

Poona arrangements:—Medical men inspect persons arriving by rail and road, discovered plague patients taken to special hospital, not permitted to enter city or cantonment; in city, plague houses thoroughly disinfected, clothing burnt, wells disinfected where possible, removal of inmates of plague houses carried out, special houses for them in open spaces being obtained, vigorous general sanitation; other measures under consideration in cantonment, special cleansing operations for drains (of) houses, powers taken to enter and cleanse buildings, isolate houses, and remove patients to hospital unless properly accommodated, overcrowding and dampness prevented. No cases yet in Poona cantonment, but 35, of which 23 believed to be indigenous, in city, besides persons removed direct from railway station to hospital. Government arranging for more rigorous inspection of persons leaving Bombay by road, rail, and sea, special medical staff under commissioned officer being engaged, house to house visitation at Bombay being organised, and more medical officers being procured, special sanitary officer appointed for purpose of inspecting operations and reporting to Government on their efficiency at all important towns in Bombay Presidency. Along railways there has been inspection of railway passengers from Bombay and removal to special hospitals of persons suffering from plague. Special inquiries being made regarding sufficiency of these arrangements.

From GOVERNOR, BOMBAY, 22nd January 1897.

Please send to Bombay, if possible, 10 Hindustani-speaking Junior Army Medical Department men.

From SECRETARY OF STATE to VICEROY, 22nd January 1897.

Is there quarantine at Burma ports against Bombay, and for what period? Reply urgently required.

From SECRETARY OF STATE to GOVERNOR, BOMBAY, 22nd January 1897.

Plague. Please give all possible assistance to three Austrian experts about to visit Bombay.

From SECRETARY OF STATE to GOVERNOR, BOMBAY, 23rd January 1897.

Plague. Experts lay stress on importance, in addition to general disinfection, of casting away and burning earth of floors to depth of four inches. European troops were invited to volunteer for this work at Hong Kong. There were 11 cases and two deaths among troops so employed.

From VICEROY, 25th January 1897.

Your telegram of 22nd January. Quarantine imposed on arrivals from Bombay at Rangoon, Moulmein, Akyab, and Bassein; 15 days if there has been a case of plague on board; if there has not been a case, and vessel has undergone eight days' quarantine at intermediate port, vessel must be admitted to free pratique, otherwise Health Officer may at discretion free from quarantine or impose quarantine of eight days.

From SECRETARY OF STATE to VICEROY, 27th January 1897.

Governor of Bombay has telegraphed for 10 young Army doctors. War Office advise call for volunteers among Army Medical Department officers coming home this season, and suggest 2/ a day, in addition to English pay and allowances, be offered during period of special duty. Can you arrange accordingly to meet Bombay requirement? Inform Bombay.

From SECRETARY OF STATE to GOVERNOR, BOMBAY, 27th January 1897.

Expert here suggests that if Yersin has reached Bombay you should employ him to treat plague patients.

From SECRETARY OF STATE to GOVERNOR, BOMBAY, 29th January 1897.

Your telegram of 20th January. Doctors Reade, Borrodaile, Beveridge, Army Medical Department, employed Hong Kong plague, will arrive about 19th February. Do you wish to have Dr. Lawson, Hong Kong Colonial Service? Highly recommended.

From the GOVERNOR, BOMBAY, 1st February 1897.

In continuation of previous telegram of 21st January. In Bombay, hospitals are more freely resorted to by plague patients; number employed on cleansing and disinfecting operations very much larger. Plague being suppressed in quarters where it has been worst, but extending to other quarters to some extent. Cleansing and disinfecting have now overtaken the infected spots, and are extending as precautions against plague in quarters considered most open to attack. For week ended 29th January, diminution of deaths from plague and total deaths from all causes in Bombay City. General feeling somewhat more hopeful. In Poona up to date 58 indigenous cases, 48 in one quarter; no indigenous cases in cantonment. In Karachi plague mortality for week ended 22nd January, 208; for week ended 29th, 176; decreasing in two worst affected quarters; increasing in two new quarters; confined to crowded quarters; cantonment free; 3,000 people in health camp. Estimated that quarter of total population left Karachi. Only plague deaths in Sind outside Karachi are reported to be of travellers; same is true of Bombay Presidency outside Bombay and Poona, except in Bandora and Coorla suburbs of Bombay, and Bhiwandi, an unhealthy town in Thana district. Inspection of travellers along all main line communications effective; many cases detected in travellers, who are taken to special hospitals. All ocean-going vessels leaving Bombay inspected before starting. Pilgrim ships are prohibited from leaving Bombay from and after 1st February.

From GOVERNOR, BOMBAY, 1st February 1897.

Your telegram of 29th January. Should like Lawson.

From SECRETARY OF STATE to GOVERNOR, BOMBAY, 1st February 1897.

Lord Lister called here to-day to say that he has very high opinion of efficacy of Yersin's treatment of plague, and considers employment of Yersin by your Government most desirable in view of similar steps taken by German and other Governments. He believes treatment acts with great certainty and very speedily.

From GOVERNOR, BOMBAY, 2nd February 1897.

Your telegram of yesterday. Yersin gone Annam to prepare serum.

From SECRETARY OF STATE to GOVERNOR, BOMBAY, 2nd February 1897.

It has been suggested, with some scientific support, that recent vaccination confers some immunity against other germ diseases besides small-pox. Suggestion might be laid before your scientific experts, for enquiry whether recently-vaccinated children enjoy any apparent immunity from plague, and whether matter merits further verification.

From VICEROY, 2nd February 1897.

Your telegram of 27th January. There are enough officers of Indian Medical Department to meet probable requirements, so far as they can at present be judged. Government of India think it undesirable to employ other agency until supply of such officers exhausted. Ten officers of Indian Medical Department being deputed to Bombay in place of officers of Army Medical Department asked for.

From SECRETARY OF STATE to GOVERNOR, BOMBAY, 3rd February 1897.

Dr. Lowson engaged. Will arrive about 19th at Bombay. He was chief medical officer at Hong Kong during plague.

From GOVERNOR, BOMBAY, 3rd February 1897.

My telegram of yesterday. Yersin expected to arrive at Bombay at the beginning of next month.

From SECRETARY OF STATE to VICEROY, 4th February 1897.

Your telegram of 12th January. Please telegraph details about plague deaths on pilgrim ships, especially period of incubation, spread of disease among pilgrims. Facts required for Venice Conference.

From VICEROY, 4th February 1897.

We propose that Local Government Board Inspector should be deputed to report on state of Bombay and Karachi, especially with a view to obtaining independent opinion as to extent to which nature of buildings has contributed to outbreak of plague. Can you arrange for early deputation of officer with thorough knowledge of building? This qualification most essential.

From SECRETARY OF STATE to VICEROY, 6th February 1897.

Your telegram of 4th February. Have consulted Local Government Board. Their two best men not available. They cannot recommend any inspector with sufficient experience and weight for proposed duty. They advise employment of Dr. Lowson on this work. He has been at Hong Kong advising about buildings with reference to plague. His experience is unique. Local Government Board say he would be more effective than any officer they could send. Do you agree? Lowson left for Bombay on plague duty yesterday.

From GOVERNOR, BOMBAY, 7th February 1897.

In continuation of previous telegram of 1st February. Deaths from all causes in Bombay City for the week ended 1st January, 1,853; 8th January, 1,665; 15th January, 1,728; 22nd January, 1,740; 29th January, 1,398; 5th February, 1,797. Reported plague deaths in corresponding periods, same order, 401, 333, 373, 503, 401, 617.

Increased plague deaths due in part to improved reporting. Plague is diminishing where formerly most prevalent, but extending north. The removal of healthy people from houses where cases appear to be concentrated carried out, and houses limewashed and opened to sunlight. Deserted houses being cleansed. Magistrate moved to condemn dwellings unfit for habitation; has condemned some; notice has been given of many others. Fuller powers being taken under Section 434 for evacuating infected houses, preventing use of deserted houses, and treating houses unfit for habitation. Poona, 43 indigenous cases during past week; no indigenous cases in cantonment. Thana district, plague continues endemic in Bandora, Coorla, and Bhiwandi. Karachi, plague deaths for the week ended 6th February, 314; health camp remains healthy. People becoming more amenable, except Mahommadans. Karachi Municipality intend to enforce evacuation of infected houses. Plague has not become endemic in any new places during past week throughout presidency. Inspection made of arrivals by rail, road, and sea. Preparations made for treatment of cases discovered and for isolation, and disinfecting houses. Authorities everywhere on alert to prevent outbreak or spread of plague. New Act will give extensive powers, which will be useful for inspection of travellers, segregation of sick, especially in Poona, Karachi and Thana district.

From SECRETARY OF STATE to VICEROY, 8th February 1897.

Turkish Consul, Karachi, reported that Arab sailing boats carried plague from Karachi to Basrah without hindrance by local authorities, and no information about plague was given to him, while newspapers were forbidden to publish facts. Matter may come up at Venice. Please telegraph your remarks.

From VICEROY, 12th February 1897.

Your telegram of 6th February. In view of apparent connection between structure of buildings at Bombay and progress of plague, we, and also Government of Bombay, consider it is very important to have opinion of expert Local Government Board Inspector. His opinion would carry greater weight than Lawson's. Would it not be possible for one of the best men under Local Government Board, though not available at present, to be shortly made available?

From SECRETARY OF STATE to GOVERNOR, BOMBAY, 12th February 1897.
Please telegraph latest information about trial of protective inoculation against plague.
Parliamentary question Monday.

From SECRETARY OF STATE to VICEROY, 12th February 1897.

(Telegraphic.)

I am doubtful whether pilgrimage should continue from Madras or other Indian ports. All pilgrimage has been stopped by the French Government from Moslem countries under their control, and this measure will be proposed at the Venice Conference for adoption by other Powers. It seems advisable to anticipate the almost certain verdict of the Conference on this matter. Please give the subject careful consideration, and telegraph your views.

From GOVERNOR, BOMBAY, 13th February 1897.

Your telegram of yesterday. Only reliable inoculation figures are from House of Correction, Bombay, where there were 11 attacks with six deaths in average daily population of 173½ among uninoculated; two attacks, no deaths, in average daily population of 148½ among inoculated during same period. This excludes attacks and deaths occurring within 24 hours of inoculation, as these probably had the disease on them before the operation. Up to date, 512 inoculations in all; from among them no attacks have been reported except the two in the jail. Speaking generally, inoculation appears to afford considerable protection, but sufficient time not elapsed yet to estimate degree, or how long it will continue.

From GOVERNOR, BOMBAY, 14th February 1897.

In continuation of previous telegram of 7th February. Deaths from all causes in Bombay City for week ended 12th February, 1,835; reported plague deaths, 813. Plague has been to some extent checked where first prevalent. Mandri now almost free from disease. In Bombay City general tendency to extend north continues. House-to-house visitation active, 218 dwellings condemned as uninhabitable, 31 recommended for alterations, tiles removed from 3,141, earth floors dug up in 581, and 2,277 lime-washed, 171 vacated, and 35 have been destroyed by fire during past week. Under Epidemic Diseases Act Government have empowered Municipal Commissioner, of his own authority, and without reference to the magistrate, (i) to prohibit use of dwellings unfit for habitation; (ii) to require abatement of overcrowding; (iii) to require vacation of buildings and premises for cleansing and disinfecting; (iv) to forcibly enter deserted buildings and cleanse and disinfect them; (v) to remove earth of floors; (vi) to cut off water connections; (vii) to demolish whole or part of buildings unfit for habitation or dangerous to health; (viii) to destroy infected bedding, clothing, &c. Arrangements have been made for emptying all outgoing trains at stations outside Bombay, and for strict medical inspection of all passengers. One indigenous case occurred Poona Cantonment, where conservancy and cleansing operations had been greatly improved and every precaution taken. In Poona City increase from 43 to 47 cases during week, but concentrated in certain quarters, and hitherto no tendency to spread observed; general cleansing disinfecting operations active; infected houses vacated, disinfected and opened to sun and air; segregation camp for inmates ready, but not willingly resorted to; they prefer leaving Poona. Difficulty in inducing declaration of cases, and removal to hospital. In Coorla cases diminished; in Bandora and Bhiwandi, and also in rest of Thana district, cases increased; in Surat district local cases reported from two villages. Possibilities of extension of plague to new localities very carefully watched, and all local officers on alert. Karachi, correct number plague deaths for week ended 12th February, 269; 5th February, 297; 29th January, 181; 22nd January, 206. Mortality chiefly concentrated in poorest Mohammadan quarter, and there some difficulty found in detecting cases. Mohammadan officials at work among them. Six hundred Mohammadans gone into health camp; infected huts burnt or pulled down. Hindu health camp doing well, evacuation of infected houses enforced, and re-occupation not allowed. No indigenous cases in Sind outside Karachi. Extensive powers given to all district officers under Epidemic Diseases Act.

From VICEROY, 15th February 1897.

Your telegram of 4th February. Plague deaths on pilgrim ship. We have received the following information from Government of Bombay and British Consul at Jeddah:— The only deaths that have occurred are the two on steamer "Pekin," mentioned in your telegram of 12th January. Government of Bombay state cases occurred 2nd January and 5th January respectively; second case seven days incubation. No spread on board. British Consul at Jeddah states both cases occurred at Bombay harbour.

From VICEROY, 16th February 1897.

Your telegram of 8th February. Report of Turkish Consul. Karachi. Government of Bombay repeat following telegram received from Commissioner in Sind, dated 10th February:—"Native craft do not apply (for) bills of health, but are inspected by Port Health Officer. Since 21st no cases of plague left Karachi as far as is known. No information solicited by Turkish Consul, even when visiting Commissioner. Full figures of mortality supplied to press daily from beginning. Press have published all details. Nothing to conceal." Also following, dated 11th February:—"Port Health Officer reports no cases of plague left Karachi for Basrah since 10th December; and since 17th December, when plague officially declared, existence of plague with total plague deaths of antecedent week has been certified in bills of health to vessels leaving Karachi."

From VICEROY, 17th February 1897.

(Telegraphic.)

Your telegram of 12th. After consulting the Local Governments we have carefully considered the question of forbidding all pilgrimage from India for this year. We have under the Epidemic Diseases Act prohibited the departure of pilgrims who may reside in Bombay or Sind; also of others who may have gone to the western ports for embarkation; and we are taking effectual steps to send to their homes, after 10 days quarantine, at the public cost, all intending pilgrims who have entered Bombay from elsewhere. Stringent measures have also been ordered to prevent pilgrims from other provinces entering the Western Presidency. Stoppage of pilgrimage from plague-stricken ports and tracts is in accordance with the religion of Islam, which deprecates pilgrimage from places where disease is epidemic. The majority of my Government are of opinion that it would be inexpedient to stop pilgrimage altogether, because our action, unless Turkey also issued similar orders, would assuredly be misconstrued, and possibly cause serious discontent, and also because a precedent would be created, which might enable other Powers to press for similar action hereafter when an outbreak of cholera occurred in any part of India. At present Calcutta and Madras are the only ports open for embarkation of pilgrims. The two Local Governments, and the mercantile community in both places, urge that these ports should also be closed for pilgrims. On the other hand, the majority of my Government are agreed that a complete stoppage of pilgrimage is not necessary, provided that stringent precautions are taken against plague-stricken ports and against departure of any pilgrims not absolutely free from taint of plague. To this end we propose that Local Governments outside Bombay should detain all intending pilgrims for seven days in camps of observation; steamer tickets for pilgrims should be obtainable only at these camps, and that no pilgrim should depart who has not been taken by rail from the camps direct to the steamer and straightway put on board, arrangements being made that pilgrim trains *en route* should not be stopped at any station near a large centre of population. The adoption of these measures will, we hope, satisfy other nations that the departure of pilgrims from India will, under the restrictions which we shall enforce, leave no ground for objection.

From SECRETARY OF STATE to VICEROY, 18th February 1897.

(Telegraphic.)

Your telegram of 17th February. After full consideration of the objections to the stoppage of pilgrimage as set forth by the majority of your Government, even if the proposed precautions were really effective, I attach importance to the public feeling in Calcutta and Madras, and to the very decided views of European Powers, who will not be content unless pilgrimage from India is altogether stopped for the time, and who will, if this is not done, assuredly impose strict quarantine against all India. On these grounds, and because early action seems advisable, Her Majesty's Government have come to the decision that all Moslem pilgrimage from India must, for the present, be suspended. I deplore the risk of dissatisfaction being caused by these orders, which, however, appear to be absolutely necessary. Please notify the decision in such way as you may deem best, and telegraph the date from which pilgrimage will be stopped. Endeavours will doubtless be made to inform intending pilgrims on frontier, and to stop them near their homes, so that large bodies of them may not be collected together.

From VICEROY, 19th February 1897.

(Telegraphic.)

Your telegram of 18th February. Was the Porte one of the Powers to whom you refer? If such was the case, our orders stopping pilgrimage might be more acceptable to Moslems. Our orders will be published when your answer on this point arrives. No pilgrims are at present leaving India.

From SECRETARY OF STATE to VICEROY, 19th February 1897.

(Telegraphic.)

Your message of 19th February. Equally with other Powers, the Porte insists on extreme precautions against plague, but the Sultan's Government has not urged that India should stop all pilgrimage. My previous telegrams have informed you regarding Turkey's quarantine precautions.

From VICEROY, 20th February 1897.

Your telegram of 18th February. Pilgrimage. Notification will issue to-day. Local Governments have been instructed to make every effort to stop pilgrims on frontier or near homes, so that they may not gather in large bodies.

From GOVERNOR, BOMBAY, 21st February 1897.

In continuation of previous telegram of 14th February. Deaths from all causes in Bombay City for the week ending 19th February, 1,772. Reported plague deaths, 843. True number of reported plague deaths previous week 847, not 813. Activity of the plague continues greatest in northern portions of city. For the week ending 18th February, 257 dwellings condemned, 166 recommended for alteration, tiles removed from 1,271, floors dug up in 792, and 2,063 lime-washed, 724 vacated, and 18 have been destroyed by fire. Two new hospitals are being prepared. Emptying of trains from Bombay and inspection of passengers throughout during past week at Palghar, B. B. & C. I. Railway, and Kalyan, G. I. P. Railway; 67 detained suspected at Kalyan, 11 at Palghar. Of former 10, of latter 2, died. Yersin was to leave Annam for Bombay 19th. Poona Cantonment, one indigenous case during past week. In Poona City the returns show no increase, and precautionary and arrestive measures are more active. In Coorla, Bandora, Bhiwandi and rest of Thana district, cases have increased in numbers, but not spread to fresh places. Under Epidemic Diseases Act, local officers are empowered to inspect arrivals by road or at railway stations and landing places and detain any suspected case for medical examination, to enter houses and detain for medical examination cases therein found. Medical officers are empowered to detain and segregate in places specially provided persons suffering from or suspected of plague. Local officers have power to cause evacuation of houses, to order abatement of over-crowding, to cleanse and disinfect buildings, to burn insanitary huts, to regulate burials, and destroy infected goods and clothes. It is also ordered that all cases must be reported. These rules are applicable generally, and are being worked in Thana district. House-to-house visitations are being organised, sick are being removed to hospitals, and other occupants of infected houses segregated. Of the two Surat villages, attack subsiding in one, increased in the other. A slight outbreak occurred in isolated quarter of Ahmedabad, which was promptly taken in hand and, it is believed, suppressed. Elsewhere, from a few scattered places, occasional cases, said to be indigenous, are reported. They appear to be derived from persons coming from infected towns, and so far there is no indication of further spread of disease. Karachi plague deaths for the week ending 19th February, 235. In Karachi slight tendency for the plague to spread, but diminishing in quarters where formerly worst, except poorest Mohammadan quarter. Activity of measures against plague at Karachi continues. The cleansing and disinfecting of houses besides those that are infected is progressing. Six indigenous cases were found to have occurred in Sind outside Karachi. Five in one place occurred three weeks ago, one at Sukkur more recently. No other indication of spread of disease in Sind. Travellers from Karachi very carefully watched, and cases of plague taken from Karachi to other places promptly and effectively dealt with.

From SECRETARY OF STATE to VICEROY, 24th February 1897.

Your telegram of 20th February. Has notification regarding pilgrimage been published? From what date does it take effect?

From VICEROY, 25th February 1897.

Your telegram of 24th February. Notification regarding suspension of pilgrimage was published on 20th February, and took effect at once. All intending pilgrims are being conveyed back to their homes.

From VICEROY, 26th February 1897.

Our telegram of 25th February. Notification regarding suspension of pilgrimage was to following effect:—The question of the suspension of pilgrimage having been under the consideration of the Government of India and Her Majesty's Government, Her Majesty's Government have now come to conclusion that, in consequence of the strong opinion of all European Governments, including Turkish Government, as regards danger of plague being communicated to Europe, it is impossible to meet their demands by measure short of suspension of pilgrimage for time being. Governor General of India in Council therefore orders, under Epidemic Diseases Act, pilgrimage be suspended altogether for current season.

From GOVERNOR, BOMBAY, 1st March 1897.

In continuation of previous telegram of 21st February. Deaths from all causes in Bombay city for the week ended 26th February, 1,525; reported plague deaths, 730. For the week ended 25th February, 102 dwellings condemned, 150 recommended for alterations, tiles removed from 1,216, floors dug up in 604, and 2,029 limewashed, 393 vacated, and 38 have been destroyed by fire, and several otherwise demolished. The distinct reduction of the total number of deaths a satisfactory sign, but some of the people who left Bombay are now returning from infected places outside, and have re-infected places which had become almost free. People entering Bombay as well as leaving will have to be examined and watched, and steps to this end are being taken. The two new hospitals are opened. Similar steps will have to be taken in regard to people leaving Poona, where plague much worse than was feared, and has rapidly increased. It has, so far, been found impossible to get an accurate statement of deaths from plague in Poona, but in January deaths from all causes were 497, against quinquennial average of 261. Up to 26th February deaths were 882, against quinquennial average of 225. The most drastic measures will be enforced, and aid of military called in. In the Thana and Surat districts plague shows tendency to spread. Plague still severe in Coorla, Bandora, and Bhiwandi. Elsewhere in the presidency proper the only local cases reported for the week ended 26th February were, in Ahmednagar district, three cases, three deaths; Satara district, 14 cases, seven deaths; Ratnagiri district, five cases, five deaths; Colaba district, 14 cases, five deaths; Kathiawar district, two cases, one death; Kolhapur district, one case, one death; Cutch district, nine cases, no deaths. Three quarantine camps established at railway stations in Sholapur district. Fairs and pilgrimages in Bombay Presidency being stopped where necessary. Karachi, plague deaths for the week ended 26th February, 205. Effectiveness of measures taken, increasing; opposition of people diminishing. No indication of general spread of plague in Sind.

From SECRETARY OF STATE to GOVERNOR, BOMBAY, 6th March 1897.

Plague. Please report by telegraph results of inoculation as far as known up to date and what arrangements made for its extension. Has Yersin begun work? Inform Haffkine have heard with much regret of his illness. Report as to his progress.

From GOVERNOR, BOMBAY, 7th March 1897.

In continuation of previous telegram of 1st March. Deaths from all causes in Bombay city for week ended 5th March, 1,370; reported plague deaths, 635. For week ended 4th March 397 dwellings condemned, 115 recommended for alterations, tiles removed from 931, floors dug up in 560, and 1,727 limewashed, 210 vacated, and 46 have been destroyed by fire. Notification issued under Epidemic Diseases Act places carrying out of measures to suppress and prevent spread of plague in Bombay city in the hands of executive committee of four, who are rapidly organising improved and extended staff for house-to-house visitation, and general health department; also organising large extension of hospitals with segregation camps attached for occupants of infected rooms and houses, and measures for removal thereto of sick and probably infected. Details sent by mail of 7th March. In Poona plague still very prevalent and no sign of diminution. For Poona municipal and cantonment areas executive committee arranged, who are organising complete scheme for house-to-house visitation, hospital and segregation camps, and removal thereto of sick and probably infected. They hope to begin work shortly. I go to Poona to-night to personally see to the arrangements. In worst affected places in Thana district, namely Bandora, Coorla, and Bhiwandi, active measures under European supervision have been in force for more than a week. In Bandora the number of cases has decreased; in Coorla and Bhiwandi increased. Plague has newly appeared in five more villages in Thana district, but total number of reported cases in the district very slightly exceeds those of previous weeks. In Surat district the number of cases and of places affected both increased; elsewhere in the Presidency proper the only local cases for week ended 5th March were:—In Satara district 13 cases 11 deaths, in Ratnagari district 3 cases 2 deaths, in Kolaba district 25 cases 20 deaths, in Kathiawar district 2 cases 1 death, in Baroda district 16 cases 13 deaths. Railway inspection in force at Ahmedabad, Bhusawal, Dhond, Hotji, Londa, as well as Kalyan and Palghar. Karachi plague deaths for week 200; local cases have occurred at Sukkur; elsewhere in Sind no further indications of spread. In Karachi more patients are being taken to hospitals.

From GOVERNOR, BOMBAY, 7th March 1897.

Your telegram of yesterday. Plague. Including to-day, 2,341 persons inoculated; of these 154, as previously reported, were in gaol; of the remaining 2,187 only two attacked by plague up to date, and both within five days of inoculation; both are alive. People are coming forward more freely to be inoculated, and the practice is extending. Yersiu began work yesterday. Effect on those only a day or two ill surprisingly good, cases of old standing not so much benefited. It is Hankin, the Agra bacteriologist, not Haffkine, who contracted plague. Hankin has recovered.

From SECRETARY OF STATE to GOVERNOR, BOMBAY, 9th March 1897.

Your telegram of 7th instant. Inoculation. You have not answered question in my telegram of 6th instant:—"What arrangements made for extension?" I think it most important that Government should give every facility, and should take all possible measures to induce threatened population to undergo inoculation. Please report specially as to this in weekly telegrams, and give every week number of inoculations and results as far as known. Parliamentary question on Thursday.

From GOVERNOR, BOMBAY, 10th March 1897.

Your telegram of yesterday. Inoculation. I am preparing organisation for extension of inoculating depôts, for instructing medical officers in inoculation, for popularising it, and increasing amount of prophylactic lymph that can be produced. Will send figures and information weekly.

From the GOVERNMENT OF INDIA to the SECRETARY OF STATE
FOR INDIA.

(Sanitary, No. 1.)

MY LORD,

Calcutta, January 27, 1897.

IN continuation of our telegram of the 20th instant, we have the honour to forward, for your Lordship's information, an account of the measures which have been taken against the outbreak of bubonic plague which has, unfortunately, occurred in this country.

2. The first official intimation of the outbreak which reached us was in a telegram from the Government of Bombay, dated the 29th September 1896. The disease was then reported to be of a mild type, and at first it showed no tendency to increase. A statement is appended to this Despatch showing the number of seizures and deaths in the city of Bombay which have been reported day by day from the beginning of October up to the present time. Throughout the months of October and November the disease made little or no progress, and the number of deaths reported a day averaged nine. Early in December there was a marked increase, and the number of deaths reported daily from the 2nd to the 23rd (inclusive) was about 32. From the 24th December onwards there was another marked increase, and the number of deaths reported from that date to the 14th January (inclusive) averaged about 51. The next week shows a further increase, the reported number of deaths averaging 74 a day. The total number of deaths reported during October was 276; during November, 268; during December, 1,160; and from the 1st to the 25th January, 1,444. The total number of deaths reported from the beginning of the outbreak thus amounts to 3,148. We have reason to fear that all deaths from the plague have not been reported as such, and that the true mortality from the disease is higher than is shown by the above figures. We append to this Despatch a statement comparing the total number of deaths in the city of Bombay during each week from the beginning of October last with the average number during the corresponding period of the preceding five years. Ever since the outbreak of the plague the rate of mortality has been exceedingly high, particularly from diseases connected with the respiratory organs. The number of deaths increased largely from the beginning of December, and again from the beginning of the fourth week of that month. From the beginning of October until the end of November the average daily mortality was 98, compared with a normal mortality of 64; during the first three weeks of December, 176, against a normal mortality of 63; and from the 23rd December to the 5th January, 251, against a normal mortality of 66. In considering these figures it has further to be remembered that the population of the city has been much diminished by the very large emigration that has taken place. The mortality from the disease has reached a very high figure in the town and island of Bombay, the alarm among the inhabitants of the city is great, and the effect on the business and trade of the town has been, and continues to be, very serious.

3. For a considerable time, except for a few imported cases in some towns in Gujarat, the outbreak was confined to Bombay itself, but on the 23rd of December we learnt from the Government of Bombay that the plague had broken out in Karachi. In reply to our telegrams calling for more particular information, we subsequently learnt that 39 seizures and 38 deaths had occurred from the 10th to the 26th December. Very few new cases were reported until the commencement of January, when the number of cases began to increase, and the daily mortality has now reached a high figure, amounting to a daily average of 29 for the week ending 20th January 1897. A statement is appended to this Despatch showing the daily seizures and deaths. The total number of deaths that have been reported in Karachi, from the beginning of the outbreak up to the 24th January, is 608. It will be observed that the disease has been very malignant in Karachi, and that almost all the cases reported have been fatal.

4. Bombay and Karachi are the only places in which the disease can be said with certainty to have as yet assumed an endemic form. But a number of cases have been discovered in other places in the Bombay Presidency and in the Baroda State, and isolated cases have occurred at a few other places beyond the limits of the Bombay Presidency. The large emigration of people from the infected quarters to the surrounding country could not fail to be accompanied by the occurrence of such cases. A statement is appended to this Despatch showing in tabular form the seizures that have been

reported from places outside Bombay and Karachi. The largest number have been discovered in Thana (which is situated 21 miles north-east of Bombay), and in Poona and Ahmedabad, which are in direct and constant communication with Bombay. In Ahmedabad the cases were mostly imported in the middle and at the end of December and in the beginning of January.

5. The remedial and preventive measures that have been adopted fall under three main heads :—

- (1.) Medical and sanitary measures at the places where the outbreak has occurred.
- (2.) Measures to prevent the spread of the disease by sea.
- (3.) Measures to prevent the spread of the disease by land.

6. As soon as the Surgeon General with the Government of Bombay reported to that Government that he had seen cases of a mild type of bubonic plague in the city, preventive measures were adopted and a Committee of medical experts were appointed to report on the disease and the situation. The Municipal Corporation have from the outset required the infected quarters to undergo a thorough and systematic cleaning and disinfection; and they have also pushed on vigorously other sanitary measures, such as the improvement of house connections and the construction of surface drains in quarters where the drainage was defective. A house-to-house visitation by medical officers has also been instituted. The Corporation have sanctioned liberal measures towards these ends, and the executive officers have displayed great energy in carrying them out. The Government of Bombay have given your Lordship a summary of the measures they have caused to be adopted in Bombay, Karachi and Poona in their telegram of the 22nd instant.

7. On the 2nd of January we deputed Surgeon Major-General Cleghorn, our Sanitary Commissioner, to visit Bombay, in order that he might render what assistance he could, and that he might inform himself fully on the situation of affairs. Dr. Cleghorn made a thorough investigation of the infected quarters, and called an informal meeting of the principal medical practitioners and the members of the special Medical Committee appointed by the Government of Bombay. These gentlemen have recorded a memorandum stating their opinion that the plague now prevailing in the city is only slightly, and under certain conditions, infectious or contagious; that its incidence is largely due to local causes, and that the only effective way, combined with the measures which are at present in operation, of arresting the progress of the disease, is to insist on the evacuation of houses in which cases of plague have occurred. A copy of this memorandum is forwarded for your Lordship's information. Dr. Cleghorn agrees entirely with the views expressed in the memorandum, and we forward a note* on the subject which he has drawn up and presented to us. In this note Dr. Cleghorn also lays stress on the opinion that it is only by the extension and perfection of sanitary measures that the disease can be eradicated from the city, and he describes the insanitary condition of the crowded tenements in which a large portion of the native inhabitants of the town dwell. The facts reported in this note afford additional evidence of the importance of removing the healthy from infected buildings, and in the first place of thoroughly cleansing and disinfecting these buildings, and then of permanently improving their condition. In the letter† from our Home Secretary, which forms an enclosure of this despatch, we have informed the Government of Bombay that we consider it necessary that the plan of removing all persons from infected houses, and thoroughly cleansing and disinfecting the buildings, should be carried out, and we have asked His Excellency in Council, if he agrees, to report the measures that are adopted to bring the plan into general effect. The principal difficulty in carrying out the scheme will be the provision of suitable temporary accommodation for the families who are removed. It must be conveniently arranged and sufficiently comfortable, but we do not doubt that the Government of Bombay will carry out this necessary measure without loss of time. We have also asked the Government of Bombay whether they consider it necessary to amend the building regulations of the city, and to take increased power to prevent the overcrowding and insanitary conditions of the tenements to which we have alluded above, and we have suggested that the Local Government should add to the strength of the Health Department of the city by deputing two of their Deputy Sanitary

* Note by Director General, Indian Medical Service, dated 16th January 1897.

† Letter No. 45, dated 19th January 1897, from the Government of India, Home Department, to the Government of Bombay.

commissioners to act under the orders of the Health Officer. At the instance of the Government of Bombay, further help is being given by the deputation of twenty military assistant surgeons and senior hospital assistants to assist in the house-to-house visitation and the sanitary operations.

8. M. Haffkine, the eminent bacteriologist, who has been for some time pursuing his investigations as to inoculation against cholera, was deputed to Bombay as soon as the first substantial rumour of the outbreak of plague was received. He was appointed a member of the special medical board, and has been in the city throughout the period of the plague. Mr. Hankin, the chemical examiner and bacteriologist for the North Western Provinces and Oudh, another expert in bacteriology, was also sent to Bombay, and has been working as a member of the special medical board. Mr. Hankin has been specially engaged on questions connected with the plague bacillus in nature, in the surrounding water, soil, articles, &c. M. Haffkine has been engaged in the study of the microbe itself, its effects on human and animal bodies, and the questions of immunity, protective inoculation and treatment, and he is now preparing serum for protective and therapeutic purposes. He is not yet in a position to state when the serum will be ready for issue, but he has already begun to make experiments with it. In the case of the serum prepared by M. Yersin, six months was, we are informed, required to perfect it. M. Haffkine thinks, however, that he has discovered a process by which it will be effective after three months, but on this point he is as yet undecided. It is hoped that M. Yersin will shortly be able to provide a supply of serum. M. Haffkine has now reported that he has discovered different media which give rich cultures of the plague bacillus, that these cultures can be deprived of their noxious properties while retaining the power of protecting the system against fatal infection, and that he is in hopes that inoculation by means of such cultures, the microbes in them having been destroyed, will increase the resistance of man against the disease. He has subjected himself to inoculation.

9. When the disease broke out in Karachi, we suggested, on the advice of our Sanitary Commissioner, that the houses in which cases of plague occurred should be burnt down. The disease being, we understood, localised, it appeared to us possible that the destruction of houses in the localities in which it occurred might be carried out without difficulty and without much expense. But the Government of Bombay have reported that the municipal authorities, while they had ordered the demolition of earthen huts in which cases of plague had occurred, hesitated on the ground of the very great expense involved, about ordering the destruction of masonry houses. We have now asked the Government of Bombay to adopt in Karachi, as in Bombay, the plan of removing the healthy from the infected houses. The municipality have already taken steps for the formation of camps away from the infected quarters. The Government of Bombay are, at our suggestion, sending their Sanitary Commissioner to take over charge of the sanitary management of the city, and they have already deputed one of their Deputy Sanitary Commissioners to the place. The local authorities at Karachi are less able to deal with the emergency than are the local authorities at Bombay. Dr. Cleghorn is at present at Karachi, and we are awaiting his report on the situation.

10. At Poona advantage was taken in October last of the powers conferred on the Governor General in Council by Section 25 of the Cantonments Act, 1889, to extend the provisions of Sections 434 (1) and 473 of the City of Bombay Municipal Act, 1888, to the cantonment with a view to protect it against the plague. These sections authorise any special measures and regulations that are deemed necessary to be made and framed to prevent the outbreak and spread of disease. Orders are now being issued extending the provisions of the same sections to the cantonments of Kirki, Ahmedabad, and Deesa, and the Government of Bombay have been asked whether a similar course should be followed in any other cantonments. Special legislation would be required to extend the operation of these sections to towns other than cantonments. We await a reply from the Government of Bombay as to whether they consider such legislation to be necessary. This matter is alluded to in your Lordship's telegram of the 18th instant, and in our reply of the 20th.

11. The best practicable means of combating the spread of the plague by land appear to us to be the detection at the railway stations and isolation of cases occurring among passengers by rail, and we have caused extensive measures to be adopted with this end. In ~~September~~ last orders issued for the medical inspection of passengers in co-operation with the railway authorities under Sections 47 and 71 of the Indian Railways Act, 1890,

at important stations along the main lines from Bombay. At the end of December similar orders were issued with respect to stations along the lines from Karachi. Medical officers are now posted at the principal railway stations along all main lines connected with the two places, and the cases discovered are treated in hospitals or in sheds constructed for the purpose. Special instructions have been issued from our Home Department to all the local governments and administrations, and from the Public Works Department to the railway authorities. The instructions issued by the railway authorities include measures for the disinfection of carriages. Up to the present time the cases detected have occurred mainly in the Bombay Presidency. Here the orders appear to have been well carried out, and numerous cases have been isolated and treated. We have asked the Government of Bombay to report for our information the details of their instructions, and whether they are working smoothly and well. The Government of the Punjab* has prepared a carefully-considered set of rules for the stations in that province, copies of which are appended to this Despatch. These rules provide adequately for the place, time, and manner of the inspection, the nature of the inspection, and the isolation and treatment of suspected and declared cases. The rules have been circulated for general guidance as well as a special set of rules,† which are also forwarded with this despatch, for the treatment of European and Eurasian passengers.

The Government of the North Western Provinces and Oudh have taken proper steps for the detection of plague cases at Saharanpur and Ghaziabad, where the railway from Karachi connects with the other railways in those Provinces,‡ and the Government of Bengal is causing the approaches to Calcutta§ to be watched. Copies of the letters from these Governments are forwarded with this Despatch. Other local governments and administrations have been asked to report the details of their arrangements

12. Your Lordship will observe that in the letter of the Government of Bengal of the 14th January, the Lieutenant Governor comments on the insanitary condition of the town of Calcutta. Towards the end of October some suspected cases of plague occurred in Howrah and Calcutta. It was subsequently demonstrated that these were not cases of plague, but as soon as the suspicion of an outbreak arose the Local Government appointed a special Medical Board, which made a thorough sanitary inspection of the town. We forward for your Lordship's information a copy of the resolution of the Lieutenant-Governor of Bengal appointing the medical board, and of the note by the board regarding the reported cases of plague which were shown not to be true cases. No other cases have been brought to notice. The board presented a most unfavourable report (of which we enclose a copy) regarding the sanitary condition of the town, and Sir Alexander Mackenzie has urged the Corporation to take immediate action to improve it. We have informed the Government of Bengal that we fully agree that it is most important, in view of the possibility of plague, to remove the present insanitary conditions, and we have asked for a report on the measures taken with this object.

13. To prevent the spread of the disease by seaborne traffic quarantine has been imposed at the principal Indian ports. On the 6th of October the Government of Bombay informed us that quarantine had been imposed at Alexandria, and asked for sanction to the imposition of quarantine at Aden. On the 7th, after receiving our sanction, the Government of Bombay issued rules for the Aden ports against arrival from Bombay. The rules are similar to those imposed in July 1894 on the occurrence of the Hong Kong Plague. Rules were then issued against arrivals from Bombay for Karachi with effect from the 13th, for Rangoon with effect from the 20th, for Calcutta with effect from the 21st, and for Madras with effect from the 28th. Copies of the rules are forwarded for your Lordship's information. With some slight modifications the rules follow the rules of 1894, and at the last three ports named they recognise pratique at Colombo. It was at the time discussed whether quarantine should also be imposed at the minor ports, but it was decided that the danger of the disease spreading by means of the coasting trade to the smaller ports was not sufficient to necessitate this course.

On the 29th December, after obtaining particulars of the outbreak at Karachi, and on hearing that the Sanitary Board at Alexandria had established plague regulations against arrivals from Karachi, we sanctioned the imposition of quarantine against Karachi at the

* Letter from the Punjab Government, No. 19, dated 8th January 1897.

† Letter from the Punjab Government, No. 42, dated 16th January 1897.

‡ Letter from the Government of the North Western Provinces and Oudh, No. 18 (Sanitary), dated the 20th January 1897.

§ Letter No. 190 (Medical), dated 14th January 1897, from the Secretary to the Government of Bengal.

Aden ports; and on the 30th we directed the Local Governments concerned to issue quarantine rules against Karachi, similar to the rules against Bombay, for Calcutta, Madras, and Rangoon. Inasmuch as both Bombay and Karachi are now infected, we consider that the continuance of quarantine at Karachi against Bombay is unnecessary, but shall insist on adequate medical inspection being made of all ships which arrive at Karachi from Bombay.

On the 6th instant the Government of Madras asked that quarantine might also be imposed at the port of Tuticorin, which is occasionally visited by steamers from Bombay and Karachi, and their proposal was duly sanctioned.

On the 18th instant, at the instance of the Chief Commissioner of Burma, we sanctioned the imposition of quarantine rules against Bombay and Karachi at the ports of Moulmein, Akyab, and Bassein. The advent of the grain export season brings vessels from the Bombay ports to these places.

14. Another matter which has engaged our attention in connection with the sea-borne trade is the import of rags and second-hand clothing from the infected ports. There is some traffic in these articles, especially from Bombay, and on one occasion the authorities at Calcutta considered it necessary to destroy a shipment of rags. The Government of Bengal has asked for protection against the danger, and as we consider that the trade forms a possible source of infection, we have prohibited the import by sea of rags and second-hand clothing from Bombay and Karachi to Calcutta, Madras, and Rangoon. The prohibition has been issued under the Sea Customs Act, 1878.

15. In conclusion, we desire to notice the closing of the ports of Bombay and Karachi to the pilgrim traffic. The telegraphic correspondence quoted below* has taken place between your Lordship and ourselves on this subject. We were reluctant to close the infected ports to pilgrim ships, as this course cannot fail to occasion inconvenience and concern to the Muhammadans of India. But we agree with your Lordship that the condition of affairs in Bombay and Karachi make it imperative to direct that these places shall not for the present be used as a rendezvous for pilgrims, and this view is shared by the Government of Bombay and our Sanitary Commissioner. We have instructed the Government of Bombay accordingly, and they have issued a notification declaring that the ports of Bombay and Karachi shall not, from the 1st February and until further orders, be ports from which pilgrim ships may depart or proceed as provided for in Section 7 (1) of the Pilgrim Ships Act, XIV of 1895. We are causing the widest publicity to be given to this decision through Local Governments and Administrations and our agents at Native States, as well as through the public press and by means of notices posted at all the principal railway stations. And though we could not contemplate an absolute prohibition of the pilgrimage, we are taking measures to dissuade intending pilgrims from proceeding to the Hedjaz this year. We have ascertained from the Government of Bombay that there are no other British ports on the Bombay coast from which pilgrim ships could depart, but Calcutta remains open to the pilgrim traffic, and the Government of Madras are, at our request, about to declare Madras to be a port for the departure and arrival of pilgrim ships. We are taking means to ensure that it shall be widely known from what ports pilgrim vessels may still proceed, and we have

* *Telegram from Secretary of State, dated January 5, 1897.*—"Egypt is discouraging pilgrims going Mecca in view of danger plague and asking whether India would similarly discourage pilgrims. Please telegraph if you propose action of the kind."

Telegram from Secretary of State, dated January 12, 1897.—"My telegram of 5th January last. Two plague deaths reported among pilgrims steamer "Pekin" from Bombay during voyage."

Telegram from Secretary of State, dated January 14, 1897.—"My two telegrams about plague and Moslem pilgrims. Russia now presses Her Majesty's Government to prohibit pilgrimage from India during this year. Turkey on religious grounds declines to prohibit. Austria apparently shares Russian fears. Under present circumstances Bombay is not good rendezvous. Please telegraph reply as quickly as possible in order to give Russia."

Telegram from Secretary of State, dated January 18, 1897.—"Have considered Bombay plague and have issued instructions to Bombay who will repeat if thought desirable. Meanwhile on following matters of general application we suggest first Moslem pilgrimage from infected Indian ports should be stopped for the present year. Full information being published in provinces of and outside India, whence pilgrims go through Bombay."

Telegram to Secretary of State, dated January 20, 1897.—"Your telegram of 18th to us and Bombay Government. Latter will reply on four points referred to it. We are arranging that Bombay and Karachi shall cease to be ports for departure of pilgrim ships from 1st February. Widest publicity will be given to this decision as you suggest. Bombay Government estimate that one quarter of pilgrims who leave Bombay are Russian subjects, and urge that Russia should be asked to exert her influence to prevent their coming through Arabia to India. We trust Her Majesty's Government will adopt suggestion."

requested the Government of Bombay to give information on the subject to the persons interested in the Red Sea traffic. We have also warned the Government of Bengal that it may be necessary for the authorities at Calcutta to be prepared for an influx of pilgrims. In a telegram dated the 22nd instant we informed your Lordship that it was possible that an endeavour might be made to embark pilgrims from Goa, and we asked your Lordship to move Her Majesty's Government to communicate this information to the Portuguese Government, with a view to obtaining their concurrence.

16. We have in the above paragraphs informed your Lordship of the main facts connected with the outbreak of the plague and of the action we have taken in connection with it, and we shall keep your Lordship informed of any further facts which we think should be brought to your notice.

(Signed) ELGIN,
&c., &c.

Enclosure No. 1.

STATEMENT of Plague Seizures and Deaths in the Town of BOMBAY.

Date.	Seizures.	Deaths.	Date.	Seizures.	Deaths.
	Number.	Number.		Number.	Number.
October 2nd - - - -	21	15	October 18th - - - -	13	10
" 3rd - - - -	32	15	" 19th - - - -	19	9
" 4th - - - -	12	16	" 20th - - - -	14	9
" 5th - - - -	16	12	" 21st - - - -	17	10
" 6th - - - -	16	18	" 22nd - - - -	13	11
" 7th - - - -	17	8	" 23rd - - - -	17	8
" 8th - - - -	20	7	" 24th - - - -	17	13
" 9th - - - -	8	6	" 25th - - - -	9	13
" 10th - - - -	13	6	" 26th - - - -	10	9
" 11th - - - -	12	7	" 27th - - - -	7	13
" 12th - - - -	5	7	" 28th - - - -	14	5
" 13th - - - -	9	4	" 29th - - - -	9	10
" 14th - - - -	6	5	" 30th - - - -	6	1
" 15th - - - -	10	5	" 31st - - - -	11	6
" 16th - - - -	4	8			
" 17th - - - -	12	10	Total - - - -	389	276

STATEMENT of Plague Seizures and Deaths in the Town of BOMBAY.

Date.	Seizures.	Deaths.	Date.	Seizures.	Deaths.
	Number.	Number.		Number.	Number.
November 1st - - - -	11	10	November 17th - - - -	12	10
" 2nd - - - -	10	8	" 18th - - - -	11	7
" 3rd - - - -	6	10	" 19th - - - -	20	11
" 4th - - - -	8	5	" 20th - - - -	12	9
" 5th - - - -	13	10	" 21st - - - -	16	13
" 6th - - - -	10	9	" 22nd - - - -	11	11
" 7th - - - -	5	3	" 23rd - - - -	10	13
" 8th - - - -	16	10	" 24th - - - -	6	8
" 9th - - - -	10	13	" 25th - - - -	13	11
" 10th - - - -	12	5	" 26th - - - -	14	10
" 11th - - - -	10	10	" 27th - - - -	16	14
" 12th - - - -	4	10	" 28th - - - -	11	6
" 13th - - - -	10	4	" 29th - - - -	15	11
" 14th - - - -	9	9	" 30th - - - -	12	7
" 15th - - - -	9	6			
" 16th - - - -	11	5	Total - - - -	333	268

STATEMENT of Plague Seizures and Deaths in the Town of BOMBAY.

Date.	Seizures.	Deaths.	Date.	Seizures.	Deaths.
	Number.	Number		Number.	Number.
December 1st	19	11	December 18th	67	30
" 2nd	28	20	" 19th	33	36
" 3rd	21	20	" 20th	44	23
" 4th	43	23	" 21st	49	26
" 5th	35	16	" 22nd	66	40
" 6th	43	28	" 23rd	85	37
" 7th	28	28	" 24th	75	65
" 8th	55	37	" 25th	46	49
" 9th	42	30	" 26th	65	53
" 10th	49	41	" 27th	73	56
" 11th	51	37	" 28th	95	70
" 12th	51	35	" 29th	82	60
" 13th	58	47	" 30th	87	55
" 14th	44	42	" 31st	72	46
" 15th	46	29			
" 16th	44	29			
" 17th	59	36			
			Total	1,655	1,160

STATEMENT of Plague Seizures and Deaths in the Town of BOMBAY.

Date.	Seizures.	Deaths.	Date.	Seizures.	Deaths.
1.	2.	3.	1.	2.	3.
1897 :			1897 :		
January 1st	62	61	January 19th	58	63
" 2nd	78	59	" 20th	69	75
" 3rd	50	32	" 21st	54	69
" 4th	80	43	" 22nd	88	70
" 5th	59	54	" 23rd	62	63
" 6th	91	54	" 24th	62	55
" 7th	44	49	" 25th	69	66
" 8th	87	42			
" 9th	82	40	Total	1,791	1,444
" 10th	83	40			
" 11th	78	57			
" 12th	102	54	Total during October	389	276
" 13th	68	46	" " November	333	268
" 14th	76	46	" " December	1,655	1,160
" 15th	89	90	" up to 25th January	1,791	1,444
" 16th	77	100			
" 17th	67	62	GRAND TOTAL	4,168	3,148
" 18th	56	54			

STATEMENT of Plague Seizures and Deaths in the Town of KARACHI.

Date.	Seizures.	Deaths.	Date.	Seizures.	Deaths.
1.	2.	3.	1.	2.	3.
1896 :			1897 :		
December { 10th to 26th }	39	38	January 11th	28	22
" 27th	3	1	" 12th	18	14
" 28th	5	4	" 13th	18	15
" 29th	-	7	" 14th	34	28
" 30th	-	5	" 15th	24	27
" 31st	-	4	" 16th	30	28
			" 17th	35	27
1897 :			" 18th	31	27
January 1st	10	8	" 19th	36	37
" 2nd	10	9	" 20th	33	31
" 3rd	16	18	" 21st	21	23
" 4th	15	16	" 22nd	1	2 Karachi District.
" 5th	16	16	" 23rd	32	33 Karachi City.
" 6th	20	17	" 24th	30	29
" 7th	20	19		22	23
" 8th	27	29			
" 9th	16	16			
" 10th	43	35	Total	633	608

STATEMENT of Cases of Plague outside BOMBAY and KARACHI.

DATE OF REPORT.	A edabad.		B ach. Kachin	C in Road.	Marwar	Poona	Ahmednagar.	Sholapur.	Dhulia	Kalyan.	Kolhapur.	Kathawar.	Thana.	Cutch.	Baroda Territory.	Nasik.	Khandesh.	Kaira.	Satara.	Kotri.	Hyderabad	Tatta.	Mahi Kantha.	Rajnagiri.	Shikarpur.	Jubbulpur.
	A	S at.																								
18th December 1896	1	2																								
24th " "			2	2	4																					
29th " "		1				47	4		1	1	1		1													
31st " "	17	1	2			9						5	55													
2nd January 1897	11													21												
4th " "		1				6									12											
6th " "			1													4										
7th " "	9																									
8th " "	2	4											47		1		2									1
11th " "							1	1				2	24	2	3	1	2	4	4							
12th " "	3	1	1				1								3		1		36							
13th " "						18								2						1	8	9			3	
14th " "												3	32										2			
15th " "		2				19													3							
18th " "	1					13						3			3									32		
20th " "	3	1				15							74	1	1		1		3							
21st " "						4						1	44		2											
22nd " "	2	1				13	1									1			5							
23rd " "		1				8													4							
25th " "			1			11		1				2	40		5											
TOTAL	65	15	7	2	4	224	7	3	1	1	1	18	363	26	30	6	6	4	55	1	8	9	2	32	3	1

C 4

Enclosure No. 2.

WEEKLY STATEMENT of Mortality in the Town of BOMBAY.

Week ending	Total Number of Deaths	Average Number of Deaths during the Corresponding Period of the Preceding Five Years.	Week ending	Total Number of Deaths.	Average Number of Deaths during the Corresponding Period of the Preceding Five Years.
1896 :			1896 :		
October 6th - - -	754	455	December 1st - - -	742	432
" 13th - - -	612	467	" 8th - - -	1,032	431
" 20th - - -	582	448	" 15th - - -	1,284	445
" 27th - - -	665	442	" 22nd - - -	1,387	443
			" 29th - - -	1,824	449
November 3rd - - -	642	414	1897 :		
" 10th - - -	597	424	January 5th - - -	1,693	474
" 17th - - -	666	434	" 12th - - -	1,613	458
" 24th - - -	726	420	" 19th - - -	1,735	479

Enclosure No. 3.

MEMORANDUM on the Plague by Medical Practitioners of BOMBAY.

We, the undersigned medical officers and members of the Special Research Committee, are of opinion that the bubonic plague now prevailing in the City is, under certain conditions, only slightly contagious or infectious, and the facts observed in connection with individual cases and those associated with the general progress of the disease, warrant us in concluding that its incidence is greatly due to local conditions.

We are emphatically of opinion that the only practical method of dealing with the outbreak and of arresting the progress of the disease is by the removal of the inmates from those houses in which a case of the disease occurs.

We quite appreciate the practical difficulties attending the adoption of this proposal, but in such an emergency as the present, these difficulties can and must be overcome. The Municipal Corporation will no doubt provide free of rent, for the accommodation of the different classes, and mill companies and other employers of labour are prepared to accommodate their employees. The experience gained in the melas at Allahabad will be available, as to the construction and arrangement of the huts.

There will thus be no difficulty experienced in providing sufficient accommodation for the evicted, and it is only the concurrence and suitable assistance of the active community to render the scheme a success. If houses in healthy localities are available for occupation, there is no reason why they should not be utilized.

The steps leading up to removal would be the report to the Health Officer of a case by a duly qualified medical officer. The Health Officer would then notify the occurrence to the municipal authorities, and would at the same time submit his recommendations for the removal of the inmates in the particular home, and if he considered it necessary of those also in the immediate neighbourhood. The municipal authorities would then take the necessary action and indicate the huts available. Carts, if necessary, should be provided free of cost, for the removal of the goods and chattels of the inmates. The person attacked would either be removed to hospital or remain in the house with his or her relatives until recovery or death took place. The house would then be completely vacated and taken possession of by the Health Officer for purposes of cleaning and disinfection, and he should be invested with full powers, in consultation with the Executive Engineer, for removing all partitions, erections or portions of house walls which impede or obstruct ventilation. After an interval to be determined by the Health Officer, the house would be re-occupied.

There can be no question as to the necessity for the adoption of the measure we now advocate, and we trust that, in the interests not only of Bombay, but also in those of

the whole of India, it will be at once accepted and acted upon, more especially as the untiring energy displayed in the thorough and systematic cleaning and disinfection of the affected parts of the city has as yet failed to arrest the progress of the disease.

K. N. BAHADURJI.
JAMES ARNOTT.
TEMULJI BHICAJI NARIMAN.
ISMAIL JAN MAHOMED.
BHALCHANDRA KRISHNA.
E. H. HANKIN.
L. F. CHILDE.
ACCACIO G. VIEGAS.

N. F. SURVEYOR.
THOMAS BLANEY.
HENRY COOK, M.D., *Surgeon Major General.*
JAMES CLEGHORN, *Director General, Indian Medical Service.*
T. S. WEIR.
SYDNEY SMITH.

I am of opinion that, as there are facts showing that the plague is spread by people coming from infected localities, the measures compelling the inhabitants to leave those localities ought to be accompanied by others calculated to control their further movements.

W. M. HAFFKINE.

Enclosure No. 4.

NOTE by Director General, Indian Medical Service, dated January 16, 1897.

I BEG to submit, copy of a note signed by those medical practitioners of Bombay, who have had the greatest opportunities of becoming practically acquainted with the present outbreak of bubonic fever, and along with it, to prevent any future misrepresentation, a memorandum of the remarks I made to those gentlemen before I submitted the note for their approval and signature.

The proposal now submitted is quite a practicable one, more especially if the leaders of the different communities would interest themselves in the matter, and explain to those communities the necessity for the adoption of the recommendations. It is feared that if compulsory evacuation of infected houses is carried out, more especially in the case of Muhammadans, that there will be an outbreak; this is the prevailing feeling among the natives, and it was suggested to me, that if His Excellency the Governor could admit several of the chief moollahs to a private interview, the matter could be easily arranged.

The Corporation have practically conferred full powers on Mr. Snow, the Municipal Commissioner, and his executives, represented by Dr. Watson, Head of the Health Department, and by Mr. James, the Executive Engineer, have carried out their different duties vigorously and systematically, and at the same time have exhibited great tact in doing so.

The feeling of the native population has been designed against the sanitary measures enforced until a short time ago, when it has been found, and the people are now willing to allow that benefit has resulted from executive measures.

It would greatly strengthen the hands of the Health Department if His Excellency the Viceroy stated that he was pleased with the measures taken by the Corporation, and specially thanked Mr. Snow, Brigade-Surgeon, and Lieutenant-Colonel Weir, and Mr. James, for the exertions they have hitherto made. The opinion of the city is now under the inspection of the Health Department. All latrines, and unremittable gullies, are being flushed; houses, as far as possible, are being cleaned, disinfected and white-washed, and in those parts of the city not drained, surface drains and efficient construction are being made in connection with the house pipes. The completion and extension of this work should be insisted upon as being of the greatest importance, and it should be clearly understood that there is no salvation outside the adoption of these sanitary measures. The efforts of the Health Department are to a certain extent frustrated by the difficulty they find in cleansing and disinfecting inhabited houses, and this can only be effectually carried out in the case of rooms in which cases of plague have occurred, or in those which have been vacated by the tenants. The proposal of evacuating all houses in which a case of the disease has appeared, is the one which the Health Department to apply its measures to the house as a whole. The arrangement of this will be understood from a description of the houses. The character of the tenements may run up to seven stories, and the unit of construction is a long corridor, with rooms opening on either side. In the corridor, either at one end or in the middle, is objectiouated a water-tap with bathing platform and alongside it a latrine with two openings. The whole tenement is built up of a congeries of these corridors and contains 500 to 1,000 individuals. The

only space between each tenement is a gully sufficiently wide to admit a sweeper. In most of the corridors and rooms, either from the absence of openings, or from the obstruction of the existing ones, there is absolutely no light admitted, and consequently no ventilation. The Health Officer informed me that he estimated that 70 per cent. of the population live in such houses. The corridors, before being taken in hand by the Health Department, were the repositories of filth of all kinds, and it is surprising that the mortality under such conditions has been so small. It shows, I think, that the disease, in the common acceptation of the terms, is only slightly contagious or infectious, and that its incidence is chiefly due to local conditions.

The importance of removal from the infected locality thus becomes apparent. Dr. Weir, the Health Officer, is now gradually trying to induce the inhabitants to vacate infected houses, and if generally carried out, he will require more assistance than at present. Under any circumstances, I do not consider that he has a sufficient number of officers for the supervision of operations, and I would recommend that the Government of Bombay should place at his disposal, free of cost to the Corporation, two of the Deputy Sanitary Commissioners serving under the Government of Bombay.

At the same time, it should be suggested that the Sanitary Commissioner and the Deputy Sanitary Commissioner should proceed to Kaira and take over the arrangements connected with that city. The Health Officer is a native, and is, I am afraid, wanting in the necessary force of character and initiative.

The Government of Bombay should, I think, legislate in the direction of conferring powers on the Municipal Committee to regulate the building and construction of houses, and to place a limit on the number of people inhabiting each room and house. Many of the former are now simply unfit for human habitation, and the sanitary arrangements connected with them are of the most crude and primitive description.

January 16, 1897.

J. CLEGHORN.

Enclosure No. 5.

No. 45, dated Calcutta, January 19, 1897.

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, Home Department, to the SECRETARY TO THE GOVERNMENT OF BOMBAY, General Department.

Co.

I AM directed to forward the information of His Excellency the Governor in Council, a copy of a memorandum signed by some of the principal European and native medical practitioners of the city of Bombay, and members of the Special Research Committee regarding the bubonic plague in that city and measures for arresting its progress. This memorandum has been presented to the Government of India by Surgeon Major-General Cleghorn, in direct communication with the Government of India, on return from his visit to Bombay which formed the subject of the telegraphic correspondence with the Government at Khanpombay cited below.* Dr. Cleghorn shares in full the views recorded in the memorandum.

2. His Excellency in Council with a view to the view is expressed that the bubonic plague now prevailing in the city is under certain conditions only slightly contagious or infectious; that its incidence is largely due to local causes, and that the only effective way of dealing with the disease is to insist on the evacuation of houses in which cases of plague have occurred. The gentlemen who have signed the memorandum consider that there will be no difficulty in providing sufficient accommodation for people removed from infected houses, and that it is of great importance to secure the concurrence and sympathy of the leaders of the different sections of the community to render the plan proposed by them a success.

3. The Government of India regard the prevalent medical opinion that the plague is not at present either generally contagious as of very great importance. The history of previous outbreaks of the disease shows, however, that it has a strong tendency to epidemics. There has already been a very grave loss of life in the population.

* Home Department, telegram No. 1, dated January 4, 1897.

1897. Bombay Government telegram, dated

of the city, and the consequences to the trade of Bombay already very serious, promise to be disastrous unless the plague can be speedily reduced. Should it assume a more severe epidemic form, the whole of India may be affected. The Government of India are therefore of opinion that there should be no hesitation in taking the strongest measures to prevent its spreading, even though they may be once distasteful to the people affected. The particular measures advocated in the memorandum, namely, the removal of all persons from infected houses, and the thorough disinfection of those houses, appear to the Government of India to be well calculated to check the progress of the disease, and the vigorous action that has been taken to clean and disinfect the infected parts of the city having failed to arrest its progress, it appears to the Government of India to be necessary that they should be adopted. Dr. Cleghorn has also reported to the Government of India that the nature of the buildings in which a large proportion of the inhabitants of Bombay dwell, make it specially important to remove all persons from infected houses, and to allow the officers of the Health Department to thoroughly cleanse and disinfect such houses. He points out that in the large and ill-lighted and ill-ventilated houses or chawls occupied by so many as 500 to 1,000 individuals, means of disinfection and cleansing can only be effectually carried out by the complete evacuation of the tenement in which a case of plague has occurred.

4. I am to say that the Governor General in Council commends the suggestions contained in the memorandum to the earnest attention of the Government of Bombay, and trusts that the Governor in Council may find it possible to act upon them. Should the Government of Bombay concur in thinking that the removal of all persons from infected houses is the best practical method for checking the progress of the plague, the Governor General in Council will be glad to learn in due course the measures which are adopted to bring the plan into general effect.

It will no doubt commend itself to the Government of Bombay that convenient temporary accommodation suitable to the families to be removed should be got ready, before measures for evacuation are taken. It seems to the Government of India desirable that, unless the Governor in Council sees objection to this course, the memorandum should be made public. The Government of India would be also glad to know whether the Government of Bombay consider it necessary to strengthen the building regulations of the city, and to take increased power to prevent overcrowding in the chawls.

5. Dr. Cleghorn has suggested that two of the Deputy Sanitary Commissioners serving under the Government of Bombay should be placed at the disposal of the Health Officer free of cost to the Corporation. I am to request that this suggestion may receive consideration of His Excellency in Council.

6. In conclusion, I am to say that the Governor General in Council, has leapt the greatest satisfaction, of the untiring energy which has been displayed therefore, authorities in the thorough and systematic cleansing and disinfection of Railway at parts of the city. The liberal measures sanctioned by the Corporation ends, and the energy displayed by the executive officers of the orders of this kind Mr. Snow, Municipal Commissioner, Brigade-Surgeon Lieutenant on with the Deputy executive Health Officer, and Mr. James, Executive Engineer, inspect all trains from are appreciated by the Governor General in Council, as the addressed the Commis- Government of Bombay. It is in the opinion of the General at Lahore, and Colonel continuing and extending these efforts unremittingly, Commissioner on this subject, by even stronger measures such as that which is suggested so wrote to the Civil Surgeon spread of the disease can be successfully and effectively a

ould be conducted :—

Enclosure No. 6_{develop}. Dr. Haffkine's instructions

main hospital assistant. It follows that not
No. 19, dated Lahore observation for a long time, but that only a
sease with certainty even when developed to

From H. J. MAYNARD, Esq., Junior Secy

SECRETARY TO THE GOVERNMENT of India for a special officer for the

WITH reference to your telegram No. 19 for a commissioned medical officer or for an
am directed to forward, for the information to decide. He thinks the popular objection to a
proceedings of a Conference which meet objection to a native, as under the former the
taken for the inspection of trains and

assistants at the other places of inspection.

be suffering from bubonic plague. Copies of the letters* noted below are attached to this letter, and show the orders issued by His Honour the Lieutenant-Governor on the recommendations of the Conference. I am to add that the Bombay Government is being addressed with reference to the co-operation of the police in the proposed measures at Rewari and Bhatinda.

2. I am to explain that the British Government has full sovereign rights over the railway station of Khanpur (which is situated within the Bahawalpur State) and over the portion of the Bhatinda station (situated in Patiala), which belongs to the Rewari-Ferozepore State Railway.† The laws in force in British territory are in force within railway limits in both cases. The other stations at which it is proposed to station inspecting officers are in British territory.

3. The legal position appears to His Honour the Lieutenant-Governor as at present advised to be this. Bubonic fever has been added to the list of (Resolution No. 835 R. T., dated 23rd October 1896) infectious or contagious disorders for the purposes of the Indian Railways Act in No. 7, Chapter II, Part II of the General Rules, promulgated in Government of India Circular No. 6 (Railway), dated 12th March 1895. No. 8 of those rules, therefore, applies to cases of bubonic fever; and this rule has legal validity under Clause (d) of Section 47 of Act IX of 1890.

4. Rule 8 A, which deals with the removal of patients with the assistance of the police and their consignment to the charge of the latter, is printed in small type in the Volume of Rules, and as appears from Circular No. 6 (Railway), dated 12th March 1895, is a subsidiary rule regarded as made under Clause (b) of Section 101 of Act IX of 1890. That clause deals with the liability of a railway servant, who, when on duty, disobeys any rule or order which is not inconsistent with any of the general rules, and thereby endangers the safety of any person. It appears, therefore, to His Honour the Lieutenant-Governor that Rule 8 A, even if it gave all the powers which are required for the purposes of the measures now proposed (which it does not do), is in no sense one binding upon the general public.

5. Under these circumstances it is evident that the existing law does not furnish the required authority for dealing with suspected cases of bubonic plague, and the Lieutenant-Governor leaves it to the Government of India to take such action as it may consider fit to legalise the measures which have been proposed, and are, from the extreme necessity of the case, being carried out in anticipation of their being legalized.

PROCEEDINGS of a Conference held at Lieutenant-Colonel Hutchinson's House

1. At the on 3rd January.

would be a the disease should

More sheds would

shed might become Lieutenant-Colonel Hutchinson, Commissioner, Lahore.

its purpose. Colonel Brackenbury, Manager, North Western Railway.

The quarantine shed Major General of Civil Hospitals, Punjab.

shed. Mr. J. G. G. Junior Secretary.

The material should be Commissioner.

exclude draughts. The quarantine

shed should have space for four

of cubic space per head.

2. Furniture and Establishment.

the medical officer in charge should

soon as he had any patients.

From the first, bedding, beds, vessels, &c., &c.

in each shed; additions being made as required.

3. Dieting and treatment of patients should be arranged to arrive by daylight as night inspections are causing inconvenience.

4. Provision of Funds.—An advance should

Dr. Raye. Rupees 10 to each was suggested and

found in the first place from provincial funds.

should ultimately meet all charges in British

Government or Native States should find the means

later. The sheds should be put up by district

Native States concerned elsewhere.

Present:

To Inspector General of Police, No. 3, of
No. 4, of 5th January 1897
Circular No. 1018-I., dated 25th February 1897.

- (4.) Which are not too near large towns. Passengers leaving the railway at large towns are apt to be met by friends; and there are various reasons why the proposed arrangements would be more difficult of execution here than elsewhere. The Conference considered that places situated in Native States have this advantage, from the point of view of the proposed arrangements that even if (as on the North Western Railway), the British Government exercises full jurisdiction on the line of railway, the immediate neighbourhood is subject to Native State law, which is likely to be more elastic than that in force in British territory and to permit of more drastic measures, should such be necessary.

The stations at which the Conference proposes to hold inspections along the North Western Railway from Karachi are.—

Rukh or Sukkur as to which Colonel Brackenbury will communicate with the Commissioner in Sind.

Khanpur, situated in Bahawalpur territory about 70 miles from the Sind frontier. The trains from Karachi arrive here at 7.11 a.m. and 6.20 p.m. They wait for half-an-hour in order that tickets may be inspected. There is a rest house here, the property of the Nawab, a railway refreshment room and a local railway hospital. There is also a tahsil or some corresponding local administrative centre of the Bahawalpur State. The town is not large.

This would be the principal place of inspection, and a European medical officer, if appointed for the duty, would be stationed here.

Sher Shah.—The trains arrive here from Karachi at 15.53 (3.33 p.m.), and 0.39 a.m. The one train in the day which leaves for Bhakkar leaves at 18.30 (6.30 p.m.). The Conference would station a hospital assistant here to inspect the afternoon train only, leaving the night train to be dealt with on arrival at Raiwind.

Raiwind.—Trains arrive here at 3.17 a.m. and 8.19 a.m. The Conference would have a hospital assistant here to inspect the latter train, which will not be inspected at Sher Shah because it arrives by night. Trains stop half-an-hour here.

As regards stations not on the North Western Railway, the Conference expressed the following opinions. From a letter from the East Indian Railway administration to Dr. Raye, which is appended to these minutes, it appears that arrangements have been made on this system for the inspection of trains coming from Bombay. But this will not protect the Punjab so far as the Rajputana line is concerned, and it is just as important to take precautions against Bombay as against Karachi. The Conference, therefore, recommend arrangements similar to those proposed for the North Western Railway at Rewari and at Bhatinda.

Dr. Raye observed that some two months ago, foreseeing that some orders of this kind would be issued, he asked the Civil Surgeon of Delhi, in consultation with the Deputy Commissioner, to keep a hospital assistant on the platform to inspect all trains from Bombay, and he believes this is now being done. He has also addressed the Commissioner of Lahore, asking him to arrange for an isolation hospital at Lahore, and Colonel Hutchinson says orders have been sent to the Deputy Commissioner on this subject, though he does not know what has been done. Dr. Raye also wrote to the Civil Surgeon at Multan to arrange for an isolation hospital there.

II.—As regards the agency by which inspections should be conducted:—

Dr. Raye says, the plague takes two to ten days to develop. Dr. Haffkine's instructions as to diagnosis would not much help an ordinary hospital assistant. It follows that not only may an infected person entirely escape observation for a long time, but that only a competent medical man can diagnose the disease with certainty even when developed to some degree.

He is prepared therefore to ask Government of India for a special officer for the Khanpur inspecting station; but whether for a commissioned medical officer or for an apothecary, he will leave it to His Honour to decide. He thinks the popular objection to a European likely to be less strong than the objection to a native, as under the former the chances of extortion are diminished.

But he would employ only hospital assistants at the other places of inspection.

Colonel Hutchinson is strongly in favour of European agency, but does not press this as regards other places than Khanpur.

III. System of Inspection :

People should not be removed from the train for purposes of inspection, nor should carriage doors be locked before arrival at the station where the inspection is to take place.

The doctor should go round with the ticket collector and look at all passengers who have booked either from Karachi or Sukkur. (The suggestion as to bookings from Sukkur was made by Colonel Brackenbury, who thought re-bookings possible). He would also, of course, look at any other passengers who were evidently ill.

IV. Removal from train, and isolation in temporary hospital :

The Conference consider the legal question here of great importance, particularly as the whole North Western Railway is under British jurisdiction, and British law applies. Dr. Raye feels unable to issue to his men the necessary detailed instructions unless assured that such instructions, whether in all respects legal or not, will be fully endorsed by the executive authorities.

The legal position appeared to the Conference to be this.

Bubonic plague is an infectious disorder within the meaning of the Railways Act. Colonel Brackenbury believed it had been notified to be such by a Gazette notification which was not before the Conference. At all events, this could probably be arranged for without delay. Accordingly Rules 7, 8, 9 on pages 153 *et seq.* of the volume below apply.

The Conference is unable to determine how far those rules are legally binding upon the general public, and how far they are mere executive instructions for the guidance of Railway employes and police. But it proposes that those rules should be acted upon so far as they are applicable, and that, if necessary—

1. Persons suspected to be suffering from plague should be removed from the train with the assistance of the police, if necessary, and placed and kept in the observation sheds, or the plague sheds, hereafter referred to, as the case may be.
2. Persons alighting from the train at inspection stations, and similarly suspected of disease, should be similarly dealt with. The East Indian Railway rules appended indicate the procedure to be followed, with the exception of the use of observation sheds as well as of plague sheds, to which reference is again made below.

V. Details of arrangements as to sheds, establishment, contingencies, &c. :

1. At least two sheds should be erected at once at each place of inspection. One shed would be an observation or quarantine shed, to which passengers merely suspected of the disease should be removed. The other would be a shed for undoubted plague cases. More sheds would, of course, be required in time; *e.g.*, the observation or quarantine shed might become infected by the presence of plague patients and would cease to serve its purpose.

The quarantine shed would be a very reasonably sufficient distance from the plague shed.

The material should be grass, and there should be a low mud wall round each shed to exclude draughts. The quarantine shed should have space for two persons, the plague shed should have space for four. Measurements should be according to the jail standard of cubic space per head.

2. *Furniture and Establishment.*—There should be no establishment to begin with; but the medical officer in charge should have instructions to engage a bhisti and sweeper as soon as he had any patients.

From the first, bedding, beds, vessels, &c., should be provided for at least two patients in each shed; additions being made as required.

3. *Dieting and treatment* of patients should be entirely gratuitous.

4. *Provision of Funds.*—An advance should be made to each medical officer by Dr. Raye. Rupees 10 to each was suggested as sufficient to begin with, the money being found in the first place from provincial funds. The Commissioner considers district funds should ultimately meet all charges in British territory. Whether the Provincial Government or Native States should find the money in Native States can be considered later. The sheds should be put up by district boards in British territory and by the Native States concerned elsewhere.

Dr. Raye will draft simple instructions to his officers for the diagnosis and treatment of plague. The officer concerned will at once telegraph to him the removal from the train and confinement in hospital of any suspected patient. Civil Surgeons will have instructions to give assistance as may be required.

As regards the land required for sites, Colonel Hutchinson thought there would be no difficulty. Native States would provide land as required for temporary use; and elsewhere Deputy Commissioners would make the necessary arrangements, renting land unless it were obtainable free.

It will, of course, be understood that the Conference propose to have a special medical man on special duty at each place of inspection. The travelling medical employes of the railway would be useless for the purpose required.

Among minor points, which the Conference briefly considered, were arrangements for the security of the Cantonment of Dera Ismail Khan. It was thought that the cantonment authorities would be able to arrange for their own protection by stationing pickets at the Indus Bridge-of-boats, as they did on some previous occasion when cholera threatened.

No. 460 M, dated Allahabad, 24th November 1896.

From Dr. R. G. GRIFFITH, Chief Medical Officer, East Indian Railway, Medical Department, to Dr. O. C. Raye, Inspector General of Civil Hospitals, Punjab, Lahore.

Your letter of 21st instant.

The following precautions are taken on the East Indian Railway:—

- (1) On each district, one native doctor inspects all trains from Bombay. At Allahabad and Asansol special men have been appointed for this duty.
- (2) In the event of any suspicious case being found, the patient is removed at once to the Contagious Diseases Hospital, and the carriage in which the person was travelling is cut off and disinfected.
- (3) The patient's fellow-passengers are removed to an empty carriage into which no one else is admitted, and this carriage also is cut off and disinfected at the first station where there is a medical officer or native doctor after the last passenger has left it.
- (4) The address of all passengers travelling in the carriage is taken and telegraphed to the station master at their destination for information of the local authorities.
- (5) While in hospital every precaution is taken to isolate the patient completely, and for this the assistance of the police is obtained, if necessary.
- (6) On leaving hospital the patient's clothes are burned—also all bedding, &c., and the hospital disinfected.
- (7) The medical staff take the same precautions regarding the disinfection of themselves as they do when attending a case of small-pox.
- (8) All cases are immediately reported to the chief medical officer.
- (9) The medical staff pay increased attention to the sanitation of their stations.

No. 2, dated Lahore, 5th January 1897.

From the JUNIOR SECRETARY to the Government of the Punjab, to the COMMISSIONER and SUPERINTENDENT, Lahore Division.

The proceedings of a Conference held between you, Lieutenant Colonel Brackenbury, manager, North Western Railway, and Surgeon Colonel Raye, Inspector General of Civil Hospitals, to consider the measures to be taken for the inspection of trains arriving from Karachi and the removal and treatment of plague patients, have been laid before His Honour the Lieutenant Governor, and I am to communicate the following orders on the proposals of the Conference.

2. His Honour agrees with the Conference that inspection should be carried out at Khanpur in the Bahawalpur State, at Sher Shah and at Raiwind. Both the morning and afternoon trains should be inspected at the first of these places; only the afternoon train (arriving at 15-53) should be inspected at Sher Shah, the other train being inspected at Raiwind on its arrival there at 8-19. It has doubtless not escaped your notice that under this arrangement (which is according to the proposals of the Conference), passengers for Multan, by the train which passes Sher Shah by night, will be examined only at Khanpur.

3. The Conference has also recommended inspections at Bhatinda and Rewari; it is unnecessary to deal with this proposal in this letter; but I am to say for your information that His Honour agrees with the Conference on the subject.

4. The Inspector General of Civil Hospitals will be asked to arrange for a commissioned medical officer to be placed on special duty at Khanpur, and for special hospital assistants for service at Sher Shah and Raiwind.

5. His Honour agrees with the Conference that the medical officer appointed for inspection duty should accompany the ticket collector on his rounds, and pay special attention to passengers who have booked from Karachi or Sukkur. His Honour does not think it would be prudent for an examining officer to attempt forcibly to examine a patient for swellings of the glands. Should a patient be unwilling to submit to such examination, he should simply be detained as a suspicious case; and, of course, very great caution would be required in dealing with females.

6. The Lieutenant Governor accepts the recommendations of the Conference that persons suspected to be suffering from plague should be removed from the train (or if they have already alighted, should be detained), and kept in the observation shed or the plague shed, as the case may be. The assistance of the police should be called in, if necessary.

7. His Honour fears that there is no power under the Railway Act to do all that is needed; but he intends to address Government of India, informing them of what is actually being done, and leaving them to take the necessary steps to legalize it. In the meanwhile you and Surgeon Colonel Raye may rest assured that those employed in the execution of these orders will have the support of Government, provided they act with prudence and caution, so as to cause the minimum of annoyance.

8. The proposals of the Conference contained in the annexed extract from the proceedings are approved by the Lieutenant Governor. The sheds at Sher Shah and Raiwind should be put up by the district boards concerned, which should also find the money for contingencies and for an advance of 10 rupees each to the hospital assistants on inspection duty. His Highness the Nawab of Bahawalpur is being asked to give any assistance that you may require to provide sites and put up sheds at Khanpur, and I am to request you to place yourself in direct communication with him on the subject. An advance from provincial funds will be made to the Inspector General of Civil Hospitals to meet charges for contingencies at Khanpur.

9. A point on which orders are needed, and which is of great importance, is this: When a passenger is detained by a hospital assistant or other inferior medical officer, whose diagnosis cannot be trusted, a superior medical officer should see the patient as soon as possible; and Dr. Raye is being asked to arrange for this.

No. 3, dated 5th January 1897.

Endorsement by the Punjab Government.

COPY of Extract, paragraphs 1, 2, 3, 6, 7, forwarded to the Inspector General of Police, Punjab, for information and communication to the Assistant Inspector General of Railway Police.

No. 4, dated 5th January 1897.

From the JUNIOR SECRETARY to the Government of the Punjab to the INSPECTOR GENERAL of CIVIL HOSPITALS, Punjab.

I AM directed to forward, for your information, a copy of a letter, No. 2, to-day addressed to the Commissioner of the Lahore Division, conveying orders on the proposals of the Conference which considered the measures to be taken for the inspection of trains arriving from Karachi and the isolation of plague patients. I am to ask you to arrange as early as possible for the medical officers referred to in paragraph 4 of that letter, and to furnish them with instructions for the diagnosis of the disease and for the discharge of the duties indicated in paragraphs 5 and 6 of the letter.

2. As regards the proposed inspections at Bhatinda and Rewari, I am to request you to place yourself in communication with the railway authorities concerned, with a view to the introduction of arrangements similar to those adopted on the North-Western Railway. The Bombay Government, under whose control the police on these lines are, will be addressed on the subject of the co-operation of the police in the proposed measures. As regards the officer to be placed on inspection duty at Rewari, which is an important place for the purposes of plague prevention, I am to ask you to consider whether a commissioned medical officer ought not to be appointed here as well as at Khanpur.

3. I am to direct your special attention to paragraph 9 in my letter to the Commissioner, Lahore, of to-day's date, and to request that instructions may be issued to Civil Surgeons and hospital assistants accordingly.

4. The expenditure by you of 100 rupees on account of contingencies is hereby sanctioned. The question of the incidence of this expenditure will be decided hereafter.

Enclosure No. 7.

No. 42, dated Lahore, 16th January 1897.

From H. J. MAYNARD, Esq., Junior Secretary to the Government of the Punjab and its Dependencies to the SECRETARY TO THE GOVERNMENT OF INDIA, Home Department.

IN continuation of my letter, No. 19, dated the 17th of January 1897, I am directed to forward, for the information of the Government of India, a copy of the further correspondence* noted below, reporting the measures to be taken for the removal from trains and isolation of European or Eurasian passengers found to have symptoms of bubonic plague, and containing suggestions for hospital sheds.

No. 34, dated Lahore, 7th January 1897.

From Surgeon-Colonel D. O'C. RAYE, M.D., Inspector-General of Civil Hospitals, Punjab, to the JUNIOR SECRETARY TO GOVERNMENT, Punjab.

WITH reference to your letter, No. 4, of the 5th instant, I have the honour to enclose a note which I have made showing the preliminary requirements for isolation and quarantine sheds. The contents of this note might, I think, be communicated to the authorities concerned in the case of Rewari and Bhatinda.

Suggestions for Hospital Sheds.

I think that the hospital sheds might be 18 feet by 6 feet, with side walls eight feet high, and a sloping roof, the centre pole of which would rise, say, six feet above the wall.

This would accommodate four patients, giving over 600 cubic feet of space to each. I would have a doorway 6 x 4 feet provided with a mat door in each side wall, and an opening about two feet square, with a mat shutter at each end, placed about five feet from the ground.

* From Inspector-General of Civil Hospitals, No. 34, dated 7th January 1897, to Inspector-General of Civil Hospitals, No. 38, dated 16th January 1897.

Taking each bed as 6 × 4 feet, there would be four feet between the beds, while each would be two feet from the wall, and a central passage six feet wide would be provided between the feet of the beds.

These rough sketches show the general idea, and how the beds would be placed. The walls should be of reeds or thatch; not mud. Such walls allow perflation of air, and with sufficient bedding would not be too cold (sketches not reproduced).

* An observation shed for two beds should be also provided, say 18 feet by 8, with but one door.

A hut of similar construction, about 12 feet square, would be needed for the hospital assistant.

† At first two beds in the hospital shed and one in the observation ward need only be equipped.

For each bed two pairs of sheets, three country blankets, one mattress, and one pillow, each filled with straw, would suffice.

For European patients, a tent would be most suitable, in which a newár cot with a durrie, a rezai, four sheets, two pillow covers, three blankets, and two cotton pillows, would be at first necessary, also a chair, a commode, urinal, and "necessary" tent.

No. 38, dated Lahore, 16th January 1897.

From H. J. MAYNARD, Esq., Junior Secretary to the Government of the Punjab and its Dependencies, to the INSPECTOR GENERAL, CIVIL HOSPITALS, Punjab.

IN continuation of my endorsement, No. 21, dated the 8th of January 1897, and with reference to your communication‡ to this office noted below, I am directed to say that (as suggested by you) the following instructions should be observed in case of European or Eurasian passengers found by inspecting medical officers at Khánpur, Sher Shah, Ráiwind, Rewári or Bhatinda to have symptoms of bubonic plague:—The commissioned medical officers who will be stationed at Khánpur and Rewári will exercise their discretion in determining whether any such person shall be detained or sent on to the next Civil Surgeon. Much will depend on the facility of obtaining proper food, nursing, &c. The Motamid of the Baháwalpur State has been requested to arrange at once for a tent and necessary furniture, cooking utensils, &c. at Khánpur, and a copy of the notes of requirements forwarded with your letter, No. 34, dated 7th January 1897, will be sent to His Highness the Nawáb of Baháwalpur and to the Commissioner of Delhi.

2. The hospital assistants at the three other inspecting stations will not be authorised to detain European or Eurasian passengers. Such persons if suspected to be suffering from plague should, in His Honour's opinion, be carried on in the train to the nearest Civil Surgeon, their fellow-passengers being dealt with in accordance with railway rules on the subject. On arrival at the nearest civil station the European or Eurasian plague patient should be taken to an isolation hospital and treated by the Civil Surgeon, who would be prepared for his arrival by a wire from the Hospital Assistant.

3. The nearest civil stations will be:—

- (1.) In the case of Khánpur and Sher Shah: Mooltan. It is understood that you wrote some time ago to the Civil Surgeon to arrange for an isolation hospital there.
- (2.) In the case of Ráiwind: Lahore. Here also it is understood that arrangements for an isolation hospital are being made.
- (3.) In the case of Rewári: Gurgaon. A copy of this letter is being forwarded to Commissioner, Delhi, who will be asked to arrange in consultation with you for an isolation hospital there.
- (4.) In the case of Bhatinda: Ferozepore. The Commissioner, Jullundur, will be similarly addressed: but I am to ask you to consider whether in this instance it might not be preferable to arrange for the patient to be sent back to Hissar.

* A moveable screen of thatch 6 feet by 5, should be kept in readiness, so that if a female patient were admitted privacy could be effected.

† A small thatch-work enclosure, without a roof, and about the size of an ordinary "necessary" hut, should be placed a few yards from the hospital shed.

‡ No. 34, dated 7th January 1897.

4. You have been asked to communicate direct with the Agent, Bombay, Baroda and Central India Railway. I am to suggest that you should inform him of the contents of this letter.

5. I am to enclose, for your information, a copy of a letter from the Manager, North-Western Railway, No. 30-C., dated 6th January 1897, intimating the instructions issued by him for the examination of passengers from Karáchi and Sukkur.

Enclosure No. 8.

No. 18; dated Allahabad, 20th January 1897.

From W. H. L. IMPEY, Esq., Secretary to the Government of the North-Western Provinces and Oudh, Sanitation Department, to the SECRETARY TO THE GOVERNMENT OF INDIA, Home Department.

IN reply to your telegram No. 566, dated 30th December 1896, I am directed to report, for the information of his Excellency the Governor General in Council, the precautionary measures that have been adopted in these provinces with a view to the detection of cases of bubonic plague among passengers travelling from Karachi. Such passengers, I am to say, would enter these provinces at Saharanpur (*viâ* Umballa) or Ghaziabad (*viâ* Delhi). It has been ascertained from the Punjab Government and the Manager, North-Western Railway, that arrangements have been made for the inspection of passengers and the removal of patients at the principal stations in the Punjab; a hospital assistant has been posted at Delhi, and the Manager, North-Western Railway, has been asked to see that special inspection is made of passengers changing into the East Indian Railway at Umballa and Ghaziabad. The Agent, East Indian Railway, reports at the same time that the Company's chief medical officer has been instructed to arrange for the inspection of all East Indian railway trains at Umballa and Ghaziabad stations.

2. This Government, on its part, has posted hospital assistants for special duty (the examination of passengers and the treatment of patients) at Saharanpur and Ghaziabad, where temporary hospitals are being established in suitable places. The Inspector General of Civil Hospitals has been communicated with and is issuing necessary directions for the treatment of patients to the Civil Surgeons of Saharanpur and Meerut.

Enclosure No. 9.

No. 199 (Medical); dated Calcutta, 14th January 1897.

From H. H. RISLEY, Esq., C.I.E., Secretary to the Government of Bengal, Municipal (Medical) Department, to the SECRETARY TO THE GOVERNMENT OF INDIA, Home Department.

I AM directed to submit, for the information of the Government of India, the accompanying copy of a note, dated the 7th January 1897, by the Health Officer to the Corporation of Calcutta, bringing to notice the fact that persons are arriving in Calcutta from Bombay, who, by breaking their journey on the way, succeed in evading suspicion as to their having come from Bombay, and consequently pass into the town without being medically examined or placed under sanitary surveillance.

2. On receipt of the first intimation of the outbreak of bubonic plague in Bombay, the Lieutenant Governor addressed the Governments of Bombay, the Central Provinces, and the North-Western Provinces by telegram, inquiring whether, in the event of the disease increasing, they would be prepared to move the railway authorities to take action under the Railway Act to prevent suspected persons from leaving Bombay by rail, and to remove at Jubbulpur, Nagpur, and Allahabad, persons pronounced to be infected by a Government medical officer. On receipt of intimation of such action, it was added, similar measures would be introduced at Bankipur and Burdwan. The Governments in question agreed to take the necessary action in the matter, and a copy of the correspondence was forwarded to the Agents, East Indian Railway and Bengal-Nagpur Railway, with the remark that the Lieutenant Governor was confident that he could count on the active co-operation of the railway authorities in the endeavour to check the spread of the disease along the lines of railway between Bombay and Calcutta. A report of the action taken by the Government of Bengal was given in paragraph 11 of this Department Resolution No. 937 T. M., dated 10th October 1896, a copy of which was communicated to the Government of India with my letter, No. 938 T. M., of the same

date. The action taken by the East Indian Railway Company is reported in the accompanying copy of a letter from the Agent, No. 9281, dated 9th October 1896, and its enclosures. The steps taken by the Governments of the Central Provinces and the North-Western Provinces are reported in their letters* noted below, addressed to the Government of India, and the telegram from the Home Department, No. 355 (Sanitary), dated 22nd October 1896, stated the case so far as reported at the time to the Government of India. So far all necessary measures appear to have been taken for the inspection of passengers along the lines of railway from Bombay to Calcutta, and, in the case of break of journey, Calcutta must trust to the efficiency of the precautions so adopted.

3 The only legal authority for dealing with persons travelling by rail appears to be contained in Sections 71 and 117 of the Railways Act, IX of 1890. The administrations of the East Indian and Bengal-Nagpur Railways were recently addressed by the Medical Board on the subject in connection with the attendance of Bombay delegates at the meeting of the Indian Congress in Calcutta, and both railways reported the arrangements in force on their lines. It will be seen, however, that their powers under the Railway Act extend only to persons in whom the disease has actually shown itself, and special legislation would be necessary to enable either the railway officials or the police or sanitary authorities of Calcutta to take any measures in respect of travellers who have merely come from Bombay by rail. Such travellers would not improbably object to being placed under any sort of surveillance, as the fact of their having come from Bombay would, if generally known, render it more difficult for them to procure lodgings. The attempts which have been made in the past to enforce quarantine by land in respect of cholera have, the Lieutenant Governor believes, proved wholly ineffectual, and even if the Government of India were prepared to legislate for the purpose of protecting Calcutta from the importation of plague from Bombay by rail, it would be impossible to guard against the evasion of any preventative measures that might be taken. In his Honour's opinion the true safeguard against the spread of plague to Calcutta is to be found in the thorough cleansing of the crowded quarters of the town. The Corporation have been urged to give their fullest attention to this, and specific recommendations have been made to them by the Medical Board on the subject. The Lieutenant Governor has recently called urgently for a report on their action in this respect, and if he finds that it has been inadequate he will not hesitate to take the matter out of their hands altogether.

Chairman,--

I hear that many people are arriving here from Bombay, and taking up their residences in different parts of the town, more especially the quarters of Burra Bazar and neighbourhood. These people do not take tickets direct from Bombay, but break their journey for several days at such places as Jubbulpur, Agra, Allahabad, &c., and then take a ticket from the last station they halt at to Calcutta, in order to avoid suspicion of their coming from Bombay.

As by doing so these people from Bombay elude the vigilance of the police, and consequently the houses in which they reside in Calcutta cannot be kept under sanitary surveillance, I would recommend that the attention of the Government be drawn to the matter in order that measures may be taken which will effectually deal with it.

W. J. SIMPSON, M.D.,
Health Officer.

January 7, 1897.

No. 9281 ; dated Calcutta, 9th October 1896.

From the AGENT, EAST INDIAN RAILWAY COMPANY, to the SECRETARY TO THE GOVERNMENT OF BENGAL, Municipal (Medical) Department.

WITH reference to your letter No. 887 T. M., dated 6th October 1896, regarding the bubonic plague in Bombay, I have the honour to enclose copies of instructions issued to the Medical and Traffic Departments of this Railway, and to state that it was decided to have the scrutiny of passengers made at Allahabad instead of Jubbulpur in consequence of the fast trains that would carry Bombay passengers passing the latter station at night, when any scrutiny of passengers would be generally inconvenient. I would, however, support the proposal of his Honour the Lieutenant Governor, North Western Provinces and Oudh, to have a scrutiny of passengers at Itarsi, and a suggestion practically to this effect has already been made by me to the Chief Commissioner, Central Provinces, in reply to a letter from that officer on the subject of the examination of railway passengers.

* From Central Provinces, No. C.—72, dated 18th October 1896.
From North-Western Provinces, No. 286, dated 6th October 1896.

Dated 1st October 1896.

From the GENERAL TRAFFIC MANAGER, EAST INDIAN RAILWAY, to the DISTRICT TRAFFIC SUPERINTENDENTS, HOWRAH, ALLAHABAD, AND TUNDLA.

Supposed Bubonic Plague in Bombay.

In order to prevent the spread of disease to stations served by the East Indian Railway the Agent has directed that a native doctor, with knowledge of the symptoms, shall, on arrival of trains from the Bengal-Nagpur Railway, the Jubbulpur line and the Indian Midland Railway at Asansol, Allahabad, and Tundla, accompany the ticket collectors on their rounds with a view to detect cases of the disease.

Ticket collectors are to afford every assistance to the native doctor in obtaining access to passengers. The doctor will probably only wish to see passengers holding tickets from Bombay, and a note should be kept of the compartments in which these passengers are travelling, and the attention of the doctor specially drawn to them.

Should any cases be detected, the staff are to act under the orders of the Medical Department as to removal of the passengers and treatment of their luggage.

The carriage in which any case may be detected is to be detached and thoroughly disinfected. The passengers who have been travelling in the compartment in which a case has been detected are to be accommodated by themselves, and no other person is to be admitted to the compartment. The names and addresses of these passengers are to be taken and sent by the same train to the station master of destination, who is also to be wired to expect the passengers. The guard is to be clearly instructed that the passengers are to be kept to themselves, and all changing stations wired forward, giving number of carriage and compartment. A reserved label should be affixed to the compartment.

In consequence of suspicious cases of bubonic plague having occurred at Bombay, it is desirable that officers of the Medical Department should assist other authorities concerned by every means in their power to prevent the dissemination of the disease. The Officiating Chief Medical Officer would therefore request medical officers to take the following precautions:—

- (1.) On each district one native doctor must inspect all trains from Bombay. At Allahabad and Asansol special men have been told off for this duty.
- (2.) In the event of any suspicious case being found, the patient must be removed at once to the Contagious Diseases Hospital, and the carriage in which the person was travelling must be cut off and disinfected.
- (3.) The patient's fellow-passengers should be removed to an empty carriage into which no one else should be admitted, and this carriage also should be cut off and disinfected at the first station where there is a medical officer or native doctor after the last passenger has left it.
- (4.) The addresses of all passengers travelling in the carriage must be taken and telegraphed to the station masters at their destination for the information of the local authorities.
- (5.) While in hospital every precaution must be taken to isolate the patient completely, and for this the assistance of the police should be obtained, if necessary.
- (6.) On leaving hospital, the patient's clothes must be burnt, also all bedding, &c., and the hospital must be disinfected.
- (7.) The medical staff will take the same precautions regarding disinfection of themselves as they would when attending a case of small-pox.
- (8.) All cases to be immediately reported to the chief medical officer.
- (9.) The medical staff are requested to pay increased attention to the sanitation of their stations.
- (10.) The officiating chief medical officer will be very pleased to consider any suggestions the medical staff may have to make on the subject.

Enclosure No. 10.

No. 938-T.—M., dated Darjeeling, 10th October 1896.

From H. H. RISLEY, Esq., C.I.E., Secretary to the Government of Bengal, Municipal Department, to the SECRETARY TO THE GOVERNMENT OF INDIA, Home Department.

I AM directed to submit, for the information of the Government of India, the accompanying copy of a resolution of this date, recorded by the Lieutenant Governor, regarding the measures adopted for the prevention of the bubonic plague in Bengal.

MEASURES FOR PREVENTION OF PLAGUE.

Municipal Department.—Darjeeling, 10th October 1896.

Resolution—No. 937T.—M.

In the Government letter No. 770T.—M., of the 30th September, a copy of which is annexed to this Resolution, the Corporation of Calcutta were addressed on the subject of the reported outbreak of plague in Bombay, and it was suggested that the following measures should be taken under Sections 321 to 334 of the Calcutta Municipal Act:—

- (1.) To declare bubonic plague or any form of typhus fever with glandular swellings to be a dangerous disease, regarding any case of which information should at once be communicated to the Commissioners or their Health Officer under Section 321.
- (2.) To select a site for a temporary plague hospital away from the main thoroughfares, and to arrange for its prompt erection should the need arise.
- (3.) To provide special carts for the conveyance of cases to hospital, and to arrange for the disinfection of both carts and drivers.
- (4.) To divide the town into sanitary circles of manageable size, and to place in charge of each a medical inspector, with full powers to carry out the measures ordered by the Commissioners or Government for preventing the spread of the disease.
- (5.) To draw up regulations under Section 334 of the Act, in order to give effect to such special measures as might be necessary to prevent, check or mitigate an outbreak of plague.

The corporation were further informed that the Government would be prepared to appoint a medical board to assist the corporation in devising measures to deal with the disease.

2. While trusting that no necessity for the above measures would arise, the Lieutenant Governor expressed his entire approval of the steps taken under the Commissioners' orders to give special attention to the cleansing and sanitation of Calcutta. A copy of the letter was sent to the Commissioner of Burdwan, who was directed to instruct the Magistrate of Howrah to move the municipality to take the necessary action to cleanse and sanitize the town.

3. A case of mild bubonic plague is now reported to have occurred in Howrah, the patient being a Eurasian lad of 17, who arrived from Bombay on the 26th September, and is believed (though this is not certain) to have brought the disease with him. It may be hoped that the case is an isolated one, and that no general outbreak of the disease will take place. But the occurrence of even a single case in a crowded area where the sanitary conditions are such as to favour the spread of contagion, if not actually to generate the disease, convinces the Lieutenant Governor that the time has now come to adopt further preventive measures.

4. It has accordingly been decided to appoint the following gentlemen to form a medical board for the purpose of determining the action to be taken by all executive authorities, whether official or municipal, with the object of preventing and checking the plague throughout Bengal.

Honourable H. H. Risley, C.I.E., Secretary to Government, Financial and Municipal Departments	-	-	-	-	-	-	-	-	<i>President.</i>
Honourable P. Playfair, C.I.E.	-	-	-	-	-	-	-	-	} <i>Members.</i>
Honourable J. G. H. Glass, C.I.E., Chief Engineer	-	-	-	-	-	-	-	-	
Surgeon-Colonel Ross, Inspector-General of Civil Hospitals	-	-	-	-	-	-	-	-	
Surgeon-Captain Dyson, Sanitary Commissioner	-	-	-	-	-	-	-	-	
Dr. Mahendra Lal Sirkar, C.I.E.	-	-	-	-	-	-	-	-	
Surgeon-Captain Robson-Scott, Officiating Deputy Sanitary Commissioner, Presidency Circle	-	-	-	-	-	-	-	-	<i>Secretary.</i>

5. All cases of illness which are believed to be plague should at once be reported to the Board by the magistrate of the district where they occur, and in Calcutta by the Health Officer of the Corporation. The orders issued by the Board on matters affecting health and conservancy should be deemed to be the orders of Government and carried out with all possible despatch by all executive authorities. Steps will hereafter be taken, if necessary, to legalise all action taken during the present emergency. Nothing should meantime prevent the Board from ordering or the executive authorities from carrying out any reasonable measure of precaution, segregation, or disinfection which may appear called for.

6. The areas which the Board will have in the first instance to deal with in order to arrest the spread of the plague, are the following :—

- (1) The Town of Calcutta.
- (2) The Port of Calcutta.
- (3) The Municipality of Howrah.
- (4) The small municipalities adjacent to Calcutta and Howrah.
- (5) The lines of railway.

7. *The Town of Calcutta.* The plague has already been declared to be a dangerous disease under Section 321 of the Municipal Act, and it is further understood that the measures indicated in the Government letter of 30th September have already been adopted, or are in course of adoption, by the Corporation. The Commissioners have asked the Government to select for them a chief superintendent to organise and control the conservancy and nuisance branch of the Health Department for three months, on a salary of 1,000 rupees per month. Dr. Banks, Civil Medical Officer of Puri, who possesses in a high degree the requisite qualifications, has been appointed to the post, and directed by telegram to join at once. Sites have been selected in Maniktola for an isolation hospital and a special burning-ghat and burial-ground for plague patients. The town is being divided by the Health Officer into sanitary circles, and the regulations under Section 334 of the Act are about to be submitted for the sanction of Government. The Lieutenant Governor feels sure that the Commissioners, the executive officers of the Corporation, and their subordinates will work cordially with the Medical Board, and carry out promptly and fully all the recommendations of that body.

8. *The Municipality of Howrah.*—The chairman of the municipality has been instructed by telegram to isolate the patient now suffering from the plague, to destroy his clothes, and to disinfect the house in which he has been living. The municipality have asked by telegram for the appointment of an officer of the rank of Surgeon Captain as Health Officer of the town, on a salary of 1,500 rupees a month and carriage allowance; but the Lieutenant Governor considers that the needs of Howrah can best be met by transferring the present Civil Surgeon, who is in weak health, to a lighter station, and deputing a younger officer, Surgeon Major Walsh, to carry on the combined duties of Civil Surgeon and of Health Officer, with the assistance of an experienced supervisor of the Public Works Department, who will receive 500 rupees a month, with horse allowance and house rent. The Deputy Sanitary Commissioner of the Western Circle was ordered to Howrah to assist in sanitary measures two days before the case of plague was reported to Government.

9. *The adjacent Municipalities.*—The chairmen of the municipalities noted below* should now report to the Medical Board, through the magistrate of the district, what

*Hooghly Chinsurah	-	-	} In Hooghly district.	Cossipore Chitpur	-	-	} In the 24-Parganas.
Serampur	-	-		Maniktola	-	-	
Uttarpara	-	-		Baranagar	-	-	
Baidyabati	-	-		South Suburban	-	-	
Bhadreswar	-	-		South Dum-Dum	-	-	
Kotrang	-	-		North Dum-Dum	-	-	
Bansberia	-	-	South Barrackpore	-	-		
Bally	-	-	North Barrackpore	-	-		
			Baraset	-	-		
			Naihati	-	-		

steps they propose to take to prevent the plague spreading to their jurisdictions. The Deputy Sanitary Commissioner will be directed to visit these municipalities as soon as possible, and to explain to the chairmen personally what ought to be done.

10. *The Port of Calcutta.*—The Government of India have been moved by telegram to sanction the introduction, with such modifications as may be necessary, of the revised rules for quarantine against plague which were introduced in August 1894 for the protection of Calcutta from the importation of plague from Hong Kong. It has also been suggested that, under Section 19 of the Sea Customs Act, the export of rags and second-hand clothing from Bombay should be prohibited. Steps are being taken to provide accommodation for plague patients near the quarantine anchorage at Diamond Harbour, and all suspected vessels will be carefully examined and disinfected by the Port Health Officer before communication with the shore is permitted.

11. *The Lines of Railway.*—Under Section 71 of the Railway Act IX of 1890, a railway administration may refuse to carry persons suffering from any infectious or contagious disease; and, under Section 117, any such person may be removed by a railway servant from the carriage in which he is travelling. On the 1st October the Governor of Bombay was asked by telegram whether, in the event of the disease increasing, he would be prepared to move the railway company to prevent suspected persons from leaving Bombay by rail; and on the next day his Excellency replied that the municipal and railway authorities were in consultation, and that if the disease increased the necessary measures would be taken. The East Indian Railway have already posted native doctors at Asansol, Allahabad, and Tundla to scrutinise all passengers, especially those coming from Bombay, while tickets are being checked. The Assistant Superintendent of Emigration at Raniganj and Asansol has been instructed to give all possible assistance to the railway officials in the matter. The Government of the North-Western Provinces and Oudh, and the Administration of the Central Provinces, have also been addressed on the subject.

ORDER.—Ordered, That copies of the resolution be forwarded to the members of the Medical Board named in paragraph 4, the Chairman, Calcutta Corporation, the Commissioner of Police, Calcutta, the Bengal Chamber of Commerce, the Trades Association, Calcutta, all Commissioners of Divisions, all magistrates (direct), and to the Marine Department.

Ordered also, That the Resolution be communicated to the Government of India, Home Department.

Ordered further, That the Resolution be communicated to newspapers and published in the "Calcutta Gazette."

By order of the Lieutenant Governor of Bengal.

H. H. RISLEY,
Secretary to the Government of Bengal.

No. 770 T.—M., dated Darjeeling, 30th September 1896.

From H. H. RISLEY, Esq., C.I.E., Secretary to the Government of Bengal, Municipal Department, to the CHAIRMAN OF THE CORPORATION OF THE TOWN OF CALCUTTA.

I AM directed to acknowledge receipt of your letters* noted below, regarding the reported outbreak of plague in Bombay, and in reply to forward, for the information of the Commissioners, copies of a telegram despatched by this Government to the Government of Bombay, and of the replies thereto. The telegram of to-day's date from His Excellency the Governor shows that the character of the disease is still open to question; that active measures are being taken by the Bombay Government to deal with it; and that all unnecessary panic or excitement regarding it is much to be deprecated. At the same time it is obviously desirable to take every reasonable precaution to prevent any outbreak of the disease in Calcutta, and to detect at the earliest possible moment any cases that may occur. Under the provisions of Section 37 (5) (h) of Bengal Act II of 1888, the preventing or checking the spread of dangerous disease is one of the obligatory duties of the Municipality, and Sections 321 to 334 of the Act contain the detailed provisions of law on the subject. The Lieutenant Governor will be quite ready

* No. 4042, dated the 25th September 1896.

No. 4056, dated the 26th September 1896.

to sanction any measures which the Commissioners may desire to initiate under those sections. To begin with, it appears desirable to declare that bubonic plague or any form of typhus fever with glandular swellings is a dangerous disease, regarding any case of which information shall at once be communicated to the Commissioners or their Health Officer under Section 321.

2. The next step is for the Commissioners to select a site for a temporary plague hospital away from the main thoroughfares, and to arrange for its prompt erection should the need arise. The hospital should be built of matting and T-iron or bamboos in blocks to contain 10 patients each. Provisional contracts could no doubt be arranged for the rapid construction of such a building if required.

3. I am to say, with reference to a query irregularly addressed by the Health Officer to Government direct, that the Campbell Hospital cannot be used for the purposes of a plague hospital.

4. The Commissioners should, if the disease breaks out, have special carts (drawn by bullocks and specially marked) provided, one at each police station, for the conveyance of cases to hospital. Provision for disinfecting both carts and drivers in the vicinity of the hospital after each journey would be necessary.

5. If the disease appears, the town will have to be divided into sanitary circles of manageable size, and a medical inspector placed in charge of each, with full powers to carry out the measures that may be ordered by the Commissioners or Government for preventing the spread of the disease. Action under Section 334 of the Act will then be necessary, and the Government will be prepared to appoint a medical board to assist the municipality in devising measures to deal with the outbreak.

6. The Lieutenant Governor trusts, however, that no necessity for such measures will arise. Meantime he entirely approves of the steps that are being taken under the Commissioners' orders to give special attention to the cleansing and sanitation of the town. The municipality of Howrah will be directed to take similar steps.

7. It is premature at present to propose any interference with or medical inspection of railway passengers. Orders on the subject of arrivals by sea will be issued by the Marine Department.

Enclosure No. 11.

NOTE on the CASES reported as PLAGUE in CALCUTTA.

THE following 11 cases have been reported to the Medical Board as cases of bubonic plague in Calcutta, besides several cases in the fort, which, on inquiry, proved to be ordinary non-venereal buboes :—

- * One case in Howrah.
- * One case in Chatawallah-lane.
- * Two cases in Maniktolla Hospital.
Two cases in the Presidency General Hospital.
- * One case in Raja Raj Bullub-street.
- * One case in Armenian-street.
One case in Wooltadanga.
One case in Garden Reach.
One case in Warris Bagan-lane.

In the cases marked with an asterisk the plague bacillus is said to have been found in the blood of the persons attacked. Three others were found to be cases of simple enlarged glands, fever and bronchitis and intestinal obstruction respectively. The result of the examination of the blood of the two cases in the Presidency General Hospital is not known to us. As a full history of all these 11 cases is contained in the Appendix to this Report, it is not necessary to recapitulate them here, and a summary of the conclusions drawn from these will therefore be sufficient in this place.

The bacillus is also said to have been identified in the case in Raja Raj Bullub-street which terminated fatally. The case was first reported by a homœopathic practitioner to the Health Officer of Calcutta by postcard on the evening of the 2nd November. It was seen by Drs. Cobb and Simpson on the 3rd at 5.30 p.m., and the man died in their presence at 6.30 the same evening. They reported it "as a fatal case of true plague." The Board of Health did not hear of this case till the following day, after the body had been disposed of, and then only from private information. An interval

of nearly 20 hours occurred between the time the case was first seen by the homœopathic practitioner and the time it was inspected by Drs. Cobb and Simpson. It is to be regretted that Drs. Cobb and Simpson did not call in one of the medical members of the Board, who would have been only too willing to go and see "a true case of plague." The omission is the more unfortunate because doubt had arisen in the public mind regarding the diagnosis of the previous cases. Drs. Dyson and Robson-Scott, however, as soon as they heard of the case, proceeded to the spot and made minute inquiries concerning it, with the result that it was clear that other reasons existed for the enlargement of the glands in the groin, which was reported to be one of the prominent features of the case.

The most noticeable point in the suspicious cases that have occurred is the fact that all the patients in whose blood the plague-germ is said to have been found recovered, with the single exception of the case in Raja Raj Bullub-street, and in this case, as already stated, the symptoms noticed can reasonably be ascribed to other causes. Another remarkable fact is that none of these six sporadic suspicious cases produced any infection either in the neighbourhood or even among the people who attended the sick.

Looking only to the clinical symptoms set forth in the Appendix to this Report, we have no hesitation in expressing our emphatic opinion that none of these cases, including the fatal case of Bipin Behari Dutt, can properly be described as cases of bubonic plague. It may be inferred, however, from the reports which have come before us, that the diagnosis made by the Health Officer and Dr. Cobb is based not so much upon the symptoms of the patients as upon the supposed presence in their blood of a microscopic organism stated to be "the plague bacillus." We propose, therefore, to examine the evidence bearing on this point, and to state how far the conclusions arrived at by Drs. Cobb and Simpson are borne out by the independent investigations carried on by our colleague, Dr. Cunningham.

Dr. Cunningham has received from M. Haffkine a type-culture and several microscopic preparations of the plague bacillus as occurring in Bombay. These agree in their characters with those described as characteristic of the plague bacillus as found in China, and there can be no reasonable doubt that the Bombay bacillus is the same as that which is regarded by M. Yersin and Professor Ketasato as the specific cause of plague.

Dr. Cunningham has also personally obtained 20 microscopic preparations and 15 cultures of blood from seven distinct cases of supposed plague, six of which occurred among men in the Shropshire Regiment. The microscopic preparations show nothing, except that some of the subjects suffered from anæmia; while the cultures have without exception remained absolutely sterile.

A series of cultures and preparations of local origin was received by Dr. Cunningham from Drs. Simpson and Cobb. None of these exhibit the characters of the standard type. In one case only does the growth in the form of colonies present some similarity to that of the type specimen; but in this case the microscopic characters do not resemble those of the Bombay bacillus. In another case the culture yielded an absolutely pure growth of a large *staphylococcus*, which is of common occurrence in the air; while the corresponding blood preparation showed evidence of contamination from other sources in the presence of a certain number of slender bacilli. In a third culture there was a pure growth of a form of *schizomycete* or fungus, of which neither the colonies nor their constituent elements bore the remotest resemblance to the plague bacillus. A fourth culture, prepared from the blood of Bipin Behari Dutt, contained large bacilli, probably of a putrefactive character, along with minute *cocci* and *diplococci*; but in the microscopic preparation of the blood only the large bacilli could be recognised. The remaining cultivations of local origin are pure cultivations of *cocci* and *diplococci*, not agreeing in character with the type specimen, and not distinguishable from forms which are liable to occur in and on almost any organic medium as the result of contamination. As the phenomena of three out of the four cases expressly referred to above furnish conclusive evidence that actual contamination occurred, there is no certain proof that in the remaining cases the minute organisms discovered were really derived from the blood.

In the case of Bipin Behari Dutt, whose clinical symptoms we have already discussed, a specimen of blood and some blood-cultures were sent to Dr. Cunningham, together with portions of a rat into which two cubic centimetres of a culture of blood had been injected, causing its death after 31 hours. The specimen of blood and the cultures showed, as has been mentioned above, unequivocal evidence of contamination by the

presence of large bacilli, probably of a putrefactive character, which must have gained access to the preparation from outside.

This being so, it is clear that the smaller *cocci* and *diplococci*, which were also found, may equally have been the result of contamination. Not does the death of the rat after inoculation afford any grounds for inferring the specific character of the germs contained in the culture with which the animal was inoculated, for the bulk of actively decomposing fluid injected into the animal was relatively equivalent to over a pint in the case of an adult human being, and was quite sufficient to cause death by mere blood poisoning. Moreover, had the enormous number of microscopic organisms introduced into the rat possessed the specific character attributed to them, the blood and tissues ought after death to have absolutely swarmed with the organisms, whereas, in fact, only a very scanty sprinkling of minute *cocci* and *diplococci* could be found in the specimens submitted to Dr. Cunningham.

Looking to the evidence as a whole, we have no hesitation in expressing our opinion that there is no evidence that any case of true bubonic plague has yet occurred in Calcutta; and that the cases which have been reported to us as plague were so described on the strength of an opinion as to the origin and character of certain microscopic organisms, which has not been confirmed by the results of an independent inquiry conducted by an expert of long experience in bacteriological research.

H. H. RISLEY,
Secretary to Government,
Municipal and Medical Departments.

J. G. H. GLASS,
Secretary to Government, Public Works
Department.

G. C. ROSS,
Inspector-General of Civil Hospitals.

P. PLAYFAIR,
Sheriff of Calcutta.

D. D. CUNNINGHAM,
Professor of Physiology, Medical College.

H. J. DYSON,
Sanitary Commissioner, Bengal.

REPORTS ON SUSPECTED CASES OF PLAGUE.

CASE NO. I.—REPORTED CASE OF PLAGUE AT HOWRAH.

A telegram was received by Mr. Risley on the 9th October, stating that a case of *Pestis Ambulans* had occurred in Howrah.

Telegram, dated 10th October 1896.

From Darjeeling to Calcutta.

From Civil Hospitals, Bengal, to Dr. Sanders.

Please keep me regularly informed by wire regarding plague, and instruct all medical officers at Presidency to keep you informed.

Drs. Ross and Dyson left Darjeeling on Sunday, the 11th October, for Calcutta.

J. COTTA, a Eurasian, aged 16 $\frac{2}{3}$ years, is a resident of Bombay, living at Byculla, at a distance of nearly three miles from Mandvi. On the 13th September he exposed himself to venereal infection; on the 17th he noticed local sores, and on the 19th that the glands of both groins were a little enlarged and slightly tender. He left Bombay on the 25th in company with his sister and her children, arriving in Howrah on the 26th. He lived in a small house in Panchantollah in company with his sister and children.

On the 2nd October he went to the Howrah General Hospital, under the assumed name of Nadoo, and was treated by Mr. Milchem, the apothecary, who diagnosed soft sores and prescribed "blackwash." At that time he had tender glands and slight fever. He returned on the 4th. The sores were better, but not quite healed; the buboes were painted with iodine; he said his fever had gone. On the 7th he again went to hospital and was advised to become an in-patient for the further treatment of the buboes. He

directed to become a, paying in-patient. He then went to the Medical College. About this time suspicion seemed to have been roused about him.

S. B. Ghosal, Native Doctor to the East Indian Railway, who is at the Howrah General Hospital, states that on the 8th he was ordered by Dr. Tomes to go to Panchanuntollah to see Cotta at his house, and found him suffering from fever, with a temperature of 102° F., and swollen inguinal glands. He was visited the same evening by Drs. Tomes and Simpson; the latter aspirated blood from the finger and from the buboes for bacteriological examination. On the following days Drs. Cobb, Tomes, and Simpson signed a certificate, stating that plague bacilli had been found in the blood of Cotta.

On the 11th, at the request of Dr. Ross, Inspector-General, Civil Hospitals, Cotta was examined by Dr. Sanders, who sent a telegram to Dr. Ross as follows:—

“Have seen Cotta; a typical case of syphilitic buboes; no fever; no cause for alarm.”

On the 11th he was removed into the building provided by the municipality for plague cases, his sister and a small boy accompanying him.

On the 12th he was examined by Drs. Ross and Dyson, who had just arrived from Darjeeling. Dr. Sanders also went with them.

They found him in the infectious hospital. It is situated on the road to Andul, and is a small cutcha-pucka house of two rooms, with a square walled court-yard.

Both he and his sister were complaining bitterly of having been removed there. The place was full of flies, and the amount of ventilation scanty. On examination he was found to be in full possession of his senses—no headache, tongue clean, appetite good. He had inflamed glands in both groins, and stated that he had been put to considerable pain by being conveyed to the building in a gharry. His temperature was 102° F. This can easily be accounted for by the commencing suppuration in the buboes; the soft sores had completely healed. He had not received any clothes or food from Bombay since his arrival in Howrah. A consultation was held at once, and Dr. Sanders expressed his willingness to take the case into the Mayo Hospital for further treatment of the buboes. It was decided, however, to take him back at once to the infectious ward of the General Hospital at Howrah. This place was selected to avoid causing panic among the patients in the main body of the hospital.

He was visited again on the morning of the 13th by Drs. Ross, Sanders, Dyson, Vaughan, Tomes, and Mr. Maguire. He was very cheerful, tongue clean, eyes clear, no headache, pain less in the buboes. He expressed great satisfaction at the change of residence, and said he was all right. There were in the same room with him, his sister, a boy, and a female friend. The bubo on the left side showed slight deep fluctuation. It has been decided that when this is opened, some of the pus will be sent to Dr. Simpson for examination.

Dr. Ross deputed Dr. Leahy (who has had personal experience of plague in Bagdad), the same day to visit Cotta and report upon his condition. He visited him at once, and wrote as follows:—

“In accordance with your orders, I visited and made a careful examination of the man Cotta this afternoon at the Howrah Hospital. His condition bears no resemblance clinically to the cases of plague I saw in Bagdad. Of the two inguinal buboes, the left one is apparently undergoing suppurative changes, and to this I attributed his temperature 101° this afternoon. I have suggested the desirability of inoculating a spot on the abdominal wall with some of the pus from the bubo, when he opens it, with a view to finding out whether it will produce a soft chancre at the point of inoculation. We carefully examined Cotta's urine, with the following result:—Clear, amber coloured, acid in re-action, specific gravity 1,020 phosphates present, *no albumen*.”

On the same day Drs. Ross, Sanders, Dyson, Tomes, and Vaughan examined the house in which Cotta had lived previous to his removal to hospital. It is a small cutcha-pucka house, with cramped rooms, involving constant contact in its inhabitants. It had not been fumigated or disinfected, or whitewashed up to that date. Cotta's sister and the other people living in it evinced no fear of infection from living in it, and ridiculed the idea. In the same mohulla (Panchanuntollah) a case of plague had been reported that morning, and was immediately inspected by the doctors named above.

The patient was a Mussalman child, a little more than one year old. It had an enlarged gland in the right armpit, and a smaller one in the groin on the same side. Its temperature was 100°. It was said to have been ill for five days. The child did not appear to be suffering any great physical inconvenience, and its eyes were clear and bright, and the expression of the face cheerful. A local practitioner, who was standing by, stated, “that it was by no means uncommon for people to get enlarged glands and fever in Howrah at the end of the rainy season.”

Remarks.—Reviewing the case of Cotta, the only reason for supposing that he is suffering from plague (*Pestis ambulans?*) is the fact that plague bacilli have been found in his blood. I am not skilled bacteriologist enough to decide whether they are the real bacilli or not, and would like the opinion of some other bacteriological expert, say Dr. Cunningham. On the other hand, we have a clear history of venereal infection with the enlargement and final suppuration which is so commonly a sequel. He has never suffered from any other symptoms resembling plague. His appetite has been good. His tongue is clean after nearly a month's illness; he has never suffered from frontal headache, delirium, high fever, hæmorrhage, or epistaxis, injection of the conjunctivæ; the enlarged glands have never caused severe pain; in fact, he has had none of the classical symptoms of plague. I am aware that there is a very mild form of plague called the "ambulatory form," in which the symptoms are of the slightest. This form of disease is generally held to be non-infectious.

With regard to the native practitioner's statement, that at certain times of the year people in Bengal suffer from enlarged glands, the remarks of Surgeon-Colonel May, A.M.S., in his Annual Return for 1895, possess great interest.

He says:—"There were 43 admissions for disease of the lymphatic system, of which 37 were for inflamed lymph glands of the groin. It would seem that there must be some climatic (malarial?) influence at work in the production of this disease, as it is of such frequent occurrence, and no other cause is assignable; many of them run a long course, and have to be scraped or removed before recovery takes place."

The above statement indicates that extreme caution should be exercised before the mere existence of enlargement of the inguinal gland should be regarded as pathognomic of plague.

H. J. DYSON, F.R.C.S.,
Sanitary Commissioner.

Telegram, dated 11th October 1896.

From Howrah to Darjeeling.

From Sanders to Hospitals, Bengal.

HAVE seen Cotta—a typical case, syphilitic buboes. No fever. No cause for alarm.

Letter from Surgeon Lieutenant-Colonel SANDERS:

36, Chowringhi,
October 11, 1896.

DEAR DR. ROSS,

I GOT your telegram this morning at 10 a.m., and at once went to Howrah. I saw and carefully examined J. Cotta.

History.—He lived with his parents in the Byculla quarter of Bombay, said to be three miles from Mandvi; he never went to Mandvi.

He left for Calcutta on 23rd September and travelled in the same carriage with his sister and her children, arriving at Calcutta on the 26th. The sister and the children have remained perfectly well. On 2nd October he went as an out-door patient, giving the assumed name of Maddox, to the General Hospital at Howrah.

The Assistant Surgeon, Mr. Mitchell, found that he had a sore on his penis and buboes. He gave him blackwash for the sore, and I forget what for the buboes (Cotta's statement). On October 7th he applied for admission to the hospital as an in-door patient, and said his sister would pay for his keep. He was told to get a letter from his sister, and went away, not returning to the hospital. On October 8th a police report was sent that there was a suspicious case of fever with buboes. This Mr. Cotta was then examined by Dr. Tomes first, and then by Dr. Tomes, Dr. Cobb, and Dr. Simson; and they pronounced the disease to be bubonic plague.

Present condition: Sunday, October 11th.—Found dressed and sitting in a chair; no fever; no symptoms of having been ill. Temperature normal. Pulse quiet and regular. Tongue clean; appetite good. On each side of the abdomen above Poupart's Ligament; a large bubo, one on either side, larger on the left than the right; no sign of suppuration, and but very little pain on pressure. Admits having been with girls in Bombay, and to have had a sore first, followed by these buboes.

On the inner side of the arms and on the front of the forearm, on the right side, a very suspicious rose rash, faint when seen by me, but stated by his sister to be much more marked when he gets warm. It looks very like a commencement of the rash secondary syphilis.

I am sure the case is nothing more than an ordinary bubo, following a chancre on the penis.

I have never seen a case of plague, but I am sure I cannot be mistaken in an ordinary case of syphilitic bubo.

If any case of plague is reported, I will personally see it, and wire you the result.

P.S.—I am willing to take all responsibility for this report, and to treat the man in the Mayo Hospital.

Dated Calcutta, 15th October 1896.

Demi-official from Surgeon-Major R. COBB, Officiating Surgeon Superintendent, Presidency General Hospital to the INSPECTOR-GENERAL OF CIVIL HOSPITALS.

THE first case I saw was Cotta. Dr. Simpson and I examined the blood and found characteristic diplobacteria, similar to those described in works on Bacteriology and exactly like those in Dr. Simpson's possession from Bombay.

They were also found in the serum drawn from the gland.

2. Similar bacteria were found in the blood in the case of Grace Hodges who had glandular enlargements with fever.

3. Also in the case of the boy Heman Shaw.

P.S.—Dr. Simpson had the notes, so I was unable to reply to yours at once.

Dated Howrah, 12th October 1896.

From Surgeon-Major A. TOMES, Officiating Civil Surgeon, Howrah, to the
MAGISTRATE OF HOWRAH.

WITH reference to your letter of yesterday on the subject of Mr. Cotta's illness and Dr. Sanders' opinions, I am still strongly of opinion that the case is one of *pestis ambulans*, the mild form of plague.

Dr. Cobb, Dr. Simpson, and myself thoroughly examined the young man, having specially in view at the time any possibility of syphilis, and, after careful consideration, came to the conclusion that the case was not one of syphilis.

I may mention that at the commencement of plague medical men have at times mistaken the glandular swelling in the groin for syphilitic buboes, and in this case Dr. Sanders appear to have fallen into that error.

I feel it is my duty to warn you that this case is not syphilis, but plague, and that if the patient had not been isolated, he would be a danger to the community.*

Dated Calcutta, 12th October 1896.

Memorandum by Surgeon Major A. TOMES, Civil Surgeon, Howrah.

COPY forwarded to the Sanitary Commissioner, Bengal, for information.

* NOTE.—The Board did not call this a case of syphilis, but called it a case of venereal infection.

Dated Calcutta, 15th October 1896.

From the INSPECTOR GENERAL OF CIVIL HOSPITALS, BENGAL, to
HIS HONOUR THE LIEUTENANT GOVERNOR.

WE have examined four reported plague cases. In our opinion, Howrah case is venereal bubo, one child, Howrah, abscess in armpit. In Maniktola, two cases ordinary fever. No case has any clinical appearance of plague. Letter follows.

No. 999, dated Howrah, 15th October 1896.

From Surgeon Major J. H. T. WALSH, Officiating Civil Surgeon, Howrah, and Secretary of the Howrah General Hospital, to the INSPECTOR GENERAL OF CIVIL HOSPITALS, Bengal.

I HAVE the honour to report that there is no fresh case resembling bubonic plague in Howrah, and all necessary precautions are being taken.

No. 1004, dated Howrah, 16th October 1896.

From Surgeon Major J. H. T. WALSH, Officiating Civil Surgeon, Howrah, to the INSPECTOR GENERAL OF CIVIL HOSPITALS, Bengal.

I HAVE the honour to report that there is no fresh case resembling bubonic plague in Howrah, and all necessary precautions are being taken.

No. 1005, dated Howrah, 16th October 1896.

From Surgeon Major J. H. T. WALSH, Officiating Civil Surgeon, Howrah, to the INSPECTOR GENERAL OF CIVIL HOSPITALS, Bengal.

SINCE my arrival here on Tuesday, I have done my best to become acquainted with the history and symptoms of the case of Mr. Cotta. He arrived in Howrah on September 26. On September 28 he suffered from "fever," and then attention was called to the fact that he was also suffering from large buboes in both groins. There is a history of unclean coition, and the appearance of some small sores on the prepuce about September 16. Mr. Cotta left Bombay on September 23, and at that time the glands in the groin were somewhat enlarged. In the same railway carriage there travelled his sister and other persons. These persons have shown no signs of illness, nor is there any evidence that any of them had been exposed to the danger of plague contagion in Bombay. A boy of about ten years of age has been in close attendance on Mr. Cotta, both in the plague hospital and in the isolation ward of the Howrah General Hospital. This boy is in excellent health. I cannot here enter into details, but I have very good reasons for considering that the case is not one of syphilis. So far, and in the absence of other evidence, I should at once accept these buboes as the result of infection from venereal sores, and no question of the "bubonic plague" would exist. The Health Officer of Calcutta examined the patient's blood, and in it he found a variety of diplococcus resembling, though perhaps not identical with, the micro-organisms found in the cases of plague in Bombay. I have been able, through the courtesy of Dr. Simpson, to examine a number of slides, including specimens from Bombay. I am also acquainted with the drawings made of the bacillus found by Yersin in cases in Hong Kong. Although, from a clinical point of view, I am inclined to believe that no case of true virulent bubonic

plague has as yet appeared in Howrah, I think that in Mr. Cotta's case further independent bacteriological researches should be made. Mr. Cotta's case may be, as I have seen stated, a mild case of "pestis ambulans," but whether identical with the plague, as I understand that disease, has yet to be proved. The ways of the bacteriologist are full of difficulties, and we may be dealing after all with some new form of disease.* One point is, I think, clear, that there is no occasion for any panic, and that any attempt to make the people over-anxious is to be deprecated. At the same time, so long as the plague continues in Bombay, the same care should be taken to detect and prevent it in Calcutta. It is better even to err on the side of over-carefulness. Mr. Cotta is doing well, the buboes will in course of time suppurate, and the final treatment will be surgical.

No. 1010, dated Howrah, 17th October 1896.

From Surgeon Major J. H. T. WALSH, Officiating Civil Surgeon, Howrah, and Secretary of the Howrah General Hospital, to the INSPECTOR GENERAL of CIVIL HOSPITALS, Bengal.

I HAVE the honour to report that there is no fresh case resembling bubonic plague in Howrah, and all necessary precautions are being taken. Mr. Cotta is doing well.

No. 1013, dated Howrah, 18th October 1896.

From Surgeon Major J. H. T. WALSH, Officiating Civil Surgeon, Howrah, to the INSPECTOR GENERAL of CIVIL HOSPITALS, Bengal.

I HAVE the honour to report that there is no fresh case resembling bubonic plague in Howrah, and all necessary precautions are being taken. Mr. Cotta is doing well. This morning it was reported to me that a syce in the employ of a European gentleman in Howrah was suffering from plague. I visited the case at once, and found the man suffering from gonorrhœa with orchitis.

No. 1023, dated Howrah, 20th October 1896.

From Surgeon Major J. H. T. WALSH, Officiating Civil Surgeon, Howrah, to the INSPECTOR GENERAL of CIVIL HOSPITALS, Bengal.

I HAVE the honour to report that there is no fresh case resembling bubonic plague in Howrah, and all necessary precautions are being taken. Mr. Cotta is doing well. Specimens of blood were taken this morning for examination by Brigade Surgeon Lieutenant Colonel D. D. Cunningham.

16th. Have again inspected all cases. All doing well, except Heman Shah; weak, but no fever or bubo.

20th. Cotta was put under chloroform, and the left bubo was incised, and four cultivations, and two slide preparations of his blood were taken.

* Mr. Cotta's case in some of its aspects resembles mild cases reported from Yunnan.—J. H. W.

No. 1027, dated Howrah, 21st October 1896.

From Surgeon-Major J. H. TULL WALSH, Officiating Civil Surgeon, Howrah, to the
INSPECTOR-GENERAL of CIVIL HOSPITALS, Bengal.

I HAVE the honour to report that there is no fresh case resembling "bubonic plague" in Howrah, and all necessary precautions are being taken. Mr. Cotta is doing well. Kindly let me know if he may be removed from the isolation ward.

Dated Calcutta, 23rd October 1896.

From Surgeon Captain H. J. DYSON, F.R.C.S., Sanitary Commissioner for Bengal, Acting
Secretary to the Medical Board, to the CIVIL SURGEON of Howrah.

WITH reference to your letter No. 1027, dated the 21st instant, asking for instructions as to whether Mr. Cotta, who is said to be doing well, may be removed from the isolation ward, I have the honour to say that in a matter of this kind you should use your own discretion.

No. 1030, dated Howrah, 22nd October 1896.

From Surgeon-Major J. H. T. WALSH, Officiating Civil Surgeon, Howrah, and Secretary
of the Howrah General Hospital, to the INSPECTOR-GENERAL of CIVIL HOSPITALS,
Bengal.

I HAVE the honour to report that there is no fresh case resembling "bubonic plague" in Howrah, and all necessary precautions are being taken. Mr. Cotta is doing well.

No. 1040, dated Howrah, 24th October 1896.

From Surgeon-Major J. H. TULL WALSH, Officiating Civil Surgeon, Howrah, to the
INSPECTOR GENERAL of CIVIL HOSPITALS, Bengal.

I HAVE the honour to report that there is no fresh case resembling "bubonic plague" in Howrah, and all necessary precautions are being taken. After a careful study of the history of Mr. Cotta's case, I have decided that it was not a case of "bubonic plague." I have removed him from the isolation ward, and his name will not in future appear in these reports. With your permission these reports will cease until a suspicious case does occur.

CASE NO. II.—REPORTED CASE OF PLAGUE AT CHATAWALA GALI.

Reported Cases of Plague which have not been seen.—It was reported that the daughter of an officer in the Preventive Service was suffering from plague, and that bacilli were found in her blood. The parents declined to allow her to be sent to the Isolation Hospital. The following letter from Dr. Panisty throws some light on the case. He writes to the Secretary of the Mayo Hospital as follows:—

"Sir,—With reference to your letter No. 81, dated October 5th 1896, requesting me to inform the Surgeon-Superintendent of any suspicious case, I have the honour to submit for his information the following facts, as the newspaper reports are not correct, regarding the girl Gertie Hodges of Chatawallah Gallee. I have seen Dr. Ferris about the case, and he informs me that when he saw the child on Saturday morning, the 10th instant, there was no fear, and that the child was apparently in as good health as anybody. He did not pronounce the case to be one of mumps, and he told the mother that the child

did not want any treatment, as the mother informed, him that the swelling had subsided a good deal, and that she painted the neck with belladonna, as the iodine with which she had painted the neck caused the child some pain. Exactly the same symptoms were noticed here. When the child was brought here on the 9th October last, there was no fever, the child was in good health, only that the submaxillary and cervical glands were somewhat enlarged. Belladonna was painted and some medicine given, and the child has never been brought here any more, although the papers say she was brought here on Sunday morning. I examined the child and beyond symptoms noted, there were signs of inherited syphilis, such as well marked Hunterian teeth, enlarged cervical glands, &c. When the medical inspector called on me on the afternoon of the 9th instant, I mentioned the case to him, not as any suspicious case, but one into which he may look, owing to the unhealthy locality from where the child comes. I even told the medical inspector that two or three years ago I had treated the sister for syphilitic sore of one of her legs."

JOHN E. PANIOTY, Resident Surgeon,
Chandney Hospital.

Bacilli were found in the blood by Drs. Cobb and Simpson.

CASE NOS. III. AND IV.—A REPORT ON THE CASES OF PLAGUE IN THE
MANIKTOLLAH ISOLATION HOSPITAL OF CALCUTTA.

ON the 13th of October, Drs. Ross, Sanders, and Dyson inspected the Manicktollah Isolation Hospital. Dr. Simpson was invited to attend, but was unfortunately unable to do so, as he did not get the letter in time.

The spot selected for the hospital appears a suitable one, and the erection of hospital sections is being rapidly carried out. There are two native doctors living in the enclosure, in tents, and a small brick building is utilised as a temporary hospital. It contained two cases, one named Tin Cowry Charan Pal, the other Heman Shah.

Tin Cowry Charan Pal is a Hindu boy and works in a jeweller's shop, and is thus brought considerably into contact with Marwaries. He has no history of any accident which might cause enlargement of the glands.

Previous History.—Had lymphatic swelling of the right thigh nine or ten years ago, forming deep-seated abscess, which had to be operated on. In 1895 was first affected with cholera, and then with small-pox; for the last two years since he began to work, he has now and then suffered from fever, cold and swelling of inguinal glands. On the 5th he was attacked by fever, and next day had slight swelling of the inguinal glands, which were a little tender; he was treated for fever. Dr. Cobb and Dr. Simpson examined his blood and found bacilli. He was admitted into the Isolation Hospital on the 11th with a temperature of 103 degrees. On the 12th it was 100 degrees, and on the 13th normal. He was found to be a fairly well-nourished boy of a cheerful appearance, with a clean tongue and clear eyes—no headache. The inguinal glands were slightly enlarged, but not markedly so. His tongue was clean, and he had no other symptoms.

Heman Shah, a boy, is by trade a hawker, and therefore exposed to all vicissitudes of temperature and climate. He was attacked on the 10th, and bacilli were found in his blood. When seen at hospital on the 13th, his temperature was 102, face a little sunken, breathing slightly quickened, eyes clear, no headache, tongue bright red, with the papillæ enlarged and prominent. He has gurgling in the iliac fossæ; the inguinal glands are practically not enlarged. He has symptoms of commencing pneumonia in the left lung, and the rise of temperature may be due to it. He presents the appearance of an ordinary fever case.

Remarks.—If Tin Cowry Charan Pal's case is one of plague, it certainly is a wonderfully mild form. He acquired fever on the 5th, and two days after admission into hospital, where he is carefully treated and fed, is free from fever, and practically has no buboes.

It was decided at a meeting of the Corporation, the Board of Health being present, that these two cases might be discharged from hospital.

CASES NOS. V. AND VI.—THE SUSPICIOUS CASES IN THE PRESIDENCY
GENERAL ISOLATION WARDS.

ON October 17th Drs. Ross and Dyson visited the Presidency General Hospital to examine two people who have been placed in the infectious wards as suspicious cases. They are respectively a small male child and a young man. Their histories are as follows:—

The child, three years of age, was born in Sylhet, and has repeatedly suffered from attacks of malarial fever. He has slightly enlarged glands under the jaw and in the armpits and groins, and has also inflamed tonsils. The glands are apparently not tender to the touch. His temperature on Thursday, the 15th, rose to 102 degrees. Present condition: no marked distress in the face; tongue clean; conjunctivæ morbidly white and glistening; no enlargement of the spleen. The child appears to have a scrofulous diathesis. No other symptoms of plague.

The young man, Douglas, is a bridge inspector. He states that he strained himself on the 23rd September, and found that the glands of the left groin were slightly enlarged on the 26th. Five glands in all were enlarged. He continued his work, and walked regularly two to two and a half miles daily. He found that walking made the glands worse. He was admitted into hospital on the 13th October. He then had five enlarged glands; there are now only two; neither are markedly tender. His temperature has for days been normal. He is a poorly-nourished man, with a thin face. His eyes are bright and clear, and he makes no complaint of headache. He has had blood abstracted for bacteriological purposes by Dr. Cobb, but the result is not known. He has been in the infectious ward two days. He looks as if he needed feeding up, otherwise seems healthy enough and comfortable.

The child has left the hospital some days ago; the other case remains under treatment.

CASE NO. VII.—CASE OF PLAGUE REPORTED IN KIDDERPORE.

No. 1123, dated Alipore, October 22, 1896.

From Surgeon Captain H. W. PILGRIM, M.B., Officiating Civil Surgeon, 24-Parganas, Alipore, to the SECRETARY, HEALTH COMMITTEE, care of Inspector General of Civil Hospital, United Service Club, Calcutta.

WITH reference to your Circular No. 47, dated 16th instant, I have the honour to state that the police asked me yesterday afternoon to examine a girl three or four years of age, by name Annoda, residing at Pearatolla, beyond Garden Reach. The case was said to have been reported by a native practitioner, Girish Chunder Ghose, as being a case of plague. I went and examined the child, who had been suffering from slight fever, and now has a few of the cervical and occipital glands enlarged. There was nothing in the symptoms or condition of the child, beyond the slight enlargement of the glands so common in children, to even remotely suggest the presence of plague.

CASE NO. VIII.—CASE OF PLAGUE REPORTED IN RAJA RAJBULLUB STREET.

Extracts from the Commissioner's Report Book, 1st Division Town, Section A, Shampookur, Case No. 4418 of the 4th November 1896.

AT 10 a.m. one K. M. Mukerjee, of No. 252, Upper Chitpur Road, informed by a letter that one Bipin Biharee Dutt is suffering from glandular fever at No. 1, Raja Rajbullub Street. Medical inspector at once informed.

CASE NO. 4446 of the 5th instant.

REFERRING to Case No. 4418 of yesterday's date, the medical inspector informed that he, together with Drs. Simpson and Cobb, saw the patient last night, and that they suspect it to be a case of bubonic plague, but they would not give any opinion until satisfied with microscopical examination. The patient died in their presence, and the place had been properly disinfected.

No. 10,638, dated Calcutta, November 6, 1896.

MEMORANDUM by C. B. DRAKE-BROCKMAN, Esq., Officiating Deputy Commissioner of Police, forwarded to the SECRETARY TO THE MEDICAL BOARD for information.

From W. J. SIMPSON, Esq., M.D., Health Officer, Calcutta, to the PRESIDENT OF THE MEDICAL BOARD, dated Calcutta, 5th November 1896.

I HAVE the honour to report a death from plague, which took place at 6.30 p.m. on 3rd November. Information was given to me about 4 p.m. on 3rd November, and the case was visited by Dr. Cobb and myself at 5.30 p.m. The patient died in our presence at 6.30 p.m., and as the friends would not give permission for a post-mortem examination, I ordered the medical inspector to accompany the body to the burning ghât, and to see personally that it was burnt along with the infected clothing. It was impossible to inform the Medical Board in time in order that the medical members should see the case, owing to the man's rapid death. An attack of illness prevented me from reporting the case the next day, but I verbally told Dr. Dyson about it in the morning, and he expressed his intention of making a local inquiry.

The details are as follows:—

History.—Bepin Beharry Dutt, aged 32 years, a sugar-candy maker, residing at No. 1, Raja Rajbullub Street, is stated to have been seized with a sudden attack of headache, fever, pain, and enlargement of the glands of the right groin on 1st November. The pain in the groin became so severe that he was confined to bed and could not straighten his leg. The symptoms increased in severity, and on 2nd November, about 3 p.m., the headache became intense and the abdomen swollen. At 8 p.m. he became insensible. Dr. K. M. Mukerjee states that he was called in at 10 p.m. on 2nd November, and found the patient in a comatose condition, picking at the bed clothes and in high fever, with congested eyes. The glands in the right groin were enlarged. He informed the friends that the case was a hopeless one, and the next morning sent a post-card to the Health Officer reporting the case. Another medical man, Dr. Chatterjee, was called in later, and, it is stated, found the temperature to be 104 degrees. The patient is said to have scalded his toe more than a fortnight ago, but we found no marks on the foot.

Condition on examination by Dr. Cobb, Dr. Mitra, and myself.

The patient was lying insensible, breathing with a sighing and moaning noise. The eyes were sunken and the conjunctivæ very much congested. The direction of the eyes was upwards and to the right. The pupils were contracted and insensible to light. The tongue was furred in the centre and red at the tip and edges. Pulse was 160 and respirations 32 per minute. The body, especially the head, face, and legs, was covered with a profuse perspiration. Petechiæ in large numbers were to be seen on the chest and abdomen, and a few on the back, arms, and legs. They varied in size from one-tenth to one-quarter inch in diameter, and did not disappear on pressure. Both the inguinal and femoral chains of lymphatic glands on the right groin were enlarged. Two of the former and three of the latter were felt to be swollen. In the inguinal region the largest was the size of a boy's marble, and in the femoral that of an almond. Blood was taken from the enlarged femoral gland and from the medium basilic vein. Microscopic examination showed diplobacteria.

NOTES on a Case of reported True Plague seen by Drs. Cobb and Simpson on Tuesday, the 3rd instant.

WE were informed yesterday, the 4th instant, that a case of true plague had been detected at No. 1, Raja Rajbullub Street, on the 3rd instant (afternoon).

The case was seen and reported by Drs. Cobb and Simpson.

No intimation was officially given to the Board of Health until the 5th instant, and this despite the distinct orders upon the subject laid down in paragraph 5 of Government Resolution No. 937 T., dated 10th October 1896.

Having received information from the Honourable H. H. Risley, C.I.E., privately on the 4th instant, we visited the house at once in company with the Ward Medical Inspector (Dr. Mitra).

We found that the room had been disinfected and washed out with carbolic lotion, and that MacDougal's disinfecting powder had been profusely strewn on the floor and in the

court-yard. The roof had apparently not been touched, and the woodwork showed no signs of having been washed down. Several apertures in the room had not been properly closed up, and sulphur has ceased to burn (18 hours after death).

The body was cremated, and all clothing and furniture had been burned under the personal supervision of the Ward Medical Inspector (Dr. Mitra).

Statement made by the Employer and by the Friends of the Patient.

The deceased, Bepin Bihari Dutta, was in the employment of a sugar-candy merchant. It was stated that the patient's right big toe had been scalded about a fortnight before his illness commenced. He had done his work as usual, and the effects of the scald had not caused any perceptible lameness, and he was able to walk about, and he never complained of having enlarged glands. On Saturday, the 1st instant, he was unable to go to work, and the reason given was that he was suffering from fever.

Statements by the Medical Practitioners who saw the Case.

On Monday night the family physician, Dr. Mukherji, a homœopathic practitioner, was called in at 10 p.m. He found the patient unconscious, and his temperature was about 104 degrees F. His attention was also drawn to the enlarged glands in the groin. Knowing that bubonic plague was suspected to be in Calcutta, and associating the enlargement of the glands with the high temperature and coma, he formed the opinion that it was a case of bubonic plague. He communicated his suspicions to the police, and eventually Drs. Cobb and Simpson visited the patient. This homœopath stated that he did not notice any petechiæ, but saw a piece of cloth with some native drug on it applied to the enlarged glands. He also stated that, had he had no suspicion of bubonic plague, he would have thought that this case was one of typhus. He evidently did not think there was any difference between typhoid and typhus.

It will be noticed that there was almost an interval of 20 hours between the time when the homœopath first saw the case and when it was visited by Drs. Cobb and Simpson.

He sent a post-card to the Health Officer, reporting the case as one of plague. Dr. Chatterji (an allopathic practitioner) visited the case about half an hour after Dr. Mukherji had left, and he gave us the following information:—

That a friend of the deceased's (a cooly) had told him that the glands in the right groin had been enlarged for about eight or ten days before the commencement of the illness. He noticed the plaster in the right groin, and found a small ordinary bubo, which had not suppuriated, underneath it.

The patient was in a comatose state, and was suffering from fever.

His opinion was that the case was one of low remittent fever; and, as the glands had been enlarged for more than a week, it never struck him that the case could be one of plague. He saw no petechiæ on the body. He found five or six coolies attending the patient and putting ice on his head, also, that he did not think he would be able to recognise the cooly who gave him the information about the bubo. Having elicited this information from Dr. Chatterji, we returned to No 1, Raja Rajbullub's Street, and endeavoured to discover the cooly mentioned above. By this time the employer and his servants were in a considerable state of apprehension, and were unanimous in stating that practically nobody attended the patient, except very intermittingly, and that the greater part of the nursing was carried out by outside agency. We felt that under the conditions it was hopeless to expect any further information. We also visited Dr. Mukherji's dispensary, but he was out. He subsequently came to us in the afternoon, and his statement is recorded above.

Dr. Mukherji and Dr. Mitra are making enquiries as to where the materials for making the plaster were got from, and when it was applied to the enlarged glands. They are also trying to obtain information regarding the previous history of the case from the deceased's friends.

H. J. DYSON,
Sanitary Commissioner for Bengal.
C. G. ROBSON-SCOTT,
Secretary, Medical Board.

Calcutta, November 5, 1896.

FURTHER REPORT ON THE CASE OF "TRUE PLAGUE" REPORTED BY DRs. COBB
AND SIMPSON.

ON the 6th we proceeded to No. 1, Raja Rajbullah Street, and found Babu Nolin Bihari Sircar waiting for us.

After a good deal of difficulty and hunting about we managed to find the friend (Behari Lal Das) who had attended the deceased (Bepin Bihari Dutt) during his last illness, and he furnished us with the following particulars:—

I am an intimate friend of the deceased's. I often met him, and I know that he led a fairly loose life. I had not seen him for ten days, when he sent for me on Saturday, the 31st ultimo. He was quite well the last time I had seen him. On visiting him I found that the patient was unable to go to his work. He was unable to walk by himself, so I was obliged to carry him to the latrine, and then I noticed his dhotee was loosened. I noticed that he was suffering from double orchitis, and the parts were swollen and red, and were painful to the touch, and the glands in his right groin were slightly enlarged, but they were not very tender. He had slight fever on Saturday evening. The patient scalded his right great toe with some boiling sugar five or six days before I saw him, and this laid him up temporarily. After four days he was able to limp about, and he returned to his work. It was after this that he suffered from double orchitis.

On Monday, the 2nd instant, he got very much worse, and he sometimes clenched his hands. I noticed that he had small red spots on his body, and when I asked him how they had come there, he said that there were too many mosquitoes about.

At this point Babu Nolin Behari Sircar pulled up one of his sleeves and showed us some red spots (mosquito bites) that were on his arm, and on being asked if the spots resembled those on the deceased's body, Bihari Lal Das said that they were exactly the same.

The mosquito bites on Babu Nolin Behari Sircar's arm did not disappear upon pressure.

He continued:—I attended to the patient from Saturday.

On Monday he became delirious, but before he got into that state he expressed a strong desire to return to his native village.

I noticed that there was a plaster on the enlarged glands; it was there when I first saw the patient, but I do not know where he got it from.

I went on Sunday and Monday to see him, and stayed with him all Monday night.

On Tuesday I remained with him till 11 a.m., and returned again at 5 p.m.

I was present when the doctors came on Monday night, but I did not inform them about the double orchitis. I did not notice any yellow stains on his dhotee, and I am not aware that he had venereal disease. All the occupants of the house and the coolies employed by the sugar refiner knew of his condition, but none of them informed the doctors of the truth, and they must have lied to the sahibs.

Babu Nolin Bihari Sircar states orchitis is not uncommon, but never produces fatal results.

H. J. DYSON,
Sanitary Commissioner for Bengal.
C. G. ROBSON-SCOTT.

Calcutta, November 7, 1896.

*CASE No. IX.—CASE AT WOOLTADANGA.

No. B—108, dated Calcutta, November 6, 1896.

From W. J. SIMPSON Esq., M.D., Health Officer to the Corporation of Calcutta to the
PRESIDENT OF THE MEDICAL BOARD.

I HAVE the honour to inform you that the following postcard has been received by me to-day, dated Wooltadanga, 4th November 1896.

From BABU JOHUR LAL DUTT to DR. SIMPSON.

THERE occurred a case of bubonic plague in Wooltadanga Saltpetre Factory. The man died yesterday at No. 42-24, Wooltadanga Road. You ought to see it is plague or not.

I have sent a medical inspector to make inquiries and hasten to give you the information, in order that the medical members of the Board may make inquiries if they desire to do so.

Dated Calcutta, November 7, 1896.

From W. J. SIMPSON, Esq., M.D., Health Officer to the Corporation of Calcutta to the
PRESIDENT OF THE MEDICAL BOARD.

IN continuation of my letter,* dated yesterday's date, I have the honour to forward herewith a copy of the Medical Inspector's report on the Wooltadanga case.

Health Officer—

With reference to the alleged case of bubonic plague reported to you by one Johur Laul Dutta, I beg to state that I had been to the saltpetre factory at 45-25, Wooltadanga Road this morning.

It is on the other side of the canal, and is outside our jurisdiction. The deceased, name Goorbuksh Laul Hinon, male, about 60 years old, had been laid up for 13 days. At first he had been suffering from obstinate constipation and pain in the abdomen.

Then he had persistent hiccough for five days. Subsequently he became speechless three days before his death on the 3rd November. There was no enlargement of any of the glands, nor any other suspicious symptoms. These are all the facts I could gather.

November 7, 1896.

P. C. MITTRA, Medical Inspector.

INTESTINAL OBSTRUCTION.—H. D.

No. 114B., dated Calcutta, November 16, 1896.

From W. J. SIMPSON, Esq., M.D., M.R.C.P., Health Officer to the Corporation of Calcutta to the SECRETARY TO THE BOARD OF HEALTH.

WITH reference to your letter No. 11, dated the 12th November 1896, I have the honour to refer you to the Medical Inspector's report, which was forwarded to the Board on the 7th instant, and which states that from inquiries he did not think that the man who died at 42, Wooltadanga Road was a case of plague, and secondly, it was beyond the limits of the Municipality of Calcutta. For these reasons the matter was simply reported to the Board, and no action taken.

CASE NO. X.—CASE IN ARMENIAN STREET.

No. 113B., dated Calcutta, November 10, 1896.

From W. J. SIMPSON, Esq., M.D., Health Officer, Calcutta Municipal Corporation, to the
PRESIDENT, MEDICAL BOARD.

I HAVE the honour to submit the following report on a case of pestis ambulans and on an unusual mortality among rats:—

Case of Giga, aged four years, son of Hardat Roy, of 13, Armenian Street.

Dr. Charles wrote to me on October 30th to the effect that he had just seen in consultation with Dr. Bilimoria a case which he thought ought to be examined. The details given by Dr. Charles are as follows:—"Child Giga, aged four years, son of Hardat

* I do not remember this.—H. H. R.

Roy, of 13, Armenian Street, ill about 10 days, fever and slight bronchial catarrh, glands of left axilla enlarged to size of small marbles; those of right axilla enlarged, but less so; glands of right groin palpable; one gland in left groin inflamed, and will suppurate; sub-occipital glands can be felt, but do not count, as the child has had eczema of auricles. The definite clinical signs of a typical case of plague not there, but I consider it certainly as good a case as I can imagine for the examination of the blood.

“ Present condition. — Fever continuous with exacerbations, bronchial catarrh, glandular enlargements, tenderness on pressure over liver, a vesicular and papular rash has been out; not seen to-day.”

On October 31st I visited the house in company with Dr. Bilimoria, and found the patient in the same state as noted above. His temperature on the 30th October was 101·8 in the morning and 100 in the evening. On 31st October temperature 99·4, pulse 120, tongue furred in the centre, tip and edges red, bowels inclined to be constipated.

On November 1st the patient was seen by Dr. Cobb, Dr. Bilimoria, Dr. Chatterjee and myself.

The gland in the groin was opened and found to contain pus. Specimens of blood and pus were taken.

The blood on examination was seen to contain diplo-bacteria.

On inquiry into the circumstances of the case we found that the people in the house were Marwaries, who had communications with Bombay and received goods (clothing and yarns) from that city.

After having completed our examination of the patient we went down stairs to inspect the godowns where the bales from England and Bombay were stored. While inspecting these we noticed a large grey rat sitting on a step looking very ill, it had a staring coat, watery eyes, and did not attempt to move though surrounded by people. The rat was caught and taken to the laboratory, where it was killed and immediately examined.

Post-mortem Examination of the Rat.

On deflecting the skin from the abdomen and groins, two enlarged glands, the size of small beans, were found in the right groin. In the left groin two glands were found very much congested and agglutinated together.

In the left axilla was one enlarged gland, the size of an almond.

Lungs were a pale greyish colour, with dark mottled patches. Spleen was congested and enlarged. Abdominal glands were enlarged. Kidneys were intensely congested. Liver was enlarged and congested.

Blood was taken from the heart, liver, and spleen and examined under the microscope and found to contain diplo-bacteria. Blood from these organs was also put into nutrient media, with the result that pure cultures of diplo-bacteria were grown, closely resembling those found in the plague patients.

As a control experiment the blood, liver pulp and spleen pulp of seven healthy rats were examined with negative results. Similarly, the blood and the spleen pulp of the healthy rats were put into nutrient media, and no growth of diplo-bacteria was found.

In connection with this observation I think it important to inform the Board that within the last few days an unusual sickness among rats in Jorabagan has been observed. Whilst the special establishment recently granted by the Municipal Commissioners for cleansing the premises of houses was working at 81, Burtolla Street, the inspector of the gang noticed an unusual number of dead and sick rats. He reported the circumstance to Dr. Banks, who ascertaining the correctness of the statement on personal inspection reported the matter to me.

I visited the house with Dr. Cobb on the 9th November: we saw eight dead and two sick rats; 81 Burtolla Street is a grain depôt, and is in a very dilapidated and insanitary state, so much so that I have recommended it to be closed as unfit for human habitation.

The grain is bought from the Howrah Railway godowns, and some of it is stated to have come from Bombay.

We next visited a neighbouring grain shop, 14, Burtolla Street. The owner at first stated that he had noticed an unusual mortality among rats, but he afterwards denied it.

Mr. Scott, one of the Inspectors of the special establishment in this locality, has lately observed a large number of sick rats in the streets with their hair partly or wholly fallen

off. They creep about and are stoned by boys and sweepers, who make it a form of amusement. The two sick rats caught at 81, Burtolla Street, were taken to the laboratory. One of them died shortly afterwards, and was not examined. No. 2 died at 3.30 p.m., and was examined at 4.15 p.m. The liver was found enlarged and congested, and spleen very dark in colour. Specimens of the spleen and liver showed diplo-bacteria in large numbers.

Later in the day (9th November) seven more sick rats were caught and sent to the laboratory. Of these, I forwarded two to Dr. Cunningham. One of the remaining five was killed and examined. The axillary glands on right side were much enlarged. The liver was enlarged. Specimens of blood, spleen pulp, and liver pulp contained diplo-bacteria. The heart blood was put into culture media.

In consequence of the Board having recorded their opinion that the former cases of glandular swellings with fever reported by me were not cases of true bubonic plague, I hesitated to report the case, Giga at 13, Armenian Street, though owing to my investigations at the laboratory I satisfied myself they were cases of bubonic plague.

The occurrence, however, of a case of pestis ambulans at 13, Armenian Street, and the discovery at the same time and in the same house of a diseased rat containing diplo-bacteria in its blood and organs, combined with the subsequent unusual sickness and mortality among rats in parts of the town, have induced me to lay these facts before the Board. I consider these facts are of serious import as showing that the micro-organism of plague is gradually gaining a foothold in the city of Calcutta.

CASE No. XI.—CASE IN FORT WILLIAM.

Extract from a letter from Dr. R. COBB to His Honour the LIEUTENANT GOVERNOR OF BENGAL, dated 16th October 1896.

“Last July, Surgeon-Major S——r, who had seen a large number of these cases (plague) while on leave at Simla, was attacked by peculiar shiverings which he noticed were quite different from ague and were not followed by fever, but were followed by glandular swellings in the groin, axilla, elbow and neck. Although better, he is still suffering from the effects of the attack. Our examination of his blood showed the same bacillus”

CASE No. XII.—CASE IN WARRIS BAGAN LANE.

Dated Calcutta, 12th November 1896.

From W. J. SIMPSON, Esq., M.D., Health Officer of the Corporation of Calcutta, to the SECRETARY, BOARD OF HEALTH.

I HAVE the honour to forward you a copy of a letter just received (6.30 p.m.) from the Officiating Commissioner of Police.

Dated Calcutta, November 12th 1896.

From H. PAGETT, Esq., Officiating Commissioner of Police, to the HEALTH OFFICER of the CORPORATION OF CALCUTTA.

I HAVE the honour to inform you that one John Marcellies, of No. 13, Warris Bagan Lane, cook's mate, died on the way to hospital this day.

He had fever last night and swelling in the groin. His body has been removed to the morgue in the Medical College Hospital.

No. 14, dated Calcutta, November 14th 1896.

From Surgeon-Captain C. G. ROBSON-SCOTT, Secretary Medical Board, to the
POLICE SURGEON, Sealdah, Calcutta.

I AM directed by the Medical Board to request the favour of your submitting a full report upon the *post-mortem* examination on John Marcellies, a cook's mate, of No. 13, Warris Bagan Lane, who died on the 12th instant from suspected plague, and whose body was sent to the Medical College morgue yesterday.

No. 258, dated Calcutta, November 16th 1896.

From Surgeon Major J. B. GIBBONS, Police Surgeon, Calcutta, to the SECRETARY
to the MEDICAL BOARD, Calcutta.

IN compliance with your No. 14 of the 14th instant, I have the honour to forward a report on the *post-mortem* examination of the body of John Marcellies, together with a copy of the "particulars of cause of death as far as known," sent to me by the Superintendent, 2nd Calcutta Division, with the request to examine the body and furnish a certificate of the cause of death for the information and orders of the Commissioner of Police.

As the request reached me late in the afternoon of the 12th instant, I determined to make the *post-mortem* next morning. In the evening about 9 p.m. Dr. Cobb, accompanied by Dr. Simpson, Health Officer, came to my house to ask permission to take blood from the heart, and from them I learned that the case was suspected to be one of plague. As they were anxious to take the blood at once, and the case was apparently of no particular medico-legal importance, I gave the permission, and they went on to the morgue.

I held the *post-mortem* examination at 7.30 a.m. on the 13th instant, in the presence of Drs. Bomford and Bird. Cover glass preparations were made by Dr. Bird from the enlarged saphena glands and from blood taken from the saphena vein in the middle of the leg.

Particulars of Cause of Death as far as known.

The deceased, aged about 16 years, lived at No. 13, Warris Bagan Lane. He was employed as cook's mate at the Great Eastern Hotel, and did not go to work yesterday, the 11th instant. At 7 a.m. yesterday he stated to "Punna Lall Mug," his companion, who shared the same room as himself, that he had very strong fever and had swelling in his groin. Punna Lall Mug also states that his swelling on the groin was lanced about a year ago; the deceased's sister, Miss Jane Marcellies, and Pobi Bewah also speak to this fact.

He is a pauper, and was removed to the Medical College Hospital in a palki, and was accompanied by Edwin Pereira, of 13, Warris Bagan, and on the palki landing at the hospital he was found dead.

Dated 12th day of November 1896.
2½ p.m.

E. ROBERTSON,
Superintendent, 2nd Division.

On the 13th November at 7.30 a.m. I examined the body of a native male, aged about 17 years, identified by Corporal Abdul Latif to be that of John Marcellies, *alias* Tootoo.

Body well nourished; *rigor-mortis* present in the legs only. Signs of decomposition; green discolouration of abdomen, superficial veins of a red colour, odour of putrefaction.

Three small, thin, old scars in the left femoral region. Left saphena glands enlarged. The largest a circular disc about the size of a rupee and ¼-inch thick; gland substance pale red in colour.

Lungs—Had fibrous adhesions to the chest walls; substance congested. Bronchi filled with muco-purulent fluid and congested.

Heart—right side full of blood; end-cardium stained by hæmoglobin; left side empty; muscle substances paler than usual; no valvular disease.

Liver—congested and greasy looking on section.

Spleen—soft and congested.

Kidneys—congested.

Stomach—healthy; contents about four ounces of watery fluid.

Intestines—healthy; contained bilious fœces.

Brain—vessels of meninges full; brain substance healthy.

No marks of violence.

From the history of the case and the *post-mortem* appearances, I am of opinion deceased died of fever and bronchitis.

J. B. GIBBONS.

OTHER CASES IN FORT WILLIAM.

Demi-Official from Surgeon Lieutenant Colonel R. COBB, M.D., to His Honour the
LIEUTENANT GOVERNOR OF BENGAL.

I WRITE to you on a most important and urgent matter which has come to my knowledge recently.

You remember the case of plague which occurred at Howrah on October 8th in a boy who arrived from Bombay. He suffered from glandular enlargements and a little fever but was able to walk about.

Dr. Simpson and I examined him and took specimens of his blood, and submitted them to microscopical and bacteriological examination. We found bacilli in them identical with the plague bacilli.

When our certificate was published it attracted the attention of Surgeon Major S—, of the Station Hospital, who wrote on October 10th, and gave me a history of the soldiers in Fort William suffering from buboes which he had long decided were not syphilitic, and he asked me to see a few of the cases with him.

On the 11th of October I visited the Station Hospital and found these men to be suffering from a similar affection to that of the Howrah patient. On the same day I took specimens of the blood, and Dr. Simpson and I examined them together and saw they (*i.e.*, the bacilli) were similar in every respect to those found in the blood of the Howrah case.

In the meantime the Howrah bacillus had been cultivated and compared with the Bombay bacillus, and they, too, were found to be identical. After this Dr. Simpson and I, with the consent of Surgeon Lieutenant Colonel M—y, and Surgeon Major S—, visited the Station Hospital on the 13th October, and examined ten of the patients very carefully, and found they were suffering from glandular enlargement of the groin, and many of them much pulled down from the effects of the disease. We took blood from the arms of two and transferred it immediately into culture media.

In three days characteristic growths appeared in some of the cultures, and a microscopical examination showed them to be the same bacilli as we had found in the Howrah and Bombay specimens. The next important point is that the Shropshire Regiment came from Hong Kong, and you will remember the men were employed in cleaning out the plague-infected houses, and for that work they received a testimonial, which they call the "Plague Cup." About this time, I am informed, two soldiers died of the plague, and whilst at Hong Kong other soldiers began to be affected with glandular swellings in the groin, and fever.

They came to Calcutta in January 1895, and ever since their arrival some of the soldiers have been laid up with this peculiar illness and glandular enlargements, new drafts of men being affected who have never been in Hong-Kong.

It was at first thought to be syphilis, and then careful consideration of the symptoms excluded this, and it was found that people who were above suspicion of syphilis got the disease.

Then it was considered to be of malarial origin, but malaria is not a disease which is of any particular prevalence in the fort, and glandular swellings of this nature have never before been noticed in other regiments who have occupied the fort previous to the arrival of the Shropshire Regiment, and, moreover, glandular enlargements are not a symptom of malarial poisoning.

Last July, Surgeon-Major S.—r, who had seen a large number of these cases while on leave at Simla, was attacked by peculiar shiverings, which he noticed were quite different from ague and were not followed by fever, but were followed by glandular swellings in the groin, axilla, elbow and neck; although better, he is still suffering from the effects of the attack; our examination of his blood showed the same bacillus.

A number of the men suffering from this disease have been, and are being, sent up to Jallapahar for the benefit of their health.

P.S.—Probably the mildness of the cases in the Shropshire Regiment is due to the fact that they have a bacillus of a declining epidemic, and also because they are surrounded by the best hygienic conditions, but this does not prove that they might not become very dangerous under other circumstances.

R. C.

Dr. Cunningham subsequently repeatedly examined the blood of these cases and failed to find any typical bacteria.

With reference to these cases of non-venereal bubo, the accompanying article from the "British Medical Journal," by Charles C. Godding, furnishes interesting reading.

Surgeon-Lieutenant-Colonel May's note shows that non-venereal bubo existed among the troops in Calcutta in 1890, though the Shropshire Regiment did not arrive till 1895.

On Non-venereal Bubo, by CHARLES C. GODDING, M.R.C.S., Fleet Surgeon, H.M.S.
"Centurion," Chefoo.

(Communicated by the Director General of the Medical Department, R.N.)

NON-VENEREAL bubo, commonly spoken of as climatic or sympathetic bubo, might be called lymphoma or adenoma. The disease is characterised by fever, enlargement of inguinal glands in one groin (seldom in both), increasing malaise, and anæmia. The inguinal glands are invariably attacked; lymphatic vessels, or glands in other situations, never, marking the difference from lymphadenoma.

Etiology.—For many years I have been in the habit of associating these cases entirely with foreign service, and of calling them "climatic bubo"; but on looking up the "Health of the Navy" for the seven years 1888 to 1894 inclusive, I was greatly surprised at the total number of these cases, and also to find how many occurred in the Home and Irregular Forces (*See statistics.*) This would be accounted for to a certain extent in the Home Force by cases occurring in men recently returned from abroad, and in the Irregular Force by its employment on almost constant foreign service.

I consider the disease to be primarily constitutional, as indicated by the fever, and the bubo as purely a local symptom, but how this constitutional condition is produced, or why the inguinal glands alone are invariably attacked, is difficult to ascertain; and though the large number of cases occurring in the Home and Irregular Forces militate against the name "climatic," yet climatic influences appear undoubtedly to play a considerable part in the causation of this disease. For instance, the East Indian Station gives nearly four times as many cases per thousand as the Mediterranean, and the China Station, where lymphoid diseases are common among the natives, comes next in order in the production of these cases, with three times as many as the Mediterranean. On the other hand, the Mediterranean, Australian, and West Coast of Africa give comparatively few cases, and are therefore climates non-provocative of this disease. I have myself seen the worst cases on the East Indian Station, at Zanzibar and adjacent coasts, the patients having huge masses of glands in the groin, often suppurating, progressive anæmia and debility.

The immediate cause of the bubo appears to be sometimes a slight sprain; at others superficial abrasion on penis or toes; while in some no apparent cause at all can be discovered; but in all these cases the presumed cause (or what the patient judges to be the cause) is quite insufficient to account for the long train of symptoms which follow, and are trivial accidents which would have been quickly recovered from had not the patient been constitutionally ready for the excitation of this disease. Of eleven cases I have recently treated, four gave a history of slight sprain, in four no cause at all could be discovered, two had small superficial sores on penis, and one man a small abrasion on toe. In four of these cases the glands suppurated. Age has apparently no influence. Five cases occurred between the ages of 19 and 25; two between 25 and 35; and three in men over 35.

Statistics.—In the seven years from 1888 to 1894 inclusive, the average strength of the Royal Navy being 56,180 per annum, 733 cases of bubo was the yearly average. During the whole period twenty men have been invalided from the service, and nine have died, principally from exhausting suppuration from these buboes; in one fatal case femoral was ligatured.

The number of these cases varies considerably from year to year, but these figures show that the disease is a formidable one.

The worst stations are: (1) East Indies, 61 cases per 1,000 of strength; China, 25; and West Indies, 22. Stations least affected are, (1) Mediterranean, 8 cases per 1,000 of strength; Australia, 9; and West Coast of Africa, 13. The Home and Channel, with an average force of 27,000 men, gives 287 cases annually, or about $10\frac{1}{2}$ per 1,000.

Symptoms.—In nearly all cases the patient's first and only complaint is simply the pain and swelling in the groin; he feels quite well in himself, but "the lump is getting larger." There may be a history of sprain or trivial injury, but almost as often there is no apparent cause. There is, however, a rise of temperature in nearly every case.

Course and Duration.—The ordinary disease runs a fairly regular course of increasing fever and enlargement of glands, lasting two to four weeks, the resulting bubo being a large conglomerate swelling. Secondly, a decline of fever and resolution of glands, lasting about a similar period, and the whole covering a period of three to eight or nine weeks; severe cases, of course, lasting much longer. The eleven cases before referred to give an average of forty-four days' sickness; the shortest twenty-six, and the longest seventy-six days. I consider a cure effected in four weeks as very satisfactory. Frequently towards the end of the inflammatory stage, from fifteenth to twentieth day of sickness, the bubo becomes very boggy, and fluctuation is simulated very completely. I have never explored them to see if pus had formed. The buboes also vary from day to day, increasing or decreasing with exacerbations and decline of temperature.

Cases of Inflammation of Lymph Glands taken from the records in the Station Hospital, Calcutta.

Dated October 22, 1896.

From Surgeon-Lieutenant-Colonel W. ALLAN MAY, A.M.S., Medical Officer in charge, Station Hospital, Calcutta, to the PRINCIPAL MEDICAL OFFICER, T. D., Calcutta.

I HAVE the honour to forward accompanying record of cases of inflammation of lymph glands, with a few short remarks which may be of use at the meeting of the Sanitary Board this morning.

RECORD of Cases of Inflammation of Lymph Glands occurring in the Calcutta Station Hospital from 1890 to 21st October 1896.

	1890.	1891.	1892.	1893.	1894.	1895.	21st October, 1896.
1	2.	3.	4.	5.	6.	7.	8.
Inflammation of lymph glands, cervical	3	2	3	1	1	2	4
" " axillary	1	—	—	—	—	1	1
" " inguinal	27	39	26	38	19	39	41
" " femoral	—	—	—	—	—	—	1
" " buccal	1	—	—	—	—	—	—
Total - - -	32	41	29	39	20	42	47
Total admissions for all diseases -	2,207	1,765	1,418	1,242	1,212	1,717	1,254

I.—1st Shropshire Light Infantry arrived from Hong Kong, 8th January 1895 bringing two men suffering from inflammation of lymph glands, and during the year 1895, 36 more cases occurred in this regiment, of which number 14 were in men who had not served in Hong Kong.

II.—In 1896 to date (21st October 1896), 47 cases have occurred. Of these, 41 can only be traced (the other six having left the station). Of these 41 cases, 23 occurred in men who had never been in Hong Kong. Of the remaining 18 cases, none of them had suffered previously at Hong Kong from inflammation of lymph glands.

III.—Of the 47 cases, four attacked men of other corps.

IV.—No deaths have occurred from the disease.

V.—In 1891 there were 41 cases. These occurred amongst the 1st East Kent Regiment and 21st So. Div., Royal Artillery, neither having been in Hong Kong.

VI.—Of the 47 cases occurring in 1896 (to 21st October), in three there was the exciting cause of sore feet, and in three others a possible venereal taint.

W. ALLAN MAY, A M.S., Surg.-Lieut.-Colonel,
In Charge, Station Hospital, Calcutta.

Enclosure No. 12.

SANITARY INSPECTION REPORT ON THE CALCUTTA MUNICIPALITY.

To the SANITARY COMMISSIONER for BENGAL, dated Calcutta, October 28, 1896.

Sir,

HAVING completed a sanitary survey of Calcutta, we have the honour to forward our report under the following heads :—

(I) OVERCROWDING OF HOUSES AND BUSTEES.—The following table shows the area and population of the wards :—

Name of Ward.	Area in Acres.	Population.	Population per Square Mile.
1.	2.	3.	4.
Ward I - - -	409	36,885	56,960
" II - - -	217	26,614	78,080
" III - - -	403	36,431	57,600
" IV - - -	320	34,828	69,760
" V - - -	243	39,180	103,040
" VI - - -	262	41,657	101,120
" VII - - -	217	20,646	60,800
" VIII - - -	224	50,781	144,640
" IX - - -	460	49,472	68,480
" X - - -	147	22,668	98,560
" XI - - -	166	20,768	81,000
" XII - - -	211	6,083	17,920
" XIII - - -	192	28,366	94,080
" XIV - - -	198	29,207	94,080
" XV - - -	179	13,218	46,720
" XVI - - -	153	4,620	19,200
" XVII - - -	128	4,598	22,400
" XVIII - - -	108	4,820	28,160

The city of London, within the Registrar General's tables of mortality, has an area of 74,672 acres and a population of 4,211,743, or 35,905 to the square mile. These figures give the highest estimate of population per square mile obtainable for London within various boundaries.

As far as we have observed, there is very considerable overcrowding in every one of these wards. In Colootollah, Ward VIII and others, the overcrowding is positively dangerous to public health. We were informed by the Inspector that there were, for instance, 250 people in one house, in which we consider the accommodation was not

certainly enough for more than 50 people. For more definite examples, we submit the following as noted :—

In Ward I in Russick Lal Ghose's-lane, in a room measuring 7-6 × 10-6 × 10 with no windows, tiled roof coming down on to mud walls, there were five people accommodated, besides room for cooking fires and belongings, giving each man about 157 cubic feet. In Ward V, No. 81, Grey-street, in a room 11 × 8 × 7 as before, five people were accommodated, giving 123 cubic feet per man. In Ward V, in a room 13 × 8 × 9 feet, full of rags and clothes, with cooking accommodation, there were seven people, giving 133 cubic feet per man. In Jeliatolla bustee in a house 7 × 7 × 6, *i.e.*, with 294 cubic feet, no window, and cooking done in the same room, we found six male occupants, giving 49 cubic feet per man. In Madhab Babu's Bazar, we have another house 7 × 7 × 9, occupied by four men, allowing 110 cubic feet per man, and another 7 × 7 × 7, or 343 cubic feet, occupied by five people, giving 69 cubic feet per man; cooking also done in these rooms. We need hardly quote more than this, and would point out that in barracks the minimum allowance per person is 600 cubic feet, and the premises are ventilated freely and kept clean. Here we find an allowance per man going as low as practically $\frac{1}{11}$ th of that given in barracks, and no ventilation, with filth *ad lib.* both in the room and its surroundings, to say nothing of the filthy persons of its occupants, the sewage round in the adjacent drains, and the accumulated filth in the neighbouring latrines, and to this may be added the fact that the subsoil on which the huts are built is soaked through and through with sewage matters and littered with garbage and filth of all kinds. In Marwaritolla the houses are separated from each other by narrow gullies, so cramped that coolies cannot possibly get down there to clean them out, and when we further state that the majority of these gullies are a foot deep in absolute sewage filth, and that they are freely used as latrines and urinated in, we only wonder that with such overcrowding, combined with sewage air pollution, the public health is reported to be so good as it is.

In No. 17, Durpo Narayan Tagore's-street, the houses are built almost back to back. It would nearly be impossible to squeeze between them; sunlight is so far shut out that, with broad daylight outside the gully, it is absolutely impossible to do more than grope your way from one part to another within these tenements; rats run about here in the dark as they would at night; a heavy sickening odour pervades the whole place; walls and floors alike are damp with contamination from liquid sewage, which lies rotting, and for which there is no escape. From the gully between Nos. 21 and 22, Maharatta-street, 10 cartloads of offensive matters were removed; this gully was so narrow that it was impossible to walk straight down it, the coolies having very great difficulty in using their kodalties (pickaxes). Jammed in among these overcrowded huts are clusters of filthy, dilapidated privies, which are souled beyond description, with their drainage discharging into the little space that is left, and polluting everything. In many cases it is practically impossible to walk into the spaces between and behind the huts, where the ground is damp with liquid sewage, and the stench is simply overpowering. If any further argument is required, we would refer to Table I, which shows that with all this the population reaches as high as 144,640 per square mile. Other native cities have been reported on as being bad enough, but the metropolis, which should serve as a model, is obviously at least five times as overcrowded as the most overcrowded municipality in Bengal, Bihar, and Orissa—*vide* Sanitary Commissioner's Report, 1895-96.

The only remedy which will be of any use at all is :—

- (a) The cutting of wide roads through these overcrowded areas ;
- (b) The limiting of gullies to a minimum width of 12 feet at least ;
- (c) Inasmuch as from the very character of the present buildings, which in the case of bustees are constructed of filth-retaining materials, it is absolutely impossible to clean or to keep them clean. It is our opinion that no real sanitary improvement can be effected so long as these tenements be allowed to remain. There is nothing left, therefore, but to recommend the absolute demolition of these filthy huts, and their replacement by decent model workmen's houses, as may be seen in Bombay.

In Marwaritolla, which is perhaps the most thickly populated portion of the municipality, and where the conditions of filth associated with overcrowding reach their climax, we are of opinion that no measures short of the compulsory widening of all the roads and lanes will be of any real benefit.

Public Latrines.—To begin with, these are hopelessly deficient in number. As a consequence, we find in every bustee large numbers of the most inconceivably dilapidated and foul-smelling semi-public latrines for the use of the inhabitants. The majority of these are very rarely cleansed, and as a consequence there is a continuous sewage overflow and soakage into the ground. We, therefore, think that the municipality should take the matter into their own hands and erect model public latrines in all these places, and by so doing a large number of disease-breeding centres would be done away with.

Of the public latrines that exist, none are really built on sound sanitary principles, to add to which certain of them, as, for instance, one in No. 93, Upper Circular-road, are in a hopelessly dilapidated condition; the masonry of the floors and seats broken up, and the ground on which they stand freely absorbing every possible degree of filth. The condition of these latrines, for the hours during which the water supply is turned off, is something too horrible for description. The large gully pit into which the night-soil is supposed to fall is choked and filled up with enormous masses of solid excreta.

Efficient arrangements for continuous flushing are absolutely necessary. As things are when the water is turned off, the stench is so horrible that it is quite enough to deter the public from visiting them, and one can perfectly understand how people should prefer to commit nuisance anywhere rather than visit such places.

Private Latrines.—The simplest method of explaining the existing conditions of the private latrines will be to describe the type of privy which is usually met with. As a rule the seat with the seat aperture is from 2½ to 3½ feet above the ground. Immediately below this is the gumla (earthen-pot) chamber which receives the night soil; sometimes this chamber opens directly on to the roadside; in other cases into a second chamber placed to one side, and sometimes into a long, narrow, tunnel-like gully, which is the only approach to it. The latrine itself is usually built of brick, the seat is coated with cement; but in the underlying chambers the brick-work is not faced with plaster, and the floors in a large number of instances are kutcha. The drop from the seat to the gumlas we have found to vary from 18 inches to 25 feet; so that the night-soil must necessarily be splashed all over the walls and floors. In many instances the gumlas are embedded in the floor and cannot be removed for cleaning; in many other cases there are no gumlas at all, or the vessels provided are so small that before long, in the course of any one day, the night soil overflows the gumlas, and spreads out in a filthy pool covering the floor. From what we have seen, we do not believe that the latrines are cleaned every day in all parts, and in some that we observed, as, for instance, in Nos. 46 and 228, Mundal-street, the gumlas, the capacity of which must have been at least 10 gallons, had overflowed, and stood in a pool of filth which reached half-way up its sides. The same thing was observed in No. 162, Ahiritolla-street, and in No. 6, Rajah's-lane. With regard to the cleaning of these places, we would point out that the doorways which open into the gumla chambers, or the passages leading to them, are so small that a man can only just squeeze through (in one case we measured the opening to be 1 foot 3 inches × 2 feet 6 inches); where there is a passage from which the side chamber opens, the difficulties of cleaning are greatly increased owing to the cramped space and darkness in which the sweeper has to work. Where the gumla chambers open on to the street, the openings are so small that the vessels cannot be removed without spilling practically the whole of their contents on to the ground, and the result is that they never are removed and properly cleaned, but the contents are partially removed by an earthenware dipper, aided by the hands of the sweeper; even with this method a varying quantity of night-soil is left in the gumla or spilt on the floor. As a result of these facts, it is no wonder that the latrines are always foul smelling, and one cannot blame the sweeping staff, as the construction of these places is absolutely wrong. When we add to this the fact that it is latrines like these that are found in clusters in the most densely overcrowded bustees, and that in the majority of cases there is either no drainage or the liquid discharges pass into the surface drains, we have a picture of insanitary conditions in an overcrowded bustee which would be hard to beat. The inspection of these privies throughout the city reveals a hopeless sameness of sanitary defects. We would recommend that all private privies be remodelled on a standard plan, which would admit of—

- (a) Adequate ventilation of the gumla chamber.
- (b) Sufficient space and light to give the sweeper a reasonable chance of cleaning the place.
- (c) The replacement of unglazed gumlas by deep iron tarred receptacles.

Further, the sweeper staff maintained is numerically deficient. The table attached speaks for itself. As far as we can gather from the figures supplied by the Health Office, there is an average of 39 privies per mehter, but we are credibly informed by the inspecting staff that the average number of privies per mehter is about 40 or 50. Allowing eight working hours per diem, which no sweeper ever puts in, we have an average of about 12 minutes per man per latrine (*i.e.* at 40 privies per sweeper). This time allowance includes the time occupied not only in cleaning privies, but in carrying night-soil to all places to which it is carried, and also that occupied in attendance on public latrines and night-soil depôts. Practically, therefore, each sweeper can scarcely have more than five minutes per latrine. Certainly he has not that in actual practice. Seeing that so many privies are in a tumble-down condition, or in more or less disrepair, and that out of the scores inspected, not a single one was in anything approaching to a clean condition, it is quite apparent that whatever the cause, the staff do not overtake the work allotted to them.

House-connections and house-drains.—In the course of our inspection we found that the condition of the house-drains and “down-pipes,” which were intended to convey latrine and house sullage water, were in a deplorable condition. In a large number of cases the down-pipe was broken at from five to 15 feet from the ground, and the water, urine and liquid sewage from the houses were simply splashing on the ground, fouling the whole gully or lane, and soaking the walls of the houses, which in many cases were most thickly coated with filth. As examples, we might mention No. 39—3, Burtollah-street, and No. 169, Maniktollah-street. The house drains and gully traps were in a large number of instances in very bad repair and choked, and thus their contents (made up of washing from privies, urine, and kitchen refuse) overflowed, and the state of the adjacent lanes is simply filthy. As instances of this condition of things, we would mention No. 11, Holloodhur Burdan-lane, No. 43, Ooriyapara-lane, 70, Baniatollah-street, 50, Bolorampore Mozamdar-street. In No. 33, Muktarām Babu’s-street, occupied by Rai Amitra Nath Mitra Bahadur, the house-drain was directly connected with the public sewer; the kitchen drain was also directly connected with the sewer, which was untrapped and foul.

We would therefore recommend that more stringent regulations be brought in, forbidding the direct connection of house-pipes with sewers, and insisting on house-drains being kept in thorough repair.

(III.) SURFACE DRAINS.—A large number of these in bustees and back streets are constructed of Raniganj half-pipes, laid on a bed of khoa (concrete). The majority of such drains show the joints open and more or less disconnected, the pipes broken, the bed of the drains sunken, and the drains more or less in disrepair. Owing to the alteration in level, they do not conduct as they ought to, often draining away from the gully pits to which they are intended to lead. In many instances the surface drains, constructed of brick faced with cement or mortar, are wholly in disrepair. In a large number of instances the drains are hopelessly blocked with sullage matter, and are very frequently used as latrines or for the committing of nuisance. As examples of premises with bad surface drains we would quote the following:—73, Grey-street, 156, Upper Circular-road, belonging to Maharaj Mahendra Krishta Dey Bahadur, 16, Gobin Banerji’s-lane (zamiindar Kali Baral), 13, Rajendra Nath’s-lane (owner Atal Kumar Sen). Many other instances can be quoted. In places as in 66, Sukea-street, there are clusters of privies draining directly into surface drains, the gully pits being a long way removed.

In the bustees in Jorabagan, Russick Lall Ghose’s-lane, Sukea-street, Gumgarpara, Chandney Chowk, we have noted that the surface drains in many cases run down gullies, which are mostly only two or three feet wide. These drains are choked, and nests of the most filthy latrines situated right within the courtyards of houses discharge into them. In Chandney Chowk we found open urinals actually built over the surface drains, and these urinals were being used as latrines. It would be quite wearisome to multiply examples sufficiently to illustrate any considerable proportion of what we have actually observed, and it does not appear to us that any municipal bye-law touching these conditions is ever enforced—if, indeed, such a bye-law exists.

(IV.) CONDITION AND CLEANSING OF ROADS.—This is entirely unsatisfactory for the following reasons:—

- (1.) We are credibly informed by the Sanitary Inspectors, and indeed have seen for ourselves, that there is an utter want of system in the way, in which house

refuse is put out at all, and at any hours. There is no municipal bye-law or ruling regulating the putting out of house-refuse. As a result, scavenging carts may take what they find, but the streets are never cleaned.

We would recommend—

That definite hours be appointed for the putting out of house rubbish, viz., from 1st April to 31st October all rubbish be put out by 6 a.m. in the morning and by 4 p.m. in the afternoon, and from 1st November to 31st March by 7 a.m. and 3 p.m.; that no rubbish be put out between the hours of 6 a.m. and 4 p.m. in the hot weather, and nothing should be put out between 7 a.m. and 3 p.m. in the cold weather. Any occupants of holdings infringing this rule should be severely punished. The scavenging staff (carts and sweepers) should be increased to meet requirements. It would be of no use recommending that rubbish be put out between certain hours, as, for instance, between, say, 7 and 9 a.m., for then, unless a cart started on its rounds at 9 a.m., it may miss anything at any point in the earlier portion of its round.

(2.) Scavenging carts do not always take up what they find put out.

(3.) Scavenging staff is absolutely inadequate. In support of this statement we may quote the following figures showing work done by scavenging coolies. As examples, we would quote that—

In Ward	I.	15,109	square feet of road area per cooly is allotted.
„	II.	8,606	„ „ „
„	III.	14,525	„ „ „
„	IV.	11,439	„ „ „
„	V.	8,237	„ „ „
„	VI.	11,558	„ „ „

This would allow a considerable length of road for each cooly; and having regard to the traffic, the road areas per cooly are not so easy to manage as it might at first sight appear.

(4.) The surface drains along roadsides are entirely insufficiently flushed. The following table shows the number of bhists allotted per ward. As example, we would quote that—

In Ward No.	I.	there are 8 bhists to 409 acres, or 1 to 51½ acres.
„ „	II.	„ 9 „ 217 „ 1 to 29 „
„ „	III.	„ 9 „ 403 „ 1 to 44½ „
„ „	IV.	„ 8 „ 320 „ 1 to 40 „
„ „	V.	„ 11 „ 243 „ 1 to 22¼ „
„ „	VI.	„ 10 „ 262 „ 1 to 26½ „

Having regard to the necessity for flushing which exists, especially in the dry season, the present staff of bhists appears ridiculous.

(V.) SANITARY CONDITION OF COMPOUNDS AND COURTYARDS OF HOUSES.—Again, we have to state that throughout our inspection we found the scavenging of courtyards and compounds insufficient, and in many cases entirely neglected. We would draw special attention to the condition of courtyards and houses in Marwaritolla.

As example, we think it would be as well to describe the state of things obtaining at No. 46, Burtollah-street. The premises consist of a rectangular courtyard surrounded by dwelling-rooms on the ground-floors, and on two storeys above. The entrance to the courtyard is 3 feet wide, opening into a passage measuring 5 × 9 × 9 feet leading into the courtyard proper, and crowded with bricks and tiles; and in one corner a collection of filthy rubbish, 4 feet square. The courtyard is 32 feet long by 11 feet broad, of which 6 × 3 feet are taken up by the staircase leading to the upper storeys, and under which we found a collection of dirty rags. In this corner was also a tap and sink. In the opposite corner of the courtyard were two privies, discharging by a broken pipe, 3 feet from the ground, an open drain crossing the width of the courtyard to the sink just mentioned. The walls of the privy pipe was thickly coated with latrine discharges, and the drain was partially blocked with filth. The walls in the neighbourhood of these privies were

damp and splashed with filth up to a height of 3 feet. The pukka drain going down the length of the courtyard is not clean, and was blocked at one end by a collection of old rags and bricks, and a considerable portion of the pukka floor of the courtyard (which was strewn with kitchen refuse) was in bad disrepair. In the chamber to the left, and opening directly into the yard are the two privies, pitch dark and absolutely without ventilation. It was necessary for us to get a light to see into them, even in the middle of the day. The drop from the privy seat to the gumla chamber is 3 feet; to get at the inner gumla the sweeper has to reach over across the first one, and when we state that the entrance door to the outer chamber measures 1×3 by 2×6 inches, it is obvious that it would be quite ridiculous to expect adequate cleansing, specially when we add the fact that the gumla chamber was pitch dark inside and swarming with cockroaches. The floor of these chambers was about an inch deep in soft sewage mud. There are three living rooms on this ground floor, measuring $6 \times 8 \times 8$; they are pitch dark and quite unventilated. On the first floor are six dwelling rooms, of which only the two front rooms are decently ventilated and lighted; a wooden stair leads to the second floor, under which we found an accumulation of rags, brooms, and filth of all kinds; the passage on the second floor is not wide enough to enable two people to walk abreast, and every corner is stuffed with rags and filth of all descriptions.

The next house, No. 45, Burtollah-street, is built exactly on the same plan. The entrance door, 4 feet 6 inches wide, opens into a passage 12 feet long, and having a shop on either side of, and communicating with, it. The central courtyard is 45 feet long, 16 feet wide, but of this, a space of 5 feet all round is taken up by a verandah and its drain. Leading off the verandah are 12 rooms, only two of which have any ventilation, except that obtained by the doorways opening on to the verandah. The courtyard floor is generally in very bad repair, but at the entrance a space of about 20 square feet is completely broken up. There are eight house-pipes opening into the courtyard drain, all of which carry house sullage water from the upper storeys. Three of these are broken, and their contents soak into the walls. There are four staircases leading to the upper dwelling-rooms, and both stairs and rooms are black with filth. We are informed by certain of the occupants that 150 people live in the premises, whereas we are of opinion that there is only one room for 40 or 50 people at the outside. There are two privy seats on the first floor, and the drop from the seat apertures to the gumlas below we found to be 15 feet. These two houses (45 and 46, Burtollah-street) are separated from each other by one of the most filthy and insanitary gullies it has ever fallen to us to see in India, and which, in the years of our experience, it has ever been our misfortune to come across in any municipality in Bengal. The entrance to this gully is a dark unsightly aperture, measuring 3 feet by $5\frac{1}{2}$ feet, to which one was introduced over a foul-smelling heap of rubbish. For about 6 feet or so we found it 4 feet wide, and for the rest of its length it measured about 2 feet across, till it opened out into the gumla chamber. Its length was in all about 40 feet, but we did not dare to measure it, for its hideous condition was too much even for the strongest nerves. Along its floor ran a drain about 10 inches wide and 8 inches deep, made of brick unfaced with plaster, and its bottom laid in plates of what may have been stone or tiles, but which was broken up and so rotten with the filth of ages that its structure was not easy to pronounce upon, for its joints were all open and sewage soaking through. For about 20 feet the gully was open above, and into it poured the sullage washings from the upper storeys of both houses, 46 and 45. Eight broken-down pipes discharged their filth into it, their mouths opening some near the drain and some at perhaps 10 feet up, and one perhaps 15 feet up. The side walls were splashed as high as a man can reach, and thick and black with indescribable filth. The drain itself was in a condition which must be seen to be appreciated; full 5 inches deep in the foulest sewage direct from the pipes and the latrine beyond, and blocked by a bund of sewage mud deliberately built up at its near end, where a miscellaneous collection of night-soil vessels in various stages of filth were stored. The latrine itself was the central feature of the locality, and in a condition which would totally defy all description. Imagine a place about 6 feet square—we did not dare to measure, or indeed to approach it—with two gumlas containing about 30 gallons of night-soil semi-fluid, with the fermentation of putrefaction, and its floor strewn deeply with the same disgusting matter, and add to this the splashes of the night-soil all over the gumlas and walls up to the height of a man's waist, or nearly so, and you have a faint picture of a condition which beats all one has had the misfortune to see so far. Complete investigation, even if any one may have had the temerity to attempt it, was rendered unsafe and impossible by the fearful thick overpowering stench which emanated from the gumla chamber at the end of the gully. The air from this pervades the atmosphere in

No. 46, which is separated from it by a wall 8 or 9 feet high, its upper storeys overlooking the open gully. This gully, together with the two houses on its sides, makes up a sanitary picture of a condition not by any means uncommon in Calcutta, especially in this quarter, and of a state of things that any community may indeed be ashamed of. We need not therefore multiply harrowing descriptions, and, indeed, we have no wish to make this report more full of disgusting detail than need be necessary to convince people that the conditions which have come under our notice are, to say the least of it, perilous to the public health, while at the same time their existence shows scandalous neglect and reflects the very gravest discredit on those responsible.

STORAGE OF RAG AND GRAIN DEPÔTS.

Rag Depôts.—We inspected a rag depôt at 156 and 157, Bow Bazar. The depôt shed is a portion of the Bow Bazar Market shed, in which meat, fish, and vegetables are sold. The rag depôt is directly to the north of the meat bazar, and owing to its proximity, its being in the direct line of the cold weather prevailing winds, we consider its nearness to the food stores to be very undesirable. The rags collected here are of the filthiest description, consisting of bits of old bedding, quilts, personal apparel, &c., which are picked up in many cases (as we saw with our own eyes) from the rubbish heaps on the roadsides; these rags are sorted into classes. We think that the existence of such a place adjoining and having direct connection with a meat and fish market is certainly most undesirable, and would advise its being closed at once or removed.

Grain Stores.—Grain stores in the main are satisfactory, although we consider that better ventilation should be provided in those godowns where rice-cleaning is carried on.

STATE OF STABLES AND COWSHEDS.

The condition of the cowsheds in Calcutta is a disgrace to any civilised community. They are to be found in nearly every bustee in the municipal area, but it would best serve our purpose to note a few instances, *e.g.*, Rajah Bagan bustee cowshed; No. 60, Amherst-street bustee, and 67, Ram Kanto Bose's-street. To commence with, these places are often found in the most thickly-populated part of the bustee. The sheds in which the cows live are generally made of wattle and daub laped with cowdung, and in many instances with brick or wooden floors. The sheds are very dark and very badly ventilated, and the floors are covered as thickly as possible with cowdung and urine and stable-refuse of all sorts, which soaks into the floor and makes it impossible for the cattle to keep free from disease. Again, the drains in the sheds are, in many instances, faced with wood, which is broken and rotten. The cattle, which ought to have 650 cubic feet of air each, are so densely packed that they can just move and stand. In bustee No. 18, Fakir Chand Mitra's-street, we found that the space per cow is as low as 120 cubic feet. The drains for the sheds lead to outside pukka reservoirs, which are usually too small, as in nearly every instance we found the liquid cowdung overflowing into the yard in close proximity to the shallow wells which are to be found in connection with every cowshed. In two instances in Ram Kanto Bose's-street, No. 10 and No. 67, the liquid sewage was seen to be flowing into the well. The surface drains in proximity to the cowsheds are often filled up with liquid sewage from the sheds. In Harke Bagan, 83, Grey-street, a surface drain was brimful of sewage of the consistency of thin mortar for some 40 yards of its course, and other drains opening into this one were also full for varying distances, and the gully pit at the end quite blocked. The water in the wells in every cowshed is green with filth, and is given to the cattle for their food and their drink, and we believe that the dairy utensils are also washed in this water. In 67, Ram Kanto Ghose's-street, the milking vessels had cowdung adhering to their inner surfaces, and these dishes had only just been used for milking. In case our description may be taken as being too general, we wish clearly to state that this description applies in the main to almost every cowshed inspected. Seeing that there is an abundant supply of filtered water, these wells, we think, should be closed.

Stable.—In Chowringhee-lane there is a stable situated between No. 10 and Maharaja of Rangpur's house, and which is provided with a drain and gully pit; the drain is

capable of conducting nothing, and the gully pit is covered with stable-refuse, and all the filthy washings from the stable are thrown into the roadside drain. In Kahai Lal and Ruba Lal's stables, off Armenian-street, the stablemen's sleeping quarters are directly above the horses' stalls; the stable floor is not paved, and is undrained. These are simply types of what exist. The general condition of hackney carriage stables is not far removed from that of the cowsheds.

In this connection we might call attention to the condition of some of the hackney-carriage stands; for instance, those at the corner of Wellesley-square and in Wellesley-place, where the gharri horses remain for hours on stands, which are unpaved, so that adequate cleansing is impossible. The question of what may be done with the cowsheds is a difficult one.

It is impossible under present circumstances to clean them or to keep them clean. Building model cowsheds involves very great expense, and the evil will in all probability only repeat itself in a short time. The only alternative appears to be to recommend the entire removal of cows and cowsheds outside urban areas. Milk can be readily brought in and sold as required.

Condition of the Circular Canal.—Between Bagbazar Bridge and Maniktolla Bridge we found four sewers discharging into the canal. The canal water, we understand, is largely consumed.

State of Tanks.—Generally and undeniably filthy. In the flour-mills belonging to Hem Chunder Mukerji and Benoy Krishna Banerji, the water from two fouled tanks is used for washing the wheat. Around the edges of these two tanks are cowsheds built up close to them and with the drainage passing directly into them. Buffaloes were tied on the edges, and were wallowing in the water; people were washing themselves and their clothes there, and we have no doubt that this water was also used for purposes "domestic" and other which we shall not here specify, and yet this same water was pumped up and used for "cleaning" the wheat which is ground into flour for bread for the use of the enlightened citizens of Calcutta. Seeing that there is an abundant supply of good filtered water, we cannot understand why such practices are either indulged in or permitted, and such a wholesale contamination of food-supply as here undoubtedly is deliberately perpetrated is worthy not only of the severest condemnation, but of the most deterrent punishment.

Adequacy of Water Supply.—For drinking purposes it appears to be sufficient, but no data have been supplied to us.

(X.) STRENGTH AND WORKING OF THE CONSERVANCY ESTABLISHMENT.—For strength, *vide* remarks above and table appended. Regarding working, it is our opinion that inspection is neither sufficiently frequent nor sufficiently thorough; the condition of private latrines and gullies, and the testimony and complaints of people and bustees, appear to us to be sufficient evidence on this point.

(XI.) FACTS INDICATING THE NECESSITY OF A SPECIAL BUILDING ACT AND THE OPENING OUT OF NEW STREETS.—The facts which we have quoted appear to us to furnish sufficient evidence for the necessity of opening up new roads in the more crowded parts, and that altogether the conditions with regard to overcrowding should be radically altered, so as to allow of freer perfation and of ventilation and access of light. In this connection we would put forward the following as examples :—

- (1) At 17-1, Chassa Dhobapara-lane one Sasi Bhusun Kundu is erecting a four-storied house in a narrow lane 12 feet wide, although this is against all regulations.
- (2) In Mechua Bazar bustees need to be opened up by the construction of a road through them.
- (3) In Said Bagan gully we have an example of a long narrow passage about 5 feet wide, with high houses on each side, blocking out all sunlight.
- (4) The condition of bustees in Russick Lall Ghose's-lane, Sukea-street, Jorabagan-street, Marwaritolla, the condition of the gully at 17, Durpo Narayan Tagore's-

street (the last of which is intolerably dark, confined, and hopelessly devoid of ventilation), and in a more general way of most of the bustees examined, is such that no staff could possibly clean them, much less keep them clean, and that nothing short of the most radical measures possible can ever suffice to effect any real sanitary improvement.

(XII.) In addition to the above, certain matters have come to our knowledge, and for the present we would bring the following to the notice of the Board for such action as they may think necessary :—

- (1) Municipal cases are tried by honorary magistrates, and the punishments awarded do not appear to be deterrent.
- (2) The committing of nuisance in drains is so frequent that it appears to us that no definite or sufficient measures are taken to prevent it. In this connection we would point out that municipal officials complain that they have no police powers, and cannot arrest offenders.
- (3) We are credibly informed that, owing to its present constitution, the Health Department appears to have no control over bustee and roadside drains, so that reports concerning the condition of the latter are not dealt with or taken in hand as soon as they ought to be.
- (4) We notice that there is a tendency to build over land newly made by filling up tanks in the centres of crowded bustees, *e.g.*, in the vicinity of Sukea-street.

In conclusion, our acknowledgments are due to the Health Officer and his staff for the assistance rendered in the work of inspection.

We have, &c.

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Deputy Sanitary Commissioner, Western Bengal Circle.

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Dip. Pub. Health and Sanitary Science (Camb.).

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P. R. HAY-JAGANNADHAM, B.A., M.B., C.M. (Edin.),
Offg. Deputy Sanitary Commissioner,
Metropolitan and Eastern Bengal Circle.

TABLE showing the Distribution of Conservancy Staff, Wards I. to XXV., Calcutta Municipality. (Supplied by the Health Officer's Department.)

WARD NUMBER.	Distribution of Staff and Facilities																									Mileage of Board.	Length of Drains
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
14	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
15	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
16	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
17	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
18	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
21	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
22	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
23	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
25	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
Judge-Budge Depot	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
Gungahala Inter-Station	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		

Enclosure No. 13.

NOTIFICATION No. 300, dated Simla, 12th October 1896.

THE following rules for quarantine against plague which have been made by the Bombay Government in exercise of the power conferred by section 1, Act I of 1870, with the previous sanction of the Governor General in Council, are published for general information.

The rules have effect from the 5th October 1896, as a temporary measure, in the Ports of Aden, Perim and the Somali Coast :

- I.—The commander of every vessel, including buggalows or other native craft, arriving at Aden, Perim and the Somali Coast from Bombay, shall, before entering the harbour, hoist a yellow flag (or if entering a port at night time, show whatever quarantine light signals are customary in the port) and indicate by signal the port from which such vessel has come, and shall keep such flag and signals flying until permitted to take them down as hereinafter provided. The pilot on going alongside a vessel from Bombay shall direct the flag prescribed above to be hoisted, if it has not already been done.
- II.—Such commander shall not, without first having obtained permission as hereinafter provided, allow any communication, except orally, with the shore or any other vessel or boat, excepting with the boat supplying pilots, and in that case communication shall be limited to receiving on board the pilot, his servant and baggage.
- III.—On any such arrival being signalled, the Health Officer of the port shall, as soon as possible, go alongside the vessel and ascertain by enquiry from the commander whether any person on board is suffering, or has during the voyage suffered, from plague, and if the Health Officer is satisfied by such inquiry that no person on board is suffering, or during the voyage has suffered, from plague, and if the ship carries a qualified medical officer, quarantine shall be dispensed with, and pratique granted. If the vessel does not carry a qualified medical officer, he shall direct the commander to take the vessel to the quarantine anchorage duly appointed and notified by the Resident, and there to remain for a period of eight clear days from the date of arrival in the harbour. The Health Officer shall also direct the commander to prohibit, during the period for which the vessel remains at the quarantine anchorage as aforesaid, all communication, except such as is hereinafter provided for, between such vessel and the shore or other vessels and boats in the harbour.
- IV.—If the Health Officer, as the result of the inquiry made under paragraph III above, shall have reason to believe at the time when the vessel arrives in the harbour that any person on board is suffering, or during the voyage has suffered, from plague, he shall direct the commander to take the vessel to the quarantine anchorage as aforesaid, and there to remain for a period of 15 days from the day of arrival in the harbour; and shall further direct that during such 15 days intercourse between the said vessel and the shore or other vessels and boats in the harbour shall be prohibited as provided in Rule III.
- V.—If during the period a vessel is at the quarantine anchorage aforesaid any case or cases of plague should occur on board, the said vessel shall remain in quarantine for a period of 15 days from the date of termination of the last case either by death, recovery or removal from the vessel, and be subject to all the prohibitions provided for in Rules III and IV.
- VI.—When any vessel has been placed in quarantine as aforesaid, the Health Officer may direct the removal of so many of the passengers and crew as may not be suffering from illness, and whose services may not be required on board the vessel, to such particular spots as may from time to time be selected by the Resident as places of quarantine, there to remain for a period of eight days, or if the vessel has been placed in quarantine for 15 days, for a period of 15 days. If a case of plague occurs among such passengers and crew during any such period, they shall remain in a place of quarantine for a period of 15 days from the date of the occurrence of the last case of such illness.

- VII.—Any mails or cargo which may be brought by any vessel so arriving shall be landed under such precautions as the Health Officer may deem necessary to prevent the spread of the disease.
- VIII.—It will be the duty of the Port Officer to facilitate the conveyance to all vessels in quarantine of such supplies of provisions, stores and other articles as may be required by those on board. Such supplies will be placed on the boats of the vessels in quarantine, to be subsequently removed by members of their crews.
- IX.—All vessels arriving at Aden, Perim and the Somali Coast, which may have communicated with vessels coming from Bombay, shall be subjected to the same rules as vessels arriving at Aden, Perim and the Somali Coast from Bombay.

H. J. S. COTTON,
Officiating Secretary to the Government of India.

NOTIFICATION No. 359, dated Simla, 23rd October 1896.

The following rules for quarantine against plague which have been made by the Bengal Government in exercise of the power conferred by Section 1, Act I. of 1870, with the previous sanction of the Governor General in Council, are published for general information.

The rules have effect from the 21st October 1896, as a temporary measure, at the Port of Calcutta :

- I.—The commander of every vessel, including buggalows or other native craft, arriving from Bombay, shall, on arrival at the Sandheads, hoist a yellow flag, and indicate by signal the port from which she has come, and shall keep such flag and signal flying until permitted to take it down as hereinafter provided. The pilot on going alongside a vessel from Bombay shall direct the flag prescribed above to be hoisted, if it has not already been done.
- II.—The commander shall not, without first having obtained permission as hereinafter provided, allow any communication, except orally, with the shore or any other vessel or boat, excepting only with the boat supplying the pilots* from the pilot brig, and in that case communication shall be limited to receiving on board the pilot, his leadsman, servant and baggage.
- III.—If there is any case of sickness on board, and the pilot has reason to believe that it is plague, he shall telegraph to the port officer from Saugor, and not proceed beyond Diamond Harbour without the permission of the Port Officer.
- IV.—If the pilot has no reason to believe that there is any one suffering from plague on board, he shall bring the vessel up the river to Matecabrooj, and shall anchor it there till the Health Officer has visited it.
- V.—The Health Officer, as soon as he has received information of the arrival of the vessel at Matecabrooj, shall visit it, and ascertain by inquiry from the commander, or the medical officer on board, or other sources of information, whether any person on board is suffering, or has suffered, from plague.
- VI.—If the Health Officer is satisfied that no one is suffering from plague, or has suffered from plague since the vessel left Bombay, and if the vessel has been allowed pratique at any intermediate port, including Colombo, he shall allow the passengers to land, but shall detain the vessel at Matecabrooj till such measures have been taken for the disinfection of the mails and cargo and hold as he may consider necessary.
- VII.—When he is satisfied that the necessary measures have been taken for the disinfection of the mails, cargo and hold, he shall allow the mails and cargo to be landed, and shall by writing under his hand, to be delivered to the commander, permit such vessel to haul down the yellow flag, and to proceed upwards in the port, and to hold free communication with the shore and with vessels and boats in port.

* N.B.—Pilotage is compulsory for all vessels over 100 tons in the Port of Calcutta.

VIII.—If the vessel has not been allowed pratique at Colombo or other intermediate ports, or if through her not carrying a qualified medical officer, or for other reasons, the Health Officer is not satisfied that no one on board has suffered during the voyage from plague, he shall direct the commander to take the vessel to the quarantine anchorage at Mateeabrooj or elsewhere duly appointed by the Port Officer, there to remain for a period of eight days from the date of arrival in harbour. The Health Officer shall also direct the commander to prohibit, during the period for which the vessel remains at the quarantine anchorage as aforesaid, all communication, except such as is hereinafter provided for, between such vessel and the shore, or other vessels or boats in the harbour.

IX.—If the Health Officer, as the result of the inquiry made under paragraph V above, shall have reason to believe, at the time when the vessel arrives in the harbour, that any person on board is suffering from plague, or if during the time the ship is in quarantine at Mateeabrooj, under Rule VIII, any case of the disease breaks out, he shall direct the commander to take the vessel to the quarantine anchorage at Diamond Harbour, or elsewhere duly appointed by the Port Officer, there to remain for a period of 15 days from the day of arrival in the harbour; and shall further direct that during such 15 days, intercourse between the vessel detained under this Rule, or Rule III, and the shore or other vessels or boats in the harbour, shall be prohibited as provided in Rule II.

X.—If during the period a vessel is at the quarantine anchorage aforesaid any case or cases of plague should occur on board, the said vessel shall remain in quarantine for a period of 15 days from the date of the last case occurring, and be subject to all the prohibitions provided for in Rule IX.

XI.—When any vessel has been placed in quarantine as aforesaid, the Health Officer may direct the removal of so many of the passengers and crew as may not be suffering from illness, and whose services may not be required on board the vessel, to such particular spots as may from time to time be selected by the Port Officer as places of quarantine, there to remain for a period of eight days if under Rule VIII, or if the vessel has been placed in quarantine for 15 days, for a period of 15 days. If a case of plague occurs among such passengers and crew during any such period, they shall remain in a place of quarantine for a period of 15 days from the date of the occurrence of the last case of such illness.

XII.—It will be the duty of the Port Officer to facilitate the conveyance to all vessels in quarantine of such supplies of provisions, stores and other articles as may be required by those on board. Such supplies will be placed on the boats of the vessels in quarantine, to be subsequently removed by members of their crews.

H. J. S. COTTON,
Officiating Secretary to the Government of India.

NOTIFICATION.—No. 387, dated Simla, 4th November 1896.

THE following rules for quarantine against plague, which have been made by the Madras Government in exercise of the power conferred by Section 1, Act I of 1870, with the previous sanction of the Governor General in Council, are published for general information.

The rules have effect from the 28th October 1896 as a temporary measure at the port of Madras :

- I.—The commander of every vessel arriving from Bombay shall, before entering the port, indicate his arrival by signal.
- II.—Such commander shall not, except as hereinafter provided, allow any communication, either with the pilot boat, except orally, or with the shore, or with any other vessel or boat in the port.
- III.—Immediately on any such arrival being signalled, the Health (or other Medical) Officer of the port shall go alongside the vessel and ascertain, by inquiry

- from the commander whether any person on board is suffering, or has during the voyage suffered, from plague. If there is no case of plague on board, pratique may be granted at the discretion of the Health Officer whether the vessel carries a qualified medical officer or not. Pratique granted at Colombo will be recognised.
- IV.—If the Health Officer shall have reason to believe at the time when the vessel arrives in the port that any person on board is suffering, or during the voyage has suffered, from plague, he shall direct the commander to take the vessel to the quarantine anchorage, and there to remain for a period of 15 days from the day of arrival in the port; and shall further direct that, during such 15 days, intercourse between the said vessel and the shore or other vessels and boats in the harbour shall be prohibited.
- V.—If, during the period a vessel is at the quarantine anchorage aforesaid, any case or cases of plague should occur on board, the said vessel shall remain in quarantine for a period of 15 days from the date of the last case occurring, and be subject to all the prohibitions provided for in Rule IV.
- VI.—When any vessel has been placed in quarantine as aforesaid, the Health Officer may direct the removal of so many of the passengers and crew as may not be suffering from illness, and whose services, may not be required on board the vessel, to such particular spots as may from time to time be selected as places of quarantine, there to remain for a period of 15 days. If a case of plague occurs among such passengers and crew during any such period, they shall remain in a place of quarantine for a period of 15 days from the date of the occurrence of the last case of such illness.
- VII.—Any mails or cargo which may be brought by any vessel so arriving shall be landed under such precautions as the Health Officer may deem necessary to prevent the spread of the disease.
- VIII.—It will be the duty of the Port Officer to facilitate the conveyance to all vessels in quarantine of such supplies of provisions, stores, or other articles as may be required by those on board. Such supplies will be placed on the boats of the vessels in quarantine, to be subsequently removed by members of their crews.
- IX.—All vessels arriving at the port which may have communicated with infected vessels coming from Bombay shall be subjected to the same quarantine as vessels arriving from Bombay with plague on board.

J. P. HEWETT,
Secretary to the Government of India.

NOTIFICATION.—No. 369.—Simla, October 29, 1896.

The following rules for quarantine against plague which have been made by the Chief Commissioner of Burma in exercise of the power conferred by Section 1, Act I. of 1870, with the previous sanction of the Governor General in Council, are published for general information.

The rules have effect from the 20th October 1896, as a temporary measure in the Port of Rangoon :—

- I.—The commander of every vessel, including junks or other native craft, arriving from Bombay, shall, on arrival at the pilot brig hoist a yellow flag and indicate by signal the port from which she has come.
- II.—Such commander shall not, except as hereinafter provided, allow any communication either with the shore or with any other vessel or boat except with the boat supplying a pilot from the pilot brig, and in that case communication shall be limited to receiving on board the pilot, his servant, if any, and baggage.
- III.—The pilot shall not take such vessel higher than Elephant Point, but shall anchor it there until the Health Officer of the port has visited it and ascertained by inquiry from the commander whether any person on board is suffering, or has during the voyage suffered, from plague. If the Health Officer is satisfied by such inquiry that no person on board is suffering, or during the voyage has suffered, from plague, or if the vessel has undergone since leaving Bombay a quarantine which is properly proved for not less than eight days at Colombo or some other British port, the Health Officer shall, by writing under his hand to be delivered to the commander, permit such vessel to haul down the yellow

flag and proceed upwards in the port and hold free communication with the shore and with vessels and boats in port. If the ship has not undergone eight days' quarantine at Colombo or some other British port since leaving Bombay, the Health Officer shall direct the commander to take the vessel to the quarantine anchorage and there to remain for a period of eight days from the date of arrival in the harbour. The Health Officer shall also direct the commander to prohibit, during the period for which the vessel remains at the quarantine anchorage as aforesaid, all communication, except such as is hereinafter provided for between such vessel and the shore, or other vessels and boats in the harbour.

- IV.—If the Health Officer shall have reason to believe at the time when the vessel arrives in the harbour that any person on board is suffering, or during the voyage has suffered, from plague, he shall direct the commander to take the vessel to the quarantine anchorage as aforesaid, and there to remain for a period of 15 days from the day of arrival in the harbour; and shall further direct that during such 15 days' intercourse between the said vessel and the shore or other vessels and boats in the harbour shall be prohibited as provided in Rule III.
- V.—If during the period a vessel is at the quarantine anchorage aforesaid any case or cases of plague should occur on board, the said vessel shall remain in quarantine for a period of 15 days from the date of the last case occurring, and be subject to all the prohibitions provided for in Rules III and IV.
- VI.—When any vessel has been placed in quarantine as aforesaid, the Health Officer may direct the removal of so many of the passengers and crew as may not be suffering from illness, and whose services may not be required on board the vessel, to such particular spots as may from time to time be selected by the Chief Commissioner as places of quarantine, there to remain for a period of eight days, or, if the vessel has been placed in quarantine for 15 days, for a period of 15 days. If a case of plague occurs among such passengers and crew during any such period, they shall remain in a place of quarantine for a period of 15 days from the date of the occurrence of the last case of such illness.
- VII.—Any mails or cargo which may be brought by any vessel so arriving shall be landed under such precautions as the Health Officer may deem necessary to prevent the spread of the disease.
- VIII.—It will be the duty of the Conservator of the port to facilitate the conveyance to all vessels in quarantine or such supplies of provisions, stores, and other articles as may be required by those on board. Such supplies will be placed on the boats of the vessels in quarantine to be subsequently removed by members of their crews.
- IX.—All vessels arriving at Rangoon, which may have communicated with any vessel coming from Bombay, shall be subjected to the same quarantine as vessels arriving at Rangoon from Bombay, unless the communication was held after the vessel from Bombay was released from quarantine.

J. P. HEWETT,
Secretary to the Government of India.

NOTIFICATION.—No 386.—Dated Simla, November 3, 1896.

THE following rule for quarantine against plague which has been made by the Chief Commissioner of Burmah in exercise of the power conferred by Section 1, Act I of 1870, with the previous sanction of the Governor General in Council, is published for general information in substitution of Rule III of the rules for quarantine against plague published in Notification No. 369, dated 29th October 1896.

III. The pilot shall not take such vessel higher than Elephant Point, but shall anchor it there until the Health Officer of the port has visited it and ascertained by inquiry from the commander whether any person on board is suffering, or has during the voyage suffered, from plague. If the Health Officer is satisfied by such inquiry that no person on board is suffering, or during the voyage has suffered, from plague, the Health Officer may,

by writing under his hand to be delivered to the commander, permit such vessel to haul down the yellow flag and proceed upwards in the port, and hold free communication with the shore and with vessels and boats in port. Provided that, if the vessel has undergone since leaving Bombay a quarantine, which is properly proved, for not less than eight days at Colombo, or some other British port, the Health Officer shall grant such permission as aforesaid.

If the vessel has not undergone eight days' quarantine at Colombo or some other British port since leaving Bombay, the Health Officer may direct the commander to take the vessel to the quarantine anchorage, and there to remain for a period of eight days from the date of arrival in the harbour. In such case the health officer shall also direct the commander to prohibit, during the period for which the vessel remains at the quarantine anchorage as aforesaid, all communication, except such as is hereinafter provided for between such vessel and the shore, or other vessels and boats in the harbour.

J. P. HEWETT,
Secretary to the Government of India.

NOTIFICATION.—No. 354.—Dated Simla, October 22, 1896.

THE following rules for quarantine against plague which have been made by the Bombay Government in exercise of the power conferred by Section 1, Act 1 of 1870, with the previous sanction of the Governor General in Council, are published for general information.

The rules have effect from the 13th October 1896 as a temporary measure at the port of Karachi:—

- I.—The commander of every vessel, including buggalows or other native craft, arriving at Karachi from Bombay shall, before entering the harbour, hoist a yellow flag (or if entering a port at night time, show whatever quarantine light signals are customary in the port) and indicate by signal the port from which such vessel has come, and shall keep such flag and signals flying until permitted to take them down as hereinafter provided. The pilot on going alongside a vessel from Bombay shall direct the flag prescribed above to be hoisted, if it has not already been done.
- II.—Such commander shall not, without first having obtained permission as hereinafter provided, allow any communication, except orally, with the shore or any other vessel or boat, excepting with the boat supplying pilots, and in that case communication shall be limited to receiving on board the pilot, his servant and baggage.
- III.—On any such arrival being signalled, the Health Officer of the port shall, as soon as possible, go alongside the vessel and ascertain by enquiry from the commander whether any person on board is suffering, or has during the voyage suffered from plague, and if the Health Officer is satisfied by such enquiry that no person on board is suffering, or during the voyage has suffered, from plague, and if the ship carries a qualified medical officer, quarantine shall be dispensed with and pratique granted.
If the vessel does not carry a qualified medical officer, he shall direct the commander to take the vessel to the quarantine anchorage duly appointed and notified by the Commissioner in Sind, and there to remain for a period of eight clear days from the date of arrival in the harbour. The Health Officer shall also direct the commander to prohibit, during the period for which the vessel remains at the quarantine anchorage as aforesaid, all communication, except such as is hereinafter provided for, between such vessel and the shore or other vessels and boats in the harbour.
- IV.—If the Health Officer, as the result of the inquiry made under paragraph III above, shall have reason to believe at the time when the vessel arrives in the harbour that any person on board is suffering, or during the voyage has suffered, from plague, he shall direct the commander to take the vessel to the quarantine anchorage as aforesaid, and there to remain for a period of 15 days from the day of arrival in the harbour; and shall further direct that during

such 15 days' intercourse between the said vessel and the shore or other vessels and boats in the harbour shall be prohibited as provided in Rule III.

V.—If during the period a vessel is at the quarantine anchorage aforesaid any case or cases of plague should occur on board, the said vessel shall remain in quarantine for a period of 15 days from the date of termination of the last case either by death, recovery or removal from the vessel, and be subject to all the prohibitions provided for in Rules III and IV.

VI.—When any vessel has been placed in quarantine as aforesaid, the Health Officer may direct the removal of so many of the passengers and crew as may not be suffering from illness, and whose services may not be required on board the vessel to such particular spots as may from time to time be selected by the Commissioner in Sind as places of quarantine, there to remain for a period of eight days, or if the vessel has been placed in quarantine for 15 days, for a period of 15 days. If a case of plague occurs among such passengers and crew during any such period, they shall remain in a place of quarantine for a period of 15 days from the date of the occurrence of the last case of such illness.

VII.—Any mails or cargo which may be brought by any vessel so arriving shall be landed under such precautions as the Health Officer may deem necessary to prevent the spread of the disease.

VIII.—It will be the duty of the Port Officer to facilitate the conveyance to all vessels in quarantine of such supplies of provisions, stores and other articles as may be required by those on board. Such supplies will be placed on the boats of the vessels in quarantine to be subsequently removed by members of their crews.

IX.—All vessels arriving at Karachi which may have communicated with vessels coming from Bombay, shall be subjected to the same rules as vessels arriving at Karachi from Bombay.

H. J. S. COTTON,
Officiating Secretary to the Government of India

From the GOVERNMENT of INDIA to the SECRETARY OF STATE
FOR INDIA.

(Sanitary, No. 5.)

MY LORD,

Calcutta, February 10, 1897.

IN continuation of our Despatch, No. 1 (Sanitary), dated the 27th January last, we have the honour to give, for your Lordship's information, a further account of the course of the plague and the measures we have taken to combat it.

2. We much regret that we are unable to report that the plague shows any signs of abating. In both Bombay and Karachi there has been an increase in the daily number of seizures and deaths since the beginning of the current month. In Poona cases of local origin continue to occur, and the Government of Bombay have informed us that the disease must be considered to be endemic there and also, it is to be feared, in portions of the Thana district in the neighbourhood of Bombay. The disease is, however, not as yet endemic in any other place, and outside the Bombay Presidency and Baroda State only a few isolated cases have been reported among immigrants from the affected area. Statements are appended to this Despatch showing the number of seizures of and deaths from plague in the town and island of Bombay, in Karachi, and in other places which have occurred since those included in the similar statements appended to our Despatch of the 27th January. In that Despatch it was stated that during the week ending the 21st January the reported number of deaths in Bombay averaged 74 a day. From the 22nd January to the end of the month there was a fall in the daily average, which amounted to 63, but from the beginning of the current month there has been an increase, the average from the 1st to the 8th February being 101. The total number of deaths from plague reported in Bombay during January was 1,825 against 1,160 during December, and from the beginning of the outbreak up to the 8th February the total number amounts to 4,339. The weekly mortality returns for

Bombay for the weeks ending the 26th January and the 2nd February show a daily average of deaths from all causes of 242 and 232 respectively, against a normal mortality of 70 and 71 respectively. In Karachi the daily average number of deaths was during the week ending the 20th January, 29, and from the 21st January to the end of the month, 28. Between the 1st and the 8th February it has risen to 42. The total number of deaths that have been reported from Karachi since the beginning of the outbreak is 1,142. From Poona, 390 deaths in all have been reported, and from the district of Thana, 630.

3. The situation appeared to us to be of such gravity, having regard to the high mortality, the persistence of the disease in Bombay and Karachi, the apprehension that it might spread and become endemic in other places, the injury that was resulting to the trade of the places affected and the country at large, and the fear that foreign powers might introduce regulations and restrictions disastrous to the commerce of the country, that we considered it necessary to take special powers by legislation, with a view to prevent the spread of, and to suppress the plague, and to guard against infected vessels leaving our ports. With this object a Bill "to provide for the better prevention of the spread of dangerous epidemic disease" was introduced in the Council of the Governor-General on the 28th January, and passed into law on the 4th February. In our telegram of the same date we informed your Lordship of the introduction of the measure and of its general terms. A copy of the Act, which is styled the Epidemic Diseases Act, 1897, is forwarded with this Despatch for your Lordship's information. The first sub-section of Section 2 of the Act is based on Section 434 of the City of Bombay Municipal Act, and authorises the Governor-General in Council to direct any measures to be taken, and any regulations to be prescribed which are deemed necessary to prevent the outbreak or spread of dangerous epidemic disease, and to direct in what manner the expenses incurred shall be defrayed. The second sub-section of Section 2 empowers the Governor-General in Council in particular to take measures and prescribe regulations for (a) the inspection of ships arriving at or leaving port, and the detention of the ship or of any one on board, and (b) the inspection of travellers by railway and otherwise, and the segregation of persons suspected of being infected with the disease. The third sub-section of Section 2 empowers the Governor-General in Council to direct that all or any of the powers conferred by the Act may also be exercised by any Local Government with respect to the territories administered by it.

4. Though we have taken power under the Act to ourselves take measures and prescribe regulations, we do not at present consider it necessary to exercise those powers so as to prescribe regulations for observance in places threatened or attacked by the plague. We do not wish to weaken local authority at the present juncture, and we think it best that the powers conferred by the Act should be exercised, under our general control, by Local Governments and Administrations which have greater knowledge of local requirements. In accordance with this determination notifications* were issued, as soon as the Bill had been passed, under Section 2, Sub-section (3), of the Act conferring powers on Local Governments and Administrations, and extending the operations of the Act to places outside British India. We have empowered the Maritime Governments of Bombay, Madras, Bengal, and Burma to exercise all the powers conferred by the Act. The Governments of the North-Western Provinces and Oudh, the Punjab and the Central Provinces, which stand in danger of the spread of infection by land, have been given powers under the first, or general, sub-section of Section 2, and also under the sub-section authorising the examination and detention of travellers. To Assam, Coorg, and Baluchistan, where the danger is more remote, we have, for the present, only conferred powers under this latter sub-section.

We have also given the chief executive authority in places outside British India powers under this same sub-section, and by a separate notification, the Resident in Mysore has been authorised to exercise the powers conferred by the first, or general, sub-section in order to enable him, should this become necessary, to take special measures at Bangalore.

5. In informing the Local Governments and Administrations of the powers conferred upon them under the Act, we considered it advisable to indicate our views on the important subject of the inspection of passengers by railway which falls under Clause (b) of the second sub-section of Section 2. We forward for your Lordship's information a copy of our instructions on this point.

* Vide "Gazette of India," Extraordinary, dated the 4th February 1897.

They require that a complete inspection of passengers should be made at certain stations along the lines of railway from Bombay and Karachi, and that they should be generally undertaken by commissioned medical officers to be specially appointed for the purpose. The main stations we suggested are:—

In Bombay and Sind	-	-	Kaliyan Bhusawal	} on the Great Indian Peninsula Railway.
			Palghar Anand	} on the Bombay, Baroda and Central India Railway.
			Karachi Ruk	} on the North-Western Railway.
			Hubli	on the Southern Mahratta Railway.
In the Central Provinces	-		Itarsi	on the Great Indian Peninsula Railway.
			Nagpur	(altered from Bilaspur at the request of the Chief Commissioner) on the Bengal - Nagpur Railway.
In the North-Western Pro- vinces and Oudh.			Naini	on the Great Indian Peninsula Railway.
			Jhansi	on the Indian Midland Railway.
In Bengal	-	-	Asansol	on the East Indian Railway.
In the Punjab	-	-	Raewind Mahmud Kot	} on the North-Western Railway.
In Rajputana	-	-	Bandikui	on the Bombay, Baroda and Central India Railway.
In Madras	-	-	Perambur	on the Madras Railway.
			Guntakal	on the Southern Mahratta Railway.

Possibly inspection at Ahmedabad and at Rutlam will be substituted for inspection at Anand, and the Lieutenant-Governor of the North-Western Provinces and Chief Commissioner of Oudh proposes to fix Saharanpur, Ghaziabad and Agra as additional places of inspection and to substitute Manickpur, the junction of the Indian Midland and Great Indian Peninsula Railways, for Naini as the place of inspection on the Great Indian Peninsula Railway.

The instructions include directions to erect small hospitals for suspected cases at the places where the principal inspections take place, and separate huts for the accommodation of persons suffering from plague. It was explained to the Local Governments and Administrations that these instructions need not supersede any subsidiary inspections of less complete character ordered at other stations. With our Despatch of the 27th January we forwarded copies of letters from the Governments of the Punjab, the North Western Provinces and Bengal regarding the arrangements which had been made by them for medical inspections at railway stations, and with this Despatch are enclosed further communications from Bombay, Madras, the North-Western Provinces and Oudh, the Central Provinces and Rajputana giving details as to the system of inspection prior to the passage of the Epidemic Diseases Act.

6. The provisions of Clause (a) of Sub-section 2 of Section 2 of the Act are directed both to the protection of our own ports from infection, and to the protection of our commerce abroad by ensuring as far as possible that the vessels leaving our ports shall not be a source of danger. The provisions directed to the latter end are mainly of importance with regard to the infected ports of Bombay and Karachi. On the day that the Epidemic Diseases Bill was introduced into the Legislative Council we received a telegram from the Government of Bombay, of which a copy is appended to this Despatch, stating that they considered it urgently necessary to medically inspect persons leaving Bombay by sea, and that a complete scheme had been prepared and rules drafted under the Quarantine Act, I of 1870, which are set forth in the telegram. The rules provide for the inspection of officers, crew and passengers, the removal of persons suffering from dangerous disease, and, if necessary, for the detention of the vessel. In reply to their telegram we informed the Government of Bombay that the rules might be at once acted

on and formally issued under the Epidemic Diseases Act as soon as it came into force. We also suggested that similar rules might be prescribed in Karachi. Arrangements are being made at Calcutta for a complete medical examination of all ships leaving the port.

7. It was represented to us that, the plague being endemic in both Karachi and Bombay, it was a needless hindrance to communication and trade to maintain the quarantine rules which issued on the 13th of October for the former against the latter port. After consulting the Government of Bombay, we sanctioned the cancellation of the quarantine rules, rules for the medical inspection of arrivals and other sanitary precautions being substituted for them. The change took place with effect from the 3rd instant.

8. In paragraph 7 of our Despatch of the 27th January we alluded to Surgeon-Major-General Cleghorn's visit to Bombay and the suggestions we made to the Government of Bombay on his advice, regarding the removal of the healthy from infected buildings. The Government of Bombay have not yet informed us to what extent they have been able to carry out these suggestions. We have asked the Government of Bombay to lose no time in sending us a report on the subject and will communicate it in due course to your Lordship. On Dr. Cleghorn's return to Calcutta from Karachi he recorded an interesting note on his inspection there, which, together with our Home Secretary's letter No. 367, dated the 6th instant, conveying remarks on the note to the Government of Bombay, forms an enclosure to this Despatch. Your Lordship will notice that the facts observed by Dr. Cleghorn have led him to the conclusion that in Karachi, as in Bombay, the disease is only slightly, if at all, either contagious or infectious in the common acceptation of these terms, and that the incidence of the disease is mainly due to local causes. The Executive and Municipal authorities at Karachi have been very successful in establishing and providing for the sanitation and water-supply of camps of huts in the open, and in securing the removal of the healthy inhabitants of the infected quarters to these camps. We are awaiting with interest the results of this experiment. We have communicated Dr. Cleghorn's notes on Bombay and Karachi to other Local Governments, and in view of the need for preparations against the possible advent of the plague in Calcutta have suggested to the Government of Bengal that arrangements should be made for the establishment of camps in the neighbourhood of the city. A copy of the regulations that were issued under section 334 of the Calcutta Municipal Consolidation Act, 1888, in October last, when it was feared that some cases of plague had occurred in Calcutta, is appended to this Despatch.

9. We informed your Lordship in our telegram No. 182, dated the 27th January, that Dr. Cleghorn would leave for Venice by the mail of the 6th February to attend the Conference that has been convened to discuss the prevention of the spread of the plague to Europe. We trust that the intimate knowledge he has acquired of the subject will lend great weight to his counsel at the Conference.

10. Mr. Hankin, the Chemical Examiner and Bacteriologist for the North-Western Provinces and Oudh, who, as already reported, was sent to Bombay and has been working as a Member of the Special Medical Board has, in a letter to Dr. Cleghorn, written an interesting account of an outbreak of the plague at the fishing village of Worli, three miles from Bombay. This note, a copy of which is enclosed, affords additional testimony that the disease is fostered by local causes and gives support to the view that it is best combated by the evacuation of infected localities.

11. In paragraph 15 of our Despatch of the 27th January, we informed your Lordship of the measures we had taken to close the Ports of Bombay and Karachi to the pilgrim traffic. We also stated that Calcutta remained open to that traffic, and that the Government of Madras were, at our request, about to declare Madras to be a port for the departure and arrival of pilgrim ships. This declaration the Government of Madras subsequently made. We now forward a copy of further telegraphic correspondence which has passed on the subject between us with the Governments of Madras and Bombay. The Government of Madras have asked that the decision to declare Madras open to pilgrim traffic may be cancelled, as they fear that pilgrims from Bombay may bring infection with them. The closure of Madras to pilgrim traffic would almost certainly lead to a similar demand being made with respect to Calcutta, and, if these two ports were closed, the pilgrimage for this year would be altogether

stopped. We are very averse from taking, except in case of absolute necessity, a step which will be liable to be thought to be an interference with the religious duties of the Muhammadans of India. Your Lordship will see from the correspondence that we do not consider that it is at present necessary to close Madras and Calcutta for pilgrim traffic, although we recognise that it may become so. The majority of pilgrims who would leave these ports do not belong to and will not come from districts which are infected, and the provisions of the Epidemic Diseases Act will permit pilgrims coming from Bombay to Karachi to be detained and segregated before entering Madras or Calcutta until fear of their disseminating infection is passed. We have requested the Government of Bombay to endeavour to persuade pilgrims who are in Bombay from proceeding to Calcutta or Madras, and we have directed that if they persist in doing so they should be detained for 10 days in observation camp near Bombay. We trust that these measures will prove efficacious in preventing any injury being done to either Calcutta or Madras by reason of the fact that pilgrims are permitted to sail to the Hedjaz from those ports.

We have, &c.
(Signed) ELGIN,
&c., &c.

Enclosure No. 1.

STATEMENT of Seizures and Deaths at BOMBAY.

Date.	Seizures.	Deaths.	Date.	Seizures.	Deaths.
Total during the month of October 1896 - - - -	389	276	February 1st - - - -	112	86
Total during the month of November 1896 - - - -	333	268	" 2nd - - - -	69	97
Total during the month of December 1896 - - - -	1,655	1,160	" 3rd - - - -	114	98
Total up to 25th January 1897 -	1,791	1,444	" 4th - - - -	116	93
January 26th - - - -	81	48	" 5th - - - -	123	79
" 27th - - - -	94	48	" 6th - - - -	103	114
" 28th - - - -	83	52	" 7th - - - -	81	115
" 29th - - - -	128	69	" 8th - - - -	118	128
" 30th - - - -	110	76	Total for 1st to 8th February	835	610
" 31st - - - -	87	88	GRAND TOTAL - -	5,586	4,339
Total during January 1897	2,374	1,825			

STATEMENT of Seizures and Deaths at KARACHI.

Date.	Seizures.	Deaths.	Date.	Seizures.	Deaths.
Total during December 1896 -	47	59	February 1st - - - -	59	51
Total up to 24th January 1897 -	585	547	" 2nd - - - -	20	17
January 25th - - - -	22	19	" 3rd - - - -	49	50
" 26th - - - -	24	19	" 4th - - - -	56	51
" 27th - - - -	27	24	" 5th - - - -	44	43
" 28th - - - -	37	34	" 6th - - - -	37	35
" 29th - - - -	38	33	" 7th - - - -	58	52
" 30th - - - -	43	35	" 8th - - - -	41	41
" 31st - - - -	32	32	Total for 1st to 8th February	364	340
Total during January 1897	808	743	GRAND TOTAL - -	1,219	1,142

STATEMENT of Cases of Plague outside BOMBAY and KARACHI.

Date of Report.	Ahmedabad.	Surat.	Broach.	Abu Road.	Marwar.	Poona.	Ahmednagar.	Sholapur.	Dhulia.	Kalyan.	Kolhapur.	Kathiawar.	Thana.	Cutch.	Baroda Territory.	Nasik.	Khandesh.	Khair.	Satara.	Kotri.	Hyderabad.	Tatta.	Mahi Kanba.	Ratnagiri.	Shikarpur.	Jubbulpore.	Itarsi.	Naosari.	Navasari Division.	Petlad.	Kadi.	Amreli.	Marwar.	Jodipur.	Belgaum.	Delli.	Kanara.	Karachi District.			
Brought forward	65	15	7	2	4	224	7	3	1	1	1	18	363	26	30	6	6	4	55	1	8	9	2	32	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-		
January 27th - - -	1	2	1	-	-	27	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	
" 28th - - -	-	-	-	-	-	12	1	-	-	-	-	1	59	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
" 29th - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29	1	1	1	1	1	1	-	-	-	-	-	-	
" 30th - - -	3	-	-	1	-	20	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
February 1st - - -	-	-	-	-	-	26	-	-	-	-	1	-	39	-	2	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	-	-	-	-	
" 2nd - - -	-	3	2	-	-	12	-	5	-	-	-	1	-	-	-	-	3	-	-	-	16	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
" 3rd - - -	3	-	1	-	-	8	1	-	-	-	-	-	-	-	-	-	-	-	3	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	
" 4th - - -	-	-	-	-	-	11	-	-	-	-	-	-	40	-	1	-	-	-	3	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
" 5th - - -	2	2	-	-	-	14	1	-	-	-	-	5	43	-	-	1	-	2	1	-	1	-	-	41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
" 6th - - -	-	-	-	-	-	15	1	-	-	-	-	-	28	-	1	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	2	-	
" 7th - - -	-	-	-	-	-	14	-	-	-	-	-	-	41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
" 8th - - -	-	-	-	-	-	7	3	1	-	-	-	5	17	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
TOTAL - - -	74	22	41	3	4	390	14	9	1	1	2	30	630	26	34	7	9	6	70	1	29	9	2	74	5	1	2	1	29	1	2	1	1	1	3	2	7	-	-		

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Enclosure No. 2.

WEEKLY STATEMENT of Mortality in the Town of BOMBAY.

Week ending	Total Number of Deaths.	Average Number of Deaths during the corresponding period of the preceding Five Years.
26th January - - - - -	1,693	493
2nd February - - - - -	1,624	495

Enclosure No. 3.

Act No. III of 1897.

Passed by the Governor General of India in Council.

(Received the Assent of the Governor General on the 4th February 1897.)

AN ACT to provide for the better prevention of the spread of Dangerous Epidemic Disease.

WHEREAS it is expedient to provide for the better prevention of the spread of dangerous epidemic disease; It is hereby enacted as follows:—

Short title, extent, and commencement.

1.—(1) This Act may be called the Epidemic Diseases Act, 1897.

(2.) It extends to the whole of British India (inclusive of Upper Burma, British Baluchistan, the Santal Parganas and the Pagana of Spiti); and

(3) It shall come into force at once.

Power to take special measures and prescribe regulations as to dangerous epidemic disease.

2.—(1) When at any time the Governor General in Council is satisfied that India or any part thereof is visited by, or threatened with, an outbreak of any dangerous epidemic disease, the Governor General in Council, if he thinks that the ordinary provisions of the law for the time being in force are insufficient for the purpose, may take or require or empower any person to take such measures and, by public notice, prescribe such temporary regulations to be observed by the public or by any person or class of persons as he shall deem necessary to prevent the outbreak of such disease or the spread thereof, and may determine in what manner and by whom any expenses incurred (including compensation if any) shall be defrayed.

(2) In particular and without prejudice to the generality of the foregoing provisions, the Governor General in Council may take measures and prescribe regulations for—

(a) The inspection of any ship or vessel leaving, or arriving at, any port in British India and such detention thereof, or of any person intending to sail therein or arriving thereby, as may be necessary; and

(b) The inspection of persons travelling by railway or otherwise, and the segregation, in hospital, temporary accommodation or otherwise, of persons suspected by the inspecting officer of being infected with any such disease.

(3) The Governor General in Council may, by general or special order, direct that all or any of the powers conferred by this Act may also be exercised by any Local Government with respect to the territories administered by it.

Penalty.

3.—Any person disobeying any regulation or order made under this Act shall be deemed to have committed an offence punishable under Section 188 of the Indian Penal Code.

XLV of 1860.

Protection to persons acting under Act.

4.—No suit or other legal proceeding shall lie against any person for anything done or in good faith intended to be done under this Act.

Enclosure No. 4.

Telegrams Nos. 304—308 and 310—313 (Sanitary), dated Calcutta, February 4th; 1897.

From the SECRETARY TO THE GOVERNMENT OF INDIA, Home Department, to the GOVERNMENT OF MADRAS; the GOVERNMENT OF BOMBAY; the GOVERNMENT OF THE NORTH-WEST PROVINCES AND OUDH; the GOVERNMENT OF THE PUNJAB; the CHIEF COMMISSIONER OF THE CENTRAL PROVINCES; the CHIEF COMMISSIONER OF ASSAM; the CHIEF COMMISSIONER OF COORG; the AGENT TO THE GOVERNOR GENERAL, BALUCHISTAN; the CHIEF COMMISSIONER OF BURMA,

Epidemic Diseases Bill passed to-day. Section two: Begins. (Here enter section 2 of the Bill.) Ends. Following Notification issued in respect of Madras, Bombay, &c.: Begins. (Here enter Notification No. 302 (Sanitary), dated 4th February 1897.) Ends.

Governor General in Council will not at present issue any regulations under section 2, and trusts Local Governments to issue regulations where they are or may be required.* In respect of regulations under section 2, sub-section 2 (b), regarding inspection of travellers by railway, Governor General in Council desires to make the following remarks for consideration of Local Government. It is essential that medical inspection of passengers in trains coming from direction of infected districts shall be complete, and this can only be effected by removal of passengers to platform and individual inspection there by medical officer. The regulations should provide for this.† The Governor General in Council considers that, subject to opinion of Local Government, such inspection might take place at the following places:—

Madras.—Perambur and Guntakal, to each of which places a Commissioned Medical officer should be appointed. Appointment of these officers need not interfere with subsidiary inspections reported in your telegram of 2nd instant.

Bombay.—Kalyan, Anand, Hubli, Karachi, Bhusawal and at some place on Bombay-Baroda line not far from Bombay, possibly Palghar. European Commissioned Medical officers would be required to undertake duty of inspection except possibly at Bhusawal where railway doctor might undertake it.

It seems to the Government of India that inspection now performed at Sukkur by Assistant Surgeon might more usefully be performed at Ruk.

Central Provinces.—Itarsi and Bilaspur. The Government of India think that Commissioned Medical officer should be appointed to former place and will place one at your disposal, if you are unable to appoint one. The work at Bilaspur should be done by Civil Surgeon.

North-Western Provinces and Oudh.—Naini and Jhansi. A European Military Assistant Surgeon should be appointed to Naini and a Commissioned Medical officer at Jhansi. Government of India will provide men if North-Western Provinces Government is unable to do so. These arrangements need not supersede any subsidiary inspections of less complete character ordered by North-Western Provinces Government at other stations.

Punjab.—Government of India think that Commissioned officer now at Khanpur should be removed to Raewind, and the one at Rewari to Bandikui. Also that hospital assistant at Sher Shah should be moved to Mahmud Kot as more suitable place. These arrangements need not supersede any subsidiary inspections of less complete character ordered by Punjab Government at other stations.

Agent to the Governor General for Rajputana.—Bandikui. The Government of India propose that Commissioned Medical officer at Rewari should move to Bandikui. Please place yourself in communication with Punjab Government to secure his services.

Small hospitals should be erected at places where principal inspections take place for suspected cases and separate huts for accommodation of persons suffering from plague.

* Burmah, Assam and Coorg up to here only.

† Baluchistan up to here only.

Enclosure No. 5.

No. 303, dated Calcutta, 4th February 1897.

From J. P. HEWETT, Esq., C.I.E., SECRETARY TO THE GOVERNMENT OF INDIA, Home Department, to the SECRETARY TO THE GOVERNMENT OF BENGAL.

I AM directed to forward a copy of the Epidemic Act passed to-day by the Legislative Council of the Governor General for the purpose of making laws and regulations, and of a notification under Section 3 thereof conferring on the Government of Bengal powers under Sections 2 (1) and 2 (a) and (b).

2. The Governor General in Council does not at present propose to issue any regulations under Section 2, and intends that Local Governments should issue them where they are required. I am, however, to say with reference to Section 2, Sub-section (2) (b), that His Excellency in Council is of opinion that it is essential that the medical inspection of passengers in trains coming from the direction of infected districts should be complete, and that this can only be effected by the removal of the passengers to the platform, and individual inspection there by the Medical Officer. For this purpose the Governor General in Council thinks that a Commissioned Medical Officer should be appointed at Assensole, and I am to ask that, if His Honour the Lieutenant Governor has no objection, this may be arranged for. The special inspection at Assensole need not interfere with any subsidiary inspections of a less complete character at other places which the Lieutenant Governor may prescribe. The Government of India think that it would be undesirable to construct an isolation hospital at Assensole, where there is a large community connected with the railway, but a small hospital for suspected cases, and separate huts for the accommodation of persons suffering from plague, should be provided at some place in the neighbourhood to be approved by the Lieutenant Governor.

3. I am to suggest for His Honour's consideration whether it may not be desirable to give assistance to the Port Health Officer in the conduct of his duties at the present juncture, either by associating with him the protector of emigrants or in some other manner.

 Enclosure No. 6.

TELEGRAM No. 309, dated Calcutta, 4th February 1897.

From the SECRETARY TO THE GOVERNMENT OF INDIA, Home Department, to the AGENT TO THE GOVERNOR GENERAL IN RAJPUTANA, Mount Abu.

EPIDEMIC Diseases Bill passed to-day. Section 2: Begins———Ends. Under notification issued to-day the powers conferred by Section 2, Sub-section 2, Clause (b), may be exercised by you. Governor General in Council desires to make the following remarks for your consideration. It is essential that medical inspection of passengers in trains coming from direction of infected districts shall be complete, and this can only be effected by removal of passengers to platform and individual inspection there by medical officer. Regulations should provide for this. The Governor General in Council considers that subject to your opinion such inspection might take place at Bandikui. The Government of India propose that commissioned medical officer at Rewari should move to Bandikui. Please place yourself in communication with Punjab Government to secure his services. Small hospitals should be erected at places where principal inspections take place for suspected cases, and separate huts for accommodation of persons suffering from plague.

 Enclosure No. 7.

Nos. 369—370, dated Calcutta, 6th February 1897.

From R. NATHAN, Esq., OFFICIATING UNDER SECRETARY TO THE GOVERNMENT OF INDIA, Home Department, to the CHIEF COMMISSIONER OF ASSAM AND COORG.

IN continuation of my Telegram, No. 310—311 (Sanitary), dated the 4th February 1897, informing you of the passing of the Epidemic Diseases Bill, I am directed to forward for your information a copy of a circular telegram to Local Governments and Administrations, Nos. 304—313 (Sanitary), of the same date. This circular indicates the views of the Government of India on the subject of the medical inspection of

passengers by rail. I am also to forward for your information copies of letters* from the Government of the Punjab, describing in detail the arrangements made by that Government for the examination of passengers and the isolation and treatment of persons suspected or declared to be suffering from plague.

Enclosure No. 8.

No. 41-P., dated Bombay Castle, 25th January 1897.

From J. DE C. ATKINS, Esq., I.C.S., SECRETARY TO THE GOVERNMENT OF BOMBAY, General Department, to the SECRETARY TO THE GOVERNMENT OF INDIA, Home Department.

I AM directed to acknowledge the receipt of your letter, No. 50, dated the 20th instant, forwarding copies of correspondence relative to the measures taken by the Government of the Punjab to remove and segregate plague cases from railways, and inquiring (1) what arrangements have been made in this Presidency to remove and segregate such cases, and (2) whether any difficulty has been experienced in isolating suspected or declared cases of plague at railway stations.

2. In reply, I am directed to state, for the information of the Government of India, that arrangements have generally been made for dealing with bubonic cases in accordance with Section 73 of the District Municipal Act in municipal areas, and that hospital assistants have been deputed at the principal railway stations in the Presidency to inspect, with the co-operation of railway authorities, passengers from Bombay, and to segregate in isolated sheds and hospitals, provided by municipalities, any cases of plague detected.

3. With regard to the second point, I am to observe that no practical difficulties are believed to have yet arisen, but that as the legality of the action taken is open to doubt, and as there is no legal provision for dealing with plague cases in areas outside municipal limits, His Excellency the Governor in Council proposes to legislate immediately with a view to extend Section 434 of the City of Bombay Municipal Act to all areas, whether municipal or not.

Enclosure No. 9.

TELEGRAM, dated Bombay, 27th January 1897.

From the SECRETARY TO THE GOVERNMENT OF BOMBAY, General Department, to the SECRETARY TO THE GOVERNMENT OF INDIA, Home Department.

61-P. It is considered urgently necessary to medically inspect persons leaving Bombay by sea; a complete scheme has been prepared, legal advice taken, and the following rules drafted under Quarantine Act I. of 1870, to which sanction of India is requested. Begins: (1) No vessel shall leave the Port of Bombay until she has been inspected by the Health Officer of the port, and the master or person in charge of such vessel has obtained a bill of health, or certificate, from such officer that the master or person in charge, officers, crew, and passengers (if any) of such vessel are free from any infectious disease dangerous to life. (2) Should the Health Officer of the port be of opinion that any person on board of any vessel so inspected is suffering from an infectious disease dangerous to life, he shall refuse to give a bill of health or certificate as aforesaid unless and until such person is removed from the vessel. (3) After the master or person in charge of the vessel has obtained any bill of health or certificate under the provisions of these rules no person or cargo shall be admitted or taken on board such vessel before she leaves the Port of Bombay unless such vessel is again inspected by the Health Officer of the port, and another bill of health or certificate obtained from such officer by the master or person in charge of such vessel. (4) No port clearance shall be delivered to any vessel unless and until the master or person in charge thereof shall produce the bill of health or certificate so to be obtained as aforesaid, and it shall be the duty of customs officers to refuse delivery of the port clearance without the production of such bill of

* No. 19, dated 8th January 1897, and enclosures, see p. 27; No. 38, dated 16th January 1897, and enclosures, see p. 34.

health or certificate. (5) The Government of Bombay may appoint any person or persons by name or by virtue of office health officer or health officers of the port for the purpose of these rules as regards any class or classes of vessels, and may cancel any such appointment. (6) Disobedience to any of the above rules, numbers (1), (2), (3), and (4), will subject the offender, and all persons aiding or abetting him, to a prosecution under Section 271 of the Indian Penal Code Rules. Ends. Please communicate sanction by wire urgent.

Enclosure No. 10.

TELEGRAM No. 250, dated Calcutta, 28th January 1897.

From the SECRETARY TO THE GOVERNMENT OF INDIA, Home Department, to the SECRETARY TO THE GOVERNMENT OF BOMBAY, General Department.

YOUR telegram 61, regarding rules medical inspection of ships and bills of health, Government of India doubtful whether they come entirely within Act I of 1870, but they can be acted on. Bill was to-day introduced in Legislative Council, and will be passed next Thursday, which gives power to make such rules, and they can then be formally issued. Are not similar rules required for Karachi? Bill also provides for extension generally of powers conferred by Section 434 of Bombay City Act, referred to in your letter 41, over P. of 25th, so special legislation to extend section generally in Bombay Presidency will be necessary.

Enclosure No. 11.

TELEGRAM dated Madras, 2nd February 1897.

From the SECRETARY TO THE GOVERNMENT OF MADRAS, Local and Municipal Department, to the SECRETARY TO THE GOVERNMENT OF INDIA, Home Department.

YOUR telegram No. 283 (Sanitary). Passengers from Bombay inspected at Perambur, suburban station of Madras City. Addresses taken and persons observed for ten days. Arrangements are complete for conveying infected persons immediately in special cart to isolation sheds for treatment by medical staff, and separate hospitals are also provided further at frontier stations of Adoni, Bezwada, Guntakal, and Raichur. There are arrangements for inspection. Circular orders also issued requiring district surgeons to arrange for examination and observation at all railway stations in the Presidency which are junctions, or in municipal towns.

Enclosure No. 12.

No. 40, dated Lucknow, 28th January 1897.

From W. H. L. IMPEY, Esq., SECRETARY TO THE GOVERNMENT OF THE NORTH WESTERN PROVINCES AND OUDH, Sanitation Department, to the SECRETARY TO THE GOVERNMENT OF INDIA, Home Department.

WITH reference to your letter No. 51, dated the 20th January 1897, and in continuation of my letter No. 18, dated 16th January 1897, I am directed to forward, for the information of His Excellency the Governor General in Council, a copy of a letter, No. 38, XVI-404 B., of this date to the address of the Inspector General of Civil Hospitals, conveying further instructions with respect to the inspection of passengers at railway stations with a view to the discovery and isolation of cases of bubonic plague.

No. 38, XVI-404 B., dated Lucknow, 28th January 1897.

From W. H. L. IMPEY, Esq., SECRETARY TO THE GOVERNMENT OF THE NORTH WESTERN PROVINCES AND OUDH, Sanitation Department, to the INSPECTOR GENERAL OF CIVIL HOSPITALS.

A CASE having occurred in these Provinces in which the body of a woman who had died of bubonic plague was removed from a railway station, and conveyed for some distance on an ecca, it appears that the special arrangements that have been made for the

detection of cases of plague are to a certain extent defective. Precautionary measures have been adopted at Jhansi, Agra, Allahabad, Moghul-Sarai, Ghaziabad, and Saharanpur, where medical officers inspect passengers, and temporary hospitals have been established: the station of Cawnpore, as you have been already advised by telegraph, should now be added to the list. At these and other stations where medical officers are located and hospital accommodation exists or can be provided, persons suspected to be suffering from plague should be removed from the train or railway premises, and kept in the observation shed or the temporary hospital. The assistance of the police should be called in if necessary. Friends and attendants accompanying such persons should be kept isolated so long as the medical authorities consider necessary. Suspicion would naturally be excited in the case of sick persons travelling from the direction of Bombay, or of other places where plague is prevalent; and such persons should certainly be detained by the railway authorities, or subordinate medical officers, until they can be inspected by the civil surgeons.

2. As regards the disposal of corpses, instructions will be issued to the railway police to detain any dead body taken out of the train, and those accompanying it in an isolated place in the neighbourhood of the railway station, and to report the matter immediately to the district magistrate and civil surgeon for orders. On receipt of information, the civil surgeon (or a qualified subordinate) should at once proceed to the spot, the magistrate deputing a responsible official to accompany him and to carry out his directions. In cases where death from plague is indicated, the civil surgeon will arrange for the immediate cremation or burial of the corpse, and the isolation of those accompanying it. A body should be buried at a considerable depth, and quick lime should, if possible, be added. As regards the burning of clothes, or other personal effects, you are requested to issue suitable instructions.

Enclosure No. 13.

No. 812, dated Nagpur, 2nd February 1897.

From A. L. SAUNDERS, Esq., I.C.S., SECOND SECRETARY TO THE CHIEF COMMISSIONER, CENTRAL PROVINCES, to the SECRETARY TO THE GOVERNMENT OF INDIA, Home Department.

I AM directed to acknowledge the receipt of your letters Nos. 53 and 71, dated 20th and 21st January respectively, forwarding copies of correspondence regarding the measures taken by the Government of the Punjab for the examination of railway passengers and treatment of cases of bubonic plague discovered at railway stations. The first-mentioned letter asks for information of the arrangements towards these objects made in the Central Provinces. Your telegram, No. 284 (Sanitary), dated 1st instant, has asked for the above particulars by telegram.

2 In reply and in continuation of this office telegram No. 791 of to-day's date, I am to invite a reference to this Administration's letter No. 62-C., dated 5th October 1896, to the Administrative Medical Officer, Central Provinces, a copy of which was forwarded with this Administration's letter No. 72-C, dated 13th *idem* to the Government of India. The Administrative Medical Officer was instructed to make the necessary preliminary arrangements to be put in force should the necessity arise. Medical officers were to be told off to examine railway passengers at the selected stations. Medical and ambulance arrangements were to be in readiness, and the temporary entertainment of a small hospital establishment to be provided for. The erection of thatched huts for hospital accommodation in a selected locality which should be open and unhabitated, was also to be prepared for.

3. Jubbulpur and Nagpur were the places originally selected, in consultation with the railway authorities, for the examination of passengers and the treatment, as above, of any cases of bubonic plague that might be discovered. Subsequently, at the request of the agent of the East Indian Railway Company, it was decided not to undertake, for the present, the detention and examination of railway passengers at Jubbulpur, owing to the inconvenience of the hours of arrival of the trains at that place. The Agent stated that examination of passengers from Bombay was made at Allahabad; which, he thought, rendered examination at Jubbulpur unnecessary; but at the instance of the Governments of Bengal and the North-Western Provinces, it was arranged that, should the plague further develop, medical examination and detention of patients should be

instituted at Itarsi, the junction of the Great Indian Peninsula and Indian Midland Railways. This was brought into force as reported to the Government of India in this Administration's telegram of the 27th October.

4. On the 15th December the Chief Commissioner received a report of the occurrence on the 8th of the only case of bubonic plague yet known to have occurred in these Provinces.* This was a Brahmin boy of 12, travelling from Bombay, who developed the disease at Bhusawal and died between Shahpura and Mirgunj. The body was taken out of the train at Jubbulpur. The carriage was disinfected and the clothes and bedding of the deceased and his brother, who was the only passenger in the carriage, were burnt. This case was reported to the Government of India in this Administration's letter No. 139, dated 7th ultimo. On receipt of the report from the administrative medical officer, the Chief Commissioner directed the arrangements detailed in paragraph 2 above to be enforced at Jubbulpur also. As a matter of fact, however, some kind of observation had already been maintained since October under the civil surgeon's orders.

5. The arrangements made in the Punjab will be communicated to the administrative medical officer, though the Chief Commissioner considers that, until the disease actually declares itself in these Provinces, the preventive measures already adopted and in readiness for application are sufficient. Medical inspection is at present carried out by medical officers on the provincial establishment under the orders of civil surgeons at Jubbulpur, Itarsi and Nagpur, and at the former station there is also inspection by the railway authorities, as stated in the letter quoted in the last paragraph. The legal difficulty mentioned in No. IV. of the Proceedings of the Punjab Conference had occurred to the Chief Commissioner, and he had arrived at the same conclusion as the Government of the Punjab on this point. Special provision has not been made for cases of the plague among Europeans and Eurasians. The prospect of such cases is remote, and at Nagpur and Jubbulpur there are suitable hospitals for such patients at hand, while Itsari is close to Hoshangabad where they can also be conveniently treated.

6. The request contained in your letter No. 1-Sanitary, 146, dated 22nd January 1897, for telegraphic advice of the occurrence of any cases of bubonic plague in these Provinces has been noted.

Enclosure No. 14.

Telegram No. 791, dated Nagpur, 2nd February 1897.

FROM the SECRETARY TO THE CHIEF COMMISSIONER OF THE CENTRAL PROVINCES to the SECRETARY TO THE GOVERNMENT OF INDIA, Home Department.

YOUR telegram No. 284 (Sanitary), dated 1st. Inspection carried out by subordinate medical officers under civil surgeons at Jubbulpur, Itarsi and Nagpur. Understood East Indian Railway also assist in inspection at former station. Medical and ambulance arrangements also made. Temporary hospitals provided and establishment entertained. Letter issuing to-day giving further particulars.

Enclosure No. 15.

TELEGRAM No. 554-C., dated Rutlam, 6th February 1897.

FROM the AGENT TO THE GOVERNOR GENERAL IN RAJPUTANA to the SECRETARY TO THE GOVERNMENT OF INDIA, Home Department.

YOUR telegram 285 of 1st. Passengers are examined at Abu Road, Marwar Junction, Beawar, Ajmere, Jeypore and Bandikui. Hut- for isolation of cases exist at Abu Road, Ajmere and Jeypore. Inspection at Beawar and Ajmere conducted by hospital assistants and is under supervision of Civil Surgeon, Ajmere. Administrative Medical Officer reports Arrangements are particularly good. No cases have been reported in Rajputana since January 15th. It is important that examination of passengers should be strict at Ahmedabad where they change carriages.

* Another case has just been reported from Itsari, which was reported to the Government of India, in this Administration's telegram No. 792, dated to-day; no particulars of this are yet to hand.

Enclosure No. 16.

NOTE by Director General, Indian Medical Service, on the Outbreak of Bubonic Plague at Karachi.

The first case of the disease was reported to, and observed by, Dr. Kakar, the Health Officer, on the 10th December. The individual attacked was a cook to a Hindu merchant, whose house was situated in the Bunder quarter of the city. He was said to have landed from Bombay on the 8th or 9th December, but the evidence on this point is certainly not clear, was attacked with fever on the latter date, and died on the 10th, with all the symptoms of plague. When the fever declared itself, the man was removed from the house in the Bunder quarter to another in the Ranchore quarter, where he died. No other case has occurred in either of these houses.

The second observed case appeared on the 11th December in the Old Town quarter in the person of a broker, whose office is in the Bunder quarter in close proximity to the house in which the first case occurred, but his residence was situated in the Old Town quarter.

Beyond the above there appears to be no clear and distinct evidence of the importation of the disease into Karachi by human intercourse, but it is admitted that cases may have occurred previous to those noted, although not reported.

As in Bombay, the appearance of the disease was followed by a great mortality among rats.

The population of the city of Karachi, according to the census of 1891, amounted to 98,195, one-fifth of that number may be added for natural increase, which will bring the present population up to 117,834.

The town, excluding Cantonments and Harbour, is divided into 31 quarters or wards, and up to 24th January 606 deaths have been reported from 14 of these wards; the remaining 17 have been entirely free. The incidence of these deaths in the 14 wards was as follows:—

No.	Quarters.	Number of Deaths.	Estimated Population.
1	Ranchore - - - - -	5	8,986
2	Old Town - - - - -	407	11,489
3	Machi Miani - - - - -	66	3,721
4	Market - - - - -	49	8,107
5	Bunder - - - - -	22	1,277
6	Napier - - - - -	18	10,274
7	Lyari - - - - -	13	27,056
8	Serai - - - - -	2	4,916
9	Garden - - - - -	10	7,494
10	Sadar Bazar - - - - -	1	9,087
11	Ramswamy - - - - -	1	1,777
12	Rambagh - - - - -	1	3,758
13	Civil lines - - - - -	1	1,394
14	Jail (the quarter so called) - - -	10	4,565
	TOTAL - - - - -	606	—

The worst parts of the town are the quarters named Old Town, Machi Miani, Market, and Bunder, where the greatest mortality has occurred. The two former face the bed of a dry stream, extending backwards until they become contiguous with the other quarters. Many of the houses I visited in the quarters above-named were quite unfit for human habitation, there were no openings for the admission of air and light, the rooms were overcrowded, and the inmates lived in complete darkness. The Old Town is the worst in these respects, but the overcrowding in houses and of ground area is common to all.

Of the 59 ascertained deaths from plague, which were reported up to 31st December, 40 or 83.1 per cent. occurred in the Old Town, and of the total 606 deaths, 407 or 67.1 per cent. were reported from the same quarter.

It must also be noted that many of the deaths reported from other quarters occurred in fugitives from the Old Town.

The death-rate from plague in Karachi City has, therefore, been only 0.52 per cent. of estimated population, and in the worst quarter, where the greatest mortality has occurred, only 3.5 per cent. on the estimated population of that quarter. This, I think, proves

that the disease, as in Bombay, can only be slightly, if at all, either contagious or infectious in the common acceptation of these terms, and the following additional facts warrant me, I think, in coming to the conclusion that the incidence of the disease is due to local conditions.

1. No death has as yet been reported from any of the houses on the exposed edge of the town, *i.e.*, on the one with a frontage to the dry bed of the stream.

2. Comparatively slight extension in the other quarters, and that only in the worst houses.

3. Lyari, a suburb containing an estimated population of 27,000, locally said to be 30,000, situated a quarter to half-a-mile from the Old Town, Mianinachi and Market, is in constant communication with these quarters and receiving fugitives from them. Only 13 deaths up to 24th January. The houses in this suburb are scattered over a large area, and are, as a rule, of small size. There are numerous gardens and open spaces in the area.

4. Khudder, a village with a population of 2,000, chiefly fishermen, situated half a mile from the town; women of the village proceed daily to the town to sell fish, but there were only two deaths up to 26th January. The village consists of huts, each occupied by a single family.

5. Kemari, a village near the port with a population of 2,378. No deaths from plague.

6. No deaths reported among coolies connected with the shipping.

7. Eighty police employed in the city during the 24 hours. No deaths.

8. The immunity enjoyed by officers and subordinates of Health Department.

The houses in which a death has occurred are marked thus ⊕, and the mark is repeated for each death. In visiting all parts of the city with the officers of the Health Department I was struck with the localisation of these marks and their absence from the better class of houses.

The measures which have been taken, and are still in progress, towards arresting the spread of the disease, are cleansing and disinfection of houses in which a death has occurred, greater attention to general cleanliness and, when possible, removal of the healthy from infected houses.

On the 11th January the construction of mat huts on a large space of open ground near the town was commenced, but the people could not be induced to occupy them until the 24th, when the headmen of the Hindus living in the old town agreed to the exodus. On the 27th January there were nearly 400 huts erected, which were then occupied by 2,500 to 3,000 people.

The huts are built separately and arranged along wide streets, water is laid on and all sanitary arrangements are attended to.

The Mahomedans and Kutchers have also agreed to turn out of their houses, and huts are now in course of construction for their occupation.

A population living under these conditions will require careful supervision, and a civil officer has been detailed for the duty. I also recommend that the Deputy Sanitary Commissioner, Dr. Arnim, now in Karachi, should be placed in medical charge of the different camps.

The Bombay Government might be informed that if further medical assistance is required officers can be supplied on application to Government of India.

A house evacuated is not to be re-occupied until its interior has been thoroughly cleansed, disinfected and whitewashed, and these measures should be extended to the other houses in the city.

In addition to these measures it appears to me to be necessary for the future safety of the city that all houses declared by the local medical authority to be unfit for human habitation should be demolished, and the ground acquired by the municipality.

That the local authorities should be authorised to refuse permission to the re-occupation of a house or room until it is placed in a proper state for habitation, and a law should be passed to prevent overcrowding in houses and rooms.

The municipality is, I understand, nearly bankrupt, and is without funds. Assistance should, I think, be given from Imperial sources, as the objects aimed at are of Imperial interest.

It is, I think, generally accepted that the limit of incubation of the plague in a human being is eight to nine days. The facts which have come to my notice support this view, and I would recommend that quarantine should be limited to 10 days.

It was suggested to me when in Karachi, that as the municipal committee is making such great endeavours to stop the progress of the disease, their efforts might be frustrated by allowing passengers from Bombay to land immediately on arrival of the ships, and they think that a quarantine of 10 days from date of departure from Bombay, when no case has occurred on board, might be imposed on all arrivals.

The cargo to be landed in the ordinary course. This appears to be appropriate and justifiable, but Mr. Wingate, the Commissioner, declines to recommend its adoption until it can be clearly proved that arrivals are followed by fresh importation of the disease.

The inward passenger traffic by rail is carefully watched by medical subordinates on the main line, and on those to Quetta and Hyderabad, but I think it advisable that a commissioned medical officer should inspect at Karachi city station and accompany the train to the cantonment station and inspect passengers who may enter at that station.

This medical officer would be under the orders of the Commissioner or magistrate, and would be available for any other duty connected with the plague.

The arrangements now being made at Karachi will be watched with interest, as if the removal of a whole or portion of the inhabitants to huts proves ultimately successful, the procedure may be followed with advantage elsewhere.

It would be a graceful act on the part of the Government of India if the thanks of Government were given to Mr. Wingate, the Commissioner, Mr. Giles, the Magistrate, Mr. Strahan, the Secretary to the Municipal Committee, and to Dr. Kakar, the Health Officer, for the measures they have taken to arrest the progress of the disease. Mr. Strahan's services are especially deserving of commendation. The removal of the inhabitants from the infected portions of the city is being carried out with great judgment and tact.

2nd February 1897.

J. CLEGHORN.

Enclosure No. 17.

No. 367, dated Calcutta, 6th February 1897.

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, Home Department, to the SECRETARY TO THE GOVERNMENT OF BOMBAY, General Department.

I AM directed to forward, for the information of His Excellency the Governor in Council, a copy of a note written by Surgeon-Major-General Cleghorn, Sanitary Commissioner with the Government of India, on his recent visit to Karachi.

2. His Excellency in Council will observe that the facts elicited by Dr. Cleghorn's investigation have led him to the conclusion that in Karachi, as in Bombay, the disease is only slightly, if at all, either contagious or infectious in the common acceptation of these terms, and that the incidence of the disease is mainly due to local causes.

3. The Government of India notice with great satisfaction the success that has been achieved by the authorities at Karachi in preparing and arranging for the sanitation of camps of huts in the open, and in securing the removal of the inhabitants of the infected quarters of the city to these camps, and they trust that these measures will help greatly in checking the disease. They are sure that the Government of Bombay will agree with them that the zealous endeavours made to bring about these ends by Mr. Wingate, the Commissioner in Sind; Mr. Giles, the Collector and Magistrate; Mr. Strahan, the Secretary to the Municipal Committee; and Dr. Kakar, the Health Officer, are deserving of great credit.

4. The Governor General in Council desires specially to commend to the consideration of the Government of Bombay the following suggestions made in Dr. Cleghorn's note:—

(a) That Dr. Arnim, the Deputy Sanitary Commissioner now in Karachi, should be placed in medical charge of the different camps, in which Dr. Cleghorn points out that the population will require careful supervision.

(b) That a house evacuated should not be re-occupied until its interior has been thoroughly cleansed, disinfected, and whitewashed, and that these measures should be extended as widely as possible.

(c) That permission should be refused to the re-occupation of a house or room until it is placed in a proper state for habitation.

(d) That overcrowding in houses and rooms should be prevented.

(e) That a commissioned medical officer should inspect the railway passenger traffic at Karachi City Station, accompany the trains to the Cantonment Station, and inspect passengers who may enter at that station.

5. In conclusion I am to say that the Government of India will place more medical officers at the disposal of the Government of Bombay if His Excellency in Council considers that more officers are needed.

Enclosure No. 18.

No. 322, dated Calcutta, 5th February 1897.

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, Home Department, to the SECRETARY TO THE GOVERNMENT OF BENGAL, Municipal Department.

IN continuation of my letter, No. 46, dated the 19th January 1897,* I am directed to forward, for the information of the Government of Bengal, a copy of the papers noted below connected with Surgeon Major-General Cleghorn's visits of medical inspection to Bombay and Karachi, and the remedial measures that have been adopted in those cities.

2. It will be observed that the view of Dr. Cleghorn and of other qualified medical gentlemen who have studied the subject is that the incidence of the disease is to a large extent due to local causes, and that it is at present only slightly epidemic or contagious in the ordinarily accepted sense of these words. They are also of opinion that the best practical means of checking the increase of the plague has been found to be the abandonment and thorough disinfection of infected houses and localities, and the removal of the inhabitants to camps constructed in the open. The authorities at Karachi have been particularly successful in the construction of these camps and in securing the removal of the inhabitants of the infected quarters to them.

3. Should the means adopted to prevent the spread of the disease to Calcutta unfortunately prove ineffectual, it will be necessary to take measures similar to those described by Dr. Cleghorn in order to minimise the evil as far as possible, and, in the opinion of the Governor General in Council, it is desirable that the local authorities should make their preparations now so that there may be no difficulty in taking vigorous action to suppress the disease should it break out. I am therefore to suggest that with permission of His Honour the Lieutenant Governor, arrangements may be made for the construction of camps of refuge in suitable places, in the event of their being ultimately required. The Government of India will be glad to be informed in due course of the arrangements made.

Enclosure No. 19.

No. 3—Sanitary—371—378.

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, to the CHIEF SECRETARY TO THE GOVERNMENT OF MADRAS; THE CHIEF SECRETARY TO THE GOVERNMENT OF THE NORTH-WESTERN PROVINCES AND OUDH; THE CHIEF SECRETARY TO THE GOVERNMENT OF THE PUNJAB; THE CHIEF COMMISSIONER OF THE CENTRAL PROVINCES; THE CHIEF COMMISSIONER OF BURMA; THE CHIEF COMMISSIONER OF ASSAM; THE CHIEF COMMISSIONER OF COORG; THE RESIDENT AT HYDERABAD.

Home Department.—Sanitary.

SIR,

I AM directed to forward, for the information of His Excellency the Governor in Council, His Honour the Lieutenant Governor (and Chief Commissioner), a copy of the

* Home Department Letter, No. 45, dated January 19, 1897, to the Address of the Government of Bombay, see p. 26.

Memorandum on the plague by medical practitioners of Bombay, see p. 24.
Note by the Sanitary Commissioner with the Government of India on the plague in Karachi, see p. 25.

papers noted below,* connected with Surgeon-Major General Cleghorn's visits of medical inspection to Bombay and Karachi, and the remedial measures that have been adopted in those places.

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I have, &c.
(Signed) J. P. HEWETT,
Secretary to the Government of India.

Enclosure No. 20.

NOTIFICATION.

No. 4096 Medical.—The 3rd November 1896.—Under Section 334 of the Calcutta Municipal Consolidation Act, 1888, the following Regulations are published for general information.

H. H. RISLEY, Secretary to the Government of Bengal.

WHEREAS it is expedient to adopt special measures for preventing, checking, or mitigating an outbreak of the bubonic plague in Calcutta, and to pass special regulations to give effect thereto, the Commissioners in meeting, with the sanction of the Local Government, prescribe the following regulations under Section 334 of the Calcutta Municipal Consolidation Act, 1888:—

1. These regulations shall come into force from the date on which the plague may be declared by the Medical Board to be prevalent in Calcutta, with the exception of Regulation 8, which shall come into force from the date on which it may be published in the "Calcutta Gazette"; and they shall all remain in operation until such time as they may be countermanded by a notification in the "Calcutta Gazette."

2. Every male householder who becomes cognisant of any case of the bubonic plague or of fever with glandular swellings in his house, shall be bound to give information of the same to the Ward Office with the least practicable delay, unless he has reason to be satisfied that information regarding the case has already reached or been communicated to the Ward Office.

3. The Commissioners may at any time, between sunrise and sunset, after giving such notice of their intention as shall, under the circumstances, appear to them to be reasonable, enter upon any premises and summarily execute any work required under section 318 of the Calcutta Municipal Consolidation Act, 1888, or with a view to abate any or all of the nuisances indicated in clauses (a), (b), (c), (d), (e) and (f) of section 385 of the said Act: provided that when an apartment is in the actual occupancy of a female who, according to the custom of the country, does not appear in public, the Commissioners shall give at least an hour's notice of their intention to enter such apartment, and shall afford her every reasonable facility for withdrawing from such part or portion of the apartment as they may desire to enter.

4. When a dwelling is so overcrowded as, in the opinion of the Medical Board, after personal inspection by at least two members of the Board, to make the inmates thereof

* Home Department, No. 45, dated January 19, 1897, to the Address of the Government of Bombay, see p. 26. Memorandum on the outbreak of plague in Bombay by medical practitioners of Bombay, see p. 24. Note by the Sanitary Commissioner with the Government of India on the outbreak of plague in Karachi, see p. 25.

specially liable to an attack of the bubonic plague, the Commissioners may, by a notice posted on some conspicuous part of the dwelling, require the owner or the occupier, if actually residing in the dwelling, or the tenants or the actual inmates thereof, to abate the overcrowding within 24 hours by reducing the number of lodgers, tenants, or other inmates of the said dwelling as prescribed in the notice; and in default of compliance with the requisition in the said notice, may summarily eject all the inmates, or reduce the number of inmates in such manner and to such extent as may appear necessary: provided that the Commissioners shall provide the inmates so ejected, when necessary, with suitable temporary lodgings in the neighbourhood as far as possible.

5. When a dwelling has, in the opinion of the Medical Board, after personal inspection by at least two members of the Board, been so infected with the plague as to render its further occupation a source of danger to the inmates thereof, the Commissioners may, after giving 24 hours' notice, summarily cause such dwelling to be vacated and thoroughly cleansed and disinfected: and the dwelling shall not be reoccupied until, in the opinion of the Medical Board, it is safe to be reoccupied: provided that the Commissioners shall make suitable arrangements for a thorough disinfection of the clothing, bedding, and other articles removed from the dwelling, and shall provide the inmates thereof, when necessary, with suitable temporary lodgings.

6. If, in the opinion of the Medical Board, after personal inspection by at least two members of the Board, the destruction of any hut or shed is necessary to prevent the spread of the disease, the Commissioners may, after giving reasonable notice, take measures for the destruction of such hut or shed and of the materials of which it is constructed.

7. No rag-picking shall be permitted in the streets or elsewhere, nor shall rags be transported except under such conditions as may be prescribed by the Medical Board, and any person picking rags in the streets or elsewhere shall be liable to be arrested by the police, and the Commissioners may disinfect at their own cost, or, acting under the advice of the Medical Board, may destroy any collection of rags in rag-pickers' houses and rag stores.

8. It shall be lawful for the Commissioners to select a site and erect a hospital thereon, or convert any house or other building into a hospital, for the isolation of patients suffering from the plague in any locality which, in the opinion of the Medical Board, after personal inspection by at least two members of the Board, may be suitable for the purpose.

9. Any vacant house or other building, not being a place of worship, which, after personal inspection by at least two members of the Board, is, in the opinion of the Board, suitable and required for the purpose of an Isolation Hospital, may be entered upon and occupied by the Commissioners without any notice whatsoever, and the owner or the lessee of such house or building shall not be entitled to claim from the Commissioners anything beyond a reasonable rent for the period during which the house or building may remain in their occupation: provided always that the Commissioners shall be bound to thoroughly cleanse, disinfect and limewash the house or building, both internally and externally, before vacating it.

10. The Commissioners shall provide suitable conveyances painted in a conspicuous manner for the free carriage of persons suffering, or suspected to be suffering, from the plague, and for the free transport of any clothing, bedding, or other articles which have been exposed to infection; and it shall be lawful for them to drive such conveyances through any public and private thoroughfare.

11. When in any dwelling there is a patient suffering, or suspected to be suffering, from the bubonic plague, the Commissioners may enter that dwelling at any time between sunrise and sunset, after giving such notice of their intention as shall, under the circumstances, appear to them to be reasonable, and may take measures for segregating and isolating the patient within such dwelling, so far as the circumstances of the case may admit, to the satisfaction of the Medical Board: provided that where a female is suspected to be suffering from the bubonic plague, the Commissioners shall depute a female doctor to examine her; and when the patient, being a male person, and not being below the age of twelve years, cannot be so isolated, and is certified by the Medical

Board, after personal inspection by at least two members of the Board, to be without proper lodging and accommodation, the Commissioners may direct his removal to hospital.

12. The Commissioners may provide and set apart special burial grounds and cremation grounds on the banks of the Hooghly and Adigunga for plague patients, and may declare it unlawful to burn or bury the corpse of a plague patient in any other cremation or burial ground.

13. The Commissioners may, from time to time, by public notice, prescribe the manner in which corpses of plague patients are to be conveyed to burning or burial grounds for disposal.

14. In cases of emergency it shall be lawful for the Chairman, with the consent of the General Committee, to sanction any or all such acts as under the ordinary provisions of the Calcutta Municipal Consolidation Act, 1888, would require the sanction of the Commissioners in meeting: provided that the Chairman shall always convene a special meeting of the Commissioners at the earliest possible opportunity to confirm the sanction so accorded by him; and if the Commissioners in meeting do not confirm the action of the Chairman, such steps shall be taken to carry out the orders of the Commissioners in meeting as may still be practicable.

15. The Commissioners may, in their discretion, pay compensation to any person who has sustained substantial loss or damage by reason of anything done under the powers conferred by these regulations: provided, however, that no person shall be entitled as of right to claim any compensation whatsoever.

The 26th October, 1896.

H. C. WILLIAMS,
Chairman.

Enclosure No. 21.

Municipal Laboratory, January 22, 1897.

MY DEAR SURGEON-GENERAL,

I HAVE just been to see a very interesting outbreak of the plague at Worli, a fishing village three miles outside Bombay. Here the inhabitants of their own accord made a sanitary cordon, and refused to allow any stranger to enter. As the inhabitants did this of their own free will, as a stranger could obviously be easily recognised, there was a chance for a sanitary cordon to be successful if anywhere. Nevertheless the disease suddenly broke out with appalling virulence. The death-rate has been nearly 95 per cent. About 100 cases have occurred. At present the inhabitants of the village number about 50, and the village is being whitewashed by the Municipality, who are employing 270 men on the work, so they evidently deserve credit for their energy in dealing with the disease. In Worlee the inhabitants have a habit of buying a year's supply of grain at one time and storing it, just as is done in the hills where the disease is endemic. Hence there was the suggestion that the disease was due to some emanation from the stored grain. But most of the villagers are now encamped outside of the village in fields, where they remain free from the disease, but they come into their houses every day to fetch their daily supplies of grain, and they have taken with them their bedding, food, and household utensils. Nevertheless they have left the mysterious disease behind. Here is an argument for evacuation of the locality.

To Surgeon-General J. Cleghorn, M.D.

Yours sincerely,
E. H. HANKIN.

Enclosure No. 22.

Telegram No. 78, dated Fort St. George, February 4, 1897.

From the SECRETARY TO THE GOVERNMENT OF MADRAS, to the SECRETARY TO THE GOVERNMENT OF INDIA, Home Department.

THE Government regrets extremely your objection to cancel notification making Madras pilgrim port. Risk of introduction of plague greatly increased by arrivals of gangs of pilgrims from Bombay. Such risk should not be incurred except in presence of grave reasons of which Government is ignorant. Effective quarantine on land difficult, if not impossible. The Government strongly urges reconsideration. Madras public feel

keenly on subject. Municipality and other local bodies protest vigorously. Government considers their protests reasonable, and has stopped pilgrims at Bombay, pending further reference to you.

Enclosure No. 23.

Telegram No. 364, dated February 6, 1897.

From the SECRETARY TO THE GOVERNMENT OF INDIA, Home Department, to the SECRETARY TO THE GOVERNMENT OF MADRAS.

YOUR telegram of 4th and telegrams received direct from Municipality, Chamber of Commerce, Harbour Trust Trades Association, and Mahajana Sabha, regarding prohibition of departure of pilgrims from Madras have received careful consideration of Government of India. Governor General in Council would wish to assure Government and local authorities that he fully sympathises with them in their endeavours to exclude risk of plague coming to Madras, and would not insist on any measure likely to increase it. It appears to Governor-General in Council that permission to allow pilgrims to depart from Madras will not increase risk. It seems most unlikely that Madras Government need expect large gangs of pilgrims from Bombay. It has been publicly announced for a fortnight that departure of pilgrim ships from Bombay and Karachi was about to be stopped, and endeavours are being made to dissuade pilgrims from going to Haj this year. Bulk of pilgrims do not belong to Bombay or Bombay Presidency and when notice was first given pilgrims from Northern India and Bengal ignored it and went to Bombay. The Government of India therefore anticipate that bulk of pilgrims who would wish to leave Madras would not come from infected area. Government of India have telegraphed to Bombay Government to endeavour to dissuade pilgrims there from going to Haj, and at the same time to arrange to have all who persist and leave Bombay with intention of sailing from Madras and Calcutta, isolated for 10 days at Nassik, or other suitable place, and would suggest that Madras Government might provide for removal from train and isolation at some intermediate station of any who may succeed in evading these orders. Madras and Calcutta only places open for departure of pilgrims, and Government of India are averse from passing orders which will have the effect of stopping pilgrimage and be regarded as interference with religion of Muhammadans.

Enclosure No. 24.

Telegram No. 365, dated February 6, 1897.

From the SECRETARY TO THE GOVERNMENT OF INDIA, Home Department, to the SECRETARY TO THE GOVERNMENT OF BOMBAY, General Department.

GOVERNMENT of India will be obliged if Bombay Government would endeavour to dissuade all persons, who have arrived in Bombay with intention of going to Hedjaz, from proceeding to either Madras or Calcutta to take ship. Should they persist in doing so, it is essential that they should be isolated for 10 days at some place in Bombay Presidency. Government of India would suggest that neighbourhood of Nassik might be suitable, but leaves it to Bombay Government to fix place, and would be obliged if Bombay Government would without delay make the needful arrangements. Until they have been made no pilgrims who have not abandoned idea of pilgrimage should be allowed to leave Bombay. Intimation should be sent to Madras and Bengal Governments and to local Commissioners of Police whenever any pilgrims leave for either of those places after having passed the prescribed 10 days in isolation.

Enclosure No. 25.

No. 111, dated Lahore, February 3, 1897.

From H. J. MAYNARD, Esq., Junior Secretary to the Government of the Punjab, to the SECRETARY TO THE GOVERNMENT OF INDIA, Home Department.

IN continuation of the correspondence ending with your letter No. 49, dated the 20th of January 1897, on the subject of bubonic plague, I am directed to forward, for the information of the Government of India, a copy of a circular* to-day addressed to all deputy commissioners, the headquarters of whose districts are at or near railway stations, on the subject of the inspection of passengers quitting trains from the infected directions at such stations; and to explain that a copy has been forwarded also to the Assistant Quartermaster-General, Punjab Command, in order that similar orders, if deemed desirable, may be issued as regards cantonments on the line of railway.

* No. 103, dated February 3, 1897.

Circular No. 103, dated Lahore, February 3, 1897.

From H. J. MAYNARD, Esq.; Junior Secretary to the Government of the Punjab, to all Deputy Commissioners, except Hazara, Kohat, Bannu, Dera Ismail Khan, Dera Ghazi Khan, Shahpur, Jhang, Kangra, Simla, Rohtak.

As the following authenticated cases of bubonic plague have occurred in the Punjab, viz., one at Rewari, one at Ferozepore, and one at Amritsar (all three imported from Bombay), and as there appears to be some influx of persons from infected localities, the Lieutenant Governor has decided that it is desirable that all railway passengers arriving from the infected directions (Bombay and Karachi), and leaving the trains at stations situated at or close to district head-quarter, should be inspected by medical officers, and orders to this effect are now issuing to the Inspector General of Civil Hospitals. It will be observed that these orders refer solely to passengers leaving the trains. The inspection of passengers who are not leaving the trains will continue to be carried out under orders previously issued, at certain stations only, viz., Khaupur in the Bahawalpur territory, Sher Shah, Raiwind, Bhatinda, and Rewari.

2. At each district head-quarters railway station where such arrangements have not already been made, it will now be desirable to arrange for the construction of hospital and observation sheds. In this connection I am to enclose for your information a copy of a letter* from the Inspector General of Civil Hospitals, No. 34, dated 7th January 1897, with suggestions regarding the sheds to be erected.

A Conference which met early in January, and in accordance with whose recommendations orders for inspections at the five railway stations named in my first paragraph were issued, recorded the remarks on this subject which will be found annexed to this letter.† The cost of the sheds and furniture and of the dieting and treatment of patients should be met by the local bodies concerned, and it will probably be desirable to place in the hands of the medical officer who conducts the inspections a small advance for any urgent expenditure that he may have to incur

3. In passing orders upon the proceedings of the Conference already alluded to, the Lieutenant Governor made the following remarks‡:—

His Honour does not "think it would be prudent for an examining officer to attempt forcibly to examine a patient for swelling of the glands." Should a patient be "unwilling to submit to such examination, he should simply be detained as a suspicious case, and, of course, very great caution would be requisite in dealing with females." The Lieutenant Governor accepts the recommendations of the Conference that persons suspected to be suffering from plague should "be detained and kept in the observation shed or the plague shed, as the case may be. The assistance of the police should be called in if necessary.§"

4. These orders were communicated to the Government of India,|| in order that the necessary steps might be taken to legalize what it was proposed to do. The Government of India replied¶ that in Bombay, where it had already been necessary to isolate and treat a large number of cases discovered at the railway station, the Local Government had not reported that any difficulty had arisen. They preferred not to legislate if it could be avoided, but requested that if any difficulty arose in the Punjab, the Government of India might at once be informed of the facts. Since then a Bill has been introduced into the Legislative Council giving the Governor General in Council large powers of regulation to prevent the outbreak or spread of dangerous epidemic disease, and authority to delegate those powers to a Local Government, but this Bill has not yet become law.

5. A copy of this Circular is being sent to the Assistant Quartermaster General, Punjab Command, in order that similar orders, if deemed desirable, may be issued as regards cantonments on the line of railway.

* Enclosure No. 1. See p. 33.

† Enclosure No. 2.—Extract from Conference Proceedings, Head V.—Details of arrangements as to sheds, establishment, contingencies, &c., Paragraphs 1, 2, and 3. See p. 30.

‡ Vide Head IV. of Conference Proceedings—"Removal from train and isolation in temporary hospital." See p. 30.

§ Paragraph 6 of letter to Commissioner and Superintendent, Lahore Division, No. 2, dated January 5, 1897. See p. 31.

|| Letter No. 19, dated January 8, 1897. See p. 27.

¶ Letter No. 49, dated January 20, 1897.

Despatch from SECRETARY OF STATE to the GOVERNOR GENERAL OF INDIA
IN COUNCIL, No. 42 (Revenue), dated March 11, 1897.

MY LORD,

SINCE the first outbreak of the bubonic plague at Bombay in September last, I have been in telegraphic communication with your Excellency, and with the Government of Bombay, regarding the progress of the epidemic and the steps taking for preventing the spread of the disease and for relieving sufferers. Your Letter No. 1, dated the 27th January 1897, describes what happened up to the last week of January, your subsequent Letter, No. 5, dated the 10th February 1897, brings the narrative of events to the 8th February, while later telegrams bring the account down to the first week of March.

2. It is now six months since the plague first appeared in Bombay; during that time the disease has spread in epidemic form to some of the suburbs of Bombay, to Karachi, and to Poona; but, despite the occurrence of sporadic cases in Gujarat and elsewhere, it has not as yet gained a serious hold on other towns or districts. Medical men who witnessed the plague at Hong Kong in 1893-94 advise that we must not count on the plague restricting itself to its present limits; and it is clearly necessary that precautions should not be relaxed so long as the disease continues.

3. Up to the present time the reported deaths from plague have been about 10,000, and you apprehend that the true mortality from the disease is above the reported figures. The alarm caused by the plague in India and elsewhere is greater than might have been expected to result from this mortality, one-third of the population of Bombay are said to have left the city; trade and manufactures have been arrested; European and African harbours have declined to admit vessels, passengers, and goods from the infected ports of Bombay and Karachi; and Russia has notified that all India must be treated as contaminated by plague. Not only is there risk of the epidemic spreading to other cities and provinces of India, where millions of people are congregated on relief works and at poor-houses, but for the time a serious injury has been done to India's export trade.

4. The steps taken by the Bombay Municipal Commissioner, the Karachi authorities, the railway executive, and by the Local Governments, under your orders, to check the spread of plague in India and to prevent its being carried to other countries by vessels sailing from infected ports, appear to have been well devised and satisfactorily carried out. As yet the only instance in which plague cases have been reported on ship-board are the two cases on the pilgrim steamer "Pekin" in January, on her voyage between Bombay and the Red Sea. The disease happily did not touch the remainder of the passengers and crew.

5. The measures being taken, at much cost and great labour, to disinfect contaminated and deserted houses in Bombay, Karachi, and Poona, are in accordance with the best expert opinion; and I highly approve the proposal to take such steps with regard to the more unhealthy dwellings as shall make them less liable to be receptacles for pest hereafter. It has to be borne in mind that, even if the plague abates when the rainy season begins, Hong Kong experience shows that it is liable to reappear, though in a less severe form, in the following year.

6. Since your letter was written it has been decided, after communication with your Government, that Moslem pilgrimage from India should be altogether suspended for the present; and an International Conference has met at Venice to consult as to precautions against the spread of the plague to Europe.

7. I am confident that the Government of India and the Local Governments will do everything in their power to relieve sufferers and to prevent the spread of an epidemic which is doing much harm to the people and to the trade of India. In any future report that you may send upon the subject, I should wish it to be made clear that sufficient temporary hospitals, with an adequate staff of doctors and nurses, had been promptly established at each plague centre; and that, where available, women doctors were employed in plague-wards for women. It appears that the Bengal Government took measures to have special hospitals ready in the event of the plague reaching Calcutta; but the information on this point is less complete regarding the plague centres of Western India. The proportion of deaths to cases has been very high throughout, more especially in Karachi; Hong Kong experience showed that recoveries were usually in proportion to the promptitude and completeness with which patients received medical treatment. The unwillingness of Indian sufferers to go to hospital, and of their friends to report seizures, may account for the large proportion of fatal cases. But, when sufficient hospital accommodation of a fair, though improvised, kind is provided, and when adequate medical attendance is available, such unwillingness may be expected gradually to abate.

I have, &c.

(Signed) GEORGE HAMILTON.

To the PRESIDENT of the Approaching Conference on the "Plague in India,"
Venice, Italy.

Oriental Government Security Life Assurance
Company (Limited), January 28, 1897.

SIR,

As, from my profession, I naturally take a deep interest in all that concerns the health and welfare of this city (of which I am one of the oldest European residents), I have, from the commencement of the present epidemic, done all in my power to allay the popular anxiety, and thus to assist our local authorities in the execution of their arduous duties in combating the disease.

No one who has read the speech of His Excellency the Governor on the situation at a meeting of native citizens, held yesterday evening at the Secretariat, can fail to take heart of grace and strive his utmost to carry out the views so well expressed by his Lordship.

With the same end in view I have prepared a list of claims from 1st September last, the commencement of the epidemic, to the present date, in connection with the company which I have the honour to represent, and which is the only Life Assurance Company established in India, having a constituency of about 25,000 members, fully four-fifths of whom are natives.

I do so with the twofold object:—First, of allaying the unnecessary alarm which has filled the minds of many; and, second, of placing before the Conference such information on the subject as may assist them in their important deliberations.

The actual epidemic mortality amongst our policy-holders will, I think, be one of the best tests as to the extent of the prevailing disease amongst the middle and well-to-do class of the community.

From the annexed tabular statement it will be seen that only three persons assured with our company for sums aggregating to 5,200 rupees have fallen victims to the malady. The fact is well known here that the present mortality has almost exclusively fallen on those, to be found in all large cities, who are badly clothed, badly fed, and badly housed, and, in consequence, more susceptible to the disease; a class of people who, it may be remembered, never travel to Europe.

I shall be glad if this information will in any way enable the members of the Conference to form a juster opinion of the visitation than can be gathered from accounts of a sensational character which have gone home from time to time since the commencement of the outbreak can do.

In conclusion, may I point out the alarmingly misleading nature of the expression, "the plague in India." The fact is that this peculiar fever has so far been rife only amongst about 0.33 per cent. of the population of the vast empire which the word "India" signifies, and that only an extremely small percentage of that very limited proportion has been attacked.

I have, &c.

(Signed) D. W. LAUCLAN SLATER,
Fellow of the Institute of Actuaries (London),
Manager and Actuary.

LIST of Claims completed, before referred to (i.e., from September 1, 1896, to January 28, 1897), on the Oriental (Government Security) Assurance Society of Bombay.

RACE.	Amount Assured.	CAUSE OF DEATH.													Total.	
		Cholera.	Bladder and Kidney Disease.	Fever.	Nervous Disease.	Dysentery.	Diabetes.	Heart Disease.	Beri Beri.	Consumption.	Asthma.	Other Lung Diseases.	Accidental Drowning.	Plague.		Liver Disease.
European and Eurasian	Rs. 14,000	-	-	1	-	1	-	1	-	-	-	1	-	-	1	5
Parsee	19,141	1	-	-	-	-	-	-	-	-	-	-	-	2	-	4
Hindu	82,898	-	2	8	4	-	3	2	-	3	1	1	1	-	3	28
Mahomedan	11,818	-	-	-	-	-	-	-	1	-	-	1	-	-	1	3
TOTAL	1,27,857	1	2	9	4	1	3	3	1	3	1	3	1	3	5	40

QUARANTINE ARRANGEMENTS in regard to INDIAN PORTS.

Register Number.	From.	Date.	Place where Quarantine is Imposed.	Duration of Quarantine.	REMARKS.
1409—1896	Telegram from India	12 October	Aden ; Karachi	Not stated.	
1565—1896	Foreign Office	6 November	Alexandria (Egypt)	Ships classified as :— (1.) <i>Indemnes. Conditions.</i> —Medical inspection, disinfection of clothes, provided 7 days have expired after departure from last infected port. Canal in quarantine subject to favourable medical report; but passengers must first disembark at Moses' Well for disinfection. (2.) <i>Suspects. Conditions.</i> —The rules vary according to the circumstances of each particular ship, but, speaking generally, vessels have to be examined and disinfected before entering the canal in quarantine. The longest detention of passengers is 48 hours. (3.) <i>Infected. Conditions.</i> —Same as (2), but detention of ships is 7 days, and of passengers from 2 to 7 days from last case on board.	These are general regulations applicable to all cases of infection, but they were specially applied to Bombay and Coast of Assyr.
1598—1896	Foreign Office	10 "	Egypt	Vessels coming from an infected port (plague), destined for Suakin, to repair to Moses' Well for disinfection; in cases of military officers and soldiers, 3 to 4 days are allowed for this purpose.	
1687—1896	Foreign Office	21 "	Egypt	Healthy vessels to be received in free pratique after disinfection and expiration of 7 days after departure from last infected port. "Indemne" ships to coal inside Port Said, others at Suez. Troopships from Bombay get free pratique, provided they have been disinfected at intermediate port.	
1772—1896	Colonial Office	3 December	Cyprus	10 days quarantine against Bombay.	
1848—1896	Foreign Office	14 "	Egypt	Large animals from clean port are visited by veterinary; small animals the same, and 24 hours observation. Large animals from doubtful ports; visit from veterinary and 24 hours observation; small animals the same, and 48 hours observation. In cases of disease, the animals are landed in quarantine, and slaughtered. Vessels with infected goods pass the canal with free pratique, provided they have complied with the rules in force.	These are general regulations applicable to all cases of infection, and therefore include Bombay.
1914—1896	Colonial Office	29 "	Natal Malta	12 days quarantine against Bombay after disinfection. 7 days observation; no free pratique if fever has broken out.	This applied to India and Kandia.
133—1897	Demi-official, Home Department in India.	30 "	Alexandria; Aden; Calcutta; Madras; Rangoon.	Only states that quarantine has been imposed.	In case of Alexandria, Karachi only is specified in this letter.
31—1897	Colonial Office	4 January	Malta	2 days quarantine on arrival from India.	
130—1897	Colonial Office	16 "	Malta	Quarantine increased from 2 to 20 days.	

157—1897	-	-	-	18	„	-	France, Northern and Southern Ports.	Ships classified as :— (1.) <i>Indemnes Conditions</i> .—Medical inspection of passengers, and disinfection of goods, if necessary; free pratique, if no case of plague during 7 days after departure from infected area. (2.) <i>Suspects. Conditions</i> .—Same as (1), but the disinfection is compulsory. (3.) <i>Infectés. Conditions</i> —Same as (2), but with the addition of a quarantine of 5 days in cases of cholera, and 7 days in cases of plague.
163—1897	-	Foreign Office	-	-	18	„	Fao (Persian Gulf)	Quarantine station to be established at Fao, and ships meanwhile repulsed from Busrah.
183—1897	-	Foreign Office	-	-	18	„	Brindisi (Italy)	No cases of sickness having occurred during voyage, passengers on mail steamers were allowed to land at Lazaretto, and be disinfected, then free pratique, mails landed, and ships proceeded without pratique with original bills of health.
184—1897	-	Foreign Office	-	-	18	„	Malta	Neither passengers, crew, nor merchandise can be landed. Coals and provisions supplied in quarantine in harbour, provided there have been no cases resembling plague or cholera during voyage, if otherwise, outside harbour.
197—1897	-	Colonial Office	-	-	21	„	Natal	Proclamation notifying that City of Bombay is a place infected with contagious or infectious disease. Quarantine of 12 days after disinfection imposed
199—1897	-	Foreign Office	-	-	21	„	France	Text of decree prohibiting the importation from Bombay of rags, old clothes, bedding, raw hides, &c.
200—1897	-	Foreign Office	-	-	21	„	Burma	Enquiry as to duration of quarantine against Bombay
212—1897	-	Foreign Office	-	-	22	„	France; Algeria	Forbidding transit through France and Algeria of rags, &c., from Bombay or other plague infected locality in India. Cancels decree in 190, and substitutes new decree.
223—1897	-	Foreign Office	-	-	23	„	Turkey	15 days quarantine on all pilgrim ships coming from India (including Karachi), rigorous disinfection of luggage, &c., the latter to be landed as also susceptible goods. In case of outbreak of plague on board, 20 days quarantine after last death, or ship can return; suspected objects burned.
237—1897	-	Telegram from India	-	-	25	„	Rangoon; Moulmein; Akyab, and Bassein.	15 days quarantine, if there has been case of plague on board; if not, and vessel has undergone 8 days quarantine at intermediate port, vessel admitted to free pratique, otherwise health officer may at discretion free from severer quarantine, and impose quarantine of 8 days.
240—1897	-	Foreign Office	-	-	25	„	Egypt	Doubtful whether quarantine at Aden will be accepted by Board as sufficient; must apply to all ships. Pilgrimage should be stopped altogether, failing this, pilgrim ships should quarantine near Aden, before entering Red Sea.
							Turkey	Measures against plague officially communicated to British Embassy.
258—1897	-	Colonial Office	-	-	26	„	Malta	Persons from Mediterranean ports must swear they have not been in India for 30 days; otherwise they are medically visited and disinfected in Lazaretto.
265—1897	-	Foreign Office	-	-	27	„	Egypt	Stoppage of service of postal parcels from infected towns. Persian Gulf free from plague; proposal to quarantine arrivals from Baghdad and places between Bombay and Karachi negatived

These are general regulations applicable to all cases of infection, but they have been made specially applicable to Bombay.

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QUARANTINE Arrangements in regard to Indian Ports—*continued.*

Register No.	From.	Date.	Place where Quarantine is Imposed.	Duration of Quarantine.	REMARKS.
267—1897	Foreign Office	27 January	Belgium		Article 8 of Dresden Convention enforced. In general terms importation of rags, old clothes, &c., forbidden. Vessels classed as— (1.) <i>Infected.</i> Sick disembarked and isolated; others subject to observation not exceeding five days; dirty linen, &c., disinfected. (2.) <i>Suspects.</i> Medical inspection, disinfected, five days observation recommended. (3.) <i>Indemnes.</i> Practically same as No. 2.
543—1897	Government of India	27 "	Calcutta, Bombay, Madras, Karachi, Burmah.	Quarantine arrangements (15 days).	
277—1897	Foreign Office	28 "	Aden, Persian Gulf, Muscat, Makulla.	Proposals of Constantinople Board of Health, that— (1) All ships coming from India or Persian Gulf should be quarantined at Aden (period not named). (2.) All pilgrim ships should proceed to Camaran without touching at Aden. (3.) All ships from India should be examined at the entrance of the Persian Gulf.	
288—1897	Colonial Office	29 "	Gibraltar	No pratique for vessels from India; neither passengers nor goods to be landed; Mails and specie landed in quarantine; coal and provisions supplied in quarantine.	
289—1897	Foreign Office	29 "	Germany	Rigid sanitary inspection of ships arriving from Western India and Persia.	
290—1897	Foreign Office	29 "	Egypt	Proposal of Alexandria Quarantine Board that merchandise classed as susceptible should not be allowed to be exported from plague infected ports.	
291—1897	Foreign Office	29 "	Turkey	Dr. Dickson's proposal, that ships from India with cholera should be denied free passage of Suez Canal.	
292—1897	Foreign Office	29 "	Russia	Medical points of observation formed at Persian Gulf, Persia, Caspian, Turkestan, &c.	
293—1897	Foreign Office	29 "	Aden, Persian Gulf, Muscat, &c.	Her Majesty's Government object to policy indicated in 277—1897.	
312—1897	Foreign Office	30 "	France, Algeria	All merchandise from Bombay and Karachi to enter at certain specified ports; all goods which left ports of Indian Ocean, Muscat, Persian Gulf, as far as Cape Comorin, to have a certificate of origin, vised by French Consul.	
313—1897	Foreign Office	30 "	Morocco	Arrivals from India refused admittance.	
314—1897	Colonial Office	30 "	Malta	Passengers on ships from India with clean bill of health land at Comino Island, to undergo disinfection and 21 days quarantine.	

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363—1897	Foreign Office	- - -	2 February	Hague (Holland)	- - -	Ten days' quarantine on arrival from Bombay and Karachi.
367—1897	Foreign Office	- - -	2 "	Egypt	- - -	Should the plague break out in Mecca, no Egyptian pilgrim will be allowed in Egypt till its disappearance from the Hijaz. Pauper pilgrims not allowed to depart for Mecca. Khedive opposed to total prohibition of pilgrimage.
368—1897	Foreign Office	- - -	2 "	Baghdad	- - -	Ten days' quarantine on arrivals from Persian Gulf; disinfection of goods, &c., at Bussorah; arrivals from Mohamrah to be refused admission.
387—1897	Foreign Office	- - -	3 "	Germany	- - -	Ships from Western Indian and Persian Gulf arriving at Bremerhaven placed in sanitary control.
				Italy	- - -	Rules regarding ships from India. Asinata fixed as sanitary station for disinfection.
415—1897	Foreign Office	- - -	4 "	Egypt	- - -	Importation of certain susceptible goods prohibited. Shipping agents of all nationalities at Port Said urge renewal of restriction against passengers embarking in quarantine.
416—1897	Foreign Office	- - -	5 "	Egypt	- - -	No vessels quarantined are to arrive at Port Said at night.
420—1897	Viceroy	- - -	5 "	Italy	- - -	Requesting information as to Italian prohibition.
423—1897	Foreign Office	- - -	6 "	Turkey	- - -	Turkish Vice Consul, Karachi, complains (1) that plague spread owing to Arab sailing boats carrying dates from India to Bussorah and Katif uncontrolled, (2) that no official information is given, and publication of information by newspaper is forbidden.
424—1897	Foreign Office	- - -	6 "	Portugal	- - -	Ships (passengers and cargo) from Indian ports, Gulf of Oman, and Persian Gulf, placed in quarantine and subjected to vigorous disinfection.
425—1897	Foreign Office	- - -	6 "	Russia	- - -	Frontier medical ports of observation established at Takhta-bazar, Kouseki, Kemur, Kerki, and Atvadja.
451—1897	Foreign Office	- - -	8 "	France	- - -	Prohibition against landing of cargoes from plague infected ports; duration of quarantine not yet settled.
472—1897	Foreign Office	- - -	9 "	France	- - -	Ships from plague-infected ports should proceed straight to England, without touching French ports.
197	Foreign Office	- - -	10 "	Tunis	- - -	Prohibition against importation from Bombay and other Indian infected ports of rags, dirty clothes, raw hides, wearing apparel, untanned leather, animal refuse, shoes, &c.
506—1897	Foreign Office	- - -	11 "	Turkey (Bussorah)	- - -	Funds supplied for Lazaret at Fao
508—1897	Foreign Office	- - -	11 "	Austro-Hungary	- - -	Prohibition against importation (with certain exceptions) from Asia (Asiatic Russia excepted) of rugs, tatizs, old linen and clothing, old bedding, and bed furniture.
512—1897	Foreign Office	- - -	11 "	Turkey (Mesopotamia)	- - -	Prohibition against importation of corpses from India

Duration of quarantine not mentioned.

QUARANTINE Arrangements in regard to Indian Ports—*continued.*

Register Number.	From.	Date	Place where Quarantine is Imposed.	Duration of Quarantine.	REMARKS.
267—1897	France	11 February	France		Passengers from infected ports enter at four ports, Pauillac, St. Nazaire, Havre, and Dunkirk; 8 days' observation at first two, and 4 days at last two; baggage disinfected
		12 "	Turkey (Mesopotamia)		Passengers, India and Baluchistan, cannot enter Mesopotamia.
543—1897	Siam	12 "	Siam (Bangkok)		Ships from Bombay inspected at Paknam, before proceeding to Bangkok
533—1897	Foreign Office	12 "	Switzerland		Prohibition against importation in transit of rags, clothing, bedding, body linen (excepting passengers' linen), hides, skins, furs, &c., from British India. Travellers medically examined, and refused admission, if necessary.
537—1897	Colonial Office	13 "	Cyprus		15 days' quarantine on arrival from India.
538—1897	Foreign Office	13 "	Baghdad		Increase of quarantine from 10 to 15 days; ships refused altogether.
540—1897	Foreign Office	13 "	France		Fine from 100 to 3,000 francs imposed on captains, &c., French and foreign vessels, for making false declarations respecting foul ports.
541—1897	Foreign Office	13 "	Tunis		Ships from India cannot enter; linen, bed linen, old and new, carpets, raw leather and hides, animal offal, boots, &c., from ports of Indian Ocean (including Muscat and Persian Gulf) to be accompanied by a certificate of origin vised by French Consul.
			Hague		Importation prohibited of rags, used wearing apparel, unwashed body and bed clothes, including passengers' luggage from Bombay and Karachi.
			Roumania		Pilgrims dissuaded from going to Mecca, on return undergo sanitary inspection. Port of Constanga closed to vessels from India, unless quarantined in Ottoman port, if quarantined at a foreign lazaretto vessels specially inspected. Vessels from plague ports admitted only to Sulina. Old clothes, rags, &c., from plague ports not admitted, passengers' linen disinfected.
615—1897	Foreign Office	17 "	Burma		Declares all India infected by plague.
			Turkey		Suspected cases of plague at Burma and Camaran.
			Germany		Prohibition against importation from India and other places, of personal linen, old and worn clothing, used bedding, rags, carpets, human hair, untanned skins, and hides, unmanufactured hair and bristles, wools, claws, and hoofs, personal effects of passengers exempted; but previous disinfection may be insisted on.

				Algeria - - - - -	Plymouth considered as infected, consequent on case of cholera.
				Antwerp - - - - -	Sanitary precaution. Vessels from healthy ports undergo no sanitary formalities; merchandise generally refused entry, save salted green hides cured with arsenic; certain articles admitted after disinfection.
				Dunkirk - - - - -	Arrivals from India, 4 days' quarantine if no sickness; otherwise 9 days after removal of sick person.
				Persian Gulf - - - - -	Quarantine imposed; control entrusted to British Residency Surgeon, Bushire.
616—1897	Foreign Office	- - -	17	„ - - - - - Turkey - - - - -	Statements of Turkish Vice-Consul at Karachi; rules of 1892, concerning skins and animals, and of 1867, respecting cholera enforced.
648—1897	Telegram, India	- - -	19	„ - - - - - Siam - - - - -	No objection to vessels from Bombay being inspected at Paknam.
655—1897	Foreign Office	- - -	19	„ - - - - - Russia - - - - -	Bokhara-Afghan frontier closed to trade from India. Pilgrimage to Mecca forbidden.
656—1897	Foreign Office	- - -	19	„ - - - - - Spain - - - - -	Goods from India to be disinfected.
658—1897	Foreign Office	- - -	19	„ - - - - - Turkey - - - - -	Temporary Lazaret at Fao; view of Consul-General.
667—1897	Foreign Office	- - -	20	„ - - - - - Spain - - - - -	Arrivals from Indian ports of Persian Gulf undergo 3 days' observation, and importation of rags, old clothes, tissues, mattresses, peltry, feathers, animal hair, horses, hoofs, wool, silk, linen, hemp, jute, &c., forbidden.
668—1897	Foreign Office	- - -	20	„ - - - - - Antwerp - - - - -	Rules modified to exclude all textile or similar products, whether animal or vegetable, if not packed in compressed bales and bound with hoops.
685—1897	Foreign Office	- - -	22	„ - - - - - Spain - - - - -	Restrictions in 667—1897, apply to Indian ports and Arabia.
709—1897	Foreign Office	- - -	22	„ - - - - - Portugal - - - - -	Lisbon, only open port for landing passengers, luggage, mails, subject to quarantine and disinfection, patterns and postal parcels excluded.
				Roumania - - - - -	Importation of all animal products from India prohibited.
				Bulgaria - - - - -	Merchandise from India, Baluchistan, Afghanistan, Persian Gulf, and Hamaran, cannot be imported.
					Ports of Black Sea closed to ships from infected ports, unless previously quarantined in Ottoman Lazaret, if case of illness occurs after leaving quarantine, entry will be refused. Varna and Bourgas only ports for vessels from infected ports previously quarantined in Ottoman ports, a medical examination will be made, and action taken according to the result
726—1897	Foreign Office	- - -	24	„ - - - - - Turkey - - - - -	Quarantine against India (including Baluchistan) raised to 15 days, but if plague happens in quarantine at Bussorah, 21 days from last case, option of return. Entry of corpses prohibited whole Persia frontier from Persian Gulf to Russia. Entry of pilgrims and corpses from Baluchistan prohibited.
727—1897	Foreign Office	- - -	24	„ - - - - - France (Marseilles) - - - - -	Article in the <i>Temps</i> , protesting against the measures adopted at Marseilles.
749—1897	Foreign Office	- - -	25	„ - - - - - Egypt - - - - -	Treatment of "susceptible" goods.

QUARANTINE Arrangements in regard to Indian Ports—*continued.*

Register Number.	From.	Date.	Place where Quarantine is Imposed.	Duration of Quarantine.	REMARKS.
761—1897	Foreign Office	27 February	France	Goods leaving clean Indian ports before 5th February for Great Britain, and reshipped to France, to be considered as arriving from a country free from plague; after that date merchandise treated according to rules in 521—1897.	
765—1897	Foreign Office	1 March	Spain	Prohibition in 667 and 685 applies only to Bombay. Arrivals from other Indian ports three days' observation.	
790—1897	Foreign Office	2 "	Portugal	Rules in 657 apply to Arabian ports.	
801—1897	Foreign Office	3 "	France	Rules prohibiting import of goods apply to ships coming from any port in India contaminated at time of departure.	
804—1897	Foreign Office	4 "	Spain	Passengers from Bombay, fortnight's quarantine, or more if illness on ship.	
809—1897	Foreign Office	4 "	Belgium	Rules regarding arrivals from Persia and parts of China.	
837—1897	Foreign Office	6 "	Russia	Natives of and goods from India not allowed to cross the Turkestan frontier. Natives of India not allowed to enter Bokhara. Muslims in Tauris urged to abstain from going to Mecca.	
838—1897	Foreign Office	6 "	Brazil	Ports of India declared infected, ships directed to proceed to Lazaretto at Ilha Grande.	
839—1897	Foreign Office	6 "	Bulgaria	Rice from Burma not admitted in Bulgarian ports of Black Sea.	
840—1897	Foreign Office	6 "	Turkey	Prohibition against importation from India and Baluchistan of feathers, raw hides, salted and dried furs, felts, hoofs, horns, bones, and all animal products.	
862—1897	Foreign Office	8 "	Turkey	Bussorah. Proposed establishment of a Lazaretto at Adjir.	
863—1897	Foreign Office	8 "	Persia	Complaint of Persia as to insufficiency of quarantine arrangements in Persian Gulf; dangers from absence of quarantine on coast of Yemen.	
865—1897	Foreign Office	8 "	Turkey	Ships from India and Baluchistan cannot pass Dardanelles unless quarantined 15 days in Ottoman or foreign lazaretto.	
881—1897	Foreign Office	9 "	Russia	Tea from India not allowed to enter Batoum.	
893—1897	Foreign Office	10 "	Germany	Shipments from India prior to 12th February allowed to enter (save as regards ports of Bombay and Karachi).	
			Austro-Hungary	Prohibition against importation from India up to Red Sea of raw skins, and hides, bones, horns, hoofs, trotters, bladders, and intestines, hair and bristles.	
904—1897	Colonial Office	11 "	Mauritius	Inquiry respecting coolie emigration from infected districts.	
907—1897	Foreign Office	11 "	Persian Gulf	Proposed lazaret at Adjir, on the Arabian Coast.	
908—1897	Foreign Office	11 "	Antwerp	Modification in list of prohibited articles.	
909—1897	Foreign Office	11 "	France	Later regulations cancelling previous rules, but not making material alterations.	
910—1897	Foreign Office	11 "	Greece	Prohibition to import from countries beyond Straits of Babel Mandeb, postal packets, patterns, hides, wool, bristles, animals and their products, rags, old clothing, &c.	

TELEGRAM from GOVERNOR, BOMBAY, March 14, 1897.

IN continuation of previous telegram of 7th March. Deaths from all causes in Bombay city for the week ended 12th March, 1,274; reported plague deaths, 521. The improvement should be estimated by diminution in deaths from all causes, as the reporting of plague cases and deaths is still not to be regarded as accurate. For the week ended 11th March, 130 dwellings condemned, 109 recommended for alterations, tiles removed from 1,027, floors dug up in 492, and 547 limewashed, 299 vacated, and 3 have been destroyed by fire. The Plague Committee are working systematically and well. I visited Poona last Monday, and since then Executive Committee for plague operations has been appointed. Hospital accommodation has been and is being increased, and systematic search for cases has begun. The opposition and distrust of the people caused great difficulties. In Bandora the diminution has continued; in Coorla there are fewer cases during the week, but more in Bhiwandi and Thana town. In the Thana district generally the number of cases reported last week is less. Cases have appeared in two new villages, but in six villages, where cases occurred in previous week, none are reported for past week. In Surat city the number of cases has diminished. They are confined to one poor quarter. The inhabitants have now left their houses, and gone to live in the fields. Plague is bad in Bulsar and Rander, both Surat district, and local cases have occurred in several villages in the district hitherto reported free. Five local cases have occurred in the railway suburbs of Ahmedabad, and one in the city. In all these places the most stringent measures are taken to stamp out the disease as soon as it appears. Elsewhere in the Presidency proper the only local cases reported during the week ended 12th March were:—In Nasik district, 2 cases, 2 deaths; in Poona district, 1 case, 1 death; in Satara district, 2 cases, 3 deaths; in Kolaba district, 15 cases, 16 deaths; in Ratnagiri district, 17 cases, 5 deaths; in Baroda district, 26 cases, 20 deaths; in Kathiawar district, 12 cases, 4 deaths; in Kolhapur district, 41 cases, 40 deaths; in Cutch, 3 cases, 2 deaths. Precautions are everywhere taken to detect and stamp out the plague, but owing to difficulty of obtaining accurate information in rural districts, the district figures cannot be relied on. Karachi plague deaths for week, 206. Tendency to spread continues, but it is dying out in quarters first attacked, except in the trans-Layari quarter, the “poorest Mohammadan quarter” mentioned in telegram of 21st February, where there is no diminution. The numbers in segregation camps and in hospitals in Karachi continue to increase. Local cases have continued at Sukkur. Some also have occurred at Hyderabad, and slight tendency to spread observable in towns along railway in Sind. Upwards of 500 pilgrims who were collected in Bombay, intending to visit Mecca, were sent to camp of observation near Nasik, upwards of 100 miles from Bombay. They were kept under observation over 10 days. No plague cases occurred. Nearly all have now been despatched to their homes. The arrangements were excellent, and pilgrims gave no trouble. Persons leaving Bombay by sea continue to be examined with greatest care. Every facility for study of plague and scrutiny of our arrangements is given to members of foreign medical missions. Health officer at Aden has been forbidden to board ships in quarantine, so that he may not be compromised and give ground for assertion that Aden might become infected.

In continuation of my telegrams of 7th March and 10th March, number of persons inoculated not precisely known, but not less than 2,790. Only one more inoculated person attacked by plague, and within 12 hours of inoculation. Result of case not determined. Two attacks previously mentioned both recovered. Results of Yersin's treatment not yet stated. I leave for Karachi on Wednesday, and there may be some delay in next week's telegram.

TELEGRAM from SECRETARY of STATE to GOVERNOR, BOMBAY,
13th March 1897.

Plague. Please telegraph approximate number of Europeans attacked and European deaths; also mention European cases separately in weekly telegrams, Eurasians not included.

TELEGRAM from GOVERNOR, BOMBAY, 16th March 1897.

Plague. From beginning of epidemic in Bombay, of Europeans temporarily domiciled twelve attacks, four deaths; of Europeans permanently domiciled seventeen attacks, eight deaths; in Poona two Europeans attacked, no deaths; in Sind no attacks.

1
81

INDIA—OUTBREAK OF PLAGUE.

S1636

FURTHER PAPERS

RELATING TO THE

OUTBREAK OF PLAGUE IN INDIA.

No. III.

2

(IN CONTINUATION OF [C. 8511].)

Presented to both Houses of Parliament by Command of Her Majesty.



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1898.

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INDIA.—OUTBREAK OF PLAGUE.

FURTHER PAPERS

R-1589

RELATING TO THE

OUTBREAK OF PLAGUE IN INDIA.

TELEGRAMS.

From GOVERNOR, BOMBAY.

31st May 1897.

In continuation of previous telegram about plague.

Deaths from all causes in Bombay city for week ended 28th May, 530 ; reported plague deaths, 47. The mortality is about normal. Poona city for week ended 28th May, deaths from all causes, 56 ; reported plague deaths, 8 ; plague cases, 9. Mortality is slightly below normal. Local cases for week ended 28th May :—Surat district, 15 cases 16 deaths ; Thana district, 39 cases 20 deaths ; Ratnagiri district, 3 cases 1 death ; Kolaba district, 22 cases 23 deaths ; Poona district, 1 case no deaths ; Kathiawar, 2 cases 1 death ; Cutch, 371 cases 305 deaths ; Kolhapur, 1 case 1 death ; Baroda, 15 cases 11 deaths ; Janjira, 38 cases 17 deaths. Total of Haffkine's inoculations, Bombay 7,874, elsewhere 4,352. Europeans, last week two deaths ; this week, no cases, no deaths. During past week, plague deaths :—Karachi 21, Hyderabad 2, Sukkur 1, Rohri 5 ; only 1 other case or death reported in past week in all the rest of Sind.

From SECRETARY OF STATE to VICEROY.

1st June 1897.

Italy. My telegram of 25th March. New Regulations forbid importation of worn wearing apparel or domestic effects, if carried as wholesale merchandise, rags, raw, fresh or dry hides, raw portions of animals, nails, hoofs, bristles, hair, raw wool and hair from infected area, which includes all Bombay Presidency and Goa.

From GOVERNOR, BOMBAY.

6th June 1897.

In continuation of previous telegrams about plague.

Deaths from all causes in Bombay city for week ended 4th June, 535 ; reported plague deaths, 42. Poona city, for week ended 4th June, deaths from all causes, 46 ; reported plague deaths, 7 ; plague cases, 8. Local cases for week ended 4th June :—Surat district, 13 cases, 11 deaths ; Thana district, 25 cases, 14 deaths ; Kolaba district, 26 cases, 20 deaths ; Kathiawar, 3 cases, 1 death ; Cutch, 331 cases, 275 deaths ; Baroda, 10 cases, 9 deaths ; Janjira, 6 cases, 4 deaths ; none elsewhere or amongst Europeans during past week. Plague deaths—Karachi 24, Hyderabad 2, Sukkur 1, Rohri 3 ; very few cases elsewhere in Sind.

From GOVERNOR, BOMBAY.

14th June 1897.

In continuation of previous telegram about plague.

Deaths from all causes in Bombay city for the week ending 11th of June, 553, reported plague deaths, 21. Poona city, for the week ending 11th of June, deaths from all causes, 57; reported plague deaths, 3; plague cases, 2. Local cases for the week ending 11th of June:—Surat district, 13 cases, 12 deaths; Thana district, 11 cases, 9 deaths; Ratnagiri district, 2 cases 2 deaths; Kolaba district, 13 cases 12 deaths; Kathiawar, 2 cases, 1 death; Cutch, 309 cases, 309 deaths; Baroda, 8 cases, 5 deaths. Of the Cutch cases and deaths 116 are of earlier date but not previously recorded. During past week, plague deaths, Karachi, 6; Hyderabad, none; Sukkur, none; Rohri, four. Elsewhere in Sind, 1 case 1 death.

From SECRETARY OF STATE to VICEROY.

19th June 1897.

Plague reported at Jeddah, 28 deaths in one day; 2,500 Indian pilgrims in Hedjaz still uninfected; two steamers expected shortly to carry them to Bombay.

From GOVERNOR, BOMBAY.

20th June 1897.

In continuation of previous telegram about plague.

Deaths from all causes in Bombay city for week ending 18th June, 530. Reported plague deaths 22. Poona city, for week ending 18th June, deaths from all causes, 57; 1 reported plague death; 3 plague cases. Local cases for week ending 18th June:—Surat District, no case, one death; Thana District, 12 cases, 9 deaths; Ratnigiri District, 3 cases, 3 deaths; Kolaba District, 7 cases, 7 deaths; Cutch, 104 cases, 105 deaths; Kolhapur, 4 cases, 1 death; Baroda, 8 cases, 6 deaths. Of the Thana District, 7 cases, and 5 deaths were of earlier date but not previously recorded. During past week plague deaths, Karachi 1, Rohri 1.

From SECRETARY OF STATE to VICEROY.

23rd June 1897.

Plague at Jeddah. Turkey has prohibited any pilgrims going to Mecca through Jeddah. Intending pilgrims must now go from Camaran to Yembo. Removal of indigent Indian pilgrims, estimated at 500, from Jeddah is requested. Please arrange for this being done.

From VICEROY.

24th June 1897.

Your telegram of 19th June. We have received information already from British Consul at Jeddah, and necessary precautions taken as regards returning pilgrims.

From GOVERNOR, BOMBAY.

28th June 1897.

In continuation of previous telegram about plague:—

Deaths from all causes in Bombay city for week ended 25th June, 520; reported plague deaths 22. Poona city, for week ended 25th June, deaths from all causes 108; reported plague deaths one; plague cases none. High death-rate due to cholera. Local

cases for week ended 25th June :—Surat district, 1 case, 1 death ; Thana district, 4 cases, 1 death ; Ratnigiri district, 1 case, 1 death ; Kolaba district, 11 cases, 10 deaths ; Poona district, 4 cases, 2 deaths ; Kathiawar none ; Cutch, 83 cases, 60 deaths ; Kolhapur, 1 case, 1 death ; Baroda, 1 case, 1 death ; Janjira, 2 cases, 1 death. Amongst Europeans, 1 case, no death. During past week, plague deaths, Karachi 2, Rohri 2 ; 1 other plague death in Sind.

From GOVERNOR, BOMBAY.

4th July 1897.

In continuation of previous telegram about plague :—

Deaths from all causes in Bombay city for the week ending 2nd July, 534 ; reported plague deaths, 12. No cases or deaths Poona city ; 3 cases, 3 deaths in suburbs and cantonment districts. Thana, 2 cases, 1 death ; Kolaba, 2 cases 6 deaths ; Poona, 2 cases, 1 death ; Cutch, 56 cases 41 deaths ; Baroda, 1 case, 2 deaths ; Janjira, 1 case, no deaths ; Karachi city, 2 cases, 2 deaths ; Sukkur, 1 death of old case. Elsewhere none reported.

From GOVERNOR, BOMBAY.

4th July 1897.

Deccan Subha Memorial, dated 10th May, and petition were not received till 21st May, by which time the search, limewashing and disinfecting parties had been discontinued and military camp broken up. Statements in petition grossly misleading. See paragraph A. of petition. People only sent to hospital after careful medical examination, and if showing symptoms indicative of possible plague. B. Greatest care was taken not to remove to segregation camp any but those necessary to keep under observation. Time was allowed for preparation, and one member of household was allowed to stay behind to look after property. C. I have not yet heard any allegations of indignity being substantiated. I know that gentleness and consideration were shown. D. Native gentlemen were asked to accompany search parties, and did so to the very end. They were specially desired to bring to notice all complaints which reached them and to mark down any offending soldier and report to officers. E. Search parties were instructed to have regard to religious feelings. Possibility of abuse of those feelings minimised by the presence of native gentlemen. F. Special care was taken to avoid needless destruction of property and compensation given for property destroyed. G. No unnecessary violence was used in entering houses. H. I do not believe the possibility of indignity to native women, owing to presence of lady doctors and other ladies with the search parties. I. Officers were in plentiful attendance, and it was made known that complaints should be made to them. See also D. as to agency employed. English soldiers amounted to little more than one-third of total number, remainder being Native. English soldiers employed mainly for search parties, and their employment certainly not more calculated to cause annoyance than employment of Natives, and experience showed for this work the necessity for European agency where procurable. In Poona the only European agency obtainable on a large scale was military. Results show the great efficiency of system adopted. I went to Poona to see about ladies and native gentlemen accompanying search parties ; called together leaders of communities and explained what must be done, and that all regard would be paid to religious and other feelings, and asked their aid. I visited Poona twice during operations for inquiry and discussion with Rand and others ; never could I find serious complaints substantiated. I kept close touch, hearing from Rand daily. No specific charge of misconduct was made to me during progress of the operations. I give strongest and most emphatic contradiction to the statement that search parties exceeded instructions and grossly misconducted themselves. The search parties when at work were under commissioned and non-commissioned officers. One of the ladies, Miss Bernard, having 20 years' experience Zenana work, and most sympathetic to natives, authorises me to say that she was much struck by the gentleness of the officers and the control of the soldiers, that the officers impressed on the

men the delicate nature of their duties, that after the first day or two, when there was some little apprehension, which was easily allayed by the ladies and native gentlemen accompanying the search parties, they were met with cheerfulness, that Rand listened to all complaints and suggestions, and was kind and courteous to all. In Rand the Civil Service loses a most able and devoted officer. From inquiries made from various sources, I am convinced that Poona owes gratitude to officers and men, English and Native, for the duties so well and so considerately performed.

From SECRETARY OF STATE to VICEROY.

5th July 1897.

Following telegram was sent to Aden, 5th July :—
 “Plague. Constantinople Board of Health desire bills of health given to every sailing vessel and sambuk from Aden to Red Sea ports, stating destination, number of crew and passengers, and nature of cargo.”

From SECRETARY OF STATE to RESIDENT, ADEN.

5th July 1897.

Plague. Constantinople Board of Health desire bills of health given to every sailing vessel and sambuk from Aden to Red Sea Ports stating destination, number of crew and passengers, and nature of cargo.

From SECRETARY OF STATE to GOVERNOR, BOMBAY.

7th July, 1897.

Please telegraph names of ladies, English and Indian, who accompanied Poona search parties, distinguishing lady doctors. Question in Parliament, Friday. What is total number of lady doctors in Poona, and their names ?

From GOVERNOR, BOMBAY.

8th July, 1897.

Your telegram of 7th July. Lady doctors engaged with search parties were :—Miss Bernard, M.D., Miss Crawley, L.R.C.P., Miss Dids, Hospital Assistant, Mrs. Goodall, a Parsee with some medical qualifications. Other ladies were Mrs. Taylor, Miss Kelly, Mrs. Fernandez, Mrs. Balubai Awte, Hindu, Mrs. Bhimabai Awte, Hindu, Miss E. Bernard, Miss Tarkhad, Hindu, Miss McIntosh, the Hong Kong nurse, when not employed as a nurse. As far as I can learn, there is only one other lady in Poona with medical qualifications. Street inspection mentioned in Rand's letter of 9th April last arose thus :—When searching was first instituted, women in many houses remained in dark rooms, where it was impossible to see whether they were ill, so householders were desired to cause their women to come into open place, such as reasonably light room or courtyard or street, merely that it might be seen whether they looked ill. If there appeared reason for actual medical examination, it was conducted with every regard for decency, not in public, and in case of women never by any one but a woman, unless no objection was raised to examination by a commissioned medical officer. Allegation that women were stripped in street to detect plague symptoms is malevolent fabrication. The native gentlemen and lady doctors must have been cognisant of street inspection, as of all that went on.

From GOVERNOR, BOMBAY.

12th July, 1897.

In continuation of previous telegram about plague.

Deaths from all cases in Bombay city for week ending 9th July, 590 ; reported plague deaths, 3 ; Poona city, one case suburbs, and cantonment 18 cases, 3 deaths, due to outbreak in lines of 2nd Bombay Lancers at Lonowli. Poona district, 5 cases, 3 deaths. At Karad, Satara district, 5 cases, no deaths. Districts :—Surat, 28 cases, 10 deaths ; Kolaba, 9 cases, 5 deaths ; Kolhapur, 1 case, no death ; Baroda, 21 cases, 13 deaths ; Cutch, 32 cases, 23 deaths ; Karachi city, 2 cases, 2 deaths. None elsewhere in Sind.

From GOVERNOR, BOMBAY.

18th July, 1897.

In continuation of previous telegram about plague.

Deaths from all causes in Bombay city for the week ended 16th July, 609 ; reported plague deaths, 11. In Poona city no plague ; in cantonment and suburbs, 8 cases, 5 deaths ; Lanowli, 10 cases, 8 deaths ; Karad, 26 cases, 14 deaths. Districts :—Surat, 17 cases, 13 deaths ; Kolaba, 4 cases, 3 deaths ; Kolhapur, 1 case, no death ; Baroda, 22 cases, 22 deaths ; Cutch, 27 cases, 23 deaths ; Karachi city, 4 cases, 2 deaths. None elsewhere.

From VICEROY.

19th July, 1897.

Your telegram of 23rd June. Removal of indigent pilgrims from Jeddah. British Consul at Jeddah telegraphed on 15th July plague considered practically extinct ; 1 death, no case in 11 days. In order to accelerate despatch of indigent pilgrims, it will be necessary to charter steamer at Rs. 19,000, and cost of procuring passages when rates cheaper would not be less than Rs. 12,000. Under present circumstances, it seems to us unnecessary to incur expenditure in removing indigent pilgrims.

From GOVERNOR, BOMBAY.

26th July 1897.

In continuation of previous telegram about plague :—

Deaths from all causes in Bombay city for week ended 23rd July, 687 ; reported plague deaths, 9. In Poona city, 1 case, 1 death ; suburbs and cantonments, 9 cases, 10 deaths. Lanowli, 34 cases, 12 deaths ; Karad, 45 cases, 26 deaths. Districts :—Surat, 10 cases, 4 deaths ; Kolaba, 6 cases, 4 deaths ; Kolhapur, no case, 1 death ; Baroda, 3 cases, 2 deaths ; Cutch, 26 cases, 14 deaths ; Karachi city, 5 cases, 4 deaths. No indigenous cases elsewhere.

From SECRETARY OF STATE to VICEROY.

30th July 1897.

My telegram of 1st June, Italy. Prohibition to import raw hides withdrawn.

From GOVERNOR, BOMBAY.

2nd August 1897.

In continuation of previous telegram about plague.

Deaths from all causes in Bombay city for the week ended 30th July, 935 ; reported plague deaths, 16. The high death-rate is subject of very careful inquiry. I am informed that it is certainly not due to any disease with bubonic symptoms. Cholera accounts for considerable portion of increase, rest due mainly to dysentery, diarrhoea, and lung diseases. Poona city, 7 cases, 1 death ; suburbs and cantonment, 6 cases, 4 deaths ; Kirkee cantonment, 14 cases, 12 deaths ; Lanowli, 32 cases, 34 deaths ; remainder Poona district, 2 cases, no death ; Karad, 62 cases, 43 deaths ; Surat district, 5 cases, 5 deaths ; Kolaba district, 4 cases, 3 deaths ; Baroda district, 4 cases, 3 deaths ; Kolhapur district, 4 cases, 3 deaths ; Cutch, 44 cases, 33 deaths ; Karachi city, 2 cases, 1 death. Elsewhere none.

From GOVERNOR, BOMBAY.

5th August 1897.

Deccan Sabha petition. Of the 1,699 signatures, 721 have been examined ; of these only 144 could be found, the remaining 577 not being found nor traceable, and not known. Of the 144 found, 14 deny their signatures ; the rest say they were induced by agents of the Deccan Sabha and the "Dayan Prakash" newspaper, to sign a petition about plague measures, but 50 did not know what they were signing. Different objects held out :—More street lamps ; for fixing price of grain ; against additional taxation ; reduction of market rents. Bhide, first signatory, admits he worked with troops from first to last, never missing a day of his turn to accompany search parties, and that he never saw any misconduct. Nawab Abdul Khan says he signed in his private capacity, never having seen memorial, knowing nothing of its contents, and never having seen any misconduct. He has been deposed from place of leader of Mahomedan community, the Mahomedans denying that they have any complaint to make against plague operations.

From GOVERNOR, BOMBAY.

9th August 1897.

In continuation of previous telegram about plague.

Deaths from all causes in Bombay city for week ended 6th August, 1,038 ; reported plague deaths, 8. Poona city, 5 cases, 4 deaths ; suburbs and cantonment, 11 cases, 3 deaths ; Kirkee cantonment, 55 cases, 44 deaths ; Lanowli, 36 cases, 33 deaths ; remainder Poona district, 19 cases, 13 deaths ; Karad, 95 cases, 65 deaths ; elsewhere, Satara district, 1 case, 1 death ; Surat city, 2 cases, 2 deaths ; Surat district, none ; Ahmednagar district, 2 cases, 2 deaths ; Kolaba district, 1 case, no death ; Igatpuri, 14 cases, 12 deaths ; Baroda district, none ; Kolhapur district, 3 cases, 1 death ; Palanpur district, 8 cases, no death ; Cutch district, 55 cases, 31 deaths ; none in Sind.

From GOVERNOR OF BOMBAY to SECRETARY OF STATE,

15th August, 1897.

In continuation of previous telegram about plague.

Deaths from all causes in Bombay city for the week ended 13th August, 933 ; reported plague deaths, 10. Bacteriological inquiry has failed to connect high death-rate with bubonic plague. Poona city, 9 cases 7 deaths ; suburbs and cantonments, 5 cases 5 deaths ; Kirkee cantonment, 88 cases 62 deaths ; Lanowli, 38 cases 24 deaths ; remainder of Poona district, 1 case, 3 deaths ; Karad, 117 cases, 102 deaths ; elsewhere in Satara district, 35 cases, 17 deaths ; Surat city, 1 case, no death ; Kalyan, Thana district, 2 cases, no death ; Kolaba district, 6 cases, 4 deaths ; Igatpuri, 6 cases, 5 deaths ; Baroda districts, 4 cases, 3 deaths ; Kolhapur districts, 3 cases, 3 deaths ; Palanpur districts, 5 cases, 3 deaths ; Cutch districts, 52 cases, 30 deaths. Elsewhere no indigenous plague ; none in Sind.

From SECRETARY OF STATE to VICEROY.

18th August 1897.

Plague. Your telegram of 19th July last. Foreign Office proposes that repatriation of indigent pilgrims should be left in the hands of Government of India. I agree.

From VICEROY.

21st August 1897.

No plague case at Karachi since 27th July, and no death since 25th July. Port declared healthy within meaning of Chapter 2, Section 2, Venice Convention. Foreign Governments informed. Withdrawal of quarantine against Karachi at Aden and other Indian ports approved.

From GOVERNOR, BOMBAY.

22nd August 1897.

In continuation of previous telegram about plague.

Deaths from all causes in Bombay city for week ended 20th August, 977; reported plague deaths, 21; Poona city, suburbs, and cantonments, 19 cases, 9 deaths; Kirkee cantonments, 102 cases, 83 deaths; Lanowli, 16 cases, 6 deaths; remainder of Poona district, 28 cases, 15 deaths; Karad, 155 cases, 111 deaths; elsewhere, Satara district, 56 cases, 21 deaths; Surat city, 9 cases, 4 deaths; Thana district, 8 cases, 9 deaths; Kolaba district, 13 cases, 9 deaths; Igatpuri, 16 cases, 8 deaths; Baroda district, 2 cases, 2 deaths; Kolhapur district, 2 cases, 1 death; Palanpur districts, 2 cases, 5 deaths; Cutch districts, 37 cases, 26 deaths.

From GOVERNOR, BOMBAY.

29th August 1897.

In continuation of my telegram of to-day. High death-rate in Bombay city is ascribed principally to cholera and bowel diseases, owing to presence in city of underfed impoverished people from mofussil. Cases of cholera are treated with same precautions as plague cases. Death-rate decreasing; cholera and pneumonia diminishing. Scheme for more complete death registration under consideration.

From GOVERNOR, BOMBAY.

29th August 1897.

In continuation of previous telegram about plague.

Deaths from all causes in Bombay city for the week ended 27th August, 848; reported plague deaths, 17. Poona city, suburbs and cantonments, 22 cases, 12 deaths; Kirkee cantonment, 136 cases, 76 deaths; Lanowli, 39 cases, 19 deaths; remainder Poona district, 76 cases, 46 deaths; Karad, 239 cases, 181 deaths; elsewhere Satara district, 119 cases, 84 deaths; Surat city, 10 cases, 4 deaths; Surat district, 4 cases, 1 death; Thana district, 12 cases, 11 deaths; Kolaba district, 6 cases, 5 deaths; Igatpuri, 27 cases, 17 deaths; Baroda districts, 5 cases, 2 deaths; Kolhapur district, 1 case, no death; Palanpur districts, 11 cases, 4 deaths; Cutch districts, 78 cases, 51 deaths.

From GOVERNOR, BOMBAY.

6th September 1897.

In continuation of previous telegram about plague. Deaths from all causes in Bombay city for the week ended 3rd September, 796; reported plague deaths, 29. During past week relapsing fever found to exist in Bombay city. Poona city, suburbs

and cantonments, 13 cases, 12 deaths ; Kirkee cantonment, 193 cases, 111 deaths ; Lanowli, 8 cases, 11 deaths ; remainder of Poona district, 62 cases, 52 deaths ; Karad, 291 cases, 235 deaths ; elsewhere Satara district, 230 cases, 143 deaths ; Surat city, 12 cases, 5 deaths ; Surat district, 9 cases, 5 deaths ; Thana district, 25 cases, 16 deaths ; Kolaba district, 3 cases, 2 deaths ; Ahmednagar district, 1 case, 1 death ; Igatpuri, 83 cases, 68 deaths ; Baroda districts, 3 cases, 5 deaths ; Kolhapur districts, 2 cases, 1 death ; Palanpur districts, 35 cases, 22 deaths ; Cutch districts, 63 cases, 60 deaths.

From GOVERNOR, BOMBAY.

13th September 1897.

In continuation of previous telegram about plague. Deaths from all causes in Bombay city for the week ending 10th September, 840. Reported plague deaths, 26. Poona city, suburbs and cantonments, 22 cases, 15 deaths ; Kirkee cantonment, 114 cases, 96 deaths ; Lanowli, 7 cases, 7 deaths ; remainder Poona district, 102 cases, 79 deaths ; Karad, 130 cases, 100 deaths ; elsewhere Satara district, 207 cases, 148 deaths ; Surat city, 32 cases, 22 deaths ; Surat district, 16 cases, 11 deaths ; Thana district, 17 cases, 9 deaths ; Kolaba district, 22 cases, 16 deaths ; Ratnagiri district, 11 cases, 10 deaths ; Igatpuri, 109 cases, 91 deaths ; Baroda districts, 6 cases, 4 deaths ; Kolhapur districts, 4 cases, 3 deaths ; Palanpur districts, 28 cases ; 13 deaths, Cutch districts, 125 cases, 101 deaths.

From GOVERNOR, BOMBAY.

16th September 1897.

It may be necessary to request you to send several young English doctors for plague work. Military requirements caused withdrawal of many doctors from Bombay. Monthly salary, Rs. 500. This only intended as warning.

From GOVERNOR, BOMBAY.

20th September, 1897.

In continuation of previous telegrams about plague. Deaths from all causes, Bombay city, week ending 17th September, 914 ; reported plague deaths, 35. Poona city, suburbs and cantonments, 66 cases, 41 deaths ; Kirkee cantonment, 57 cases, 44 deaths ; Lanowli, 7 cases, 3 deaths ; remainder Poona district, 104 cases, 76 deaths ; Karad, 102 cases, 84 deaths ; elsewhere Satara district, 294 cases, 222 deaths ; Surat city, 29 cases, 13 deaths ; Surat district, 8 cases, 5 deaths ; Thana district, 23 cases, 18 deaths ; Kolaba district, 21 cases, 16 deaths ; Ratnagiri district, 1 case, no death ; Igatpuri, 54 cases, 41 deaths ; Baroda districts, 10 cases, 7 deaths ; Kolhapur districts, 2 cases, 1 death ; Palanpur districts, 81 cases, 43 deaths ; Cutch districts, 123 cases, 114 deaths. Europeans 1 case.

From GOVERNOR, BOMBAY.

27th September 1897.

In continuation of previous telegram about plague. Deaths from all causes in Bombay city for week ending 24th September, 854 ; reported plague deaths, 46. Poona city, suburbs and cantonments, 100 cases, 74 deaths ; Kirkee cantonment, 24 cases, 18 deaths ; Lanowli, 11 cases, 8 deaths ; remainder Poona district, 108 cases, 76 deaths ; Karad, 67 cases, 50 deaths ; elsewhere Satara district, 417 cases, 306 deaths ; Surat city, 39 cases, 24 deaths ; Surat district, 19 cases, 15 deaths ; Thana district, 32 cases, 25 deaths ; Kolaba district, 20 cases, 17 deaths ; Ratnagiri district, 1 case, 1 death ; Igatpuri, 69 cases, 55 deaths ; Ahmednagar district, 2 cases, 1 death ; Baroda districts, 6 cases, 2 deaths ; Palanpur districts, 84 cases, 50 deaths ; Cutch districts, 128 cases, 106 deaths. Europeans, 3 cases, 1 death. Systematic searching has been resumed in Poona cantonment and about to be resumed Poona city. The leaders of people have been consulted and operations will be conducted with their assistance and with special regard to their wishes and suggestions.

From GOVERNOR, BOMBAY.

1st October 1897.

In continuation of previous telegram of 16th September.

- (1.) Please send as soon as possible 12 doctors.
- (2.) One case plague, Karachi.

From SECRETARY OF STATE to VICEROY.

1st October 1897.

Reuter telegram in yesterday's papers reported attack on plague party at Igatpuri. Is this true? If so, please report casualties.

From GOVERNOR, BOMBAY.

4th October 1897.

In continuation of previous telegram about plague. Deaths from all causes in Bombay city for the week ending 1st October, 760; reported plague deaths, 52. Poona city, suburbs and cantonments, 166 cases, 110 deaths; Kirkee cantonment, 17 cases, 5 deaths; Lanowli, 3 cases, 5 deaths; remainder Poona district, 124 cases, 109 deaths; Karad, 92 cases, 73 deaths, which includes 50 cases, 43 deaths of previous weeks; elsewhere Satara district, 598 cases, 433 deaths; Surat city, 26 cases, 24 deaths; Surat district, 11 cases, 10 deaths; Thana district, 10 cases, 11 deaths; Kolaba district, 11 cases, 11 deaths; Ahmednagar district, 2 cases, 2 deaths; Igatpuri, 47 cases, 41 deaths; Sholapur city, 11 cases, 5 deaths; Baroda districts, 9 cases, 11 deaths; Palanpur districts, 61 cases, 38 deaths; Cutch districts, 122 cases, 106 deaths; Europeans, 3 cases, no death. One death from plague is stated by one doctor to have occurred in Karachi; no other cases reported there.

From SECRETARY OF STATE to VICEROY.

5th October 1897.

My telegram of 1st October. Attack plague party. I shall be glad of a very early reply.

From SECRETARY OF STATE to GOVERNOR, BOMBAY.

6th October 1897.

Your telegram of 1st October. I hope to despatch 12 doctors by next week's mail. Offer of service received from suitable woman doctor, whom I propose to send unless you see objection. Have not military requirements affected your supply of nurses? If so, how many more do you require? Am anxious that efficiency plague hospitals should not suffer for want of competent nurses.

From VICEROY.

6th October 1897.

Your telegram, 1st October. Party of Assistant Surgeon, Mamlatdar, and three others, inquiring as to suspected plague at Ghori were mobbed by villagers and all beaten except Mamlatdar. Right arm of Assistant Surgeon broken, and badly hurt on head and chest; is improving. No search had been made by party. Fourteen arrests made.

From SECRETARY OF STATE to GOVERNOR, BOMBAY.

8th October 1897.

My telegram of 6th October. Eight doctors for plague duty leave to-night for Bombay by Brindisi, four more and one woman doctor leave next Thursday, Marseilles. Names and description sent by post. One additional candidate provisionally selected as eligible. Shall I send him as 13th man on Thursday? It is suggested that these doctors should be immunised by Haffkine on arrival.

From GOVERNOR, BOMBAY.

9th October 1897.

No further plague, Karachi, since death on 27th September, referred to in my telegram of 1st October.

From GOVERNOR, BOMBAY.

9th October 1897.

Your telegrams of 6th and 8th October. Please send thirteenth doctor and twelve nurses as soon as possible.

From GOVERNOR, BOMBAY.

12th October 1897.

In continuation of previous telegram about plague. Deaths from all causes in Bombay city for week ending 8th October, 781; reported plague deaths, 38. Poona city, suburbs and cantonments, 199 cases, 143 deaths; Kirkee cantonment, 7 cases, 10 deaths; Lanowli, 10 cases, 4 deaths; remainder Poona district, 110 cases, 82 deaths; Karad, 22 cases, 15 deaths; elsewhere Satara district, 716 cases, 569 deaths; Surat city, 34 cases, 18 deaths; Surat district, 4 cases, 3 deaths; Thana district, 16 cases, 9 deaths; Kolaba district, 7 cases, 9 deaths; Ahmedabad district, 19 cases, 6 deaths; Igatpuri, 40 cases, 38 deaths; elsewhere Nasik district, 12 cases, 6 deaths; Sholapur city, 7 cases, 6 deaths; elsewhere Sholapur district, 2 cases, 2 deaths; Baroda districts, 6 cases, 4 deaths; Kolhapur districts, 4 cases, 3 deaths; Palanpur districts, 46 cases, 37 deaths; Cutch districts, 129 cases, 106 deaths; Europeans, 2 cases, 1 death.

From VICEROY.

13th October 1897.

One imported case of plague has been reported from Madras, 7th October. Foreign Governments informed.

From SECRETARY OF STATE to GOVERNOR, BOMBAY.

15th October 1897.

Your telegram of 9th October. Remaining 6 doctors, including lady, left on Thursday for Bombay *via* Marseilles, also 10 nurses. Remainder will follow 20th October next. Names and description sent by mail. Please arrange for meeting them.

From GOVERNOR, BOMBAY.

17th October 1897.

If possible, please obtain services of Surgeon Major Reade from Military, for Plague duty, Bombay Presidency.

From GOVERNOR, BOMBAY.

17th October 1897.

In continuation of previous telegram about plague. Deaths from all causes in Bombay city for the week ending 15th October, 762. Reported plague deaths, 35. Poona city, suburbs and cantonments, 322 cases, 191 deaths; Kirkee cantonment, 15 cases, 6 deaths; Lanowli, 4 cases, 4 deaths; remainder Poona district, 80 cases, 58 deaths; Karad, 22 cases, 17 deaths; elsewhere Satara district, 898 cases, 600 deaths; Surat city, 91 cases, 42 deaths; Surat district, 1 case, 1 death; Thana district, 16 cases, 10 deaths; Kolaba district, 12 cases, 9 deaths; Ahmednagar district, 16 cases, 17 deaths; Igatpuri, 22 cases, 14 deaths; elsewhere Nasik district, 12 cases, 8 deaths; Sholapur city, 17 cases, 5 deaths; Janjira State, 4 cases, 1 death; Baroda districts, 13 cases, 6 deaths; Kolhapur districts, no cases, 1 death; Palanpur districts, 46 cases, 27 deaths; Cutch districts, 132 cases, 105 deaths. Europeans, 1 case, no death.

From VICEROY.

18th October 1897.

In continuation of previous telegram of 13th October. One indigenous death from plague reported from Madras on 15th October.

From SECRETARY OF STATE to VICEROY.

21st October 1897.

In view of revival of plague in Western India, do you propose to revive or maintain inspection of railway and steamer passengers from plague districts?

From VICEROY.

23rd October 1897.

Your telegram of 21st October. Main inspections at railway stations have been continuously maintained in view to preventing spread of plague from Bombay Presidency. Some subsidiary inspections had been abandoned, but special orders were issued on 14th October to Local Governments to maintain measures for inspection of railway passengers in their entirety. Rules for inspection passengers by steamers have been issued in accordance with provisions of Venice Convention by maritime Local Governments both at Bombay and at ports which are not infected.

From GOVERNOR, BOMBAY.

24th October 1897.

In continuation of previous telegram about plague. Deaths from all causes in Bombay city for the week ending 22nd October, 792; reported plague deaths, 48. Poona city, suburbs and cantonments, 349 cases, 281 deaths; Kirkee cantonment, 4 cases, 10 deaths; Lanowli, 6 cases, 3 deaths; remainder Poona district, 66 cases, 48 deaths; Karad, 14 cases, 7 deaths; elsewhere Satara district, 972 cases, 709 deaths; Surat city, 64 cases, 54 deaths; Surat district, 11 cases, 6 deaths; Thana district, 14 cases, 14 deaths; Kolaba district, 9 cases, 8 deaths; Ahmednagar district, 49 cases, 28 deaths; Igatpuri, 18 cases, 16 deaths; elsewhere Nasik district, 23 cases, 20 deaths; Sholapur city, 48 cases, 40 deaths; Dharwar district, 3 cases, 2 deaths; Janjira State, 13 cases, 9 deaths; Baroda districts, 8 cases, 5 deaths; Palanpur districts, 63 cases, 34 deaths; Cutch districts, 106 cases, 82 deaths. Europeans, 1 case, no death.

From SECRETARY OF STATE to GOVERNOR, BOMBAY.

27th October 1897.

Your telegram of 17th October. Dr. Reade left for Bombay Friday, 22nd October.

From VICEROY.

28th October 1897.

In continuation of telegram 18th October. No case plague at Madras for 10 days. All persons segregated have been released.

From GOVERNOR, BOMBAY.

31st October 1897.

In continuation of previous telegrams about plague. Deaths from all causes Bombay city week ending 29th October, 746. Reported plague deaths, 44. Poona city, suburbs and cantonments, 510 cases, 364 deaths; Kirkee cantonment, 14 cases, 7 deaths; Lanowli, 3 cases, 5 deaths; remainder Poona district, 96 cases, 70 deaths; Karad, 9 cases, 9 deaths; elsewhere Satara district, 915 cases, 755 deaths; Surat city, 136 cases, 71 deaths; Surat district, 17 cases, 15 deaths; Thana district, 13 cases, 9 deaths; Kolaba district, 6 cases, 6 deaths; Ahmednagar district, 37 cases, 26 deaths; Igatpuri, 6 cases, 8 deaths; elsewhere Nasik district, 27 cases, 19 deaths; Sholapur city, 86 cases, 29 deaths; Dharwar district, two cases, no death; Belgaum district, 5 cases, 3 deaths; Janjira State, 5 cases, 4 deaths; Baroda districts, 9 cases, 8 deaths; Palanpur districts, 89 cases, 64 deaths; Cutch districts, 106 cases, 91 deaths. In Sind, 2 cases, no death.

From VICEROY.

4th November 1897.

Seventeen cases and one death from plague reported from Kotri in Sind, 107 miles from Karachi, between 8th October and 2nd November. Karachi still free. Foreign Governments have been informed.

From VICEROY.

6th November 1897.

In consequence of your telegram of the 18th February last, we issued Notification of the 20th February prohibiting pilgrimage to Mecca during last season. Question has arisen now whether prohibition should remain in force during current season. We have consulted Local Governments, and in view of opinions held as to probable feeling in certain parts of India, particularly, North-West Provinces and Oudh, where prohibition continues, we consider it impossible to continue absolute prohibition. Departure of pilgrims, even from plague-infected ports, is not prohibited by Venice Convention, which contains special permission for control of pilgrimage from such parts. We do not, however, propose to permit pilgrims to start from the port of Bombay, or to allow pilgrims from any part of Bombay Presidency, other than Sind, to go on pilgrimage at all; and we shall arrange for proper segregation of all pilgrims before they arrive at ports from which they can depart. We are at present considering what those ports shall be. We understand Turkey will impose fifteen days quarantine at Camaran on pilgrims from India, and propose, when we issue Notification declaring pilgrimage open from certain ports, to make public announcement of difficulties pilgrims are likely to encounter and to discourage them from going on pilgrimage.

From GOVERNOR, BOMBAY.

7th November 1897.

It may be necessary request you send more doctors, plague duty, this only intended as warning.

From GOVERNOR, BOMBAY.

8th November 1897.

In continuation of previous telegram about plague. Deaths from all causes in Bombay city for the week ended 5th November, 703; reported plague deaths, 41. Poona city, suburbs and cantonments, 651 cases, 460 deaths; Kirkee cantonment, 22 cases, 19 deaths; Lanowli, 2 cases, 2 deaths; remainder Poona district, 183 cases, 131 deaths; Karad, 5 cases, 5 deaths; elsewhere Satara district, 1,191 cases, 926 deaths; Surat city, 120 cases, 71 deaths; Surat district, 52 cases, 26 deaths; Thana district, 5 cases, 7 deaths; Kolaba district, 12 cases, 9 deaths; Ahmednagar district, 17 cases, 14 deaths; Belgaum district, 12 cases, 10 deaths; Nasik district, 18 cases, 19 deaths; Sholapur city, 146 cases, 117 deaths; Janjira State, 5 cases, 2 deaths; Baroda districts, 2 cases, 2 deaths; Palanpur districts, 58 cases, 34 deaths; Kolhapur district, 1 case, no death; Cutch district, 103 cases, 79 deaths; in Sind, 17 cases, 11 deaths. Europeans, 2 cases, no death.

From VICEROY.

9th November 1897.

Spread of plague, Bombay, and fresh outbreak in Sind render additional supply of medical officers urgently required. Should plague attack Calcutta, number more medical officers would be immediately required, and are not available. Therefore please engage and send out at once 25 private practitioners on such terms that their services can be readily dispensed with.

From SECRETARY OF STATE to VICEROY.

13th November 1897.

Pilgrimage. Your telegram of 6th November. Proposals sanctioned. Do you consider embarkation from Sind still permissible?

From GOVERNOR, BOMBAY.

14th November 1897.

In continuation of previous telegram about plague. Deaths from all causes, Bombay city, week ended 12th November, 699; reported plague deaths, 60. Poona city, suburbs and cantonment, 522 cases, 393 deaths; Kirkee cantonment, 4 cases 4 deaths; Lanowli, 2 cases, no death; remainder Poona district, 118 cases, 73 deaths; Karad, 6 cases, 4 deaths; elsewhere Satara district, 895 cases, 761 deaths; Surat city, 292 cases, 135 deaths; Surat district, 12 cases, 15 deaths; Thana district, 5 cases, 3 deaths; Kolaba district, 7 cases, 3 deaths; Ahmednagar district, 39 cases, 28 deaths; Belgaum district, 17 cases, 14 deaths; Nasik district, 17 cases, 35 deaths; Sholapur city, 129 cases, 107 deaths; elsewhere Sholapur district, 1 case, no death; Janjira State, 4 cases, 3 deaths; Baroda districts, 1 case no death; Palanpur districts, 25 cases, 23 deaths; Cutch districts, 99 cases, 75 deaths; in Sind, 19 cases, 16 deaths; Europeans, 4 cases, no deaths; apparent increase in Surat city is due to better registration, as total mortality from all causes has fallen from 393 to 340.

From SECRETARY OF STATE to VICEROY.

15th November 1897.

I hope to despatch next week's Brindisi mail most of 25 temporary doctors asked for. Do you require women doctors? If so, how many in addition to 25 men?

From GOVERNOR, BOMBAY.

16th November 1897.

Please engage and send out 12 more nurses for plague duty.

From SECRETARY OF STATE to VICEROY.

17th November 1897.

Your telegram of 9th November. 20 temporary doctors start for Brindisi this week. 5 more follow next week. Papers and particulars go this mail to Government of Bombay. Doctors are instructed to report themselves to Surgeon-General, Bombay. Please inform Bombay, and telegraph reply about women doctors.

From VICEROY.

18th November 1897.

Your telegram about pilgrimage. We adhere to proposal to allow departure from Sind, since Venice Convention does not prohibit departures even from plague-infected port. Karachi is not infected, and only outbreak in Sind is at Kotri, where it seems under control. Outlet at Karachi is essential for pilgrims from northern India. We propose to issue notification in Saturday's Gazette.

From SECRETARY OF STATE to VICEROY.

18th November 1897.

Pilgrimage. Your telegram of 18th November. I agree.

From GOVERNOR, BOMBAY.

21st November 1897.

In continuation of previous telegram about plague. Deaths from all causes in Bombay city during week ended 19th November, 691; reported plague deaths, 45. Poona city, suburbs and cantonments, 611 cases, 436 deaths; Kirkee cantonment, 4 cases, 3 deaths; remainder Poona district, 141 cases, 126 deaths; Karad, 5 cases, 2 deaths; elsewhere Satara district, 1,142 cases, 957 deaths; Surat city, 210 cases, 150 deaths; Surat district, 14 cases, 11 deaths; Thana district, 12 cases, 12 deaths; Kolaba district, 6 cases, 5 deaths; Ahmednagar district, 36 cases, 20 deaths; Belgaum district, 55 cases, 39 deaths; Nasik district, 97 cases, 57 deaths; Sholapur city, 200 cases, 164 deaths; Akalkot State, 6 cases, 2 deaths; Baroda districts, 6 cases, 4 deaths; Palanpur districts, 16 cases, 5 deaths; Cutch districts, 54 cases, 55 deaths; in Sind, 7 cases, 4 deaths; Europeans, 3 cases, no deaths.

From SECRETARY OF STATE to VICEROY.

26th November 1897.

Your telegram of 9th November. Remaining plague doctors leave Brindisi, 28th; also 11 nurses. Twelfth will follow by next mail. They should be met on arrival. Please repeat this telegram to Bombay. Despatch follows.

From GOVERNOR, BOMBAY.

29th November 1897.

In continuation of previous telegram about plague. Deaths from all causes in Bombay city for the week ending 26th November, 707; reported plague deaths, 79. Poona city, suburbs and cantonments, 525 cases, 433 deaths; Kirkee cantonment, 4 cases, 3 deaths; Lanowli, 2 cases, 1 death; remainder Poona district, 89 cases, 62 deaths; Karad, 4 cases, 5 deaths; elsewhere Satara district, 945 cases, 731 deaths (which includes 82 cases, and 44 deaths of previous week, not recorded in last telegram); Surat city, 143 cases, 113 deaths; Surat district, 21 cases, 17 deaths; Thana district, 5 cases, 3 deaths; Kolaba district, 19 cases, 15 deaths; Ahmednagar district, 57 cases, 26 deaths; Belgaum

district, 81 cases, 49 deaths ; Hubli, Dharwar district, 1 case, 1 death ; Nasik district, 60 cases, 60 deaths ; Bankot, Ratnagiri district, 1 case, 1 death ; Sholapur city, 327 cases, 269 deaths ; Janjira State, 3 cases, 1 death ; Akalkot State, 1 case, 3 deaths ; Baroda districts, 9 cases, 8 deaths ; Palanpur districts, 30 cases, 21 deaths ; Cutch districts, 68 cases, 50 deaths ; Kolhapur districts, 42 cases, 17 deaths ; in Sind, 15 cases, 10 deaths ; Europeans, no case, 1 death ; of the Belgaum district, 13 cases and 7 deaths were of earlier date but not previously recorded.

From SECRETARY OF STATE to VICEROY.

3rd December 1897.

Your Home Despatch of 4th November, paragraph 5. Were Bombay rules restricting free egress from plague-stricken localities withdrawn, or maintained with modifications ? I gather that cordons isolating plague-stricken places where practicable have proved effective in preventing spread of disease. Bombay rules, though open to criticism on details, applied the same principle to larger infected areas.

From SECRETARY OF STATE to VICEROY.

6th December 1897.

Your Home Despatch of 4th November, paragraph 9. Has plague spread to other villages ? If so, to what extent ?

From VICEROY.

7th December 1897.

Your telegram of 6th December. Plague in the Punjab has not spread beyond Khatkar Kalan and two neighbouring villages. In Khatkar Kalan only one case occurred since 18th November. In second village no case since 30th November. In third village outbreak is more recent. Eighteen cases in all reported first half of November, 68 cases second half, 38 cases in December up to 6th. All three villages have been evacuated, and the inhabitants are segregated in camps.

From SECRETARY OF STATE to VICEROY.

8th December, 1897.

Weekly telegrams regarding plague in Bombay Presidency reach me every Monday or Tuesday. Please telegraph every Monday information about plague outside Bombay Presidency. Each telegram, after noticing provinces whence plague is reported, should state that no plague is reported elsewhere.

From GOVERNOR, BOMBAY.

8th December 1897.

In continuation of previous telegram. Deaths from all causes in Bombay city during week ending 3rd December, 702 ; reported plague deaths, 78. Poona city, suburbs and cantonments, 496 cases, 394 deaths ; Kirkee cantonment, 1 case, no death ; remainder Poona district, 116 cases, 101 deaths ; Karad, no cases, 2 deaths ; elsewhere Satara district, 783 cases, 620 deaths (which includes 29 cases and 25 deaths of previous week not recorded in last telegram) ; Surat city, 91 cases, 58 deaths ; Surat district, 18 cases, 15 deaths ; Thana district, 8 cases, 5 deaths ; Kolaba district, 4 cases, 6 deaths ; Ahmednagar district, 15 cases, 23 deaths ; Belgaum district, 62 cases, 48 deaths ; Hubli Dharwar districts, 2 cases, no death ; Nasik districts, 51 cases, 38 deaths ; Bankot, Ratnagiri district, 1 case, no death ; Sholapur city, 473 cases, 355 deaths ; Janjira State, 1 case, 1 death ; Akalkot State, 9 cases, 6 deaths ; Baroda districts, 9 cases, 7 deaths ; Palanpur districts, 33 cases, 16 deaths ; Cutch districts, 41 cases, 43 deaths ; Kolhapur districts, 5 cases, no death ; in Sind, 16 cases, 10 deaths ; Europeans, 1 case, no death.

From VICEROY.

13th December 1897.

Your telegram of 8th December. Following plague seizures and deaths reported from places outside Bombay Presidency during week ended 12th December:—In the Punjab, Khatkar Kalan, 1 death; Khankhanam, 41 cases, 30 deaths. No plague reported elsewhere.

From GOVERNOR, BOMBAY.

14th December, 1897.

In continuation of previous telegrams about plague. Deaths from all causes in Bombay city for week ending 10th December, 717; reported plague deaths, 71. Poona city, suburbs and cantonments, 520 cases, 383 deaths; Kirkee cantonment, 2 cases, 3 deaths; remainder Poona district, 85 cases, 62 deaths; Karad, 3 cases, 1 death; elsewhere Satara district, 571 cases, 439 deaths; Surat city, 133 cases, 93 deaths; Surat district, 28 cases, 20 deaths; Thana district, 11 cases, 11 deaths; Kolaba district, 7 cases, 5 deaths; Khandesh district, 7 cases, 4 deaths; Ahmednagar district, 57 cases, 43 deaths (which includes 30 cases and 23 deaths of previous week not recorded in last telegram); Belgaum district, 103 cases, 90 deaths; Nasik district, 50 cases, 44 deaths; Hubli, Dharwar district, 24 cases, 22 deaths; elsewhere Dharwar district, 4 cases, 3 deaths; Bankot, Ratnagiri district, 1 case, 2 deaths; elsewhere Ratnagiri district, 1 case, no death; Sholapur city, 520 cases, 448 deaths; Janjira State, 3 cases, no deaths; Akalkot State, 12 cases, 8 deaths; Baroda districts, 5 cases, 3 deaths; Palanpur districts, 12 cases, 10 deaths; Cutch districts, 52 cases, 33 deaths; in Sind, 7 cases, 5 deaths; Europeans, 1 case, no death. The cases and deaths in Hubli and elsewhere in Dharwar district occurred in previous weeks.

From VICEROY.

16th December 1897.

Your telegram of 3rd December. Bombay rules restricting egress from infected localities are still in force, but Government of Bombay are considering modification of rules according to our orders of 26th October, and matter has been under consideration of Plague Commission as to efficacy of cordons employed for the prevention of egress from infected places in Bombay Presidency. Our information is that it is only in small places, where it has been possible to remove population from infected habitations and place them in health camp, that cordon, with object of keeping inhabitants under healthy conditions and under medical supervision, has been found effective. Measures taken to prevent inmates of larger areas of infection from leaving them not only have failed to check plague, but have strong tendency to increase virulence of disease by intensifying local conditions favouring its development. Experienced officer in charge of operations at Kotri states that recent experience there shows it is impossible to prevent spread of disease in town from which all egress of population is prohibited, and that compulsory putting out of inhabitants is the only remedy. We understand that Plague Commission hold that present system of passes, when applied early, undoubtedly tends to ultimate spread of disease in locality by preventing voluntary evacuation. They believe that incidence of disease in Sholapur was intensified in this manner. They consider that essential measure is removal of inmates from infected localities. We entirely share these views, and deprecate the adoption of any general system for prohibiting the egress of inhabitants from areas within which outbreak occurs. Our opinion is that the proper course is that recommended to Government of Bombay by present Plague Commission, namely, removal from infected quarters of town or from infected village to segregation camp of all persons who have been exposed to risk of infection, healthy population being encouraged to leave infected area before disease becomes thoroughly diffused through it.

From GOVERNOR, BOMBAY.

19th December 1897.

In continuation of previous telegram about plague. Deaths from all causes in Bombay city for the week ending 17th December, 818; reported plague deaths, 137. Poona city, suburbs and cantonments, 408 cases, 350 deaths; Kirkee cantonment, 2 cases,

no deaths ; remainder Poona district, 74 cases, 67 deaths ; Surat city, 88 cases, 63 deaths ; Surat district, 48 cases, 22 deaths ; Satara district, 483 cases, 382 deaths (which includes 14 cases and 8 deaths of previous weeks not previously reported) ; Thana district, 15 cases, 8 deaths ; Kolaba district, 4 cases, 3 deaths ; Belgaum district, 62 cases, 48 deaths ; Nasik district, 96 cases, 71 deaths (which includes 8 cases and 7 deaths, of previous week not previously reported) ; Ahmednagar district, 103 cases, 71 deaths (which includes 16 cases and 13 deaths of previous weeks not previously reported) ; Khandesh district, 31 cases, 24 deaths ; Hubli, 3 cases, 4 deaths ; Sholapur city, 354 cases, 270 deaths ; elsewhere Sholapur district, 8 cases, 8 deaths ; Janjira State, 3 cases, 2 deaths ; Akalkot State, 16 cases, 12 deaths ; Baroda districts, 10 cases, 9 deaths ; Palanpur districts, 71 cases, 42 deaths ; Cutch districts, 26 cases, 25 deaths ; Kolhapur districts, 35 cases, 29 deaths ; in Sind, 3 cases, 2 deaths ; Europeans, 2 cases, no deaths.

From VICEROY.

20th December 1897.

In continuation of our telegram of 13th December. Following plague seizures and deaths reported from places outside Bombay Presidency during week ending 19th December :—In the Punjab, Jhander Khurd, 2 cases, 1 death ; Khankhanan, 10 cases, 11 deaths ; Birampur, in district Hoshiarpur, between 11th and 18th December, 17 cases, 12 deaths. Birampur is near the other infected villages ; the inhabitants have been segregated in camp. No plague reported elsewhere.

From VICEROY.

27th December, 1897.

In continuation of my telegram of 20th December. Following plague seizures and deaths reported from places outside Bombay Presidency during week ending 26th December :—In the Punjab, Jhander Khurd, no cases, 1 death ; Khankhanan, 6 cases, 5 deaths ; Birampur, 6 cases, 5 deaths. In North-West Provinces and Oudh, Kankhal, 3 cases, which occurred between 8th and 13th December, and 1 case reported on 24th December. No plague reported elsewhere.

From GOVERNOR, BOMBAY.

29th December, 1897.

In continuation of previous telegram about plague. Deaths from all causes in Bombay city for the week ending 24th December, 888 ; reported plague deaths, 172. Poona city, suburbs and cantonments, 285 cases, 250 deaths ; Kirkee cantonment, 1 case, no death ; remainder Poona district, 73 cases, 55 deaths ; Surat city, 59 cases, 55 deaths ; Surat district, 35 cases, 33 deaths ; Satara district, 346 cases, 271 deaths ; Thana district, 21 cases, 15 deaths ; Kolaba district, 12 cases, 11 deaths ; Belgaum district, 71 cases, 54 deaths ; Nasik district, 93 cases, 70 deaths ; Khandesh district, 16 cases, 17 deaths ; Ahmednagar district, 65 cases, 51 deaths ; Hubli, 2 cases, 1 death ; Sholapur city, 180 cases, 197 deaths ; Ratnagiri district, no cases, 1 death ; Janjira State, 10 cases, 5 deaths ; Akalkot State, 12 cases, 10 deaths ; Baroda districts, 39 cases, 24 deaths (which includes 3 cases and 3 deaths of previous weeks not previously reported) ; Palanpur district, 112 cases, 91 deaths ; Cutch districts, 26 cases, 15 deaths ; Kolhapur districts, 34 cases, 25 deaths ; in Sind, 3 cases, 3 deaths ; Europeans, 1 case, no death.

From VICEROY.

3rd January, 1898.

In continuation of previous telegram of 27th December. Following plague seizures and deaths reported from places outside Bombay Presidency :—Punjab—Khankhanan, 1 case, 1 death ; Birampur, 5 cases, 3 deaths ; Khatkar Khurd, near other infected villages, 6 cases, 2 deaths ; Rajputana—Kalinderi, Sirohi State, 4 cases, 4 deaths, between 16th and 24th December. North-West Provinces, 1 fatal suspected case reported from village near Kankhal on 31st December. No plague reported elsewhere.

From GOVERNOR, BOMBAY.

4th January, 1898.

In continuation of previous telegram about plague. Deaths from all causes in Bombay city for week ending 31st December, 1,001 ; reported plague deaths, 225. Poona city, suburbs and cantonments, 190 cases, 167 deaths ; Kirkee cantonment, 5 cases, 2 deaths ; remainder Poona district, 62 cases, 49 deaths ; Surat city, 81 cases, 49 deaths ; Surat district, 55 cases, 36 deaths ; Satara city, 95 cases, 80 deaths ; Satara district, 261 cases, 208 deaths ; Thana district, 9 cases, 9 deaths ; Kolaba district, 12 cases, 11 deaths ; Belgaum district, 66 cases, 60 deaths ; Nasik district, 92 cases, 66 deaths ; Khandesh district, 8 cases, 7 deaths ; Ahmednagar district, 29 cases, 27 deaths ; Sholapur city, 65 cases, 55 deaths ; Sholapur district, 13 cases, 11 deaths ; Janjira State, 6 cases, no deaths ; Akalkot State, 6 cases, 8 deaths ; Baroda districts, 45 cases, 28 deaths ; Palanpur districts, 45 cases, 30 deaths ; Cutch districts, 25 cases, 26 deaths ; in Sind, 3 cases, 1 death.

•From GOVERNOR, BOMBAY.

8th January, 1898.

This is to give warning that it is possible that we may require some more doctors for plague work.

From GOVERNOR, BOMBAY.

9th January, 1898.

In continuation of previous telegrams about plague. Deaths from all causes in Bombay city, for week ending 7th January last, 1,118 ; reported plague deaths, 357. Poona city, suburbs and cantonments, 142 cases, 111 deaths ; Poona district, 47 cases, 37 deaths ; Satara city, 80 cases, 75 deaths ; Satara district, 135 cases, 105 deaths ; Surat city, 75 cases, 56 deaths ; Surat district, 48 cases, 37 deaths ; Thana district, 14 cases, 11 deaths ; Nasik district, 116 cases, 99 deaths ; Sholapur city, 39 cases, 31 deaths ; Sholapur district, 73 cases, 72 deaths ; Ahmednagar district, 51 cases, 40 deaths ; Khandesh district, 13 cases, 12 deaths ; Kolaba district, 4 cases, 5 deaths ; Belgaum district, 88 cases, 77 deaths ; Bankot, 1 case, 1 death ; Janjira State, 5 cases, 3 deaths ; Akalkot State, 1 case, 1 death ; Bhor State, 7 cases, 2 deaths ; Aundh State, 51 cases, 38 deaths ; Baroda districts, 69 cases, 41 deaths ; Palanpur districts, 53 cases, 36 deaths ; Kolhapur districts, 18 cases, 15 deaths ; Cutch districts, 46 cases, 41 deaths ; in Sind, 1 case, 3 deaths.

From VICEROY.

10th January 1898.

In continuation of previous telegram of 3rd January. Following plague seizures and deaths reported from places outside Bombay Presidency :—In the Punjab, Khankhanan, 3 cases, 1 death ; Jhander Khurd, no cases, 2 deaths ; Khatkar Khurd, 3 cases, 3 deaths ; Birampur, 4 cases, 3 deaths ; North-West Provinces, Jaggatapur near Khankhal, 11 cases, 6 deaths ; Ranimazra near Kankhal, 1 suspicious case ; Rajputana, 8 cases, and 3 deaths reported up to 5th January from villages in Sirohi State. No plague reported elsewhere.

From VICEROY.

Your telegram of 15th November. Please engage and send out 2 lady doctors, 25 lady nurses, and 8 medical practitioners, to report themselves to Government of Bombay, to whom instructions will be sent. This will meet present requirements of Local Government. Should plague extend, more men and women doctors and nurses will be required at once.

15th January 1898.

From VICEROY.

In continuation of our telegram of 10th January. Following plague seizures and deaths reported from places outside Bombay Presidency:—In the Punjab, Jullunder district, Khatkar Khurd, 1 case, 1 death; Khankhanam, 7 cases 3 deaths; Hoshiarpur district, Birampur, 2 cases, 3 deaths. North-West Provinces, Saharanpur district, Jawalapur, 1 case; Jajatput, 2 cases, 1 death reported on 9th January. Rajputana, Sirohi State, 6 cases, 4 deaths; Thudial, 9 cases, 8 deaths; Kalinderi, 2 cases, 2 deaths; Abu road, 1 death. No plague reported elsewhere.

17th January 1898.

From GOVERNOR, BOMBAY.

In continuation of our previous telegram about plague. Deaths from all causes in Bombay city for week ended 14th January, 1,423; reported plague deaths, 557. Poona city, suburbs and cantonments, 113 cases, 112 deaths; Poona district, 22 cases, 17 deaths; Surat city, 90 cases, 69 deaths; Surat district, 56 cases, 49 deaths; Satara city, 89 cases, 79 deaths; Satara district, 211 cases, 167 deaths (which includes 36 cases, and 17 deaths of previous weeks not previously reported); Thana district, 21 cases, 16 deaths; Colaba district, 12 cases, 9 deaths; Belgaum district, 91 cases, 76 deaths; Nasik district, 130 cases, 114 deaths; Khandesh district, 12 cases, 12 deaths; Ahmednagar district, 54 cases, 52 deaths (which include 12 cases and 12 deaths of previous week not previously reported); Hubli town, 2 cases, 2 deaths; Sholapur city, 15 cases, 20 deaths; Sholapur district, 15 cases, 13 deaths; Bhor State, 3 cases no deaths; Akalkot State, no cases, 1 death; Aundh State, 21 cases, 18 deaths; Baroda districts, 67 cases 54 deaths; Palanpur districts, 56 cases, 46 deaths; Cutch districts, 78 cases, 46 deaths (which includes 11 cases and 6 deaths of previous weeks not previously reported); Kolhapur districts, 44 cases, 29 deaths; in Sind, 2 cases, 1 death.

19th January 1898.

From GOVERNOR, BOMBAY.

In continuation of previous telegram about plague. Deaths from all causes in Bombay city for week ending 21st January, 1706; reported plague deaths, 761; Poona city, suburbs and cantonments, 94 cases, 77 deaths; Poona district, 44 cases, 37 deaths; Satara city, 86 cases, 71 deaths; Satara district, 141 cases, 114 deaths; Surat city, 60 cases, 50 deaths; Surat district, 88 cases, 81 deaths; Sholapur city, 6 cases, 10 deaths; Sholapur district, 77 cases, 65 deaths; Thana district, 31 cases, 22 deaths; Nasik district, 91 cases, 74 deaths; Ahmednagar district, 42 cases, 37 deaths (which includes seven cases and seven deaths of previous weeks not previously reported); Khandesh district, 12 cases, 10 deaths; Kolaba district, 22 cases, 11 deaths; Belgaum district, 92 cases, 89 deaths; Bankot, 1 case, 1 death; Janjiri State, 3 cases, no deaths; Aundh State, 14 cases, 6 deaths; Baroda districts, 143 cases, 106 deaths; Palanpur districts, 29 cases, 17 deaths; Kolhapur districts, 44 cases, 24 deaths; Cutch districts, 67 cases, 61 deaths; in Sind, 1 case, no death; Europeans, 1 case, 1 death.

23rd January 1898.

From VICEROY.

24th January 1898.

In continuation of our telegram of 17th January. Following plague seizures and deaths reported from places outside Bombay Presidency:—In the Punjab, Jullunder district, Khankhanan, 2 cases, 1 death; Hoshiarpur district, Birampur, 3 cases, 2 deaths. North-West Provinces, Saharanpur district, Jawalapur, 2 cases, 1 death; Jaggitpur, seven cases between 9th and 23rd January; Bahadarpur, one case; Rajputana, Sirohi State, Tewri, 16 cases, 12 deaths; Shudial, 5 cases, 6 deaths; Kalinderi, 12 cases, 5 deaths between 15th and 23rd January; Abu Road, 2 imported cases; Erinpura Road, 1 imported case, 1 death; Jodhpur State, Marwar Junction, one fatal case reported on 18th January in segregation camp; Hyderabad State, Naldrug district, an outbreak practically confined to one locality reported to have occurred and being stamped out; last case on 16th January. No plague reported elsewhere.

From SECRETARY OF STATE to VICEROY.

26th January 1898.

Your telegram of 15th January. 8 men, 2 women doctors, and 25 nurses left to-day for Bombay, *viâ* Marseilles. Nurses should be met. I advise immunising all, with their consent, by Haffkine's process. Please repeat to Bombay. Papers follow.

From GOVERNOR, BOMBAY.

30th January 1898.

In continuation of previous telegram about plague. Deaths from all causes in Bombay city for the week ending 28th January, 1,726; reported plague deaths, 840; Poona city, suburbs and cantonments, 67 cases, 55 deaths; Poona district, 21 cases, 17 deaths; Satara city, 83 cases, 73 deaths; Satara district, 144 cases, 136 deaths; Surat city, 46 cases, 37 deaths; Surat district, 79 cases, 65 deaths; Sholapur district, 205 cases, 145 deaths; Thana district, 24 cases, 15 deaths; Nasik district, 60 cases, 48 deaths; Ahmednagar district, 31 cases, 30 deaths (which includes 18 cases and 13 deaths not previously reported); Khandesh district, 12 cases, 12 deaths; Kolaba district, 29 cases, 20 deaths; Belgaum district, 63 cases, 53 deaths; Bankot, 2 cases, 1 death; Janjiri State, no case, 2 deaths; Bhor State, 2 cases, 2 deaths; Aundh State, 6 cases, 8 deaths; Baroda city, 96 cases, 81 deaths; Baroda districts, 53 cases, 36 deaths; Palanpur districts, 63 cases, 33 deaths; Kolhapur districts, 66 cases, 37 deaths; Cutch districts, 44 cases, 38 deaths; in Sind, 1 case, 1 death; Europeans, 1 case, no death. The Sholapur district figures include several cases not reported during past week.

From VICEROY.

31st January 1898.

In continuation of previous telegram of 24th January. Following plague seizures and deaths reported from places outside Bombay Presidency:—North-West Provinces and Oudh—Saharanpur district, Jawalapur, one case; Jaggitpur, 1 case, 1 death. In the Punjab—Hoshiarpur district, Birampur, 4 cases, 1 death; Jullunder district, Khankhanan, 2 cases, 1 death. Rajputana—Sirohi State, Kalinderi, 13 cases, 12 deaths; Shudial, 5 cases, 1 death; Tewri, 4 cases, 4 deaths; Wardra, 2 cases, 3 deaths. Full particulars now received about outbreak in Naldrug district, Hyderabad State, up to 18th January:—Kashigaon, 21 cases, 17 deaths; Dhotri, 55 cases, 48 deaths; Warlingaon, 21 cases, 14 deaths; Saraedi, 3 cases, 2 deaths; Itkal and neighbouring villages, 13 cases. Telegram 29th January reports 13 cases, 4 deaths, in Raviamba Ajagn, and cases also reported from village Gangoti of same district, but number of cases there not yet ascertained. Gulburga district, Shahabad, 3 cases; Wadi, 4 cases; Tumbalwadi, 8 cases; Gulburga, 4 cases. Most of cases in Gulburga district imported. No plague reported elsewhere.

From GOVERNOR, BOMBAY.

6th February 1898.

In continuation of previous telegram about plague. Deaths from all causes, Bombay city, week ending 4th February, 1,999; reported plague deaths, 1,004. Poona city, suburbs, and cantonments 48 cases, 30 deaths; Poona district, 15 cases, 14 deaths; Satara city, 38 cases, 33 deaths; Satara district, 111 cases, 87 deaths (which includes 10 cases and 6 deaths of previous weeks not previously reported); Surat city, 69 cases, 59 deaths; Surat district, 87 cases, 73 deaths; Sholapur district, 135 cases, 95 deaths; Thana district, 35 cases, 25 deaths; Nasik district, 39 cases, 36 deaths; Ahmednagar district, 47 cases, 39 deaths (which includes 30 cases and 27 deaths of previous weeks not previously reported); Khandesh district, 20 cases, 13 deaths; Kolaba district, 21 cases, 20 deaths; Belgaum district, 65 cases, 54 deaths; Hubli, 1 case, 1 death; Bankot, 1 case, 2 deaths; Aundh State, 5 cases, 3 deaths; Baroda city, 135 cases, 106 deaths; Baroda district, 49 cases, 49 deaths (which includes 20 cases and 13 deaths of previous weeks not previously reported); Palanpur districts, 53 cases, 35 deaths; Kolhapur district, 67 cases, 64 deaths; Cutch districts, 26 cases, 19 deaths; in Sind, 3 cases, 1 death. Europeans, 4 cases, no deaths.

From VICEROY.

7th February 1898.

In continuation of our telegram of 31st January. Following plague seizures and deaths reported from places outside Bombay Presidency. North-West Provinces and Oudh:—Saharanpur district, some fatal cases have been reported from Jawalapur. In the Punjab:—Jullunder district, Shakohpur (small Jat village about 500 inhabitants, 4 miles to the south of Khankhanan), 35 cases, 6 deaths; Sirhal Gazian (4 miles west of Khankhanan), 14 cases, 4 deaths; Hoshiarpur district, Birampur, 5 cases, 1 death; Parkohwal (small Gugar village of 160 houses, 1 mile from Birampur), 10 cases, 6 deaths. Rajputana:—Sirohi State, Kalinderi, 10 cases, 10 deaths; Shudial, 2 cases, 4 deaths; 1 fatal suspected case in Pindwara segregation camp on 28th January; Jodhpur State, Bilora, 1 fatal suspected case on 2nd February. Central Provinces:—Phuskee (Chanda district), 7 suspected cases, 5 deaths reported to have occurred within last 2 months. Hyderabad State, Naldrug district, following cases reported up to 5th February in addition to those previously reported:—Kashegaon, 1 case, 6 deaths; Karamba, 36 cases, 26 deaths; Nanuz, 12 cases, 11 deaths; Kirki, 2 cases, 14 deaths; Sarali, 6 cases, 1 death; Warligaon, 4 cases; Dhotri, 13 cases. Resident at Hyderabad telegraphed on 3rd February:—"Plague exists in most villages near Sholapur frontier; well organised and extensive preventive measures have been introduced."

From GOVERNOR, BOMBAY.

13th February 1898.

In continuation of previous telegram about plague. Deaths from all causes in Bombay city for week ending 11th February, 2,140; reported plague deaths, 1,220. Poona city, suburbs and cantonments, 43 cases, 37 deaths; Poona district, 14 cases, 14 deaths; Satara city, 31 cases, 29 deaths; Satara district, 89 cases, 81 deaths; Surat city, 70 cases, 47 deaths; Surat district, 120 cases, 89 deaths; Sholapur district, 168 cases, 160 deaths (which includes 15 cases and 15 deaths of previous weeks not reported in last telegram); Thana district, 32 cases, 25 deaths; Nasik district, 61 cases, 44 deaths; Ahmednagar district, 39 cases, 29 deaths; Khandesh district, 18 cases, 14 deaths; Kolaba district, 34 cases, 28 deaths; Belgaum district, 40 cases, 33 deaths; Hubli, 2 cases, 2 deaths; Bankot, 1 case, 1 death; elsewhere, Ratnagiri district, 2 cases, 2 deaths; Aundh State, 21 cases, 13 deaths; Bhor State, 1 case, 1 death; Baroda city, 138 cases, 101 deaths; Baroda districts, 50 cases, 29 deaths; Palanpur districts, 32 cases, 23 deaths; Kolhapur districts, 57 cases, 46 deaths; Cutch districts, 25 cases, 18 deaths. Europeans, 1 case, no deaths.

From VICEROY.

14th February 1898.

In continuation of our telegram of 7th February. Following plague seizures and deaths reported from places outside Bombay Presidency :—North-West Provinces and Oudh,—Saharanpur district, Jawalapur, 10 cases, 8 deaths, of which 4 cases, 3 deaths suspicious (these figures include the cases reported in my last telegram); Jaggitanur, 1 case; Agra district, 1 imported suspicious case. In the Punjab,—Jullundur district, Shikohpur, 26 cases, 26 deaths; Serhal Gazian, 11 cases, 14 deaths; Malhipota, 8 cases; Hoshiarpur district, Birampur, 2 cases, 2 deaths; Parkhowal, 6 cases, 2 deaths; Simmal Majza, 6 cases, 1 death; Rampur Bilron (two miles from Birampur), 2 cases, 1 death; Rajputana,—Sirohi State, Kalinderi, 7 cases, 6 deaths; Hyderabad State, Naldrug district, Saroli, total 24 cases, 20 deaths, up to 4th February; Kashegaon, total 39 cases, 17 deaths, up to 4th February; Khodawadi, 1 case, 1 death; Jangoti, total deaths up to end of January 137, since then 16 deaths; Umerghi, total deaths up to end of January not less than 150, since then 8 deaths; Tarrore and Sirsa, each 6 deaths. Plague rumoured to exist at 2 places in Bidar district; special plague officer has gone to make investigation. No plague reported elsewhere.

From GOVERNOR, BOMBAY.

14th February 1898.

Doctor Bruce contracted plague, recovering. Full report will follow.

From GOVERNOR, BOMBAY.

15th February 1898.

I regret to report death from plague at Poona on 13th February of nurse Miss Florence Eva Morgan.

From VICEROY.

18th February 1898.

In continuation of our telegram of 15th January. Please send as soon as possible ten medical practitioners for temporary plague and general duty in Madras Presidency.

From GOVERNOR, BOMBAY.

20th February 1898.

In continuation of previous telegrams about plague. Deaths from all causes in Bombay city during week ending 18th February, 2,046; reported plague deaths, 1,136; Poona city, suburbs and cantonments, 22 cases, 21 deaths; Poona district, 28 cases, 25 deaths; Satara city, 29 cases, 27 deaths; Satara district, 73 cases, 57 deaths; Surat city, 65 cases, 51 deaths; Surat district, 81 cases, 59 deaths; Sholapur district, 77 cases, 55 deaths; Thana district, 24 cases, 16 deaths; Nasik district, 36 cases, 35 deaths; Ahmednagar district, 24 cases, 21 deaths; Khandesh district, 9 cases, 11 deaths; Kolaba district, 47 cases, 29 deaths; Belgaum district, 82 cases, 74 deaths; Ratnagiri district, 10 cases, 2 deaths; Aundh State, 9 cases, 11 deaths; Akalkot State, 3 cases, 3 deaths; Baroda city, 107 cases, 83 deaths; Baroda districts, 70 cases, 54 deaths; Palanpur districts, 23 cases, 23 deaths; Kolhapur districts, 101 cases, 80 deaths; Cutch districts, 7 cases, 8 deaths; Europeans, 1 case, 2 deaths. The Belgaum district figures include 47 cases and 44 deaths of previous week not previously reported.

From VICEROY.

21st February 1898.

In continuation of our telegram of 14th February. Following plague seizures and deaths reported from places outside Bombay Presidency. North-West Provinces and Oudh, Saharanpur district, 8 seizures, 6 deaths. In the Punjab :—Jullunder district, 66 seizures, 30 deaths; one new village attacked: Hoshiarpur district, 8 seizures, 3 deaths;

one new village attacked. Rajputana, Sirohi State, 7 seizures, 9 deaths. Hyderabad State, Naldrug district, 130 deaths reported from 16 villages, in addition to deaths communicated to you in our telegram of 14th February, and four cases in one other village. Plague said to exist in all villages within radius of 30 miles of Gangoti, and total 450 deaths reported to have occurred in them up to 17th February. Since evacuation of these villages few new cases reported. Gulburga district, 4 deaths. Resident at Hyderabad telegraphed on 17th February 220 imported cases of plague had occurred at Wadi, but plague not endemic there. We have telegraphed for explanation and details of the large number of imported cases. No plague reported elsewhere.

From SECRETARY OF STATE to GOVERNOR, BOMBAY.

21st February 1898.

Please telegraph state of health of following persons reported sick—Nurse MacDougall and another plague nurse.

From GOVERNOR, BOMBAY.

23rd February 1898.

Your telegram of 21st February. We regret to report that nurse Miss Harriet McDougall died of plague last night. Miss Dowson had fever on Saturday, but is better.

From SECRETARY OF STATE to VICEROY.

26th February 1898.

Your telegram of 18th February. Ten doctors started for Bombay. Thence they go to Madras by rail. They have been instructed to report themselves to Surgeon-General. Please inform Madras. Despatch follows.

From GOVERNOR, BOMBAY.

27th February 1898.

In continuation of previous telegram about plague. Deaths from all causes in Bombay city for the week ending 25th February, 2,059; reported plague deaths, 1,104. Poona city, suburbs, and cantonments, 11 cases, 13 deaths; Poona district, 15 cases, 7 deaths; Satara city, 19 cases, 18 deaths; Satara district, 118 cases, 89 deaths; Surat city, 77 cases, 58 deaths; Surat district, 165 cases, 120 deaths; Sholapur district, 99 cases, 66 deaths; Thana district, 36 cases, 30 deaths; Nasik district, 37 cases, 30 deaths; Ahmednagar district, 26 cases, 24 deaths; Khandesh district, 24 cases, 15 deaths; Kolaba district, 27 cases, 30 deaths; Belgaum district, 89 cases, 72 deaths; Ratnagiri district, 1 case, 4 deaths; Hubli, 1 case, 1 death; Aundh State, 12 cases, 7 deaths; Akalkot State, 26 cases, 15 deaths; Bhor State, 2 cases, 2 deaths; Baroda city, 189 cases, 151 deaths; Baroda districts, 110 cases, 78 deaths; Palanpur districts, 15 cases, 7 deaths; Kolhapur districts, 82 cases, 61 deaths; Cutch districts, 18 cases, 11 deaths. Europeans, 1 case, 1 death.

From VICEROY.

28th February 1898.

Following plague seizures and deaths reported from places outside Bombay Presidency since 21st February:—North-West Provinces, Saharanpur district, 14 seizures, 12 deaths; of which 10 seizures and 8 deaths in Jawalapur town. Punjab, Jullunder district, 108 seizures, 74 deaths; two new villages attacked: Hoshiarpur district, 18 seizures, 7 deaths; one new village attacked. Rajputana, Sirohi State, 8 seizures, 5 deaths. Hyderabad State, Naldrug district, total of seizures has not been reported, 91 deaths; Gulburga district, 7 seizures, 7 deaths. No plague reported elsewhere.

From the GOVERNMENT OF INDIA to the SECRETARY OF STATE FOR
INDIA.

(Sanitary No. 14).

Simla, the 28th April 1897.

MY LORD,

IN continuation of our Sanitary Despatch No. 13, dated the 14th instant, we have the honour to send your Lordship a further narrative of events connected with the plague.

2. In Bombay, the position of affairs continues to improve in a most satisfactory manner. It was stated in our Despatch of the 14th instant, that during the first twelve days in April the daily average number of seizures and deaths showed a marked decline to 60 and 55 respectively. During the week ending the 19th, there was a further fall to 47 and 45, and during the week ending the 26th to 34 and 29. During the first twelve days of April the daily average mortality from all causes was 142; during the week ending the 19th, 123; and during the week ending the 26th, 95. This last figure compares with a daily average of 86 for the corresponding period of the five preceding years.

The carefully organized system of house to house search ensures the detection of most of the cases, thus enabling the precautionary rules to be enforced, and the sufferers to be treated in the special plague hospitals of which over 30 have been established. To prevent the city from being re-infected, the Plague Committee have organized a thorough system of inspection of passengers coming by rail from Gujerat, the Deccan, and the suburban station, with corresponding arrangements for segregation and treatment. A similar inspection has been organized in the case of arrivals by sea.

3. In other parts of the Bombay Presidency proper, the returns from Poona and Palanpur show a steady decrease in the number of cases, whilst the position in Thana, Surat, and Kolaba remains serious and without marked change. The energetic work of the Plague Committee at Poona has materially contributed to the improvement in that place. A telegram from the Government of Bombay, No. 161-P., dated the 15th April, which is appended to this Despatch, gives information regarding the state of affairs in Palanpur. The plague cases are not confined to any particular quarter of the town. Four hospitals have been established, to each of which is attached a place for the segregation of infected persons. The number of cases reported from the Baroda State remains about the same. A serious outbreak has taken place in Cutch and a British medical officer is being sent there at the request of His Highness the Ráo.

4. The figures have fluctuated in Karachi, but on the whole, the downward tendency continues. During the first eleven days in April the average daily numbers of seizures and deaths were 28 and 22 respectively. During the week ending the 18th the figures were 27 and 17, and during the eight days ending the 26th, 22 and 15. In Sukkur there has been some diminution of the number of cases during the past few days, but as His Excellency the Governor of Bombay has already informed Your Lordship three-quarters of the population are said to have left the place. The disease has increased somewhat in Hyderabad in Sind, and a Plague Committee has been appointed with functions and powers similar to those of the Committees already appointed in Bombay, Poona, Karachi and Sukkur. Some indigenous cases continue to occur in the Karachi and Shikarpur districts, but the infection has not spread to any fresh places in Sind.

5. Outside the Bombay Presidency and Sind, the only cases that have been reported since those mentioned in our last Despatch, are two in Goa, one in Baluchistan, one at Kohala, reported by the Resident of Kashmir on the 26th instant, and six cases said to be plague at Hardwar. The Baluchistan case was detected at the Sibi inspection station, on the 12th instant. The sufferer, a Muhammadan from Sukkur, was kept under treatment for several days in the segregation hospital, and then died. The case discovered at Kohala was that of a Muhammadan who had travelled from Jhelum, but information has not yet been received as to how he became infected.

6. The Government of the North-Western Provinces and Oudh and the authorities in Sind made due preparations before the commencement of the Hardwar fair for the inspection of all intending pilgrims from Sind and the detention of all who were in any way suspicious or likely to carry infection. The circumstances of three suspicious cases which occurred at the fair are somewhat remarkable. An account of them is given in an

extract from a letter* dated Hardwar, the 9th instant, from Surgeon-Major Thomson, Sanitary Commissioner of the North-Western Provinces and Oudh, to our Sanitary Commissioner, a copy of which is among the enclosures of this Despatch. All three cases occurred amongst residents of Hardwar and no connection appears to have been established between them and the infected districts or persons coming from those districts. At the same time the symptoms in all three cases were strongly indicative of plague, and Dr. Thomson considers that they were probably genuine cases of plague. He took stringent sanitary precautions and the infection did not spread at the time. On the 15th instant the Government of the North-Western Provinces and Oudh reported that no information had been received of more cases and that the pilgrims had left for their homes. In a subsequent telegram, dated the 20th instant, the Government of the North-Western Provinces and Oudh reported that another fatal case of plague had occurred at Hardwar on the 18th. The sufferer had been residing in the town for some weeks. Since then two cases are said to have occurred, but no details have been received.

7. It has been necessary to adopt special measures with regard to another religious fair, known as the Singhast Mela, which is held once in twelve years at Ujjain, and is usually attended by three or four hundred thousand persons, chiefly religious mendicants, from all parts of India. The period of the fair on the present occasion is from the 17th instant to the 16th May, the dates being those of the full moon in the Hindu months of Chait and Baisakh. Arrangements were begun more than a year ago to provide for the great influx of people expected at Ujjain, but, in October last, when famine threatened, the Maharaja of Gwalior issued orders prohibiting the fair, and notices were printed by His Highness and forwarded to the Agent to the Governor General for wide circulation. Copies were furnished by the Agent in November last to all Local Governments and Administrations and to the authorities of all the railways in India, and a reminder was sent in March last. On the 10th instant, Colonel Barr reported that, notwithstanding these precautions, about fifteen thousand religious mendicants had arrived from all parts of India, and that it was impossible to prevent them from going to Ujjain, notwithstanding the anxiety felt lest an epidemic, possibly of plague, should break out amongst the pilgrims. He therefore arranged in consultation with the local authorities and with the consent of His Highness that the pilgrims should bathe on the 17th instant in the Sipra at Ujjain, under strict rules with regard to encampment outside the city and sanitary arrangements, and under a promise to leave Ujjain on the following day. The spiritual heads of the different sects agreed to these arrangements and bound themselves to enforce obedience on all their followers. Colonel Barr urged that, in view of the prevalence of plague in some of the districts whence the pilgrims come, it was most important to prevent a further assemblage during the period intervening between the first and second bathing days. With this view we fully agreed and on the 12th instant a telegram was sent to all Local Governments and Administrations repeating Colonel Barr's observations and stating that we desired that everything possible should be done to meet His Highness Maharaja Sindhia's desire to restrict the assemblage. We also issued and gave wide circulation to a notification under the Epidemic Diseases Act 1897 (copy enclosed), prohibiting, until the 18th May, the sale of railway tickets for Ujjain to all persons intending or believed to be intending to visit the Singhast Mela. On the 23rd instant Colonel Barr reported that the pilgrims who were permitted to bathe at Ujjain on the 17th instant had dispersed without any outbreak of disease having occurred among them. About twenty-two thousand devotees were present at the bathing, and the arrangements for sanitation and control were carried out without difficulty.

8. In paragraph 4 of our Despatch No. 12 (Sanitary), dated the 12th March last, it was mentioned that there had been a slight outbreak of the local form of plague, named "Mahamari" in the district of Garhwal. We are glad to be able to report that no further cases have occurred.

9. In paragraph 10 of the Despatch quoted above, it was stated that the Government of Bombay have been directed to cause all dirty and suspicious luggage to be disinfected at a railway station near the frontier of the Bombay Presidency and Sind on each of the railway lines leading from those Provinces to other parts of India. Further correspondence on this subject is appended to this Despatch.* In their telegram No. 1388-P., dated the 9th instant, the Government of Bombay represented that their medical advisers considered that considerable delay would be caused to the trains and urged the difficulty of adopting means to prevent evasion of the inspection and disinfection. In the telegram from our Home Department No. 1302, dated the 15th instant, we

* Not reprinted.

suggested that as it would probably not be possible to make prompt arrangements for disinfection by the steam process, the simple plan of boiling the articles to be disinfected should be adopted. We intimated that it is not necessary to detain the train or all the passengers while the disinfection takes place, and that only passengers with suspicious effects need be detained until the disinfection of those effects is completed, except in the case of passengers who are themselves suspicious and who must be detained until the medical officer is satisfied that they may proceed. And with a view to prevent evasion we suggested that the names of all suspicious persons leaving the train at stations within twenty miles on one side of the disinfecting station should be taken and given to Station Masters within twenty miles on the other side, with instructions not to rebook them.

In a subsequent letter to the Government of Bombay and circular to other Local Governments and Administrations, detailed instructions, based on the advice of our Officiating Sanitary Commissioner, were given with regard to the best manner for carrying out the process of disinfection by boiling and of treating articles which would be injured by that process. To this Despatch is also appended a copy of a letter issued in our Public Works Department containing instructions for the disinfection of railway carriages coming from infected areas or in which cases of plague have occurred or been suspected.

10. In view of the alarm evinced by Russia at the possible spread of plague to Russian territory, we have given particular consideration to instituting special precautions on our side of the Afghan and Baluch frontiers. In paragraph 7 of our Despatch of the 14th instant, we mentioned the precautions that had been taken in the Punjab and on the Baluchistan railway. To this Despatch is appended a copy of further correspondence on the same subject with the Government of the Punjab and the Agent to the Governor General in Baluchistan. The letter from the Government of the Punjab, No. 714, dated the 17th April 1897, gives a summary and some further particulars of the precautionary measures adopted in the Punjab. They have so far been found satisfactory, and the Lieutenant-Governor considers that so long as the Punjab remains free from the disease, the protection of Afghanistan will be as efficiently secured by the measures adopted on the east and south frontiers of the Province as by any special arrangements on the north and west frontiers. The Lieutenant-Governor suggests that if unhappily the Punjab or any part of it becomes an infected area, it may be necessary to establish an inspection cordon for the special protection of Afghanistan, but he would await the development of events before deciding precisely what line to take up in such a case. In this view we concur; and do not propose to order any extension of the protective system at present.

Similarly we are satisfied that all possible precautions have been adopted in the Baluchistan Agency. So far they have met with success, and there have been no local cases of plague in any part of the Agency. Quarantine has for some time past been imposed at the Mekran ports, and in addition to rigorous inspection on the railway, all roads from the Shikarpur border are carefully watched on both sides of the boundary, and the tribal levies of Las Bela prohibit travellers from Karachi from crossing the border. The 38th enclosure of this Despatch, being an extract from a letter received from His Highness the Amir of Afghanistan,† expresses a satisfaction with the completeness of our precautionary arrangements, which is distinctly not to be ascribed to failure to realize the gravity of his danger.

11. In conclusion we forward for Your Lordship's information a copy of Regulations* issued by Local Governments and Administrations under the Epidemic Diseases Act, and some of the more important orders recently issued by the Government of Bombay

We have, &c.,
(Signed) ELGIN.
&c., &c.

* Not reprinted.

† See page 35.

Enclosures.

15763

STATEMENT showing BUBONIC PLAGUE CASES and DEATHS (imported as well as indigenous) in the BOMBAY PRESIDENCY reported to GOVERNMENT from September to Week ending 16th April 1897.

1. Periods.	2. Bombay City.				3. Karachi City.				4. Poona City, including Suburb and Cantonment.				5. Ahmedabad District.				6. Kaira District.			
	Plague Cases	Plague Deaths.	Total actual Mortality from all Causes	Total average Mortality from all Causes	Plague Cases.	Plague Deaths.	Total actual Mortality from all Causes	Total average Mortality from all Causes.	Plague Cases.	Plague Deaths.	Total actual Mortality from all Causes	Total average Mortality from all Causes.	Imported.		Indigenous		Imported.		Indigenous.	
													Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Total as per Statement for period from September to week ending 9th April 1897.	11,146	9,459	36,145	—	3,446	2,881	5,424	—	2,129	1,490	4,775	—	109	61	20	13	19	14	—	—
During week ending 16th April, 1897.	362	363	934	589	177	123	178	58	195	149	208	79	4	2	1	1	—	—	—	—
Total	11,508	9,822	37,079	—	3,623	3,004	5,602 *	—	2,324	1,639	4,983	—	113	63	21	14	19	14	—	—

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Periods.	7. Broach District.				8. Surat District.				9. Thana District.				10. Ahmednagar District.				11. Khandesh District.			
	Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.	
	Cases*	Deaths	Cases	Deaths	Cases	Deaths	Cases.	Deaths	Cases	Deaths.	Cases	Deaths.	Cases.	Deaths.	Cases	Deaths.	Cases.	Deaths.	Cases	Deaths.
Total as per Statement for period from September to week ending 9th April, 1897.	17	12	1	—	162	104	1,274	969	658	355	3,035	2,514	45	29	3	3	29	10	—	—
During week ending 16th April, 1897.	—	—	—	—	10	8	260	196	28	15	303	233	—	—	—	—	1	—	—	—
Total	17	12	1	—	172	112	1,534	1,165	686	370	3,338	2,747	45	29	3	3	30	10	—	—

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STATEMENT showing BUBONIC PLAGUE CASES and DEATHS (imported as well as indigenous) in the BOMBAY PRESIDENCY reported to GOVERNMENT from September to Week ending 16th April 1897—continued.

Periods.	12 Nasik District.				13 Poona District, excluding the City.				14 Satara District.				15 Sholapur District.				16 Kolaba District.			
	Imported		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.		Imported		Indigenous.		Imported		Indigenous.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Total as per Statement for period from September to week ending 9th April, 1897.	42	30	2	2	146	131	16	12	68	54	88	71	11	7	4	4	108	101	382	298
During week ending 16th April, 1897.	1	—	2	2	23	12	—	1	4	3	—	—	2	1	—	—	4	4	146	146
Total	43	30	4	4	169	143	16	13	72	57	88	71	13	8	4	4	112	105	528	444

Periods	17 Ratnagiri District				18 Belgaum District.				19 Dharwar District.				20 Kanara District.				21 Beroda Territory.			
	Imported.		Indigenous.		Imported		Indigenous.		Imported		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Total as per Statement for period from September to week ending 9th April, 1897.	224	195	78	60	2	1	—	—	1	—	—	—	1	—	—	—	67	46	199	172
During week ending 16th April, 1897.	3	2	14	10	—	—	—	—	—	—	—	—	—	—	—	—	1	—	55	45
Total	227	197	92	70	2	1	—	—	1	—	—	—	1	—	—	—	68	46	254	217

STATEMENT showing BUBONIC PLAGUE CASES and DEATHS (imported as well as indigenous) in the BOMBAY PRESIDENCY reported to GOVERNMENT from September to Week ending 16th April 1897—continued.

Periods.	22 Kathnawar.				23 Kolhapur.				24 Cutch.				25 Mahi Kantha.				26 Palanpur.				27 Savantvadi.			
	Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Total as per Statement for period from September to week ending 9th April 1897.	74	37	72	49	11	9	**55	**46	149	94	54	45	3	1	—	—	2	2	106	63	25	24	—	—
During week ending 16th April, 1897.	2	2	18	13	—	—	2	1	2	—	25	10	—	—	—	—	—	—	21	16	—	—	—	—
Total	76	39	90	62	11	9	57	47	151	94	79	55	3	1	—	—	2	2	127	79	25	24	—	—

1 Periods	28 Karachi District, excluding the City				29 Hyderabad District.				30 Shikarpur District				31 Upper Sind Frontier District.				32 Thar and Parkar				33 Plague among Europeans.			
	Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.		Bombay		Mofussil	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Total as per Statement for period from September to week ending 9th April, 1897.	148	108	25	20	56	48	195	129	67	48	315	213	2	2	1	1	3	2	—	—	39	14	†5	‡1
During week ending 16th April, 1897.	8	7	*3	*3	9	7	149	107	5	1	114	†84	1	—	—	—	—	—	—	—	—	—	—	—
Total	156	115	28	23	65	55	344	236	72	49	429	297	3	2	1	1	3	2	—	—	39	14	5	1

** Owing to later reports these figures have been slightly revised
† Of these, 2 cases and 1 death at Tatta are reported as 'apparently indigenous'
‡ Of these, 3 occurred at Poona, 1 at Ahmedabad, and 1 at Karachi
§ Of these, 2 deaths at Sukkur are previous ones subsequently reported
¶ Took place at Karachi; the deceased was a European girl born in Burma.

TELEGRAM No. 161-P., dated 15th April 1897.

From the Secretary to the Government of Bombay to the Secretary to the Government of India, Home Department.

Plague progress report from Palanpur shows 111 reported cases up to date. No means of estimating number concealed cases. Doctor Cleveland arrived on second instant and Doctor Lowson has paid a visit. Plague cases not confined to any particular quarter of the town. Four hospitals started, each has separate place for segregation infected persons. Some opposition is being given to isolation. Persons leaving Palanpur are examined and names and addresses taken. Suspicious persons detained. Probably little reliance can be placed on returns received before Cleveland's arrival.

(Sanitary No. 1309.)

NOTIFICATION.

Simla, 17th April 1897.

Whereas His Highness Maharaja Sir Madho Rao Sindhia Bahadur, G.C.S.I., Maharaja of Gwalior, has, owing to the danger of an outbreak of dangerous epidemic disease in his territories, prohibited the assemblage of persons at Ujjain for the Singhast Mela ;

And whereas the Governor General in Council is satisfied that such danger as aforesaid exists ;

In exercise of the powers conferred by section 2, sub-section (1), of the Epidemic Diseases Act (III of 1897), the Governor General in Council is pleased to direct that no tickets to travel by railway to Ujjain, or to the station on the railway next on either side of Ujjain, that is to say, to Fatehabad Junction or to Tajpur or to Aslaoda, shall be sold from the date of this notification, until the 18th day of May 1897, by any railway administration in British India to any pilgrim or other person intending, or believed to be intending, to visit the Singhast Mela.

J. P. HEWETT,
Secretary to the Government of India.

No. 349-R.T. GOVERNMENT OF INDIA. Public Works Department. Railway Traffic.

To the Joint Secretary to the Government of Madras, Public Works Department, Railway Branch. The Secretary to the Government of Bombay, Public Works Department, Railway Branch. The Secretary to the Government of Bengal, Public Works Department. The Chief Commissioner of Assam. The Resident at Hyderabad. The Agent to the Governor General for Rajputana. The Director General of Railways. The Consulting Engineers to the Government of India for Railways, Calcutta, Lucknow and Assam.

SIR,

Simla, 21st April 1897.

The Government of India have had under consideration the advisability of cleansing all vehicles conveying passengers and their luggage from districts affected with the bubonic plague to other parts of India, and are of opinion that the disinfection of all such vehicles is absolutely necessary as a precautionary measure against the spread of infection.

2. For this purpose it is considered imperative that vehicles in which suspected or declared cases of plague have occurred should be stopped at, and not allowed to run further than, either the station at which such cases are removed from the carriage or the nearest medical inspection station,—preferably the former if the process of disinfection can be promptly and satisfactorily carried out there,—while non-suspect vehicles should be disinfected at the medical inspection station nearest to the boundary of infected areas. This need involve no detention to the latter beyond that necessary for their actual disinfection, the inspection of the occupants and the disinfection of their baggage.

3. The Government of India accordingly desire that, subject to the foregoing remarks, the administration (s) of the railway (s) under the control of the Government of your control be requested to disinfect all vehicles conveying passengers and their baggage from areas infected with the bubonic plague in the following manner :—

(a) Vehicles in which cases of plague have *not* been detected—

Third and intermediate class carriages, goods vehicles carrying passengers, and luggage vans.—The interior wood-work, especially the floors and seats, to be thoroughly washed with a solution of perchloride of mercury (1 in 1,000), or with a carbolic acid solution (a wine-glass full to a gallon) applied with a mop; the doors and windows to be opened and the vehicles exposed to the air.

First and second class carriages.—The floors and wood-work to be treated as above, the cushions being also brushed and thoroughly cleaned.

(b) Carriages in which cases of plague *have been* detected—

(i) These, after being detached from the train, should be thoroughly washed with soft soap and lime-water. After an interval of two to three hours this should be washed off with plain water, and then the following disinfecting solution should be thoroughly sprayed all over the interior as well as the exterior of the carriages by means of a syringe :—

Corrosive sublimate	...	...	...	...	...	...	$\frac{1}{2}$ oz.
Hydrochloric acid	...	...	...	...	...	...	1 "
Water	...	...	...	...	...	...	3 gallons.

This solution should be allowed to dry on the carriages. Special care must be taken to direct the solution into all the cracks and crevices and jilmills.

(ii) After disinfection, the carriages should be kept out in the open for 48 hours. They can then be brought into use again.

(iii) In the case of first and second class carriages, which afford greater facilities than third class compartments for the harbouring of plague germs, it will be necessary, if the carriages are contaminated, to burn the cushions and to disinfect the wood-work in the manner indicated above, and repaint the interior.

(iv) Any compartment in which a suspicious case has travelled should be sprayed with the above disinfecting solution before being allowed to proceed.

I have, &c.,
(Signed)

G. A. ANDERSON,
Under Secretary.

No. 1197-I. A., dated Fort William, 26th March 1897.

From W. J. CUNINGHAM, Esq., C.S.I., Secretary to the Government of India, Foreign Department, to the Chief Secretary to the Government of the Punjab.

The Amir's Agent with the Government of India recently reported the presence in Calcutta of two Afghan subjects who had arrived here with the intention of proceeding on pilgrimage to Mecca. On learning the orders of the Governor-General in Council suspending the pilgrimage to the Hedjaz, they expressed themselves ready to return to their homes, and the Government of Bengal was accordingly requested to arrange for the free issue to them of third-class tickets to Peshawar.

2. In view of the general anxiety in Europe in respect to the possible spread of the bubonic plague and, in particular, of the sanitary arrangements undertaken by the Russian Government on the Persian and Afghan frontiers, very serious results might follow if an intending pilgrim, who had been given free railway fare to Peshawar, or any other frontier station, and had been allowed to pursue his journey, were to carry the plague over the border, or were even reported to have done so. Her Majesty's Secretary of State for India has, in recent telegrams, laid special stress on the importance of adopting the most thorough quarantine precautions upon the British side of the Afghan frontier. The subject is one which presents great difficulties and requires most careful but urgent consideration.

3. One hundred and fifty intending pilgrims from Central Asia, besides some from Afghanistan, were recently sent from Nasik to Peshawar. You were informed that, if the Lieutenant-Governor saw no objection, the Central Asian pilgrims might for the present remain at Peshawar, but no instructions were issued regarding the Afghan pilgrims, the majority of whom would probably desire to return to their homes. If a large number of these pilgrims were collected at Peshawar, they might give trouble, though, on the other hand, they might occupy themselves peaceably during their stay there. The Afghan pilgrims, whether from Nasik or Calcutta, were the fellow-travellers of the Central Asian pilgrims, and were under the same conditions. The matter is further complicated by the fact that there is a large influx of Afghans into India yearly in the cold weather. The Amir may, it appears to the Government of India, reasonably expect from the Government of India a medical inspection of travellers returning to Afghanistan, at any rate on the main routes ; while the grant of facilities for return might raise difficulties with the Amir or with the Russian Government. On the other hand, it is scarcely possible to forcibly detain Afghan subjects desirous of returning to their homes, or even to deny to disappointed pilgrims their railway fares to frontier stations. It has been suggested that work might be provided for such travellers in the Punjab, and something might, perhaps, be effected in this direction, at any rate in the case of destitute Central Asian pilgrims. The expedient does not, however, appear a very hopeful one.

4. I am to request that His Honour the Lieutenant-Governor will give the whole question his very earnest attention, and will favour the Government of India, at the earliest possible date, with any advice which he can see his way to offer.

They will be glad if His Honour will, after considering the question, determine how the medical inspection of Afghans desirous of re-entering Afghanistan can be most efficiently provided for.

TELEGRAM No. 583 E.-A., dated 24th March 1897.

From the Secretary to the Government of India, Foreign Department, Calcutta, to the Agent to the Governor-General in Baluchistan, Quetta.

There may be grave risk of plague reaching Mekran owing to continual departures by sea from Karachi and Bombay. It is understood Khan has hospital assistant at Kej, who might be instructed to look out for information. Perhaps one or two Muhammadan hospital assistants might be deputed to tour along coast and keep watch for any outbreak. Please telegraph your opinion and any suggestions you have to make.

TELEGRAM No. 99, dated 26th March 1897.

From the Agent to the Governor-General in Baluchistan, Quetta, to the Secretary to the Government of India, Foreign Department, Calcutta.

Your 583 E.-A., 24th inst. Khan has an assistant surgeon in Kej. I will direct Nazim at once to see that reports are sent to him from all ports on coast and to keep me informed. I will also ask him, if possible, to send assistant surgeon on tour to the ports and to impose quarantine if practicable. I think this will be sufficient.

TELEGRAM No. 1222 I. A., dated 2nd April 1897.

From the Secretary to the Government of India, Foreign Department, Simla, to the Secretary to the Government of Bombay, Political Department.

With reference to precautions against import of plague into Baluchistan, can you give any information as to traffic between Bombay or Karachi and ports on Mekran coast, and also as to traffic by road from Karachi into Baluchistan and by other main routes from Sind by which infection might be carried.

TELEGRAM No. 1270, dated 12th April 1897.

From the Secretary to the Government of India, Home Department, Simla, to the Agent to the Governor-General in Baluchistan.

Continuation correspondence ending my telegram 1202, dated 5th.

It is stated in newspapers that all 3rd class passengers for Baluchistan are detained for 10 days, and camp is therefore expected to increase day by day until tenth day. Such an arrangement was not contemplated in my telegram of 28th. Please telegraph if newspaper report is correct, and generally nature of arrangements made at Sibi.

TELEGRAM No. 168, dated 13th April, 1897.

From the Agent to the Governor-General in Baluchistan, Quetta, to the Secretary to the Government of India, Home Department.

Your 1270, Sanitary. Newspaper report incorrect. All third class passengers are not detained for ten days. There is rigorous medical inspection at Sibi, under supervision of Commissioned Medical Officer and Assistant Political Agent; and in exercise of their discretion and with my approval, Medical Officer detains as plague suspects all native passengers from infected places in Sind, unless they produce certificate from Plague Committee of place of departure, or other proof that they have come from non-infected quarter. Other passengers travelling in same carriage with plague suspects are merely detained few hours for disinfection. Also, as numerous refugees from Sukkur were found alighting desert stations and fleeing Kalat territory, orders have issued stopping them alighting and requiring them to proceed Sibi first for inspection. In my opinion no measures short of this will prevent plague reaching Baluchistan. They have worked well and are cordially approved by all classes of community, even by those whose families are detained. There has not been one complaint, and number in camp yesterday, after fortnight's working, was only 30½; this is maximum as exodus from Sind is decreasing. Measures adopted are less rigorous than those taken by Bombay Government in Sind towns like Jacobabad, where local quarantine is enforced; and in interests of this province, I strongly deprecate any relaxation. If plague reaches Quetta, we shall have much trouble with Pathan population.

TELEGRAM No. 1297, dated 15th April 1897.

From the Secretary to the Government of India, Home Department, to the Agent to the Governor-General in Baluchistan, Quetta.

Your telegram 168, dated 13th. Government of India approve measures you have taken to prevent plague reaching Baluchistan, and do not wish them relaxed in any particular.

TELEGRAM No. 19-M., dated Mahableshtar, 7th April 1897.

From the Secretary to the Government of Bombay, Political Department, to the Secretary to the Government of India, Foreign Department.

Yours 1222-I. Deputy Commissioner, Jacobabad, wires:—*Begins*. Road traffic with Baluchistan not heavy. Chief danger by rail from Sakkur, also by road *viâ* Shikarpur and Jacobabad. All roads being carefully watched on Shikarpur border. This district so far entirely free from plague. *Ends*. Collector, Karachi, wires:—*Begins*. Pages 168 and 169, Sind Trade and Navigation Blue Book for 1895-96, give quantity and details of articles exported from Karachi to Mekran and Sonmiani. Karachi and Shikarpur districts separated from Baluchistan by range of barren hills with only one road to Sonmiani; for some time persons attempting to cross from Karachi have been prevented by the tribal levies of Las Bela State. Only possible not probable routes for infection in the frontier district. *Ends*. I think all Bombay trade for Baluchistan must go *viâ* Karachi, but have addressed Collector, Bombay, and will wire again on receipt of his reply if I find it necessary.

TELEGRAM, No. 961-F., dated 15th April, 1897.

From the Secretary to the Government of India, Foreign Department, to the Agent to the Governor-General in Baluchistan, Quetta.

Your telegram 99, March 26. It appears necessary to impose sea quarantine at Sonmiani and principal ports westwards which are understood to be Ormara, Pasni, and mouth of Dasht river. Do you agree and what assistance would you require for purpose? Quarantine has for some time been in force at Gwadur. Bombay report Bela levies are watching land routes from Sind, this is satisfactory; I presume Political Agent is directing them. All roads on Shikarpur border are being carefully watched on Sind side. You should arrange to have them watched from Baluch side and suspicious persons turned back.

TELEGRAM No. 185, dated 16th April 1897.

From the Agent to the Governor-General in Baluchistan, Quetta, to the Secretary to the Government of India, Foreign Department.

Your 961-F. Nazim Mekran reports, dated 8th April, that according to orders sent from here three weeks ago he has ordered quarantine at Pasni and Kalamat ports, and is sending Khan's Assistant Surgeon from Kej to inspect coast. Nazim reports no plague in Mekran. Benn, who has just returned from there and Persian border by Mand, says same. Have consulted Political, Karachi, and Director, Persian Telegraphs, about your telegram.

No. 714, dated Lahore, 17th April 1897.

From H. J. MAYNARD, Esq., Junior Secretary to the Government of the Punjab, to the Secretary to the Government of India, Foreign Department.

I am directed to acknowledge the receipt of your letter No. 1197 I.-A. of 26th March 1897, and to communicate the following remarks on the subject of the proposed measures against the exportation of plague from the Punjab into Afghanistan.

2. In the first place Mr. Young desires to draw attention to the fact that, notwithstanding the occasional importation of the disease by travellers from Bombay and Sind, there have up to the present time been no local cases of plague in the Punjab, with the exception of two which took place at Delhi some months ago in the house occupied by a recent arrival from Bombay who was himself infected.

3. The province is protected by a system of inspection at railway stations, ferries and road posts, of the general character of which the Government of India are already aware. In addition to the inspection of travellers alighting from trains at a large number of stations which include all district head-quarters and all cantonments on or near the line of railway and all terminuses for hill stations, there are special inspections, at which all passengers are examined at certain points which have been so selected as to enable the work to be done by daylight. Passengers from Sind are all inspected at Khanpur or at some neighbouring station, the actual place of inspection being varied from time to time to provide against the practice of evading inspection by marching across country. All intermediate and third class passengers are now detained for 24 hours at Khanpur, in order to undergo the disinfection of their clothes and personal effects, and an Assistant Commissioner has been placed on special duty there to superintend the arrangements. A second line of defence against the danger from Sind is provided by inspection of all passengers either at Sher Shah or at Raiwind, all passengers for the Sind-Sagar line being inspected at the former place. Passengers from the Bombay direction by the Bombay-Baroda Central India line undergo inspection either at Bhatinda or at Ferozapore according to the train by which they arrive, while those travelling by the East Indian Railway, after undergoing inspection at Ghaziabad in the North-Western Provinces, are again inspected either at the junction of Wazirabad or at Jhelum, according to the train by which they arrive.

4. Passengers up the Indus from Sind are stopped at the ferry of Mithankot and there examined. Entry into the Dera Ghazi Khan district from Sind or from the Native State of Bahawalpur, which lies on the opposite side of the Indus, is prohibited otherwise than by way of Mithankot or Rojhan, a road inspection post situated at the extreme south of the district.

5. A record is kept by the police of all arrivals from the infected provinces, and particular attention is paid to deaths occurring among such persons with a view to immediate detection of cases of plague. It has been made legally incumbent upon certain persons including village officials, householders and serai-keepers to report at once all arrivals from infected provinces and all suspicious cases of disease. The District Magistrate and any 1st class Magistrate or Commissioned Medical Officer, to whom he may delegate the power, has legal authority to remove a plague patient to hospital, and to destroy or disinfect any building which he has occupied. Many minor matters have also been provided for by Regulations issued under the Epidemic Diseases Act, 1897, and it is believed that such machinery as can be provided exists for the discovery and stamping out of the disease as soon as it shows itself.

6. So long as the Punjab is free from the disease, the protection of Afghanistan will be as efficiently secured by the measures adopted on the East and South frontiers of the Province as by any special arrangements on the North and West frontiers. Every effort is being made to detect cases which may be imported across the former frontiers, and if this province does not receive the infection it will not pass it on. If unhappily the Punjab or any part of it becomes an infected area, then the Lieutenant-Governor thinks that apart from any measures which may be taken for dealing with such an area, it may be necessary, in pursuance of the orders of the Government of India expressed in their letter under reply, to establish an inspection cordon for the special protection of Afghanistan. The detention in the Province of all persons intending to go to Afghanistan would, in His Honour's opinion, be impossible and, for reasons similar to those given in your telegram No. 935, dated the 13th of March 1897, about quarantine on the southern border, impolitic; but it would be only right that our line of defence should be shifted behind the invaded area. Mr. Young suggests that we should await the development of events before deciding precisely what line to take up in such a case. As an ultimate resort the establishment of an inspection cordon at the ferries on the Indus (which could be made fairly effective owing to the rising of the river which must already have begun), or even the establishment of inspection posts at each of the principal passes into Afghanistan may be adopted, though it is manifest that either measure will, if we have the plague upon us, most seriously tax the resources of the Province, and the latter alternative would afford but little prospect of success.

7. Meanwhile the inspection of all persons alighting from the railway at Peshawar, Attock, Khusalgarh, Kundian, Darya Khan, Ghazi Ghat, combined with the measures taken at Khanpur, Sher Shah and Raiwind on the North-Western system and at stations on the Eastern and Southern frontiers, affords as good a prospect as can for the present be devised for preventing the exportation of plague cases from the Punjab to Afghanistan.

8. As regards the pilgrims from Nasik, to whom reference is made in your letter under reply, it is understood that they have all dispersed. An enquiry has been addressed to the Deputy Commissioner, Peshawar, on the subject, and the facts will be communicated to the Government of India when his reply is received.

Extract from a letter from His Highness the Amir of Afghanistan to His Excellency the Viceroy, dated the 8th April 1897.

As regards necessary precautions for the prevention of the plague, Your Excellency writes that we should endeavour to guard against the plague spreading from one place to another, and that if the plague should appear, which God forbid, in Afghanistan, I should inform your Excellency with the least possible delay, so that with the aid of doctors measures might be taken to stamp out the disease. My kind friend, the proper measures are those which have been undertaken both by the illustrious British Government and myself, under which travellers are detained for a certain fixed number of days at each post and kept under observation, so that any person affected with this disease may not go from one country to another.

But as everything lies in the hands of the Supreme Creator, I am offering prayers to Him that His Exalted Majesty may remove this life-destroying calamity from all countries of the world, so that all the creatures of God may remain safe from it.

By the grace of God up to the present no sign of the disease has appeared in this country. But if it is predestined to appear hereafter, the best thing would be to seek the grace and kindness of the Supreme Doctor. It has not been heard as yet that, under the treatment of the existing doctors, even five per cent. of the persons afflicted by such a disease have recovered. On the contrary I have heard that, with the exception of their burning the clothes and houses of the afflicted persons, they have not been able to administer any other remedy.

Consequently, under these circumstances, it is better to invoke the aid of God by praying for His grace and kindness.

Telegram No. 200, dated the 20th April 1897.

From the Agent to the Governor-General in Baluchistan, Quetta, to the Secretary to the Government of India, Foreign Department.

My 185. Political Agent, Southern Baluchistan, reports that ten days' sea quarantine has been established for months on Bela coast from Sonmiani to Ormara inclusive. Have told him to make it as effective as possible. Hospital Assistant from Bela is going to coast. It is very open for landing up to monsoon. Have arranged for watching on Baluchistan side of routes from Shikarpur border.

No. 1975—1446-P., dated Bombay Castle, 12th April 1897.

RESOLUTION—By the Government of Bombay, General Department.

His Excellency the Governor in Council is pleased to make the following rules under Act III. of 1897, and to publish them for general information :—

1. The Bombay Plague Committee is hereby authorized to appoint persons as plague authorities.
2. Such plague authorities are hereby empowered to medically inspect persons coming to Bombay Island by sea, by vessels, including native craft, which have touched at any port in India between Bhatkal and a line ten miles north of Karachi, and to detain or send for detention to such hospitals or other places as may be appointed by the Bombay Plague Committee for the purpose any persons whom they find or suspect to be suffering from plague.
3. The master of every vessel, including buggalows and every kind of native craft arriving at the Port of Bombay from or having had communication with any place on the West Coast of India, between Bhatkal and a line ten miles north of Karachi, on board of which there is, or has been during the voyage from which she is arriving or has last arrived, either among the passengers or crew, any case or suspicious case of bubonic plague, or if one or more deaths from any cause whatever shall have occurred on board on the said voyage, shall report the same at the earliest possible moment by signal to the Health Officer of the Port or through the Pilot or Water Police.
4. If the vessel is coming into port, the master shall report such cases to the pilot or other boarding officers at the earliest possible opportunity, or if she be not boarded, or is already at anchor within port limits, shall hoist a signal, which shall be, during the day, the flag R of the Commercial Code at the main, and during the night, at the same place, 3 lights, namely, red, white and red, and shall also verbally by an officer, or in writing, inform the officer in charge of the Harbour Police. It shall be the duty of the Pilot or other officers to whom such report under Rule I. is made to communicate the same without delay to the Health Officer of the Port.
5. Pending the arrival of Health Officer of the Port, the Master shall anchor in the stream, and shall not permit the departure or landing of any of his crew or passengers until permitted to do so by the Health Officer of the Port.

6. The Masters of vessels to which rule 3 is applicable and the Masters of all vessels arriving from the ports or places inside the limits prescribed in rule 3 shall only permit the disembarkation of their crews and passengers between the hours of 6 a.m. and 6 p.m., and at such bandars or places as may be directed by the Health Officer of the Port.

NOTIFICATION.—General Department, Bombay Castle, 15th April 1897.

No. 2060—1507—P.—The following rules are issued under Act III of 1897 :—

1. The Bombay Plague Committee are hereby empowered to appoint medical men as Plague authorities at railway stations in the Thána district for the purposes of these rules. Such plague authorities shall have power to inspect railway passengers, intending railway passengers, and other persons found in railway trains, or at the railway stations to which these rules are or may hereafter be applied, and to detain and send to hospitals or other places appointed for the purpose persons found or believed to be suffering from plague.

2. These rules are hereby made applicable to the railway stations of Kalyán, Thána and Coorla on the Great Indian Peninsula Railway, and Pálghar, Santa Cruz and Bándra on the Bombay, Baroda and Central India Railway.

3. The medical staff appointed by Government at the stations of Kalyán and Pálghar for the purposes of the inspection referred to in Government Resolution No. 723—211—P., dated 10th February 1897, shall be considered plague authorities for the purposes of these rules.

4. On the Great Indian Peninsula Railway, persons travelling by up through trains shall be medically inspected at Kalyán, and no further medical inspection of such trains will be requisite, but no passengers shall be allowed to enter such trains at any station between the stations of Kalyán and Coorla, except at Thána. All local up trains shall be emptied and their passengers medically inspected at Coorla, but no passengers shall be allowed to book from Coorla till they have been medically inspected.

5. On the Bombay, Baroda and Central India Railway, up trains starting from stations north of Bándra shall be stopped for medical inspection of their passengers at Santa Cruz, except in the case of the up mail train, the passengers by which shall be inspected at Pálghar. No persons shall be allowed to book at Bándra Station by up trains until they have been medically inspected.

6. Season ticket holders and free pass holders will ordinarily be excused from inspection; but the plague authorities may inspect them in any cases in which they consider it desirable to do so.

7. The plague authorities under these rules shall be placed under the immediate orders of Surgeon-Major Street, who is authorized to make all necessary arrangements and to commence inspection under these rules as soon as his arrangements are completed.

J. DEC. ATKINS,
Secretary to Government.

From the GOVERNMENT OF INDIA to the SECRETARY OF STATE FOR INDIA.

(Sanitary No. 15.)

MY LORD,

Simla, the 12th May 1897.

IN continuation of our Sanitary Despatch No. 14, dated the 28th April 1897, we have the honour to forward, for Your Lordship's information, a further report on matters connected with the plague.

2. The substantial decrease in the number of seizures and deaths in the City of Bombay continues and the total mortality is approaching the normal. Our Despatch of the 28th April recorded, for the week ending the 26th of that month, the greatly reduced numbers of average daily seizures and deaths of 34 and 29 respectively. During the following week the number fell to 27 and 21, whilst for the week ending the 10th instant, the figures were 23 and 15. During the week ending the 26th April the average daily

number of deaths from all causes was 95, during the following week 91, and during the week ending the 10th instant 83. During the period of the preceding five years corresponding to this last week the average daily mortality was 82. In consequence of the improvement in the health of the city, the inhabitants who fled from the place are steadily returning. To this Despatch are appended a series of charts,* showing the course of the plague in Bombay, Karachi, and in other places. The first chart compares the total mortality from the middle of May 1896 up to the end of April 1897 with the average mortality during the preceding five years. The fact that from the beginning of August onwards the total mortality was considerably in excess of the normal, particularly among diseases connected with the respiratory organs, leaves little doubt that plague existed in Bombay for some time before it was brought to the notice of the local authorities and of the Government of India.

3. The marked improvement in the condition of Poona continues. The cases have diminished in the Thana, Surat and Kolaba districts. In the first two the malady has ceased to be epidemic in all but a few villages, whilst in the last it continues to be severe in six villages. The outbreak in Palanpur appears to have almost died out. On the other hand, the outbreak in Cutch is virulent. Two Commissioned Medical Officers of experience have been sent to the State to advise His Highness the Rao. The disease is especially rife in the port of Mandvi, where the total number of deaths, most of which are attributable to plague, is stated by the Political Agent to amount to about 110 a day. In Baroda also, and especially in the Naosari division, the number of seizures has of late increased. We have been in communication with the Agent to the Governor-General on the subject, and he reports that preventive and precautionary measures are carefully carried out. The City of Baroda is vigilantly watched, and except for a few isolated cases has fortunately escaped.

4. The condition of affairs in Sind shows, on the whole, a steady improvement. In our last Despatch we informed your Lordship that during the eight days ending the 26th April the average daily numbers of seizures and deaths in Karachi were 22 and 15 respectively. During the following week the figures were 15 and 11, and during the six days ending the 9th inst. 10* and 9. In Sukkur the number of cases have fallen to one or two a day, and in the Hyderabad and Karachi districts the malady has become less prevalent. In the Shikarpur district there has been some increase in the number of cases, and the infection has spread up the North-Western Railway as far as Ghotki, without, however, taking a very strong hold on the locality.

5. Outside the Bombay Presidency and Sind no cases of plague have been detected since the date of our last Despatch. An alleged case has been reported from Saharanpur in the North-Western Provinces, but it appears to us very doubtful, on the facts as reported to us, whether the case was really one of plague. The case reported in our last Despatch from Kohala, in Kashmir, has also on investigation been found not to be one of plague. The deceased had been suffering for a long time from phthisis and fever contracted in Burma, and had not been in a plague-infected area. The case was incorrectly diagnosed at Kohala. The plague is and has for some time been rife in the Portuguese territory of Damaun, which lies to the south of the District of Surat, but we have not received any information regarding the number of cases that have occurred.

6. In our telegram No. 1426, dated the 3rd inst., we informed Your Lordship that eight local cases of plague had been detected at Hardwar, in the Saharanpur district, and a brief account was given of the circumstances and of the measures adopted to prevent the spread of the infection. To this Despatch is appended a full report on the subject by the Government of the North-Western Provinces and a copy of the measures prescribed by that Government under the Epidemic Diseases Act, 1897. No further cases have been reported since the case on the 22nd April, and we share the hope expressed by the Lieutenant-Governor that the measures adopted have stamped out the disease. The infected quarter, in which all the cases but one occurred, and which contained about 300 inhabitants, has been evacuated, and the people are accommodated in a camp provided by the Government. The residents of the camp are kept under a careful medical surveillance and their homes are being thoroughly disinfected.

The next religious gathering at Hardwar takes place at the end of the present month. The Lieutenant-Governor is at present considering whether it will be necessary to prohibit it.

7. A further report from the Government of the North-Western Provinces regarding the outbreak of "mahamari" in the Gharwal district is enclosed. The outbreak died out

* Not reproduced.

after causing the death of seventeen persons. The most careful precautions were taken to prevent the spread of infection and to guard against a recurrence of the malady in the same locality. The Lieutenant-Governor is now considering whether it is safe to re-open the direct road of pilgrimage to Kedernath.

8. In paragraph 6 of our Sanitary Despatch of the 14th April we assured Your Lordship, with reference to the remarks contained in paragraph 7 of your Despatch of the 7th March, that the importance of affording prompt and sufficient medical treatment to the sick had been everywhere fully realised. We gave a rough outline of the arrangements that had been made, and promised to furnish Your Lordship in a later Despatch with detailed information as to the places at which plague hospitals have been erected and as to the arrangements made for the employment of women doctors in plague wards for women. The telegrams from the several Local Governments and Administrations, which are appended to this Despatch, give this detailed information.

Outside the Bombay Presidency and Sind only a few isolated cases of plague have been detected, and it has therefore only been necessary to make arrangements for treating the rare cases discovered in the medical inspection of travellers, and for the supply of immediate aid should plague break out in any important centre of population. But in the Bombay Presidency and Sind arrangements have been made and carried into force for the treatment of large numbers of persons. The following is the outline of the arrangements reported by the Government of Bombay :—

In the City of Bombay 3 large hospitals, 11 Government temporary hospitals, and 27 private community hospitals, each with a sufficient medical staff, are in use for the treatment of persons suffering from plague. For inspection purposes the City is divided into ten districts, each with a medical staff and 6 with lady doctors. The medical and nursing staff consist of 14 officers of the Indian Medical Service, 2 medical officers of the merchant service, 29 native doctors, 12 nurses from England, 18 nurses engaged in India, 18 Roman Catholic Sisters, and 4 Protestant Sisters.

In Poona there are three large plague hospitals with medical staff, and the Sassoon Hospital with its ordinary Nursing Staff, as well as three nurses from England.

In Karachi three permanent hospitals and five temporary hospitals have been established by Government, besides several temporary private hospitals for different communities, superintended by Officers of the Indian Medical Service. The staff of the Government hospitals consist of 3 Officers of the Indian Medical Service, 2 paid private doctors, a number of subordinates, and 13 lady doctors, Sisters, Zenana Mission ladies, and paid nurses.

In Hyderabad in Sind the plague hospital is under the Civil Surgeon, aided by numerous subordinates, and 4 European and 4 native nurses. There is also a Hindu private hospital with a considerable subordinate staff, supervised by the Civil Surgeon, and with 3 European nurses and Zenana Mission ladies.

In the Bombay Presidency proper 9 Commissioned Medical Officers, 4 private doctors, and 74 subordinates are engaged on railway inspection work. In rural localities the plague hospitals are managed on the same principle as the permanent civil hospitals. The Government of Bombay promise to give further information upon this subject.

In Madras, hospital accommodation has been provided at the railway inspection stations at Guntakal, Perambur, Arkonam, Kondepalli, Tuticorin, and Madras City. The medical staff employed on the prevention of the plague consists of 3 Commissioned Medical Officers, 3 Assistant Surgeons, 2 Civil Apothecaries, 15 Hospital Assistants, and one female doctor at Tuticorin. Trained nurses are being deputed to other places. The medical officers and subordinates at the seaports have been gazetted Port Health Officers under the plague quarantine rules.

In Bengal well-appointed plague hospitals have been established at the railway inspection stations of Khana, Katihar and Damukdia. The staff at these three places consists of 4 Commissioned Officers, 2 Military Assistant Surgeons, 5 Civil Hospital Assistants and 4 Lady Doctors (one about to be posted). For Calcutta there is a hospital in the Maniktola suburb divided for the separate accommodation of different sects. Arrangements have been made to provide the hospital with a large staff of doctors (including lady doctors), subordinates and nurses should plague break out in Calcutta. Sites have been selected for three other hospitals of a similar nature.

In the North-Western Provinces temporary hospitals, with a division to separate the sexes, have been established at every Municipality and at the railway junctions of Manikpur, Moghal Sarai, Ghaziabad, and Tundla. For Europeans temporary structures for two inmates have been constructed at all head-quarters of districts and at Manikpur

and Ghaziabad. The Lieutenant-Governor has recently ordered additional hospitals to be built, containing 50 beds in the large cities and about 30 in others, special provision being made for the privacy of females and families. Orders have also been issued for licensing private and caste hospitals. At present 11 Commissioned Officers, 9 Assistant Surgeons, 15 Hospital Assistants, and 6 women doctors and nurses are employed on duty connected with the prevention of plague.

In the Punjab the following temporary plague hospitals have been established : 59 at railway inspection stations, 2 at ferries where inspections take place and 2 at road inspection posts. The following is a list of the medical officers and subordinates who are employed on inspection duty and whose services would be available for the treatment of the sick should occasion arise : 27 Commissioned Officers, 12 Civil Assistant Surgeons, 40 Hospital Assistants, 1 Uncovenanted Medical Officer, 2 native doctors, 4 Military Assistant Surgeons, and 3 female Hospital Assistants.

In the Central Provinces there are special temporary plague hospitals at Nagpur and Itarsi and hospital accommodation for plague patients at Jabulpore and Bilaspur. The plague medical staff consists of 2 Commissioned Officers, 4 Assistant Surgeons, 4 Hospital Assistants, and 2 female Hospital Assistants. Nurses are entertained at Nagpur and Itarsi as required.

In the Central India Agency hospital accommodation has been provided at Indore (in the Residency and City), at Rutlan and at Ujjain. The plague staff comprises 2 Commissioned Officers, 2 Medical Officers of the State, and 5 Hospital Assistants.

In Rajputana temporary plague hospitals have been established at twelve places. At Ajmere and Bandikui there are European medical officers and female assistants, and there are native subordinates at the other stations.

In Mysore temporary accommodation has been provided for plague patients in the City and at the inspection stations, and the Resident states that medical aid and female attendants can be supplied at once if the occasion should arise.

In the Hyderabad State also there is temporary plague accommodation at the inspection stations to which are attached male and female doctors and attendants. No plague hospitals have been constructed in the City or Residency, but it is stated that accommodation and medical aid and female attendants could be supplied immediately if required.

In Baluchistan temporary plague huts have been erected at several stations on the railway, and the medical officers employed in inspecting passengers are available for treating the sick. The principal inspection station (which is about to be removed from Sibi to Sharigh) is under the supervision of a Commissioned Medical Officer assisted by a Eurasian nurse.

We trust that the above recital of the measures adopted in the different Provinces for affording aid to the sick will show Your Lordship that this essential matter has everywhere been carefully borne in mind. Your Lordship is aware that the supply of lady doctors and female nurses in India is very limited, but we are of opinion that the number available suffices for the needs that have as yet been experienced.

9. In conclusion we forward a copy of Regulations* issued by Local Governments and Administrations under the Epidemic Diseases Act.

We have, &c.,
(Signed) ELGIN,
&c., &c.

Enclosures.

No. 311, dated the 1st May 1897.
, XVI—404-B.

From the Honourable W. H. L. IMPEY, I.C.S., Secretary to the Government of the North-Western Provinces and Oudh, to the Secretary to the Government of India, Home Department.

I am directed to submit for the information of His Excellency in Council the following report of the occurrence of bubonic plague at Hardwar and of the measures taken to circumscribe and eradicate the disease.

2. Since the commencement of the arrangements made to prevent the spread of bubonic plague into these Provinces special attention has been paid to the important centre of Hardwar. Pilgrims for that place have been subjected to examination at Saharanpur, at Lukhsar junction and again on their arrival at the Hardwar station. A Hospital Assistant, specially qualified from his knowledge of the language, dress and appearance of the people from the direction of Bombay and Karachi, has been employed at the Hardwar station to watch and examine pilgrims on their arrival there. Special precautions were taken in connection with the large religious gatherings occurring at Hardwar in the month of April. The first of these took place on the 2nd April. From the 26th March special arrangements were made for a minute and careful examination of all pilgrims at Pathri, two stations from Hardwar. On their arrival at that place all passengers were required to alight and were carefully inspected by a special medical staff deputed for the purpose. Persons coming from any of the suspected or infected localities of the Bombay Presidency were separated from the rest, and placed in special locked carriages at the end of the train.

3. On arrival at Hardwar, when the general body of passengers had been examined and permitted to pass, these people from suspected localities were registered and marched to Rorhi Island, where they were kept in a separate camp under observation. They were permitted to visit the temples and bathing-ghats, but required to sleep and cook their food at Rorhi Island, where they were examined every morning and evening. A special watchman was posted at each lodging-house in the town, and a constant inspection of these houses and patrol of the streets and bazaars was carried on all over Hardwar, Kankhal and Jwalapur, by the subordinate medical staff. These precautions against plague seemed at first to have been effectual. No suspicious cases occurred in the camp at Rorhi Island, nor were any detected among the arrivals by train. The town of Hardwar appeared to be free from bubonic plague. A few cases of small-pox were discovered at the railway, and duly segregated and suitably treated in hospital. Two cases of suspicious nature were likewise segregated and placed under observation, but proved not to be cases of bubonic plague.

4. On the 8th April a dead body was discovered in a thatched shed near a dharamsala* in the town of Hardwar. The Sanitary Commissioner and the Civil Surgeon immediately proceeded to the place, and found that the corpse was that of a woman recently dead, and presenting enlarged glands. She and her husband were residents of Hardwar. The husband, who was found with the corpse, stated that they had for two days been living in the shed where the woman died. Before that they had lived in the house of a Panda's agent, whose mother was sick. This Panda carried on the business of accommodating and looking after bandi pilgrims. The glands of the deceased woman was sent for bacteriological examination, and were subsequently pronounced to be swarming with bacilli, exactly like those of the bubonic plague.

5. On examining the Panda's house, where the deceased woman and her husband had resided, the agent's mother was discovered evidently recovering from a recent and serious illness, with a suppurating bubo in each groin. She had been ill, it was said, for about a month, and suffered from high fever, which had abated about 15 days previously. The glandular excretion of this case was also sent for examination, but, as might be expected under the circumstances, no specific result was obtained. The circumstances led the Sanitary Commissioner to suspect that a focus of disease had been existing for some time in Hardwar. Accordingly a house-to-house examination was instituted, beginning from the locality in which the above cases had occurred, and working through Hardwar, Kankhal and Jwalapur, composing the Hardwar Municipal Union. This scrutiny brought to light three cases. First, a man who had died just before the arrival of the inspecting party. The body was examined and found to have enlarged glands. Second, the wife of a basket-maker, who was found with high fever and enlarged glands. She was removed to hospital and died six days later with well-marked symptoms of bubonic plague. Bacteriological examination disclosed the presence of characteristic plague bacilli. Third, a female child, aged 10 years, ill for about six weeks, displaying fever and glandular swellings. She died the same day. This also appeared a clear case of bubonic plague, although the bacteriological examination disclosed no specific result. All these persons were old residents of the place; no case came to light after this till the 15th.

6. On the 15th April a man died suddenly in a house, two doors from one of the previous cases. He suffered from fever of six hours' duration, and displayed enlarged glands. On the 18th April a case occurred in quite another part of the town, showing

* Relief-house, or poor-house.

very marked symptoms of plague, unusually large bubos and a temperature of 109 degrees. This man was placed under treatment and died in 36 hours. No very direct connection was traceable with the other cases, but the man had two days before been employed in cooking cakes at a place in the infected area. On the 22nd, another case was detected in a large dharamsala, known as Nanakbara. This was a Sadhu lad of about 20. He showed slightly enlarged glands and a temperature of 102 degrees. At the request of the Sanitary Commissioner, he was seen by the mahant of the dharamsala and a well-known hakim, then resident in the dharamsala, who gave it as his opinion that the case was of ordinary fever. The mohaut* and the hakim were then requested themselves to take charge of the case in the isolation shed. They did so, and continued to attend him themselves. The glands became greatly enlarged, the temperature rose, and the patient died on the evening of the second day. The mahant and the hakim then expressed their conviction that it was a genuine case of plague. Since the 2nd no case has occurred which arouses suspicion of being genuine bubonic plague.

7. The locality in which all these cases but one occurred is a mohulla fairly detached from the main body of the Hardwar town, and capable of being isolated. It consists of several blocks of houses and buildings, containing a population of perhaps 200 or 300 persons.

8. The circumstances above set forth leave no doubt whatever that a centre of true bubonic plague has been established in this mohulla,† and the cases which have occurred are so distributed over the mohulla as to demonstrate the necessity of dealing with the mohulla as a whole. It is most essential that steps should be taken to eradicate the plague on its first appearance here, because, as the Government of India knows, Hardwar is a centre in which pilgrims from all parts congregate.

9. The searching measures already taken to prevent the introduction of the disease have proved insufficient. It is probable that the first seeds of the plague were introduced from Bombay, before the promulgation of the rules or the adoption of precautions under the Epidemic Diseases Act, and that the disease may have been latent some time in Hardwar, ready to break out when the conditions became suitable for its development.

10. Two gatherings of some importance will occur in Hardwar at the end of May and the beginning of June. The absolute prohibition of these would cause inconvenience and discontent among the Hindu community; but if any trace of the plague is found lingering in Hardwar, such a step will be inevitable. It is therefore on every ground obviously necessary to adopt thorough and effective means to avert the danger with which this centre of pilgrimage is threatened.

11. The Lieutenant-Governor held a conference with the local officers and the Sanitary Commissioner at Saharanpur on the 27th instant, and having made himself acquainted with their views and the facts of the case, he visited Hardwar on the 28th. The leading representatives of the various interests, religious and secular, were invited to meet His Honour and given the fullest opportunity of expressing their views and wishes.

12. The measures finally adopted were embodied in rules, which are appended to this letter, and which sufficiently explain the action which it has been found necessary to take. From the telegram copied in margin, dated 29th instant, from the Collector of Saharanpur, it will be seen that the evacuation of the mohulla has been successfully accomplished. A camp for the accommodation of the people had been

Copy of a telegram, dated 29th April 1897, from the Collector of Saharanpur to the Private Secretary to His Honour the Lieutenant-Governor, North-Western Provinces and Oudh.

Evacuation of infected area practically completed without resort to pressure: no opposition: a few isolated cases of objections personally settled on spot by slight concessions. No fresh cases.

previously prepared.

13. You have also been addressed by the telegram on the 29th instant with the object of preventing the collection at Hardwar of labourers on the Hardwar-Dehra railway line, till it is clear that the place is free from infection.

It having been ascertained that bubonic plague exists in Hardwar, the following measures are prescribed under the Epidemic Diseases Act (III of 1897) for the purpose of

* Mohaut = head-priest; hakim = medical man.
 † Mohulla = section or ward of the town.

eradicating it. These rules shall remain in force until the town is declared to be free from infection. They are supplementary to those issued with Notification No. ²¹¹ XVI—404-B, dated 26th March 1897, and apply—

- (1) to the infected areas ;
- (2) to visitors and pilgrims to Hardwar coming from infected areas.

1.—*Measures concerning the infected area.*

1. The infected areas shall be placed in quarantine.
2. The inhabitants of the specially infected block adjacent to Ramghat shall remove to the camp established at Chauk Ram Jas on the Jwalapur road. Any person wishing to leave the camp shall, before leaving, obtain a written permission to do so from the Health Officer or Magistrate. Information of the departure of such persons shall be sent to the Magistrates of districts to which they are proceeding. Provision for the watch and ward of the evacuated quarter and for the custody of the property of persons who have removed from it shall be made in accordance with rule 39 of Notification No. ²¹¹ XVI—404-B. of the 27th March 1897.

N.B.—The accommodation in this camp has been provided with due regard to the convenience of families and the privacy of females.

3. Inhabitants of the Ramghat block who do not wish to leave Hardwar shall reside in the camp for one month, or until the Ramghat block is declared to be safe for re-occupation.

4. Residents in the camp shall be liable to medical examination daily, females being inspected by female medical officers.

5. Residents in the camp shall be permitted during the day to visit all parts of Hardwar other than the areas declared to be infected, but should cook their meals and sleep in the camp.

6. After the evacuation of the Ramghat block, the houses, etc., shall be thoroughly cleansed and disinfected, the owners and occupiers being allowed to be present at the time.

7. Facilities shall be given in the camp for persons to open shops and carry on their trades, so far as they may be consistent with the object of these rules.

8. Hospitals and segregation huts for the accommodation and reception of persons suffering from plague and for their friends and attendants shall be provided in accordance with Government order No. ²³¹ XVI—404-B—283 of 5th April 1897.

9. Free access shall be given in the camp and hospitals to Baidis, Hakims, Pandas, and religious instructors, who shall be free to treat and communicate with those who desire to consult them.

2.—*Measures regarding visitors and pilgrims coming to Hardwar from infected areas.*

10. All pilgrims and visitors from the Bombay Presidency and Sind, or other place infected with plague, coming to Hardwar by rail or road, shall reside in the camp at Hardwar provided for the purpose where provision has been made for their accommodation. They shall be permitted during the day to visit the non-infected portions of the town, shrines and bathing ghâts, but must cook their food and sleep in the camp at night. Such visitors shall be liable to medical inspection from time to time.

No. 321, dated 5th May 1897.

From the Honourable W. H. L. IMPEY, I.C.S., Secretary to the Government of the North-Western Provinces and Oudh, to the Secretary to the Government of India, Home Department.

In continuation of my letter No. ¹⁷¹ XVI—404-B., dated 16th March 1897, I am

directed to say that the disease (mahamari) appears to have died out of the locality. At the commencement of the attack a few Doms voluntarily left the village, which is very small, remote and inaccessible, and thus escaped infection. Only four or five families remained, most of the members of which have been carried off by the disease. There were 17 deaths in all. As soon as information was obtained by the authorities, those who had not left the village were removed from it; the houses, with the consent of the owner of the village, have since been burnt, and orders have been issued that the site, which is water-logged and in an insanitary condition, should not be re-occupied. I am to add that the neighbouring villages have been thoroughly cleaned, and that it is hoped that the spread of infection has been prevented. His Honour, however, does not consider it safe to re-open the direct road of pilgrimage to Kedarnath until in the opinion of the sanitary authorities all danger of infection has disappeared. On this point inquiries are being made.

TELEGRAM Nos. 1252 to 1263, dated Simla, 12th April 1897.

From the Secretary to the Government of India, Home Department, to the Secretary to the Government of Bombay. The Secretary to the Government of Madras. The Secretary to the Government of Bengal. The Secretary to the Government of the North-Western Provinces and Oudh. The Secretary to the Government of the Punjab. The Secretary to the Chief Commissioner of the Central Provinces. The Secretary to the Chief Commissioner of Burma. The Agent to the Governor General in Rajputana. The Agent to the Governor General in Baluchistan. The Agent to the Governor General in Central India. The Resident at Mysore. The Resident at Hyderabad.

To local
Govern-
ments
other than
Bombay.

In a despatch regarding plague, Secretary of State asks for information to make it clear that sufficient temporary hospitals with adequate staff doctors and nurses were promptly established at each plague centre, and that where available women doctors were employed in plague wards for women. Government of India are aware that temporary hospitals have been erected at stations where medical inspection is carried out, and that at other places hospitals have been arranged for in case plague should occur, but the information which they have is not sufficiently definite to place before the Secretary of State. They would therefore be obliged if complete information can be given by telegram giving details as to special or temporary plague hospitals, number of Medical Officers, Assistant Surgeons, Hospital Assistants, women doctors and nurses detailed for plague duty. Please telegraph complete information on subject. Information should contain complete list special and temporary plague hospitals with staff both at plague centres and inspection stations. Also number of medical officers of each class and nurses employed on plague duty and where employed. Also required information about women doctors.

TELEGRAM No. 3686, dated 13th April 1897.

From the Agent to the Governor-General, Central India, Indore, to the Secretary to the Government of India, Home Department.

Your telegram of 12th April. There is no plague centre in Central India Agency, except Khandroani in Gwalior territory, regarding which daily reports reach you. No other cases of plague have occurred, except at Ujjain, and those were all imported cases. The following are the arrangements at the inspecting stations of Rutlam, Ujjain, and Indore: at Rutlam—Surgeon-Major Kanga, I.M.S., and Hospital Assistant Mahomed Yassin. Huts for segregation of plague patients have been erected there. A female Hospital Assistant has not yet been found, though the employment of one has been sanctioned. At Ujjain—Surgeon-Captain Hardy has under him Hospital Assistants Sheonarain and Joglekar. There is no female attendant. All arrangements for segregation and treatment are complete. At Indore—Hospital Assistants Sheopershad and Hadi Hosein with two of Maharaja Holkar's Medical Officers inspect all trains. There are arrangements for segregation and treatment both in the Residency and in the city.

TELEGRAM, dated 13th April 1897.

From the Secretary to the Government of Bengal, Financial Department, to the Secretary to the Government of India, Home Department.

Your telegram of 12th. There are temporary plague hospitals at Khana on East Indian Railway, Katihar and Damukdia on Eastern Bengal State Railway, and at

Maniktola near Calcutta. The staff employed is the following: Khana—3 Commissioned Medical Officers, 1 Military Assistant Surgeon, 2 Lady Doctors, and 4 Civil Hospital Assistants; Katihar—1 Commissioned Medical Officer, 1 Lady Doctor, and 1 Civil Hospital Assistant; Damukdia—1 Military Assistant Surgeon and a Lady Doctor, who will be posted there shortly. Maniktola is under Health Officer, Calcutta, who has been asked for particulars of staff, but has not replied. Information will follow.

TELEGRAM, dated 13th April 1897.

From the Secretary to the Chief Commissioner of Burma, Rangoon, to the Secretary to the Government of India, Home Department.

Yours of 12th. There is no medical inspection in Burma, except of vessels from infected ports, Bombay, Karachi, Goa under quarantine rules, and of vessels from other ports under ordinary rules. A flat has been provided at Rangoon for use of plague hospital and arrangements made to supply other flat if necessary. Site has been selected for segregation camp if required at Bassein. Temporary building has been erected at Akyab. Site has been selected at Moulmein. Flat will be used. No medical officers or nurses yet detailed for plague duty.

TELEGRAM, dated 14th April 1897.

From the Government of Bengal to the Secretary to the Government of India, Home Department.

In continuation my telegram yesterday. Maniktola Plague Hospital is subdivided for Hindus, Mahomedans, Christians, and according to sects attached to it are observation and rest camps. The present staff is 1 Medical Officer, 1 Compounder, 2 Hospital Assistants and menials. There are no patients at present. If plague breaks out, staff will be raised to 2 Medical Officers, 2 Lady Doctors, 12 Trained Nurses, 24 Hospital Assistants, besides menials. Sites have been selected for 3 other hospitals on similar lines.

TELEGRAM No. 1465-G., dated 15th April 1897.

From the Agent to the Governor General, Rajputana, Abu, to the Secretary to the Government of India, Home Department.

Your telegram dated 12th. Temporary plague hospitals at Abu Road, Nana, Marwar Junction, Jodhpore, Bikanir, Ajmere, Nasirabad, Jeypore, Bandikui, Bhurtpore, Dholpore, and Ulwar. Special plague European Medical Officers and nurse Ajmere. European Medical Officer and Female Hospital Assistant Bandikui. Special plague Hospital Assistants Abu Road, Nana, Marwar Junction, Bikanir, and Chitor. Local Assistant Surgeon plague duty Jeypore, Apothecaries Abu Road, Phalera, and local Hospital Assistants Erinpura, Jodhpore, Beawar, Bhurtpore, Dholpore, Ulwar, Bhilwara, Tonk, Deoli, Bundi, Kotah, Jhalrapatan. At Nasirabad local Medical Officer.

TELEGRAM, dated the 15th April 1897.

From the Government of the North-Western Provinces and Oudh to the Secretary to the Government of India, Home Department.

Your telegram 13th. In these provinces, excluding Mahamari, 20 cases of plague in all have been reported from ten districts, of which five only were treated in hospital; remainder died in trains or villages before medical relief was possible, case not being known till after death. We have no plague centres at present, but for use, in case of necessity, temporary hospitals have been constructed as follows:—For natives, temporary structures, with division to separate the sexes, for four inmates at every municipality and at railway junctions of Manikpur, Moghal Sarai, Ghaziabad, and Tundla. For Europeans, temporary structures for two inmates at all head-quarters of districts and at Manikpur and Ghaziabad. His Honour has recently ordered additional hospitals to be built, containing

56 beds in the large cities and from 30 to 32 in others, special provision being made for the privacy of females and families. Orders have been issued for licensing private or caste hospitals. Hospital accommodation can be extended readily to meet wants, should they arise. At present 11 Medical Officers, 9 Assistant Surgeons, 15 Hospital Assistants, 6 Women Doctors and nurses have been detailed for plague duty.

TELEGRAM No. 178, dated 15th April 1897.

From the Agent to the Governor General, Baluchistan, Quetta, to the Secretary to the Government of India, Home Department.

Your telegram 12th instant. Temporary plague huts have been erected at Quetta, Sharigh, Hirok, Bostan, and Chaman for accommodation of plague patients discovered in train at medical inspection. These huts and the medical inspections are under Assistant Surgeons at Sharigh and Hirok and under Hospital Assistants at other places. No special establishment engaged, as none has yet been necessary, and the Assistant Surgeons and Hospital Assistants are the men always stationed at the places named and are not specially detailed for plague duty. In Quetta, Special Sanitary Committee has been nominated from the Cantonment and Municipal Committees, who are now arranging sites for plague hospital and segregation camp, and concerting other measures necessary in case of plague appearing at Sibi, where there is strict medical inspection and detention for some days of plague suspects. Medical inspection is in special charge of Surgeon-Captain Browning, detailed for plague duty, assisted by an Eurasian nurse specially employed by Municipality. Plague huts have been erected, but no case has yet appeared.

TELEGRAM No. 470, dated 17th April 1897.

From the Junior Secretary to the Government of the Punjab to the Secretary to the Government of India, Home Department.

Your telegram of 12th. Following temporary plague hospitals have been established. At railway stations 59, ferries 2, and 2 road posts. Following persons detailed for inspection duty : Commissioned Medical Officers 27, Civil Assistant Surgeons 12, Hospital Assistants 40, Uncovenanted Medical Officer 1, Native Doctors 2, Military Assistant Surgeons 4, Female Hospital Assistants 3 ; total 89. More female practitioners would probably be entertained if forthcoming. There is no plague in the Punjab at present, but all inspecting medical officers may be regarded as attached to the temporary hospitals at their places of inspection and would be on plague duty at those places if plague broke out.

TELEGRAM, dated 23rd April 1897.

From the Secretary to the Government of Madras, Local and Municipal Department, to the Secretary to the Government of India, Home Department.

Your telegram 12th. No plague centres this Presidency, and so far temporary hospital and segregation accommodation provided only at railway inspection stations. At Guntakal, Perambur, Arkonam, Kondapalli, and also at Tuticorin and Madras City. Medical staff on plague duty consists of :—3 Commissioned Medical Officers, 3 Assistant Surgeons, 2 Civil Apothecaries, 15 Hospital Assistants, and only 1 female medical practitioner at Tuticorin ; but trained nurses are being deputed to other stations. This staff is in addition to Medical Officers and subordinates at seaports, who have been gazetted Port Health Officers under plague quarantine rules.

TELEGRAM No. 43-C., dated 23rd April 1897.

From the Chief Commissioner, Central Provinces, to the Secretary to the Government of India, Home Department.

Your wire No. 1257 of 12th and reminder No. 1344, dated 20th. Two special temporary plague hospitals at Nagpur and Itarsi. At former 1 Commissioned Medical Officer, 1 Assistant Surgeon, 2 Male and 1 Female Hospital Assistants. At latter

1 Medical Officer, 1 Assistant Surgeon, 1 Female Hospital Assistant. At both nurses entertained as required. Also temporary hospital accommodation at Jubbulpore and Bilaspur, and 1 Assistant Surgeon to inspect at each. Also at Khandwa and Bina 1 Hospital Assistant for inspection and emergencies.

TELEGRAM No. 4, dated 23rd April 1897.

From the Resident at Mysore, Ootacamund, to the Secretary to the Government of India, Home Department.

Your telegram, dated 12th. No plague cases have reached so far south as Mysore, and action up to date has been practically confined to inspection work in the Mysore State. No special staff has been detailed for plague duty, the idea being that the officials carrying on the inspection work could afford relief in an emergency until the occurrence of fresh cases rendered it necessary to organize a complete hospital staff. There are inspection stations at Harihar and Yaswantpur outside Bangalore on the Southern Maharatta Railway. At each of these places, where all trains from the north are examined, there are a Hospital Assistant, midwife, cook, bhisty, and ward cooly, and sheds to accommodate 6 patients. There are also sheds at 4 other stations on this railway, which are in charge of the Hospital Assistant of the adjoining dispensary should cases occur. The necessary staff, male and female, could be at once either sent from Bangalore by train or taken from dispensaries in the neighbourhood should the necessity arise. The Senior Surgeon, Mysore State, is fully alive to the desirability of having female attendants for women sufferers. In most cases, however, the only attendants available would be Hospital Assistants for men and midwives or females on the vaccinating establishment for women. At Bangalore Cantonment the inspection arrangements are in charge of the Residency Surgeon; he is assisted by the Municipality male and female medical subordinates. Here also our endeavours are entirely protective. Temporary sheds have been provided for plague cases, and the necessary hospital establishment of male and female attendants could be provided at two hours' notice. The inspection arrangements are, I believe, thorough and all Medical Officers agree that they comprise all that is necessary. At present all local notifications under the Epidemic Diseases Act have been adopted by the Mysore Durbar, and district officials have ample powers thereunder to deal with any outbreak of plague in the interior of the State.

TELEGRAM No. 122, dated 23rd April 1897.

From the Resident at Hyderabad, Deccan, to the Secretary to the Government of India, Home Department.

Your telegram 12th instant, regarding plague arrangements in Hyderabad State. There are temporary plague hospitals at five railway stations—Gulburga, Wadi, Raichur, Vikarabad, Hyderabad, where passengers are inspected. Gulburga has one male and one female doctor and one Hospital Assistant. Wadi two male and one female doctors and three Hospital Assistants. Raichur one male doctor and one Hospital Assistant. Vikarabad, ditto. Hyderabad two male and one female doctors and one Hospital Assistant. In Hyderabad city and suburbs no plague hospitals constructed and no medical staff specially detailed to plague duty, but standing preparation against ordinary epidemic capable of prompt amplification if plague occurred. Sufficient female medical attendance available for Residency Bazaars, Secunderabad and Hyderabad contingent stations. No hospitals or other arrangements so far required. Rules under the Epidemic Diseases Act only issued on 10th instant for these areas and Berar. In Berar temporary hospitals established at nine inspecting railway stations—Malkapore, Nandura, Khamgaon, Shegaon, Akola, Murtizapur, Badnera, Amraoti, Chandur, where local Hospital Assistant inspects passengers. No special female agency detailed to this duty, but at Amraoti the Dufferin Hospital lady doctor available and Dufferin nurses at other municipal towns. There is no plague centre under this administration.

TELEGRAM No. M. 295-P., dated 6th May 1897.

From the Secretary to the Government of Bombay, General Department, Mahableshwar, to the Secretary to the Government of India, Home Department.

Your telegram 1252, 12th April. In Bombay city there are 3 large plague hospitals, 11 Government temporary hospitals, and 27 private community hospitals, all with sufficient medical staff. Also Bombay divided into 10 districts each with medical staff and 6 with special lady doctors, omitting subordinates. Medical staff consists of 14 commissioned officers, 2 merchant service men, 29 native doctors, 12 nurses from England, 18 nurses engaged in India, 18 Roman Catholic sisters, 4 Protestant sisters. In Poona city there are 3 large plague hospitals with medical staff and the Sassoon Hospital ordinary nursing staff; also 3 nurses from England. In Karachi plague hospital—2 commissioned officers, 4 subordinates, 4 Roman Catholic sisters, 1 lay sister, and 3 Zenana Mission ladies, 2 paid nurses, Convalescent Hospital under same doctors; also 1 lady doctor and 1 paid nurse. Another hospital—1 commissioned officer and subordinates, 1 paid nurse. Three temporary hospitals under subordinates, but visited by commissioned and lady doctors; also 2 Government temporary hospitals under paid private doctors; also several temporary private hospitals for different communities superintended by commissioned officers. At Hyderabad plague hospital under Civil Surgeon, numerous subordinates, 4 European and 4 native women nurses. Hindu private hospital with considerable subordinate staff supervised by Civil Surgeon, 3 European nurses and Zenana Mission ladies. In Sukkur—2 hospitals, 2 commissioned officers with subordinates, 3 nursing sisters, 2 trained nurses, 3 probationers, 1 lady doctor, and Zenana Mission ladies. Extensive arrangements for railway inspection. In Presidency proper—9 commissioned officers and 4 private doctors and 74 subordinates at principal inspection stations, but no lady doctors in Sind. At each inspection place a commissioned officer assisted, where possible, by a lady doctor or experienced female. In Mofussil generally plague hospitals are run on lines of civil hospitals. Further information will be furnished as collected.

From the GOVERNMENT OF INDIA to the SECRETARY OF STATE FOR INDIA.

(Sanitary No. 16.)

MY LORD,

Simla, 1st June 1897.

In continuation of our Sanitary Despatch No. 15, dated the 12th May 1897, we have the honour to forward a further narrative of events connected with the plague.

2. We are glad to be able to report a large decrease in the number of cases in almost all parts of the Bombay Presidency and Sind. In the Presidency proper the plague lingers in Bombay and Poona, in the districts of Kolaba, Surat and Thana, and in the Baroda territory, but in all these places it has become less virulent and less widely diffused. It was stated in our Despatch of the 12th May that during the week ending the 10th May the average daily numbers of plague seizures and deaths in the City of Bombay were 23 and 15, respectively, and that the average daily mortality from all causes during the same period was 83. During the period 11th to 28th May the average daily number of seizures and deaths has been only 11 and 8, whilst the average daily mortality from all causes has been 76. This last figure compares with an average of 80 for the period of the five years 1892-96 corresponding to the fortnight ending the 25th May 1897. The total mortality in Bombay has thus been below the average. The returns are doubtless to some extent affected by the fact that the population is still below its normal figure, but we have noticed a decline in the number of deaths from ordinary fevers greater than can be accounted for by this cause, and we have asked the Government of Bombay if the reason for it can be ascertained.

The following figures compare the average number of daily seizures in Poona, Kolaba, Surat and Thana for the period 11th to 28th May with the average number during the worst week of the epidemic in each of those places :

						11th to 28th May.		Worst week of the Epidemic.
Poona	...	...	...	...	...	3	...	51
Kolaba	...	...	...	...	...	15	...	28
Surat	...	...	...	...	...	4	...	41
Thana	...	...	...	...	...	9	...	58

In Baroda territory the malady now lingers only in a few places in the Naosari Division, and the average number of seizures during the period 11th to 28th May has been only three a day. A copy of the report by the Political Agent, describing the means successfully adopted by the Durbar to check the malady, is appended to this Despatch.

3. Plague continues to be severe in Mandvi in the Cutch State, but the number of seizures has decreased from about one hundred to about fifty a day. It still gives trouble in Damán in Portuguese territory. The Government of Bombay have been asked for a detailed account of the measures that are being pursued to suppress the outbreak in Mandvi, and to ascertain the extent to which the malady has become diffused in the surrounding country. Stringent measures of observation and disinfection have been adopted both in Bombay and in Karachi, to prevent infection being brought from Cutch. With regard to Damán, we forward for your Lordship's information a copy of correspondence with the Government of Bombay, on the subject of the cordon placed round the boundary of the Portuguese territory, with a view to its isolation.* The strict quarantine thus enforced is opposed to the principles which have guided us in prescribing measures to prevent the spread of the plague, and we consider that the British territory bordering on Damán can be protected by measures imposing less hardship on the inhabitants of that place.

4. The reports in Sind are most satisfactory, except from the district of Shikarpur. In our last Despatch, we stated that during the six days ending the 9th May, the average daily number of seizures and deaths in Karachi had fallen to 10 and 9 respectively. During the following week, the figures were 7 and 5, and during the 11 days ending the 27th May, 6 and 3. From the 11th to the 28th May, only 10 cases were reported from Sukkur, 18 from the Hyderabad district, and 6 from the Karachi district. Two or three indigenous cases continue to occur daily in the Shikarpur district, mostly in the town of Rohri (population about 10,000) on the Indus. These cases cause some anxiety owing to their being in the neighbourhood of the main line of communication and near the Punjab border. The conduct of the measures taken to suppress the disease in Rohri is in the hands of the Sukkur Plague Committee. We have inquired from the Government of Bombay what arrangements have been made for cleansing Rohri, for evacuating the infected quarters of the place, and for segregating and treating the sick, but have not as yet received information on these points. The local authorities have issued orders closing railway traffic from Shikarpur to Reti, near the Sind frontier, to all who are not provided with sanitary passes. We consider this an unnecessarily stringent interference with communication, and we have suggested that all suspected persons should be detained at Rohri itself under proper observation, the Indus crossing being guarded on the Shikarpur side. The correspondence on this subject is enclosed.*

5. In paragraph 6 of our Despatch of the 12th May it was stated that no case of plague had occurred at Hardwár since the case of the 22nd April. The place remained free from plague up to the 16th May, since when three isolated cases have occurred. The last of those cases ended fatally on the 21st May. A description of the cases is given in the letter of the Government of the North-Western Provinces and Oudh of the 25th May, which forms an enclosure of this Despatch.* In all three cases the prescribed precautions were taken with reference to the segregation of relatives and the disinfection of houses, &c. Up to the date of the North-Western Provinces Government report no cases had occurred among the segregated friends and relatives, nor had any further case been reported since the 18th May. The infected quarter has now been thoroughly disinfected and none of the persons living in it as caretakers have been attacked with plague. The Lieutenant-Governor has decided that all pilgrims who visit Hardwár up to the 12th June are to reside in a camp set apart for the purpose on the outskirts of the town.

6. Surgeon-Major Crofts, the Medical Officer of His Highness the Maharaja of Gwalior, who was in charge of the operations for suppressing the outbreak of plague which occurred in the village of Khandraoni in the Gwalior State, in January to March last, has submitted a very interesting report on the outbreak, and on the measures successfully adopted to suppress it, and to prevent the spread of infection. A copy of this report is forwarded for your Lordship's information. It shows how completely the malady can be suppressed by removing the inhabitants from the infected locality, and detaining them under carefully supervised sanitary conditions in a healthy place; the sick and the suspected being completely cut off from intercourse with the healthy. Measures as elaborate as

* Not reprinted.

those which were carried out by Dr. Crofts could, however, only be adopted over a small isolated area.

7. We have received your Lordship's telegram of the 25th instant, stating that you have approved the Convention framed at the recent Sanitary Conference held at Venice, and have agreed to its ratification. It appears to us that this country has reason to be satisfied with the results of the Conference. We have forwarded a copy of the Convention to the Maritime Local Governments with a letter explaining its terms and instructing the Local Governments to modify their rules with regard to the inspection of vessels at the time of departure and with regard to the protective measure adopted against infected ports, in accordance with the regulations prescribed by the Convention. A copy of our Circular is appended to this Despatch.*

8. In conclusion we forward, for your Lordship's information, a copy of Regulations* issued by Local Governments and Administrations under the Epidemic Diseases Act, and some of the more important orders recently issued by the Government of Bombay.

We have, &c.,
(Signed) ELGIN,
&c., &c.

Enclosures.

No. 6783, dated Baroda, 12th May 1897.

From LIEUTENANT-COLONEL N. C. MARTELLI, Agent to the Governor-General at Baroda, to the Secretary to the Government of India, Home Department.

In continuation of my telegram, No. 6245, dated the 5th inst., to the Foreign Department (copy enclosed for ready reference, I beg to submit the following report on the measures adopted in the territory of His Highness the Gaekwar in view to preventing the spread of bubonic plague.

2. The first case of plague in Baroda territory occurred in the town of Nowsari on the 1st October 1896, and from that date the Darbar were asked to submit daily reports of cases occurring within their jurisdiction. I append a statement showing the total number of cases which have occurred in Baroda territory up to the 3rd inst.* By the end of the year the danger of the epidemic spreading outwards from Bombay became apparent, and I at once addressed the Minister, asking him to furnish me with a report as to what was being done in this matter. This officer promptly responded to my call, and I beg to enclose, for the information of the Government of India, a copy of his letter, No. 4374, dated the 22nd January last.* The Baroda State being geographically situated in the midst of the Bombay Presidency, the Government of Bombay were communicated with, and apparently they were satisfied with the arrangements made by the Darbar. My assistants at Amreli and Okhamandal were also warned to see that the sanitary measures ordered were fully carried out by the local officials. I myself visited Okhamandal in January last, and, in the following month, parts of the Baroda Division. I then found no reason to think that the Darbar were failing in their duty in this respect; in fact from what I saw I was impressed that they were fully alive to their responsibility in this important matter.

3. With these general observations, I proceed to describe in detail what steps were taken by His Highness the Gaekwar to prevent the spread of the disease.

4. As soon as it became known that bubonic plague had established itself in Bombay, the subhas† of the four divisions were directed by special orders to take vigorous preventive measures and to improve the sanitation of Kasba‡ towns and villages. Medical officers at the several taluka towns were directed to furnish immediate information of the occurrence of plague cases to the Chief Medical Officer at the capital. On the receipt of the report of the first imported case in Nowsari, in the beginning of October last, the subha was instructed, by telegram, to arrange for the removal of plague patients to a separate hospital and for the segregation of persons who had come in contact with them, and to take measures for cleansing and disinfecting the town. The Municipal Commissioner of the Baroda City was also furnished with similar instructions.

* Not reprinted.

† Subha=Chief administrative officer.

‡ Kasba=Central town of the subdivision.

5. The Chief Medical Officer of the State was ordered on the 13th January last to proceed at once to Nowsari and to see that the arrangements made there were satisfactory and complete. A large and commodious *serai* at Nowsari was converted into a plague hospital, and sheds were constructed, at some distance, for plague-stricken persons arriving from out-stations. The same arrangements were also made at Billimora.

6. Further, the divisional subhas were instructed to cause temporary sheds to be constructed at the principal railway stations on the line running through their charges.

Baroda Division, 3.	Sheds, as per margin, were accordingly erected at a cost
Kadi Division, 9.	ranging from Rs. 500 to Rs. 1,200. Independently of these,
Nowsari Division, 6.	there were quarters provided for the segregation of healthy
Amreli Division, 6.	persons removed from infected houses. The Medical Depart-

ment was directed to depute medical men to look for and remove to hospital plague-stricken passengers arriving by rail from infected areas.

7. The Minister of the Baroda State has personally undertaken the direction of all the arrangements regarding plague, and is assisted in this work by a qualified medical officer, who is reported to have gained experience in sanitary matters while employed as Health Officer under the Poona Municipality.

8. Inspecting officers have been appointed to enforce segregation, disinfection, &c. Quarantine rules for the Baroda ports on the Kathiawar coast were passed on the 18th February last. Detailed instructions were issued on the 8th ultimo for the detection of plague cases, for the removal of patients to sheds, for the removal and segregation of persons living in infected houses, and for the disposal of the bodies of persons dying of the plague. From time to time extended powers have been vested in plague officers to enable them to take effectual preventive measures.

9. The subha of Nowsari has, by timely and stringent measures, succeeded in preventing plague from taking root in the town of Nowsari. This town, being in close intercourse with Bombay, is open to the danger of catching the plague infection from that city. The measures adopted at this station are as follows :—

A strict watch is kept at the railway station to detect plague cases coming from infected parts of the Bombay Presidency. All arrivals are subjected to a process of fumigation and their dirty clothing is disinfected and boiled before they are allowed to enter the town. The town has been thoroughly cleansed. The old dirty "well privies" have been done away with from a greater portion of the town, and proper latrines provided in their place. Better conservancy arrangements have been sanctioned.

10. No efforts are spared to stamp out the scourge from Gandevi, Billimora, and Dhamdachha in the Nowsari Division, where it had assumed some proportions. At Gandevi the inmates of infected houses were removed therefrom and placed in temporary sheds erected outside the town in open fields under shade of trees. About 3,000 persons are now in camp. These persons are not allowed to absent themselves from their camp or go to adjoining villages. The affected houses are thoroughly fumigated, limewashed and partially unroofed for ventilation; the floor of the houses is also dug up. The more insanitary houses, which it is found impossible to disinfect, are demolished and burnt. New roads have been opened for perflation of air through the Kasba. The town is being thoroughly cleared of all rubbish and filth. The clothes of the affected are burnt and those of the non-affected are disinfected by immersing and keeping them in boiling water. Large bonfires are now and then kindled in all parts of the town and kept up for hours to destroy the plague germs. The segregation of the affected, as well as of those who come in contact with them, is strictly enforced. House-to-house visitation is daily carried on by the local Medical, Municipal, and Police officials. There are in all five medical men and one nurse on duty at Gandevi.

11. Similar measures are in force at Billimora and Dhamdachha. The number of medical men posted at Billimora on plague duty is four and at Dhamdachha (a small village) one.

12. The Deputy Sanitary Commissioner and special plague duty officer frequently visits affected places and advises the course of the action to be taken by the local authorities.

13. Owing to the pestilence raging at Mandvi (Cutch), which is in close proximity to Okhamandal (Baroda), quarantine for ten days has been imposed on all arrivals from that quarter at Beyt, Dwarka and other Baroda ports in the Kathiawar peninsular, and all arrangements in this regard are carefully carried out by the subha of the Amreli Division.

14. The Darbar Chief Medical Officer is now on tour in Kathiawar inspecting plague sheds and camps of observation, and to see that the rules for segregation and disinfection are properly attended to. On the occurrence of plague cases in the city of Baroda, the Minister appointed 22 committees for the city, each consisting of two State officers, two gentlemen of known respectability from the town, and one member of the Municipal Corporation, for house-to-house visitation, for detection of plague cases and for enforcing cleanliness in all directions. The committees are required—

- 1st—to inspect each house in their beat and point out such of them as are filthy to the Municipal officer in view to his attending to their cleanliness ;
- 2nd—to detect persons suffering from plague and assist State officers in segregating such persons ;
- 3rd—to explain to the people the necessity of adopting measures for preventing the outbreak of the epidemic by cleaning their houses and limewashing them, and to see that these instructions are properly carried out ;
- 4th—to bring to the notice of the Darbar any abuse of powers by Municipal and other servants deputed in this behalf.

15. The committees go round their beats daily, and send their reports to *The Medical Officer appointed to the Secretary,* who, after bringing them to the assist the Minister. notice of the Minister, forwards them to the Municipality for action and report.

16. This arrangement seems to work well. Places have been selected in the different parts of the city for the segregation of the affected as well as of the healthy who come in contact with the former, and in this work the leader of different communities in Baroda have willingly co-operated.

17. In the Baroda city there are on plague duty—

- 1 Medical Supervising Officer,
- 10 Medical Inspecting Officers,
- 1 Medical Officer for treatment of patients in the sheds, and
- 2 Medical men to perform inoculation with Dr. Haffkine's lymph.

18. For looking after the sanitation of the city, a medical graduate of the London University, who holds a public health diploma, has been appointed Health Officer of the city.

19. Conservancy establishment has been considerably increased, and steps have been taken to burn filthy and insanitary houses, where cases of plague have occurred, after payment of compensation. Large quantities of disinfectants, such as phenyle, carbolic acid, tar, sulphur, chloronitrozone, etc., are freely used, and finally the drainage scheme designed by Mr. Baldwin Latham is being carried out.

20. In view to ascertainment of correct returns of total mortality from all causes, the existing registration agency has been strengthened by the posting of men at the different burial and cremation grounds in the city.

21. The strength of the Medical Department of the State has been increased, and it is reported to me that on plague duty—

- 17 Medical Officers,
- 19 Hospital Assistants, and
- 8 Medical pupils,

have been employed.

22. A grant of Rs. 40,339 has been sanctioned by the Darbar to meet extra charges on account of plague arrangements. This sum is in addition to the budget grants for unforeseen charges allotted to each division.

23. From the foregoing it will be seen that the Darbar have neither spared means nor trouble to stamp out the plague from its territory. It is now lingering at Gandevi and Billimora only, but I have every reason to hope that I shall soon have the honour of reporting the complete extirpation of the pestilence from the whole of Baroda territory.

24. Before concluding I beg to state that I have personally visited the various parts of the city from time to time. The sanitary condition of a large native city, like Baroda, must necessarily leave something to be desired, but an immense deal has been done in the last few months to improve the sanitation and is still being done. So far as accommodation for patients and other provisions for a possible outbreak is concerned, the authorities are well prepared, but the whole system of drainage cannot be altered in a day. I am glad to record, however, that a scheme for the proper draining of the whole town, the cost of which will be about 38 lakhs, is now fairly started.

* Some are sent herewith and others will follow. Not reprinted.

25. The rules,* etc., issued by the Darbar on this subject, are enclosed.

TELEGRAM No. 6245, dated 5th May 1897.

From the Agent to the Governor-General at Baroda, to the Secretary to the Government of India, Foreign Department.

"Your 1699-I.A. Darbar fully aware of vital importance of maintaining stringent preventive measures against plague. I am kept informed of details of their arrangements. Dr. Lowson visited Baroda on 20th March, and expressed himself satisfied with the measures then in force. All arrivals by trains examined, house to house visitation in city, which is divided into circles, each having separate hospital and Committee. Disinfectants freely used, slums improved, drainage scheme commenced and all possible precaution taken. Report will be sent to the Home Department as desired."

REPORT ON THE OUTBREAK OF BUBONIC PLAGUE IN KHANDRAONI VILLAGE, GWALIOR STATE.

1. Under instructions from H.H. the Maharajah Scindia I left Gwalior on the 17th of March and proceeded to Khandraoni village, arriving there on the 18th, to enquire into a reported outbreak of bubonic plague.

2. Khandraoni is a village situated in the Karera Tehsil of the Chanderi Subat distant from Jhansi, Dattia, Dinara and Karera, 20, 10, 7 and 12 miles respectively.

3. The population according to the last yearly census taken in July 1896 was 558 (187 men, 157 women and 214 children), of which only 5 were Mahomedans, the remainder being Hindus, principally Brahmins.

4. The total area of the village lands is 2,599 bighas, 3 biswas. The area under cultivation in the current year is 940 bighas, the average cultivated area in normal years being 1,006 bighas, and the revenue demand for the whole year being Rs. 1,374-1-0 Imperial coin.

5. On the north and west the village boundary runs with that of the villages of Rao, Mou, and Ata, of the Dattia State, while to the south and east lie the Gwalior villages of Panoha and Belloni.

6. On my arrival, on the 18th of March, I examined all the sick in the village, and the signs and symptoms present, together with the epidemic nature of the outbreak and its history, left no doubt as to the disease being bubonic plague.

7. From enquiries made from the patwari† and lumbardar‡ of the village it appears that, for some years past, several of the inhabitants of Khandraoni have been in the habit of going to Bombay and taking service there, revisiting their village at intervals, and that amongst these were two Brahmins, Bindraban and Khoobi, the former being one of the lumbardars of the villages.

8. These men came straight from Bombay to Khandraoni, arriving there on the 9th of January last (three days before Makar Sankrant in the month of *Poos*). On leaving Bombay Bindraban was suffering from fever and Khoobi attended him while on the way, bringing him to Jhansi by rail and from there, in a country cart, to Khandraoni, where he died 5 days after his arrival. Two days after Bindraban's death Khoobi fell ill and died in three days, and about a week after his death a native hakim of the village,

† Patwari=Land registrar of the village.

‡ Lumbardar=Chief man of the village.

named Nazar Mahomed, who had been treating Bindraban and Khoobi, was attacked with fever and died, and at the same time another native hakim, named Gopi, who had come from Karera to treat Nazar Mahomed, also succumbed to the disease. The plague then gradually spread amongst the inhabitants of the village, and up to the date of my arrival there had been 59 seizures, of which 47 had proved fatal.

9. His Highness the Maharajah Scindia's instructions were that in the event of the plague being present every means should be employed—

- (1) to stamp out the disease in the village itself ;
- (2) to prevent its spread to any other part of the State ;
- (3) to treat the sick ; and
- (4) to interfere as little as possible with the harvesting of the crops then in the ground.

10. Being satisfied that the disease was bubonic plague, the following principles were accepted as a basis on which measures should be taken to carry out the above instructions to a successful conclusion :—

- (a) That the plague was due to a specific microbe.
- (b) That this microbe could be carried by the excreta of persons suffering from plague and by clothing, wooden and earthen articles of all descriptions and by food of all kinds, cooked or uncooked.
- (c) That the microbe once imported by any of the above agencies into a house, where conditions obtained which were favourable to its development, not alone established itself in the floor, walls and roof of that house, but also in or on every article which that house contained.
- (d) That the conditions favourable to the development of the microbe were insanitary conditions of all kinds, especially dirt, overcrowding, and the absence of thorough ventilation and light.
- (e) That the microbe could not establish itself unless the above conditions were present, and that it was impossible for it to exist for more than a few days in any place which was free from insanitary conditions and exposed to the direct rays of the sun, and that very high artificial heat rendered it inert.

11. For the purpose of clearness in this report the following measures based on the above principles are recorded, not in the sequence of their being given effect to, but in regard to the objects held in view, many of the measures being carried out simultaneously.

- (a) An order was sent to the Officer Commanding the Karera Cantonment to march at once to Khandraoni with four companies of Infantry, and Hospital establishment and equipment. The Tehsildar of Karera was also ordered to come to Khandraoni and arrange for such supplies as might be necessary for the troops and villagers.
- (b) In the meantime a nominal roll was made of all the inhabitants of the village, and it was found that the total number present was 435.
- (c) These were each examined and were divided for the purposes of segregation into four classes, viz. :—
 - Class I. Those families who were perfectly healthy and amongst whom no case of plague or fever of any kind had occurred since the 9th of January (it was thought advisable to treat any case of fever as coming under the head of plague as it was impossible from questioning the villagers themselves to distinguish, with any certainty, between so-called fever and plague).
 - Class II. Those families who were in good health but amongst whom cases of plague and fever had occurred since 9th of January.
 - Class III. Those families amongst whom there were cases convalescent from plague or fever.
 - Class IV. Those families some of whose members were then suffering with plague or fever.

12. On the 19th of March four companies of the 6th Infantry having arrived from Karera, the inhabitants were ordered to go to their houses and remain there. Sentries were then posted on all the infected houses (*i.e.*, of Classes II, III and IV) as well as those of Class I in their immediate vicinity, and strict orders were issued to prevent any persons entering or leaving those houses or taking any article therefrom.

13. The remainder of the inhabitants (*i.e.*, Class I with the exception of those mentioned in paragraph 12) were then turned out of the village and surrounded by a cordon of sentries. This portion of the population were allowed to take any of their property which they wanted with them.

14. Classes II, III and IV as well as those of Class I living in their immediate vicinity were then successively taken out of the village and segregated one from another by a cordon of sentries, those of Class I hitherto detained being allowed to join the others of the same class.

15. These classes and those of class I above referred to were not allowed to take anything out of their houses except the clothes they were wearing, as much bedding as was absolutely necessary for their protection from the climate, their money, ornaments and metal cooking utensils.

16. In carrying out this measure I took the precaution of visiting each house in turn and saw that each family were placed in charge of an escort and conducted straight to the place appointed for their segregation, and that the order regarding the removal of any article other than those above mentioned was strictly adhered to.

17. The village having been evacuated, sentries were posted all round with strict orders to prevent any one from entering the village.

18. The following were the arrangements for feeding classes II, III, and IV :—

- (a) Two Bunniah* were engaged from a neighbouring village, where it was ascertained that no plague was present, and the necessary supplies were also brought from the same source.
- (b) Both Bunniahs and supplies were placed under a guard, orders being given not to allow any of the villagers to come in contact with them, nor to allow the latter to mix with the inhabitants of the village.
- (c) The amount of grain, etc., necessary for each individual family was calculated and supplied once a day under the following arrangements.
- (d) The daily supplies were taken by a Bunniah under escort to the boundary of the segregation camp, where one member of each family was deputed to receive them. The supplies were then weighed and handed over, care being taken that neither the Bunniah nor his scales came in contact with the segregated inhabitants, the Bunniah was then marched back to the place allotted for supplies and again placed under the Commissariat Guard.

19. Arrangements were also made for the supply of *chappars*† huts, *charpoys*,† straw and blankets for hospital, and for the old and weakly portion of the community, while grinding stones for the portion of class I who were not allowed to bring these articles from the village were also supplied, as well as new earthen vessels to all who required them. It may here be mentioned that there was little or no grain brought out of the villages as those who were allowed to bring any had little or none to bring and were beginning to live on the current years' produce, some of which was then on the threshing floors.

20. As the segregation camps were all situated along the banks of a small river which was the usual source of water-supply, no difficulty regarding this was experienced, but care was taken that the segregation camp of the healthy portion of the inhabitants was highest up stream, while that of the hospital was lowest.

21. The owners of the infected houses as well of those of the houses in their immediate vicinity were called upon to give lists of property therein with a view to subsequent compensation ; these were made out in my presence by the patwari, and having been initialled by me, were handed over to the owners. The majority of the lists contained property of little value, but in two or three instances where the amount of grain, goor, and ghee, etc., seems suspiciously large, the owner was taken to his house and made to show where the amount of property which he had written down was, and it was invariably found that only about half the stated amount was present. The necessary correction was made in the list and owner was again marched back to segregation camp under escort.

22. With the help of a few policemen and chuprassies hay and other inflammable materials were then placed in the infected houses and those in their immediate vicinity, which were then set fire to and destroyed under my personal supervision ; care being taken that nothing that could be burnt escaped. A short time after the houses were set fire to it began to blow half a gale, and a good many more houses than was intended were

* Bunniah=Shopkeeper. † Chappar hut=Thatched shed ; Charpoy=Bedstead.

destroyed by fire, but this may be looked upon as an error of Providence, if such can be, on the right side. Every heap of refuse and litter in and round the village was also set fire to and burned as far as this was possible. The sentries placed over the infected houses were then withdrawn, the cordon round the village still remaining.

23. Every morning and evening a bugler blew "The assembly" for roll call and inspection in the several camps, any one showing signs of disease or debility being put apart for further examination after inspection.

24. It having been found that some of the people obtained their livelihood by daily labour and begging, these had to be put on free rations at the expense of the State, their ordinary means of livelihood being interfered with by their segregation in camp. Every effort was made to convince the people that the measures taken were entirely for their own benefit and with a view to stop the mortality amongst them. Compensation was promised for the unavoidable damage to their property and crops; they were made as comfortable as possible under the circumstances. Small luxuries such as tobacco, etc., were given to them, they were urged and encouraged to scatter themselves as much as possible, to wash themselves and their clothing, and to keep the ground in their vicinity clean. It was, moreover, pointed out that it was absolutely necessary that the Camp rules should be carried out in their entirety for the purpose of obtaining the full benefit for which they were formulated, and they were made to understand very clearly that, if necessary, these rules would be carried out by force.

25. The sentries were prohibited from entering the segregation camp and were warned not to let any of the villagers approach within 15 yards of their post.

26. The measures taken to prevent the plague from spreading to other parts of the State were as follows :—

- (a) The whole of the staff of Civil officials, Suba, Tehsildar, Chuprasies, etc., were removed from the vicinity of the village and located near the village Belloni, nobody except the medical staff and the officers and sepoy engaged on segregation duty being allowed to remain within the boundary limits of Khandraoni village.
- (b) Nobody, without regard to his rank, business or occupation, was permitted to enter or leave the segregation camps or cross the village boundary without an order from me and without being accompanied by one of the orderly Havildars detailed for this duty at my camp, and orders were issued to the sentries that under no pretext whatsoever was this rule to be broken, and to make this further certain, entrance to or exit from village boundary limits on segregation camps was absolutely prohibited except at one place appointed for this purpose. Considerable inconvenience no doubt arose from this rule, but it was early recognised that the strict observance of this rule was of the most vital importance, and it is satisfactory to be able to state that, with one exception which fortunately was followed by no ill result, but of which due notice was taken, no instance of this rule being broken came to my knowledge, and that the officers commanding the troops, Sir-Suba and other officials set a good example by their strict adherence to this rule.
- (c) A list containing the names of every village within a radius of ten miles from Khandraoni was made out, these villages were divided into circles of four or five villages each according to the distance between them, and each circle was placed in charge of a policeman whose duty it was to collect daily reports from the patwaries of each village. The reports to contain the following information.
 - I. Whether there were any sick in the village, and if so, the nature of their sickness,
 - II. Whether any one had arrived or left the village since last report, and if so, where they had come from or gone to.
- (d) On comparing the census of Khandraoni, taken in July 1896, with the number of people present when the roll was made out, it was seen that there was a considerable decrease in the population, even allowing for the number who had died of plague and other cause during the preceding eight months. A return was therefore called for from all villages within ten miles radius, showing if any one from Khandraoni had arrived in the village since the beginning of January, and if so, whether they were still there, a list of

their names with dates of arrival being also asked for, enquiry was also made from the inhabitants of Khandraoni itself as to the whereabouts of any one who had left the village since the arrival of the Brahmins, Bindraban and Khoobi from Bombay.

- (e) Orders were issued that if there were any persons who had come from Bombay since July 1896, or from Khandraoni since the 1st of January 1897, such persons were to be segregated outside the village until inspected by the medical officer.
- (f) A list was called for giving the names of any of the inhabitants of villages who might then be in Bombay, and orders were issued that their relations in the village should write and tell them that they were prohibited from coming back to the State during the continuance of the plague at Bombay.
- (g) Orders were issued to the inhabitants of all villages within ten miles round that no person from Khandraoni or Bombay was to be admitted into the village; moreover, they themselves were prohibited from coming to Khandraoni, and they were also told that, except for any very urgent reasons, they were to remain at their own village for at least a month.
- (h) The villages all round were inspected, those in which there were people who had come from Khandraoni and Bombay being taken first, and no case of plague was found to be present amongst them. False alarms were at first of frequent occurrence as the daily reports contained many cases, whose symptoms, roughly described by the Patwaries, might be those of plague; these were inspected without delay, and though doing so entailed many long rides, still there was satisfactory compensation, inasmuch as none of these cases thus inspected proved to be plague.
- (i) Supplies for the sepoy were brought from outside into their camp, which was pitched about a mile from the villages under escort. The carts were unloaded and the cart and cartmen at once conducted outside village limits. The supplies for segregation camp were in a similar manner brought to the places appointed for the Bunniah near which no villager was allowed to approach.

27. The arrangements for the treatment of the sick were as follows:—

- (a) The Hospital Assistant and medicines were ordered with the troops from Karera.
- (b) *Chapper* huts were provided for each patient, the huts being placed about 20 yards from one another, clean straw being placed on the ground, separate *chappars* were made for the other members of the patient's family who were allowed to attend upon their own sick, but were discouraged from coming in any number to the sick huts.
- (c) *Charpoys* with blankets, etc., were supplied, suitable food was cooked for all patients either by a member of their own family or by a Brahmin who was appointed as a cook or water-carrier.

28. There being few patients in hospital nobody except the Medical Officer, Assistant Medical Officer and Hospital Assistant were allowed to enter the segregation camps.

29. A mehtar was entertained for the hospital segregation camp, and was not allowed to go outside it until it was finally broken up.

30. When a patient died the body was cremated, all the patient's clothes, *charpoy*, hut, etc., being burnt, compensation for clothes being paid to the relatives.

31. The mode of supplying the hospital camp with food has already been noted.

32. There was at first considerable difficulty in carrying out the instruction issued regarding non-interference with the harvesting of the crops, as on the arrival of the four companies of infantry from Karera it was found that the total strength amounted to only 224 sepoy, and it was impossible to cover the amount of ground within village limits with the number of sentries at my disposal, I therefore telegraphed to Gwalior to send four more companies of infantry from Lashkar, and in the meantime I had perforce to keep the inhabitants in segregation camp of a necessarily confined area, H.H. the Maharajah's promptness in acceding to my request and in despatching without delay four companies of the 10th infantry of a strength of 232 sepoy placed me in a position to carry out H. H.'s instructions regarding the crops.

33. The line of sentries round the segregation camp were thrown back to the limits of the village boundary, and the people of class I were then at liberty to harvest their crops at their leisure, with the exception of those lying within segregation camps of classes II, III and IV, and after ten days in segregation camp, those of class II, no case of plague having occurred amongst them, were also allowed to harvest their crops, and were amalgamated with class I in so far as the limit of their camp was concerned.

34. The crops of classes III and IV were harvested under the direction of the Assistant Tehsildar attached to the Subha's camp.

35. The villagers of Billoni who had a few fields just inside the Khandraoni villages limits were allowed to work under a guard, they cut their crops in one day and took them outside the chain of sentries, not having come in contact with the Khandraoni villagers in any way.

36. It was thought well to defer cleaning up the village until the infected houses as well as the insanitary site, had been exposed to the disinfecting action of the sun and air for at least three weeks, and thus prevent the danger of persons engaged in cleaning the village from contracting the disease.

37. The following were the arrangements made for cleaning and disinfecting the village :—

- (a) A number was affixed to every house in the village and a list of the owners was made. The houses being divided into classes to correspond with those into which the inhabitants had been divided in the first instance except the Class II was amalgamated with Class I.
- (b) The owners of class I were then required to clean their own houses and, for this purpose, were divided into working parties of not more than ten persons in each, each working party being supplied with phowras,* baskets, etc., to clean away dirt and rubbish and lime, for the purpose of whitewashing the houses inside and outside, and were placed in charge of two sepoy, who were ordered to see that this work was thoroughly and quickly carried out, and that all rubbish was removed to a distance and burnt as far as possible, that the working parties did not enter houses other than their own, and that every evening they marched them outside the chain of sentries posted round the village and saw that the phowras, baskets, etc., were deposited in the place assigned to them under a guard. Rest from noon to 2 o'clock was allowed, and the work was daily inspected in order to see that it was properly done.
- (c) As the people of Classes III and IV were still segregated from the rest of the population and remained so until the camp was finally broken up, working parties were engaged to clean their houses from which the *débris* was first removed, the floors were then dug up to the depth of one and a half feet, the walls were scraped, and both were thoroughly sprayed with disinfectants by means of a fire engine, worked by hand, brought from Gwalior for this purpose.
- (d) In the meantime the working parties were engaged in cleaning up the village generally, every one employed being paid daily, and the working parties being all under the supervision of sepoy told off for this purpose; no slouching was allowed, and the work was carried out systematically and continuously until I was satisfied that the village was cleaned as far as any Indian village could be.

The village having been thoroughly cleaned and disinfected and no case of plague having occurred since the 1st April, and those who had been under treatment being now recovered, the segregation camp was broken up on the 29th April. But before this was done every man, woman and child in the hospital segregation camp was obliged to bathe and to exchange the clothes they were wearing for new ones, which were supplied free.

38. The hospital huts, patients' clothes, blankets, charpoys, and all other articles of a combustible nature were burnt, the only things brought out of the hospital segregation camp by its occupants being money, jewellery, metal cooking utensils, and the new clothes given to them. Arrangements were made for a Hospital Assistant with medicines to remain at the village for one month from the breaking up of the camp, and he was directed to hold periodical inspections and to report the result. The harvest having been gathered, and

* Phowrah=pickaxe.

there being many in the village who obtained their livelihood by daily labour or begging, relief works were started for the former and free rations were continued to those of the latter who were unable to work. A project is being prepared for a "Bund"* in the vicinity of the village, and the making of this will not only give work to the inhabitants for some months to come, but will also enlarge the area of cultivation and form an increased source of revenue to the State.

39. The effect of the measures taken were too successful to allow of any extended study of the disease, as, besides the eleven cases admitted on my arrival at the village, only four more admissions took place, and those within ten days from the formation of the segregation camps. Of the total fifteen cases treated, four died, *i.e.*, 26.6 per cent. of admissions, while the mortality before the segregation camp was formed was 79.6 per cent. of seizures. The symptoms and the signs of the disease did not differ from those which have been observed during the present epidemic in Bombay, a fatal termination being preceded by pneumonic symptoms and great prostration, while in all the cases that recovered general debility was a very marked feature. In one or two instances the wounds, caused by opening the bubos, healed very slowly, and in one patient, who was convalescent for some time and quite free from fever, a small swelling appeared on the forearm, unaccompanied with pain or inflammation, but over which distinct fluctuation was present; it soon, however, disappeared. In another case the only sign present was a bubo in the groin, no fever or constitutional disturbance of any kind being present, and the patient was otherwise healthy and well nourished; this I would classify as "Pestis ambulans" (even at the risk of being considered Irish), the patient being a child of four months old. With regard to the statement that though rats are very susceptible to plague their enemy cats are immune, it may be interesting to note that a dead cat was found in one of the infected houses, but the fact that it died of plague was not verified by microscopical examination.

40. The loss for which the villagers have to be compensated is classified as follows:—

- I. Damage done to rabi crops.
- II. Reroofing the infected houses which were burnt down.
- III. Loss of property which was burnt in the houses.

41. In order to explain fully the process of calculating compensation and to make the figures clear, the different classes of compensation above enumerated are separately dealt with and classified statements of same are appended to this report. †

42. The area cultivated with rabi was $250\frac{3}{8}$ bighas composed of 290 fields of 101 cultivators, out of which $124\frac{3}{8}$ bighas were held by the zamindars of the village as their *Khud Kasht*, ‡ and $126\frac{3}{8}$ bighas were cultivated by tenants on cash or grain rent.

43. The crop was generally barley and masur, mixed gram and wheat being sown in a few fields. Nearly two-thirds of the area sown with rabi crops were irrigated, the remaining one-third being unirrigated, and on this, as the soil is mostly pondwa and inferior kanker, the crop was naturally bad, but on the irrigated portion an average outturn of five maunds per bigha was estimated.

44. When the plague segregation camp was formed the crops were ripe and had been partly cut and removed to the threshing floors, the remainder of the crops then in the ground being afterwards cut by the owners who had access to their fields, those crops belonging to people in hospital segregation camp being cut through the agency of labourers employed by the State for this purpose.

45. In this way the damage done to the standing crops was not great, and was due altogether to the cattle straying into the fields. This damage occurred owing to the small strength of the troops available for sentry duty when the camp was first formed, rendering it impossible to allow the villagers access to their fields and so prevent damage from cattle; neither was it possible, from sanitary reasons, to keep the cattle within segregation camp, as they numbered 1,500, nor could arrangements be made for their food. This state of things, however, only lasted for a couple of days, until the arrival of the four companies of Infantry from Lashkar. §

46. There were some instances, which will be enumerated hereafter, in which the people were not allowed to cut their crops at all, and they were completely damaged, compensation in full being allowed.

* Bund = embankment. † Not reprinted. ‡ Khud kasht = home farm. § Lashkar = the cantonment.

47. As all the crops had been cut before the compensation list was made out, and therefore the damage done could not be estimated from an inspection of the standing crops, the following course was taken to estimate the loss incurred :—The average outturn of the village was found by selecting seven *khaliens** of different kinds of grain and belonging to different known fields, both irrigated and unirrigated, and having them threshed, cleaned and weighed ; from this an estimate was formed of the produce of each field. Enquiry was then made as to the average outturn of five adjoining villages having similar advantages and similar soil as Khandraoni, and also the average outturn of the Pergunna, and comparing the existing produce of the Khandraoni fields with the average outturn of the adjoining villages and of the whole of the Pergunna, an estimate was formed of the loss of grain in each field, and its equivalent in rupees was calculated at the market rate obtaining in the village.

48. The instances in which the crops were completely damaged and in which it is proposed to give compensation for the full value of the crop, according to the average outturn of the village, are as follows :—

- (a) No. 5 and 6 area $1\frac{1}{2}$ bighas cultivated by Murli Dhar Brahmin, who was not allowed to cut his crops because the fields were situated inside the hospital segregation camp, where he had no admission.
- (b) Barley store of Madho Singh, son of Bhansi, the produce of No. 242 and 514 area $2\frac{1}{2}$ bighas which was burnt as infected grain.
- (c) Mhowa crop of Dhalip Singh, Lumbardar, who, being in hospital, was not allowed to gather it.

49. The yearly revenue demand on the village is Rs. 1,374-1-0, out of which the zemindars have only paid a four-anna instalment before the plague outbreak, and the remainder, Rs. 1,039-15-0, is in arrears, and in order to relieve, as far as possible, the zemindars from the revenue demand, it is proposed to deduct the uncollected rents of tenants lands from the compensation payable to them for the damage done to their crops, and to credit it to the revenue due from the zemindars, having done this, so much of the compensation payable to the zemindars for their *Khud Kasht* sufficient to satisfy in full the rateable revenue demand of each individual co-sharer, according to the figures obtained from the Patwari, is also credited ; or where a full adjustment of the revenue demand was impossible, on account of the compensation falling short of the revenue demand, the whole of the compensation payable was taken in part payment. In this way Rs. 768-2-0 Imperial coin can be realized out of the revenue demand payable to the State without any burden on the pockets of the zemindars, who, in addition to being considerably relieved of the revenue demand, have the advantage of appropriating all existing grain and getting the surplus compensation.

50. The arrears of revenue then remaining uncollected would be Rs. 271-13-0 Imperial coin due from the co-sharers who had no *Khud Kasht* of rabi or whose compensation for *Khud Kasht* fell short of the revenue demand, and having regard to the disastrous effects of the plague outbreak, it is recommended that this amount should be allowed to stand over for two years, after which it could be collected by easy instalments.

51. The classified statement A,† appended to this report, shows the value of the loss in the average outturn of the crops of each man, the amount of revenue realized from him, and the compensation payable, if any, after deducting the revenue demand. A summary of this statement is as follows :—

	Rs.	
Value of crops in Gaja Shahi coin	1,100-9-9	
Deduct revenue in do. do.	834-11-9	
		Rs. 265-14-0

52. Statement B,† appended to this report, shows the distribution of the arrears of revenue over the four Pattas, into which the village lands are divided, and the account within the Pattas will be made by the Patwari afterwards, having regard to the arrears which were originally due from each of the co-sharers and to the amount realized out of the compensation of his *Khud Kasht* and his tenants' lands by the method here proposed.

53. This class of compensation refers only to persons whose houses, being infected, or contiguous to those infected, were burnt.

* Khalian=threshing floor out in the fields. † Not reprinted.

54. In order to make an estimate of the cost of re-roofing the houses, measurements of each roof were taken, and the amount of wood required for this purpose and also for doors, etc., was noted; an estimate was then made of the different kinds of materials required for each roof, and the cost of re-roofing calculated at the local rate, and adding to this the value of the doors and the cost of labour, the amount of compensation payable for each house separately was obtained. Most of the houses had tile roofing, the average cost of which at the village rate is 0-1-7 per square yard, thatched roofing costing half as much more. Some of the houses had masonry roofs, the cost of these has been calculated separately at local rates. Statement C,* appended to this report, shows detail of materials required and the compensation payable for each house.

55. Compensation under this head is payable only to those whose houses were burnt. Lists of property in those houses which were to be burnt were made out beforehand, but it was difficult to calculate the compensation due to those villagers whose houses were accidentally burnt on account of the gale which sprung up after the infected houses were set fire to; but as, before any of the houses were burnt, the people were given every opportunity of removing their cash, gold and silver ornaments and metal utensils, and most of those were removed by them or were made over to them from time to time as they were found in their houses, the only articles which were destroyed consisted chiefly of food grains, gur, ghee and clothing. The list given to the villagers in the first instance was called for, and all articles which had been removed by, or handed over to, them were struck out of the lists, and compensation for the remaining articles was then calculated. The lists which were filed by the owners of those houses which were accidentally burnt, after this had occurred, were carefully gone through. The receptacles in which they said their grain, etc., was stored were inspected, their capacity ascertained, and an estimate thus formed of the compensation due.

56. Tabular Statement D* shows the compensation payable under the different heads and, at a glance, how much each man is to get for the total loss suffered by him.

57. The amount is calculated in Gajashahi rupees as that is the coin current in the village.

I cannot close the report without expressing my thanks to the officials who were detailed for duty with me at Khandraoni. The Assistant Medical Officer, Doctor Wagle, L.R.C.P. & S., Edinburgh, rendered me invaluable assistance and spared neither time nor trouble in carrying out the duties entrusted to him. The Sir-Suba of Esagarh made excellent arrangements for supplies, etc., for the camp, until he was obliged to leave by sickness brought on by the extreme heat, after which his work was well carried out by the Suba Sahib of Chanderi. I cannot too highly praise the work of Moonshi Jugalkishore, to whom the cleaning up the village was for the most part entrusted as well as that of estimating the amount of compensation payable to the villagers for property destroyed and crops damaged. His report is incorporated in this, and having gone over the figures, I am quite satisfied that his estimates are correct and equitable in every respect. The conduct of the troops (4 companies of the 6th and 4 companies of 10th Infantry) engaged on segregation duty was all that could be desired, and their strict obedience to orders contributed in no small degree to the result obtained, my thanks being especially due to Captain Eseri Singh, commanding the 10th Infantry. Inspector of Police, Gayapershad, performed his duties to my entire satisfaction, and the subordinate officials mentioned in the margin also worked well. I trust the Darbar Patwari Thakoorpershad of Khandraoni will recognize the work done by the above officials, the due performance of which, together with the very full authority given to me by H. H. the Maharaja, enabled me to carry out H. H.'s instructions to what, I trust, will be considered a successful conclusion.

A. M. CROFTS, SURGEON-LT.-COL.,
Medl. Officer to H. H. the Maharajah, Scindia.

Gwalior,
The 8th May 1897.

* Not reprinted.

From the GOVERNMENT OF INDIA to the SECRETARY OF STATE FOR INDIA.

(Sanitary No. 17.)

MY LORD,

Simla, 22nd June 1897.

WE have the honour to continue the narrative of events connected with the plague contained in our Sanitary Despatches ending with Despatch No. 16, dated the 1st instant.

2. In all parts of the Bombay Presidency and Sind the number of cases continues to diminish and, unless the advent of the rainy season causes a recrudescence of the disease, it may reasonably be hoped that the epidemic is dying out. In our Despatch of the 1st June we informed Your Lordship that during the period 11th to 28th May the average daily numbers of seizures and deaths in the City of Bombay were 11 and 8 respectively. During the period 29th May to 17th June the numbers were 8 and 4. During the 3 days, 14th to 16th June, the number of seizures rose to considerably above the average, but there was only 1 case on the 18th, and apart from these 3 days the fall in the number of cases has been steady though gradual. It is also satisfactory to notice that the percentage of fatal cases is less than during the earlier stages of the epidemic. The average daily total mortality during the period 29th May to 17th June was 78, a figure 2 in excess of that for the period 11th to 28th May. The average daily mortality during the corresponding period of the previous 5 years was 73. In our last Despatch we remarked that the number of deaths from ordinary fevers shown in the weekly mortality return for the City of Bombay had been for some weeks much further below the normal than could be accounted for by the present diminution of the population, and that we had enquired of the Bombay Government whether the cause of this could be ascertained. The explanation which has been given is that it is probable that the thorough cleansing the city has undergone, and the other sanitary measures that have been adopted, have rendered it more healthy than before the outbreak of the epidemic.

3. The Cutch State is at present the most infected portion of the Bombay Presidency, but even here the number of cases in Mandvi has fallen from about 100 to a little over 10 a day. This is no doubt to a large extent due to the fact that the greater portion of the inhabitants have quitted the town and have either camped outside away from the infection or have altogether left the place. There has been some little increase in the number of cases reported from villages in Cutch; the Political Agent has been ordered by the Government of Bombay to direct special attention to the matter. To this Despatch are appended letters from the Political Agent of Cutch and the medical officers who have been deputed to the State describing the outbreak at Mandvi and the measures taken to suppress it. It is to be regretted that the existence of the epidemic was not discovered earlier, but the measures that have now been adopted are well considered and thorough and are meeting with success. Due attention is also being paid to the permanent improvement of the unsatisfactory sanitary condition of the town.

4. From other parts of the Bombay Presidency proper the reports are very satisfactory. In the districts of Thana and Kolaba and the Naosari Division of the Baroda territory, where the epidemic was once rife, the number of seizures has fallen to 1 or 2 a day. In the Surat District where it was equally bad, no fresh case has been reported since the 11th instant. In Poona the average number of cases, since the beginning of the month, has been about 1 a day. From other places which were once infected only occasional cases are reported.

5. In Sind the improvement is equally marked. The epidemic appears to have nearly died out at Karachi: For the period 29th May to 8th June, the average daily number of seizures and deaths were 3 and 2.5 respectively. Since then there have been only 2 seizures and 3 deaths. The Shikarpur District is the only other place in Sind from which cases have been reported since the 4th instant. It was stated in our last Despatch that the state of affairs in that district was occasioning some anxiety. Indigenous cases continue to occur, but are less numerous than before. There have been 23 cases since the beginning of the month. The restrictions imposed on the traffic on the Sind Railway have been removed with the exception that booking is not allowed at the stations in the immediate neighbourhood of Rohri. This precaution is necessary to prevent evasion of the inspection prescribed for travellers starting from Rohri. The Government of Bombay reported on the 1st instant that the arrangements made at Rohri for the isolation of the sick and the evacuation of the infected quarter of the place were satisfactory.

6. A series of charts showing the course of the plague in Bombay, Karachi and other places where the disease has been severe was appended to our Sanitary Despatch No. 15 of the 12th May 1897. With this Despatch is enclosed a fresh set* continued up to the beginning of the present month, which illustrates the further decline of the epidemic. A number of spare sets of the charts are forwarded and we would suggest to Your Lordship that some foreign Governments might like to receive copies.

7. Three more cases, which, we fear, are true cases of plague, have occurred at Hardwar during the present month and further anxiety has been occasioned by the fact that there has been a considerable mortality among rats at Kankhal which lies one mile south of Hardwar and is inhabited by many of the priests who minister in the Hardwar temples. A strong staff of medical officers are present at Hardwar, including Mr. Hankin and another officer who has had special experience in Bombay. The Government of the North-Western Provinces and Oudh reports that all possible precautions are taken. The town has been divided into sections, each under the charge of a Commissioned Medical Officer; disinfection is rigorously carried out as well as a house-to-house inspection on which the medical officer is accompanied by a female doctor.

8. Since the date of our last Despatch we have received intimation that three cases occurred near Jowalia in Rajputana in the beginning of May. The first case was imported and in the other two cases the sufferers were relatives of the man first attacked. Due precautions were taken and there was no further diffusion of the malady. We have made special enquiries with regard to the measures taken in Rajputana to detect any cases of plague that may occur and to prevent the spread of infection. The reports show that the measures taken are satisfactory. The Agent to the Governor General, Central India, reported on the 14th instant that a plague case had been taken out of the Bombay train at Rutlam and terminated fatally on the 12th instant. All necessary precautions were taken.

9. Your Lordship has doubtless received intimation of the existence of plague at Jeddah and that the rules prescribed by the recent Venice Convention have been enforced in Egypt against arrivals from the Hedjaz. To this Despatch is appended a copy of correspondence with the Consul at Jeddah and the Local Governments on this subject.* The Consul at Jeddah has telegraphed that plague is epidemic in Jeddah, but of a mild type. He states that the disease first broke out amongst pilgrims from Hadramaut and then attacked natives of the place. He reports that no cases have occurred amongst Indian pilgrims. We have also directed that the Resident at Aden should endeavour to ascertain whether plague exists in Hadramaut at the present time, and that he should take precautions to prevent infection being brought thence into Aden. We have sanctioned the imposition at Aden and other Indian ports of the rules of the Venice Convention against arrivals for the Hedjaz. The Consul at Jeddah telegraphed on the 11th instant that there were 600 Indian pilgrims at Jeddah and 2,000 at Mecca. Some pilgrims have already returned from the Hedjaz and the others are about to return. It has therefore been necessary to enjoin the adoption of special precautions at Bombay and Calcutta to prevent these returning pilgrims from carrying infection with them. The precautions prescribed in our telegrams to the Governments of Bombay and Bengal of the 16th instant are based on the rules of the Venice Convention. Before it was reported that plague existed in the Hedjaz, we had issued orders that returning pilgrims landing at Bombay should be despatched to their destination without being permitted to mix with the population of Bombay in order to avoid any risk of their carrying with them infection from that place.

10. In conclusion we forward for your Lordship's information a copy of the more important Resolutions* recently issued by the Government of Bombay on matters connected with the plague.

We have, &c.,
(Signed) ELGIN,
&c., &c.

* Not reprinted.

Enclosures.

No. 136, dated Mandvi, 29th April 1897.

From Major G. E. HYDE CATES, Political Agent, Cutch, to the Secretary to the Government of Bombay, General Department.

I have the honour to report that Dr. Lawson, Plague Commissioner, arrived on Saturday last at Mandvi, where I met him with the Dewan and Chief Medical Officer of the Cutch State and the local officials. After discussing with the above officials and myself, the best measures to be adopted for the suppression of the plague here, and inspecting the town, I proceeded with Dr. Lawson to Bhuj, and the next day had an interview with His Highness the Rao, who readily agreed to all Dr. Lawson's proposals, the result being that Surgeon-Lieutenant-Colonel Wilkins and a complete staff consisting of four nurses, a native doctor, hospital assistant, and ward boys are expected here this morning.

On Sunday afternoon Dr. Lawson and myself returned to Mandvi, and the following morning Dr. Lawson set to work to organise measures for stamping out the plague. An excellent building has been converted into a Hindu hospital capable of holding about 180 patients. At present those under observation are also kept in a separate portion of this building, but another building will, if obtainable, be converted into an observation hospital or sheds erected. A site has been selected for a health camp and sheds are being erected as quickly as possible. The general hospital has been converted into a hospital for Mahomedans, and a building opposite has been set apart for an observation hospital. The Mahomedans of the village of Salaya, a suburb of Mandvi, and chiefly occupied by fishermen and sailors, are inclined to give some trouble, and it has been found necessary to allow them to have a separate hospital on a site chosen by the Plague Commissioner. A guard has been placed here and a hospital assistant and a karkun to take note of the cases admitted and deaths. The medical officer will inspect this hospital daily, but the Mahomedans of Salaya have been permitted to maintain this hospital and use their own medicines only under certain conditions imposed by the Plague Commissioner. Should they break the rules laid down for them, it will be necessary to remove the cases to the hospital already alluded to. The Hindus have gladly taken advantage of the hospital and have given no trouble, and have generally assisted in bringing cases of plague to notice.

Sepoys have been put on at the four city gates to prevent people leaving for villages and to take them to the health camp if they wish to reside outside the city. They have also orders to prevent healthy people coming to reside in the town. In addition to these, sepoy at the three city gates through which corpses are allowed to be carried, a writer is placed to take note of corpses carried through for burial or burning, and these are supplemented by writers posted at the several burning and burial grounds to act as a check.

Numbers are now leaving by steamer, and it is difficult to prevent them unless the steamers refuse to take passengers, and I have advised Karachi and Kathiawar to impose quarantine on boats from Mandvi. I am informed by Dr. Lawson that this has already been done at Bombay. It is probable therefore that the steamers will cease taking passengers from Cutch Mandvi.

When the plague broke out in Bombay and Karachi, I advised and made suggestions to the Darbar, and the measures adopted by them have been reported, *vide* my No. 38, dated 5th February last. That the measures suggested were carried out fairly well is evidenced by the fact that the Darbar has managed to keep the plague out of Mandvi for so long, notwithstanding the number of persons who landed here from Bombay and Karachi. When the exodus from those places really began, something over 5,000 persons landed here per week. I am afraid that latterly the officials here have been relaxing their vigilance, and that cases have been occurring which, owing to defective measures, have not been found out in time, or that they failed to report. As soon as I heard rumours of there being more plague cases than reported to me, I at once visited Mandvi, as reported in my letter No. 120 of 20th instant. I then drew up a memorandum of suggestions, and also had a discussion with the Dewan. On my arrival here on Saturday last, the 24th instant, I found that nothing had been done, and it is owing to the ignorance of the officials here in plague matters, and their general apathy at the outset, that the plague has got such a hold, and accounts for the heavy increase in the mortality.

At the first, I suggested that all persons landing at Mandvi from infected ports should be kept in quarantine camp for at least eight days, but when over 5,000 passengers per week were landing, it meant a very big business, and there was difficulty about water and

supplies for such large numbers. Only those who were found to be affected or doubtful cases were detained, and the rest allowed to proceed to their villages, but orders were issued to keep them in quarantine outside the village for 15 days, and persons bound for Bhuj from Mandvi were kept in quarantine for 10 days at a place called Dahisra, 15 miles from Bhuj. This place was chosen owing to there being a large dharamsala there. Latterly when 11 indigenous cases occurred in the village of Ruwapur and several cases in Kera and 2 imported cases in Bhuj previous to 24th March, I suggested that boats from Bombay, Karachi and other infected ports should be put in quarantine. I felt sure that without this the plague would sooner or later get into Mandvi, and after each visit to Mandvi, of which I have made three, I told the Darbar that if it did once get a hold on Mandvi they would have it in a terrible form, which has turned out correct. The town is one of the most filthy I have ever seen, and though I have constantly spoken about this, nothing until too late was done towards putting it in a more sanitary condition. From 6 a.m. on the 27th to 6 a.m. on the 28th instant, the mortality was 104 in a population which now must be barely 25,000. From 6 a.m. yesterday till 6 a.m. this morning the mortality is 87.

The materials at hand for working with, in the shape of police, labour and carts, etc., are meagre, and at present there is nothing like a sufficient quantity of disinfectants (but they are expected in a day or two from Bombay), though I brought this to the notice of the Darbar. The people are utterly panicstricken and great difficulty is found in getting coolies and men for carrying dead bodies, but the advent of Dr. Wilkins and staff from Bombay this morning will, it is hoped, soon put matters right.

P.S.—To prevent the spread of the plague to Bhuj, the Dewan informs me that the following future measures to those already reported have been taken :—

Besides the arrangements for quarantine and segregation at Dahisra, Kera and Madhopur, two medical men have been stationed outside the Bhid and Mahadeo gates of Bhuj for further examination of new arrivals in order to segregate the sick, place doubtful cases under observation and the healthy in quarantine for three weeks. All deaths in the town are registered at the gates. Only two gates are left open, others being closed with windows kept open for allowing townpeople to go out for necessary purposes and tickets are issued to them for readmission as a safeguard against newcomers getting in. Cleanliness is enforced in the town and its surroundings and orders have been sent out for the supply of sufficient quantities of disinfectants.

I have also suggested the following to His Highness the Rao :—

- “ (1) Erect some sheds for a Hindu hospital as above and prepare any suitable building for a hospital.
- (2) Erect some sheds for Mahomedans.
- (3) Erect sheds or have building for observation hospital.
- (4) Erect sheds outside for a health camp.
- (5) Segregation sheds or suitable building.
- (6) Have ready plenty of disinfectants.
- (7) Fill up unhealthy places where there is stagnant water, etc.
- (8) Plenty of disinfectants used in town.
- (9) Put on extra men and carts to keep town clear.
- (10) Keep strict watch on deaths and find out causes.

“ Dr. Damania will know what is required.

“ By having 1, 2, 3, 4, 5, 6, ready, if any case of plague occurs, as I trust it will not, the sick man and all in contact with him can be *at once* removed. It is most important that this should be done *at once* and the house thoroughly disinfected and kept locked up for a time. It would be well to make surprise visits occasionally to any house when sickness is reported, there to see that it is not plague. Very prompt measures of removal of a sick person and all connected with him may nip the disease in the bud. Dr. Damania has seen now what should have been done and very strict measures and *prompt* action may prevent further mischief and expense.”

I have suggested and His Highness the Rao has consented to employing the services of Surgeon-Captain Ricketts now at Bhuj with the 17th Native Infantry to advise and supervise measures for the prevention of the spread of the plague, for its suppression and prompt treatment should it appear, in addition to his other duties which are light. I have

this day telegraphed to the President, Plague Committee, in the matter, and official sanction will be asked for in due course, but it is all important that there should be European supervision at Bhuj as soon as possible.

I hope to be able to go into Bhuj in the course of a day or two when matters are more forward here and will then send a further report.

Mandvi ;

30th April 1897.

(Signed) G. E. HYDE CATES, Major,
Political Agent, Cutch.

Dated Bombay, 5th May 1897.

From JAMES A. LOWSON, Esq., Plague Commissioner, Bombay, to the Secretary to the Government of Bombay, General Department.

I have the honour to submit a report on plague matters at Mandvi Cutch.

Before entering into details a few remarks on the general situation are desirable. I arrived there on 24th April and found the town in all the horrors and difficulties caused by a severe epidemic. Large numbers were dying daily ; large numbers were fleeing in terror. Shops shut and provisions difficult to procure. Large numbers had left the town and camped in the neighbourhood. Several districts of the town had been intensely infected and some parts of these were almost completely deserted. The sick when found were lying untended in houses. Sometimes locked in by friends, sometimes locked in by themselves to die. Defoe's description of the London epidemic in 1665 could well be applied to Cutch Mandvi, only several times intensified, as the officials of the town and their staff had done absolutely nothing for alleviating the distress prevailing.

Even after getting to work, the difficulties became greater as those engaged in assisting got more and more frightened and great discretion had to be used during the first few days in getting as much as possible out of the few men who were willing to work. These are very few now and no amount of money will at present procure more in Mandvi. Orders for labourers have been sent to Bhuj and surrounding villages, but without avail so far. No one can appreciate these labour difficulties until an epidemic of this sort occurs ; for instance the difficulties of removal of sick and burial of dead bring themselves prominently to notice when no bullock-carts can be found in the town and men are also wanting for carrying the dead. Families before being completely swept away must always come down to one or two, and when these get sick even Hindus cannot be got to bury them. One should not be surprised to hear that when the cleansing staff have got to work and opened all the closed houses many corpses have been removed.

Of information regarding the outbreak from the commencement there is practically none. I have asked all the officials regarding it, but only vague guesses can be hazarded, not even an idea of the total mortality can be had, as there was not a single person who ever thought of counting burials or burnings. That it was introduced from Bombay or Karachi almost goes without saying.

The following figures will give some notion of the size of the town and population. These are derived from the City Magistrate who seems to have the soundest information on this point. Rough map A* will assist in getting an idea of the geography. On the 1st December 1896 the population was probably 33,500 inside the city walls, 2,500 outside the city wall (in district marked with lines), whilst in the village of Salaya, on the opposite side of the river, there were about 7,000 inhabitants. The following statement is drawn up from figures supplied by Shepherd and Company and the British India Company.

	Arrivals from Bombay side.	Arrivals from Karachi.	Departures to Bombay side.	Departures to Karachi.
December	4,279	1,736	3,718	1,160
January	6,011	1,599	2,933	466
February	2,787	3,601	1,765	433
March	2,461	1,401	2,336	564
April	1,453	953	2,621	735
Total	16,991	8,390	13,373	3,358

* Not reprinted.

Assuming that half of the influx belonged to Mandvi and half to the country round about, the estimated population at the beginning of every month is as follows :—

1st January	43,568
1st February	45,618
1st March	47,143
1st April	47,623
1st May	46,858

Of these 46,858 only about 12,000 at a liberal calculation are now within the city walls, about 3,000 outside the city walls in close proximity, 4,000 in village of Salaya and 3,000 from latter village encamped on the sand and gardens close by ; about 1,000 to 1,200 have left for their villages and Bhuj, so that, not counting the people who have died, over 20,000 people are camped out to the north and west of the town within a five-mile radius.

The local officials think, and give it as their opinion, that the epidemic began on or about the 5th April with a death-rate on 1st May of 139 in a considerably reduced population! Now, in all my reading and experience of the plague in China and India, I have never heard of such a rapid spread, if true. It is almost incredible, and I strongly incline to the opinion that it must have been raging even at the time of its reported beginning, and this opinion is supported by the fact that a considerable number of the inhabitants were already camped out at that time. In addition Salaya undoubtedly became infected after Mandvi, and an inspection of the graveyards and other casual information received from the villagers there, leads me to think that it was even then raging in Salaya. Take Poona, for example, with 120,000 inhabitants. It took almost three months to reach a death-rate of, at most, 80 per diem in a town three times the size! and where no real attempt was made to combat it till March.

Notwithstanding the fact that two particular localities are intensely infected, yet there is such a general diffusion of the disease over the town that I am convinced it must have been going on for over two months at least in numbers that should have been remarked upon by anyone of the officials with the faintest claim to intelligence.

The Political Agent, Major Cates, met me on arrival on Saturday, 24th April, in company with the Dewan, Chief Medical Officer and other officials. The situation talked over with the result that with the tacit consent of the Political Agent I took charge of operations and until we found out what available force there was for work, wired for disinfectants lime, etc., from Bombay ; ordered such various disinfecting apparatus (tubs, ladders, buckets, etc.) as was to be had in town to be got ready ; selected hospital with segregation accommodation for Hindus and ordered apparatus and stores for them ; selected hospital and segregation house for Mahomedans, and likewise apparatus and stores for them ; and ordered other minor details to be carried out. A site was also selected for a health camp as even then one could see that at least parts of the town would require to be evacuated ; ordered sepoy to be posted at the burying and burning grounds to procure death statistics. Major Cates and I then left for Bhuj at 7 p.m. Next morning we had an interview with His Highness the Rao and explained the situation to him, saw Colonel Morse regarding a supply of sepoy for work, leaving again for Mandvi the same afternoon.

On Monday morning on reaching the Plague Office (the Custom House) we found that practically nothing had been done in our absence. Before evening, however, we got most of the aforementioned matters seen to, Major Cates looking after the posting of sepoy at gate, ghats and cemeteries. All bullock-carts leaving the city with people and belongings were ordered to be stopped ; but I am afraid this order was not obeyed—a more useless and ignorant police force could not be imagined. Having got hospital accommodation provided, we went into the town and got fifteen cases removed during the same evening.

Medical examination of passengers was so strict on this day that no one left by the Karachi or Bombay steamers. Tubs and disinfecting ground have been prepared for passengers, clothing, etc., but so far this has not been used, as after Monday so many people came up for examination before leaving that it would have been ridiculous to commence disinfection without a large staff ; besides, as may be seen later, we were able to prevent most of them leaving by other means.

Supply of bullock-carts ordered from Bhuj. Municipal Secretary asked to supply a list of houses which had had plague deaths and mark them with sign for disinfection. It took this official four days to supply a list of 80.

Arrangements were completed for procuring correct death returns.

Mr. Pestonji Sorabji, deputed to supervise plague operations, arrived, whilst the Dewan and all other State officials left to look after their own affairs, only the Chief Medical Officer remaining to assist, whilst the Political Agent wired for another waiwatdar, as that official was old and absolutely useless.

27th April.—Hospital equipment was added to and extension of accommodation made by the erection of sheds in the hospital compound and also by enclosing verandahs. A disinfecting gang of 40 men at high wages was organised and taught how to do their work, but these had considerable difficulties to contend with, as no bullock-carts could be had for transport of gear, whilst bhistics could not be found to supply water for use, which had to be brought from some distance. In the afternoon, having impressed six bullock carts, the Chief Medical Officer and I had a successful house-to-house visitation in so far as 53 cases were removed to hospital.

Work on health camp proceeded slowly for want of labour.

28th April.—Our house-to-house visitation party removed 34 cases in the morning. Two men were deputed to go round and remove tiles from every house, as all houses must be treated as infected.

The food-supply at hospitals gave great trouble as every newly imported shopkeeper runs away after half an hour's business. The burial staff also do the same and none of the police sepoy will assist at this work except two Somalilanders. In the afternoon the Political Agent assisting the village of Salaya was visited. This is a village of fishermen, principally Mahomedans and some trouble was anticipated here. Whilst removing sick a large crowd assembled and we had to desist after requesting two leaders of the community to come to a meeting at the Plague Office. This conference was so successful that on the following morning 43 sick persons were in a compound termed by courtesy a hospital.

29th April.—Of 25 sepoy arrived from Bhuj, 8 were detached to act as hospital police as the local sepoy could not maintain any sort of order.

Three hundred and sixty passengers for Karachi were prevented from leaving, as the clerks in the office had not time to write out certificates.

Surgeon-Lieutenant-Colonel Wilkins and staff arrived and in the afternoon the charge of operations was taken over by him.

On the 30th April the men of the disinfecting squad were put on the health camp work as this was not progressing rapidly enough. On 29th, 30th April and 1st May a search party was out picking up cases shown by two men deputed to find them out, and about 20 were removed each day to hospital, their bedding and clothing being burnt as they went along; beyond this, however, little was done owing to want of men. The hospital arrangements were greatly improved by the presence of the nurses, but the doctors in charge, Doctors ——— and ———, had no idea of their real duties in a hospital in such a trying time, first class at giving orders but never putting a hand forward to *do* anything. Notwithstanding the most explicit instructions not one of the many relatives admitted to hospital with the sick had been kept in segregation after the sick had died.

On the 2nd May the distress in the town and want of food had become so pronounced that Mr. Pestonji Sorabji opened a shop where grain could be procured cheap—a most judicious and kindly act to say the least.

Of the sanitary state of the town not much can be said as ordinary sanitation was conspicuous by its absence, the insides of houses especially being very dirty. In the village of Salaya however most of the houses and huts were beautifully clean, walls well whitewashed and floors smooth and well swept, with very little of the ordinary rubbish lying about. Another lesson that mere clean houses are not sufficient to keep out the plague, overcrowding and peculiar habits having far more to do with its spread in this instance than dirty houses.

One most important point to note regarding Mandvi is this: it has a very large population of cattle living inside the city walls in houses and courtyards, where frequently every member of a family has been cut off; yet the deaths of these animals during the last month must have been extremely rare, as frequent interrogation on this point failed to elicit the fact of even one death having occurred. This only goes to prove that, notwithstanding the opinions of some hearsay scientists, what I demonstrated experimentally in 1895 is also true practically—that bubonic plague does not occur in the acute form in these animals, in fact in any form. If any practical proof of this was wanting, I do not think a stronger one could be had than what has occurred in Mandvi Cutch, which is essentially a city of cattle.

As in most towns with severe infection rats have practically died out.

The cleansing squad of 40 men organised on 27th April were able to disinfect and whitewash on the

28th April	...	...	...	...	...	...	15 houses
29th	"	...	...	...	...	...	20 "
30th	"	...	...	...	...	...	31 "
1st May	...	...	...	...	...	...	33 "

but this was of course extremely slow progress where probably between 6,000 and 7,000 houses will have to be treated.

The following are the statistics up to 2nd May :—

Date.	Admissions to hospitals.	Deaths in hospitals.	Total mortality.
To 6 A.M. on—			
25th April ...	...	...	78
26th " ..	...	...	73
27th " ...	15	...	75
28th " ...	53	4	104
29th " ...	34 + 43 (Salaya)	9	87
30th " ...	18 + 6 "	17	113
1st May ...	42 (28 in Town Hospital)	46	139
2nd " ...	...	...	129

The present intention is to work the town in an ordinary plague way and vacate about a fourth of it at a time to get it cleaned and whitewashed, but as will be seen from the accompanying diagram B,* a considerable amount of attention will have to be paid to the surrounding country, as it would be folly to merely clear the town whilst the four or five-mile radius remains so infected. At present I calculate about 20,000 people or perhaps more are camped out within that radius and it will be seen that a considerable number of deaths take place here. On the 1st May 36 occurred among these people and on 2nd 30. A doctor who is a good horseman is a *sine qua non* for this work. I was able to visit some of the nearer huts and have several cases removed to hospital on the 28th, but not being able to get across country could not do much more work in this line.

Hospital accommodation.—By slightly extending the Hindu hospital I estimate almost 200 patients can be accommodated there. At present there is certainly room for 150. The Mahomedan City Hospital will accommodate about 24, but it is practically only an observation hospital for people who have fever on examination before embarking, as there are two other Mahomedan hospitals. The Mahomedan matshed hospital in Salaya can be extended eastwards as required. The Mahomedan matshed hospital at the north-western corner of the town wall can also be extended as required. The Borah hospital has very good accommodation and is excellently looked after, eight or ten patients last time I visited it.

Medical inspection of passengers leaving will probably be kept up, its greatest use is that from some accident or other many of those wishing to be examined are detained so as to lose the steamer.

When Surgeon-Lieutenant-Colonel Wilkins arrived, I consulted with him as to the staff he would require, the number of which of course always depends on the man who is to direct them, and two European Sanitary Inspectors and 200 coolies for whitewashing purposes were wired for from Bombay. Dr. Wilkins appeared to think he could do all the medical work easily with the assistance of another European medical officer, but I think it would be unwise to try this. If two European medical officers do the work, you can rest satisfied that everything is not well done, nor every point carefully attended to. I would suggest that a second junior medical officer should be detailed to assist there, if only for ten days or a fortnight, and that the following approximate duties should be laid down.

Dr. Wilkins, No. 1 Officer.—Several charge of town and operations also of Salaya European charge of hospitals which is badly wanted not so much in treatment of sick as in administration. It is not sufficient to drudge through this with only a glance now and again. If all the sick people are picked up in town 250 patients would have to be looked after and all their friends—no light work, especially in seeing that segregation is properly

* Not reprinted.

carried out after the death of the sick. He should also carry out the medical inspection of passengers carefully, although this is not indispensable as there is medical detention at Karachi. He should have charge of the health camp and segregation camps : when they are running properly this cannot be done by mere looking in "to see that things are right."

No. 2. Officer—Should be in charge of the country to north and west of town and assist in town work and other work as desired.

One man even could do the work, but it would be done in such perfunctory way that it is desirable to have two men at least to help him. An increased hospital staff is absolutely necessary, and the nurses and sepoys should be sent up to-day—4 of the former and 10 of the latter.

I also suggested the use of the Europeans from 6—25 in number. I could have employed 25 easily, and suggested that 6 might be usefully employed ; this however was *pooh-pooed* at once by the Political Agent and Dr. Wilkins, though Mr. Pestonji Sorabji, who is acquainted with the situation, was strongly of my opinion at the time. No greater mistake can be made in plague work than trying to undertake a lot of work with an inadequate staff ; it always costs time and money and leads to chaos. Just take, for instance, the following :—On 1st May to 6 a.m., there were 28 admissions to the Hindu Hospital, mostly sent in from town after search with the detections, but in addition to this there were 47 dead bodies which also passed through the gates, most of which could properly have been discovered alive by a good search, and these in their turn must have infected more. One of the most important points in these plague measures is *thorough* search, not wandering about picking up cases here and there, where one can scarcely enter a street without being aware of their presence. Fortunately, the mortality surely cannot long remain as it is, even without any attack on it, although we should never prognosticate in plague. The town mortality will fall rapidly as so few people are left there, but the outside mortality will fall much more slowly. Most of the local officials are of little or no use, hence my suggesting the use of, say, six Europeans to assist. I do not agree with the opinion so often expressed by people who have had no experience of plague work that "Tommys" are not the men to do plague work amongst the natives. I only suggest that Europeans should be utilized, and the only ones that I imagine can be had just now are non-commissioned officers, and there is not the slightest necessity for them going in uniform. The way they conduct themselves generally depends on the ability of their leader to keep them in order.

At all towns and villages, I am informed, a strict quarantine is kept up, and so far apparently with success.

One or two of these places I saw. As it was impossible to visit any more, a report on the arrangements has been asked, but beyond giving information on details to the Chief Medical Officer, and impressing on him the necessity for making this as thorough as possible, I would do little.

Since writing the above I have seen General Gatacre, and he is arranging to send up two medical officers, ten more ward sepoys, and four or six nurses if they can be spared. This will put the staff on a proper footing.

I cannot conclude without bringing to your notice the services which Mr. Pestonji Sorabji has already rendered at Mandvi ; it is not too much to say that without his help little or nothing could have been done, and the progress made in the first few days was greatly due to his tact and energy.

Despatch from THE SECRETARY OF STATE to THE GOVERNOR-GENERAL OF INDIA in Council.

No. 98 (Revenue.)

My LORD,

24th June 1897.

WITH reference to your Excellency's telegrams, dated the 26th March and the 4th May 1897, regarding risks from the importation of wool from Western India, I forward copy of the correspondence noted below.*

2. It will be seen that the Local Government Board do not propose, in the present circumstances, to take steps for prohibiting the importation of bales of wool from India.

I have, &c.,
(Signed) GEORGE HAMILTON.

* To the Local Government Board, dated 29th March 1897. From ditto, dated the 2nd April 1897. to ditto, dated the 25th May 1897. From ditto, dated the 9th June 1897.

Enclosures.

No. 1.

India Office,
29th March 1897.

SIR,

I AM directed by the Secretary of State for India to forward copies of the telegrams and papers marginally noted,* regarding the risk of plague contagion being brought to the United Kingdom in bales of wool despatched from Bombay and Karachi, where the plague has now been rife for some months. According to the latest trade returns, 8,729,000 lbs. of wool were despatched from Indian ports to the United Kingdom during the three months ending on the 28th February 1897; of these despatches, about four-fifths were sent from Bombay and Karachi.

It will be seen that anxiety was expressed by British manufacturers, lest plague contagion should be brought to England in bales of wool. The Governments of India and Bombay have not yet been able to take effectual precautions against continuation of the wool packed and pressed in Bombay and Karachi yards. Until the report of Mr. Hankin, the Bacteriologist, regarding the behaviour of the plague microbe in wool is received, Lord George Hamilton is unable to express an opinion, whether the bales of wool now on the sea, or about to be despatched from Bombay and Karachi, carry any risk of plague to people who may handle the wool in England. I am to inquire whether the scientific advisers of the Local Government Board are able to give an opinion upon this point, or whether they would prefer to wait for the bacteriological report.

Further, I am directed to say that, as at present advised, His Lordship is not disposed to act upon the suggestion made in the latest telegram from the Government of India, that British consignees of wool from Bombay and Karachi should be warned to arrange for disinfecting their wool at the ports of arrival.

I am to request the favour of a very early reply.

I have, &c.,
A. GODLEY.The Secretary,
The Local Government Board.

No. 2.

Local Government Board, Whitehall, S.W.,
2nd April 1897.

SIR,

I AM directed by the Local Government Board to acknowledge the receipt of your letter of the 29th ultimo (R. and S. 1079) and enclosures, with reference to the risk of plague contagion being brought to the United Kingdom in bales of wool despatched from Bombay and Karachi.

In reply, I am to state, for the information of the Secretary of State for India, that the Board are informed by their medical officer that he is not aware of any evidence to show that there is danger to the United Kingdom merely because of the arrival of bales of wool from ports where plague is prevalent, and that the discovery of the plague bacillus after a certain number of days in an article that had been purposely inoculated with that bacillus ought not in his judgment to be regarded as affording proof that the article in question, whether it be wool or any other substance, was likely, in the ordinary trade processes, to convey that infection. I am to add, that at the Venice Conference, it was decided that raw wools (*laines brutes*) were to be regarded as "susceptibles," this attitude being adopted, not because it was known that animals from which wool is derived were liable to plague, or that wool from deceased animals was likely to possess the infective property of plague, but because it was not possible to deny that wool might become infective during the processes to which it was subjected before being shipped. The Venice Convention, however, contains no prohibition against the importation of wool from

infected places, nor does it require disinfection to be carried out before wool is received into a country, these points being left to the discretion of the importing country.

I am to add, that if the Government of India consider that wool is subjected to processes in infected ports of India which are likely to result in the bales being exposed to actual infection by plague, it seems to the Board that the action necessary to prevent risk in this way should be adopted in India, and not be thrown upon the sanitary authorities of the ports of arrival in this country.

I am, &c.,
ALFRED D. ADRIAN.
Assistant Secretary.

The Under Secretary of State
for India.

No. 3.

India Office,
25th May 1897.

SIR,

WITH reference to Mr. Adrian's letter No. 48,242 K (2) dated the 2nd April 1897,
Telegram to the Government of India, dated 3rd April 1897. I am directed by the Secretary of State for India to forward copies of further telegrams on the subject of possible risks from wool imported from India into the United Kingdom.

Ditto from ditto, dated 4th May 1897.
From the 1st October to the 28th February last, ten million pounds of wool were exported from Bombay and Karachi to the United Kingdom. So far as is known, no cases of plague have occurred among the classes dealing with or using this Indian wool. If the Local Government Board are still of the opinion expressed in Mr. Adrian's letter cited above, Lord George Hamilton would propose not to take any steps for stopping or controlling the wool exports from Western India.

I have, &c.,
HORACE WALPOLE.

The Secretary,
Local Government Board.

No. 4.

Local Government Board, Whitehall, S.W.
9th June 1897.

SIR,

I AM directed by the Local Government Board to acknowledge the receipt of your letter of the 25th ultimo (R. & S. 1412) forwarding copies of further telegrams on the subject of possible risks from wool imported from India into the United Kingdom, and I am to state, for the information of the Secretary of State for India, that the Board adhere to the opinion expressed in their letter of the 2nd April last.

I am, however, to add that, if the Secretary of State will refer to the last paragraph of that letter, he will see that the Board did not, as implied in the telegram of the 3rd April 1897, from the Secretary of State to the Viceroy, suggest that prohibition, if needed, could not be effected in England. Their letter referred to action which might be taken in India to prevent bales from being exposed to actual infection. They now learn that the Government of India are unable to devise means to that end, but as at present advised, the Board do not propose, even under these circumstances, to take steps, under the Venice Convention or otherwise, to prohibit the importation of bales of wool from India.

I am, &c.,
ALFRED D. ADRIAN,
Assistant Secretary.

The Under Secretary of State
for India.

From the GOVERNMENT OF INDIA to the SECRETARY OF STATE
FOR INDIA.

(Sanitary No. 20.)

MY LORD,

Simla, 21st July 1897.

IN continuation of our Sanitary Despatch No. 17, dated the 22nd June, we have the honour to send the following further narrative of events connected with the plague.

2. Although cases still occur in the city of Bombay their number continues to diminish. The figures forwarded with our Despatch of the 22nd June showed for the first eighteen days of that month an average number of daily seizures and deaths of 8 and 4 respectively. During the remainder of June the daily averages were 3 and 2·6, and during the first seventeen days of July only 21 cases and 17 deaths have been reported. The total mortality in the city of Bombay has been somewhat above the average during the three weeks ending the 6th instant. There is, however, no reason to believe that this excess is due to failure to record deaths from plague. To this Despatch is appended a letter from the Chairman of the Bombay Plague Committee,* giving the explanation with regard to the diminution in the number of deaths from ordinary fever to which allusion was made in the second paragraph of our Despatch of the 22nd June. The fall has recently been less marked, owing perhaps to seasonal causes.

3. From the date of our last Despatch until early in the present month the progress in the Bombay Presidency proper was most satisfactory; except in Cutch, only a few cases occurred at intervals. During the past fortnight there has been a slight recrudescence in the Naosari Division of the Baroda Territory, and to a lesser extent in Poona City, and in the Districts of Kolaba, Surat and Satara. The number of cases reported is nowhere great, and we trust that the increase, which is perhaps to be attributed to the advent of the rains, will not continue. A Commissioned Medical Officer, who has had special experience of the plague, has been sent to the Naosari Division to advise the Baroda Darbar on the means to be taken to prevent the disease from again obtaining a hold over that locality, and there have been no cases within the Baroda State for the last six days. In the town of Mandvi and in the rest of Cutch the epidemic has greatly declined, and the cases average only one or two a day.

4. Karachi was altogether free from fresh cases of plague from the 28th June to the 6th July. Since the latter date there have been six cases. As in the case of Bombay, there has been a marked decline in the mortality from ordinary fevers. From the rest of Sind no cases have been reported since 26th June. The epidemic in Sind having thus almost died out, the Government of the Punjab has been able to somewhat lessen the stringency of its precautions, and, while still keeping up the main inspection posts on the railway and the Indus River, it has abandoned a number of the minor stations. A letter explaining the arrangements at present maintained is appended to this Despatch.*

5. In the Portuguese territory of Damaun also the epidemic has abated since the beginning of June, but we have not exact information as to the present position of affairs. We have requested the Government of Bombay to ask the Governor-General of Portuguese India to cause Damaun to be thoroughly cleansed and disinfected. In our Sanitary Despatch No. 16, dated the 1st of June, allusion was made to the quarantine cordon established by the Collector of Surat round the Damaun frontier. A copy of further correspondence on the subject with the Government of Bombay is enclosed.* We consider that the original quarantine arrangements made with the endeavour to practically isolate Damaun from all intercourse with British territory were needlessly stringent, and a source of unnecessary hardship, but that the present modified arrangements, which permit egress from Damaun after examination and the detention of the suspicious under observation, and provide for the entry of commodities into Portuguese territory, are not open to objection.

6. No case of plague has occurred at Hardwar since the 8th June and Government of the North-Western Provinces and Oudh has therefore passed orders relaxing the stringent precautions that had been enforced, and permitting the reoccupation of the quarter of the town that had been infected. A note on the outbreak prepared by the Government of the North-Western Provinces and Oudh is enclosed.* It shows the origin of the outbreak so far as this can be ascertained and describes in detail the measures successfully adopted for dealing with it.

* Not reprinted.

7. To this Despatch is appended a statement illustrating, from the commencement of the outbreak up to the beginning of the present month, the extent of the epidemic in the Bombay Presidency and its severity in the different localities attacked.* The total number of reported cases amounted on the 2nd July to a little under 37,000, and the total number of reported deaths to a little under 30,000. The number of reported deaths is 81 per cent. of the number of reported seizures. It is known that, especially during the earlier period of the epidemic, the reporting of plague cases was by no means complete and the number of cases that have actually occurred must considerably exceed 37,000. In the city of Bombay the reported deaths stand at 10,683, but Your Lordship will observe that the total mortality of the city from the week ending the 1st September, 1896, to the 21st April, 1897, exceeded that of the corresponding average mortality during the same period for the previous five years by 20,828, and we are of opinion that the greater part of this excess must be attributed to plague and to diseases of the respiratory organs which, though directly attributable to plague, were not at the time diagnosed as such.

Outside Bombay, the epidemic was severest in the towns of Poona, Karachi and Mandvi, where the number of seizures per 100,000 of the population was as follows:—

Karachi	...	...	...	...	...	...	...	3,952
Poona	...	...	...	...	...	...	...	1,643
Mandvi	...	...	...	...	...	...	...	11,204†

The epidemic in Mandvi has been most virulent. Figures for Damaun are not available, but it is believed that the epidemic at that place was as severe as in any locality in the Bombay Presidency.

There are only seven territorial divisions of British and Native territory in which the number of plague cases exceeded one per one thousand of the population. In other parts the disease was only slightly or not at all epidemic. The seven localities are:—

	Number of seizures per 100,000 persons.							
Thana District*	547
Janjira State	344
Surat District	316
Kolaba District	249
Naosari Division (Baroda Territory)	160
Shikarpur District	108
Cutch State	107

8. The Consul at Jeddah telegraphed on the 15th inst. that plague is considered to be nearly extinct at that place, no cases and only one death having occurred in eleven days. We have telegraphed to Your Lordship on the subject of the return from Jeddah of the indigent Indian pilgrims.

9. We have received Your Lordship's Despatch, No. 92 (Revenue), dated the 17th June, forwarding a copy of questions asked by Mr. Maclean in the House of Commons and of Your Lordship's reply thereto, in connection with the plague. We have requested the Government of Bombay to send copies of the papers alluded to by Mr. Maclean, and we have asked that Government for an expression of opinion regarding the advisability or otherwise of publishing the papers, and for any observations they may desire to make on the case.

10. We forward for Your Lordship's information a copy of correspondence* with the Government of Bengal in which are explained our views on the subject of the compulsory segregation of the sick in public or private hospitals, a matter which has engaged considerable attention in the North-Western and Lower Provinces of Bengal, and elsewhere. In the letter from the Secretary in our Home Department, No. 1768 (Sanitary), dated the 30th June, the Government of Bengal was instructed that it is for that Government to thoroughly inform itself and finally advise as to what measures can safely be taken in the matter of segregation. It has, on the one hand, to consider the danger of the spread of plague and the question whether and to what extent home-segregation could be enforced. On the other hand, it must take into account the state of feeling in the Province, and the extent to which political disaffection and disorder are to be apprehended from the enforcement of a rule rendering every person suspected of suffering from, or being infected with, plague liable to be sent to hospital. It is further stated in the letter of the 30th June,

* Not reprinted

† Indigenous cases only.

that we are disposed to agree that segregation is the best preventive measure that can be devised, and that if it is to be enforced in a place like Calcutta, segregation in hospital is essential for the greater part of the population likely to be affected, but that in carrying out any measures of segregation due regard should be had, as in the case of Europeans, to the position in society of those classes of the community who can be relied on to take efficient measures with the object of preventing the spread of infection, and to other considerations of a like nature. Stress was also laid on the importance of providing accommodation in or near the hospitals for the immediate family of the patient, in order to avoid enforced separation of the sufferer from his family and friends. The decline of the epidemic has rendered it unnecessary for the Government of Bengal to issue any fresh rules, but we considered it advisable to explain our views on the matter, and to ask the Bengal Government for revised proposals in case the regulations should ever be required.

11. To this Despatch are appended copies of recent notifications and orders* issued by Local Governments under the Epidemic Diseases Act, and a copy of the more important resolutions lately issued by the Government of Bombay in connection with the plague.

We have, &c.,
(Signed) ELGIN,
&c., &c.

From the GOVERNMENT OF INDIA to the SECRETARY OF STATE FOR INDIA.

(Sanitary No. 21.)

MY LORD,

Simla, 11th August 1897.

IN continuation of our Sanitary Despatch, No. 20, dated the 21st July, we have the honour to send the following further narrative of events connected with the plague.

2. In the City of Bombay there has been a slight increase in the number of reported cases of plague. From the 1st to the 17th July only 21 seizures and 17 deaths were reported; for the week ending the 24th July the figures were 14 and 9 respectively, for the following week 27 and 18, and for the week ending the 7th instant 16 and 8. It is stated in the weekly health reports of the city that the cases are of a mild type and sporadic, and the proportion of fatal cases is much less than during the period when the epidemic was virulent. There has been an increase in the general mortality prevailing in the city which was noticed in our last Despatch. From the 1st to the 17th July the average daily total mortality from all causes was 84, during the week ending the 24th instant 99, during the following week 142, and 145 during the first seven days of the current month. The average daily mortality for the period of the five years 1892—1896 corresponding to the three weeks ending the 3rd instant was only 74. Special inquiry has been made into this high mortality and it is reported that it is not due to recrudescence of plague. A certain amount of the increase has been caused by cholera, and that the rest is due mainly to dysentery, diarrhoea and lung diseases. House-to-house visitation has been resumed in all districts, but has not resulted in the discovery of many cases of plague. Sir James Campbell, the Chairman of the Plague Committee, reports, as the result of the enquiry made by the Committee, that the increased mortality appears to be due to the damp condition of the houses—the result of the measures taken for disinfecting—and to the immigration of persons in bad health from distressed districts. Sir James Campbell, however, states that this opinion is not universally held, and that it is specially questioned in cases of death from pneumonia. We have asked the Government of Bombay whether bacteriological investigation has been made in these doubtful cases.

3. The cases have somewhat increased in number in the Poona* and Satara Districts. In the Poona District the places most affected are the town, cantonment and suburbs of Poona, the cantonment of Kirkhi and the station of Lanowli. In the Satara District the disease is centred in the small town of Karad (population, according to the last census, 12,086), situated four miles from the Southern Mahratta Railway. No cases have been reported from the Surat and only one from the Kolaba District during the current month but a few cases have occurred in the Nasik District and in the Kolhapur and Palanpur States. In Baroda territory only fifteen cases have been reported since the cases reported

* Not reprinted.

in our last Despatch. To this Despatch is appended a report by Surgeon-Captain Milne,* the officer deputed to the Naosari District to advise the Baroda Durbar and examine the arrangements made to prevent a fresh outbreak of the disease. The Agent to the Governor-General is being requested to see the adoption of the improvements suggested by Dr. Milne. In Mandvi only one case has been reported since the beginning of the current month. In the rest of Cutch there have averaged about 8 a day during the current month. Three cases of plague have been detected at the Rutlam railway inspection station. The sufferers have been treated in the isolation hospital and the prescribed precautions taken.

4. To assist the local authorities in suppressing outbreaks of plague, such as those that have occurred at places in the Poona and Satara districts, the Government of Bombay have, at the suggestion of Dr. Lowson and on the advice of their Surgeon-General, directed the maintenance of "flying columns." These columns ordinarily consist of a Commissioned Medical Officer, two Hospital Assistants, coolies, and a female, will be furnished with a supply of disinfectants and will be accompanied by a female, probably a nurse. In their Resolution of the 26th July, which is appended to this Despatch,* the Government of Bombay have authorised the Surgeon-General to form two of these "flying columns" at once, and to add to this number if necessary. We consider that this measure is well adapted to assist in the suppression of the local outbreaks, recent experience shows are still to be feared.

5. The reports from Sind continue to be very satisfactory. Outside Karachi no case has been reported since the 24th June, and in Karachi itself there have been only seven cases since those reported in our last Despatch. The last of these cases occurred on the 27th July. The general health of the town of Karachi is also very good, and the mortality has for some weeks past been much below the normal. We trust to be able to inform Your Lordship that the whole of Sind is free from plague, and healthy within the meaning of the term as employed in the Venice Sanitary Convention.

6. To this Despatch is appended a Resolution of the Government of the North Western Provinces and Oudh reviewing the events connected with the cases of plague that occurred at Hardwar.*

7. We have received Your Lordship's Despatch, No. 107 (Revenue), dated the 8th July,* forwarding for our information a copy of correspondence with the Foreign Office in regard to the action which should be taken to give effect to the Venice Plague Convention. The measures that have been prescribed and adopted to prevent the spread of plague in this country, and which have been reported to Your Lordship in our previous Despatches on the subject, are in accordance with the rules laid down in Chapter II. of the Regulations, appended to the Convention. The Government of Bombay and other Local Governments and Administrations have employed an elaborate and carefully devised system to ensure the immediate report of ascertained and suspected cases of plague. Quarantine has not been enforced to prevent the spread of infection by land, but systematic and thorough arrangements have been carried out for the inspection of travellers from infected districts, for the segregation of persons likely to carry infection, for the isolation and treatment of plague-stricken travellers, for the disinfection of all baggage likely to contain the seeds of infection, for the surveillance of travellers from infected districts on arrival at their destination, and for the disinfection of railway carriages. The question of the treatment of susceptible articles and goods has also been considered and the import of rags, used apparel and bedding, waste paper and used gunny-bags from the Bombay Presidency and Sind into any other part of India has been prohibited. With our Sanitary Despatch No. 16, dated the 1st June, we sent for Your Lordship's information a copy of a circular of the same date forwarding a copy of the Convention to the Maritime Local Governments with a letter explaining its terms and instructing the Local Governments to modify their rules with regard to the inspection of vessels at the time of departure and with regard to the protective measures adopted against infected ports. We are still in correspondence with the Maritime Local Governments, and we will shortly address Your Lordship again and forward a copy of the revised rules which are at present being prepared. In accordance with the remarks made in paragraph 4 of the letter from the India Office to the Foreign Office, No. 3, dated the 24th June, we will notify to the signatory powers the appearance of plague in any district, its extension to a fresh port or area, should this occur, its disappearance from any port or area, and the adoption of

* Not reprinted.

protective and preventive measures, in the manner indicated in that paragraph. We are at present preparing for transmission to the signatory powers a collection of the orders which have been issued by ourselves and by the several Local Governments and Administrations.

8. In conclusion we forward for Your Lordship's information a copy of the more important resolutions and orders* recently issued by the Government of Bombay in connection with the plague.

We have, &c.,
(Signed) ELGIN,
&c., &c.

From the GOVERNMENT OF INDIA to the SECRETARY OF STATE
FOR INDIA.

(Sanitary No. 24.)

MY LORD,

Simla, 7th October 1897.

IN continuation of our Sanitary Despatch, No. 21, dated the 11th August, we have the honour to send the following further narrative of events connected with the plague:—

2. In the City of Bombay the daily number of cases of plague continues to show some increase. In June the total number of reported cases was 182, in July 62, in August 124, and in September 221. Of these 221 cases, 82 occurred during the first half and 139 during the second half of the month. In August the percentage of cases which terminated fatally was 56, and in September 76.

The total mortality in the city since the beginning of June was:—

June	...	...	...	...	...	...	...	2,319
July	...	...	...	...	...	...	...	3,114
August	...	...	...	...	...	...	...	4,076
September	...	...	...	...	...	...	...	3,620

During the first three weeks of September the mortality was 2,482, as compared with an average of 1,483 during the corresponding period of the preceding five years. The excess mortality was partly due to the existence of cholera in an epidemic form. From the official reports received there does not appear to be reason to apprehend that cases showing the usual signs and symptoms of plague are escaping detection, but we do not feel assured that the high mortality in Bombay may not be due in some measure to pneumonic forms of the disease which are difficult to diagnose except after bacteriological examination. This, however, has been carried out in several instances, but with negative results. House-to-house visitation is still carried on, and operations against the disease are conducted by the Plague Committee on the same lines as heretofore.

3. Outside the City of Bombay the disease continues to spread and increase in severity, and the position has again become one of considerable anxiety. The following list shows the number of cases reported during the month of September from the Districts and States now chiefly affected:—

Satara District	...	...	...	...	...	...	2,317
Poona „	...	...	...	...	...	...	904
Cutch State...	...	...	...	...	...	...	522
Nasik District	...	...	...	...	...	...	347
Poona City...	...	...	...	...	...	...	296
Palanpur State	...	...	...	...	...	...	276
Surat District	...	...	...	...	...	...	198
Thana „	...	...	...	...	...	...	106
Kolaba „	...	...	...	...	...	...	79

Some cases are also occurring in Baroda Territory and in the Districts of Ahmednagar, Sholapur and Ratnagiri. In the Satara District the virulence of the epidemic does not at present show signs of diminishing. In the City of Poona there has recently been a marked increase in the number of cases, but in the District the epidemic appears to be declining. In Cutch the cases are again increasing in number. In the

* Not reprinted.

Palanpur State there were more cases in the second than in the first part of September, but during the last few days the number has declined. In the Thana and Nasik Districts the end of the month showed some decline in the number of cases, and in the Districts of Surat and Kolaba the number of cases has not been numerous and the position of affairs is about stationary.

Karad was the first place in the Satara District in which the new epidemic broke out. Here and also at Kaledhon, the next place in the district to be seriously affected, the disease has declined, but it has since become epidemic in a number of other places. At Kirkee and Lonavla, in the Poona District, the malady has abated, and the disease is now worst at Godnadi, in the Sirur Taluka, and has also extended with less virulence to some other places. Mandvi, in Cutch, is now free from plague, but the disease exists in a number of villages mostly situated in the Mandvi Taluka. In the Districts of Nasik, Surat and Thana the places principally affected are Igatpuri, Surat and Kalyan respectively. In the Palanpur State the cases are occurring in the town of Palanpur itself.

4. On the 21st of September we sent a telegram to the Government of Bombay, stating that the situation appeared to us to be very grave, and suggesting that a committee should be appointed for the purpose of proceeding to centres where outbreaks occur in order to aid the local authorities with their advice. The Government of Bombay replied that they had appointed a general advising and inspecting officer. Surgeon-Major R. J. Baker, who had had great experience of the plague in Sind, was first appointed to this post, and on his health failing he was succeeded by Surgeon-Major A. V. Anderson, Deputy-Sanitary Commissioner, who is an able officer with large experience of the plague. The rainy season has greatly obstructed the regular prosecution of the operations, and especially the segregation of the infected. The advent of the fine weather has now removed this difficulty, and the Government of Bombay assure us that the District Officers understand the necessity for the evacuation of infected houses in rural areas. To this Despatch is appended an interesting memorandum by the Commissioner in Sind illustrating the success of the efforts made in that province to remove the inhabitants of infected localities out of their insanitary surroundings and to detain them in carefully supervised camps. Flying columns, the constitution and duties of which were explained in our last Despatch, have been for some time at work in the infected localities of Karad and Kaledhon, in the Satara District, and Igatpuri and Lonavla, in the District of Poona. At Poona itself house-to-house visitation and the other measures previously adopted have been re-introduced, and the help of a number of native gentlemen has been enlisted to assist in house-to-house visitation and to use their influence over the people. M. Haffkine has been continuing his experiments and treatment in the Poona and Satara Districts. At Palanpur, where the presence of plague is a special menace to Northern India, the operations have been placed in charge of a special Commissioned Medical Officer of experience, and the measures successfully taken during the first outbreak at that place have been again adopted. Special care is taken in the examination of all persons leaving Palanpur by road and rail, and any one who is in any way suspicious or likely to carry infection is detained. The series of inspection posts which were established during the earlier period of the epidemic along the lines of communication leading from one part of India to another are maintained, with the exception that when Sind became free of plague the inspection of travellers from Sind was discontinued. Appended to this Despatch is a list giving the names of the whole series of inspection stations, and another list showing the stations at which female inspectors have been posted.* The Government of Bombay are at present considering a report submitted by a Committee of experienced officers appointed to devise, if possible, further means of preventing people from leaving infected localities and entering other places until suitable precautions have been taken with respect to them.

In a telegram, dated the 21st August, 1897, we informed Your Lordship that Sind was free from plague. Since that date it has remained so, with the exception of a single case at Karachi reported by the Government of Bombay on the 1st of October. Enquiry has been made from the Government of Bombay whether there is any reason to believe that the case was of indigenous origin, and quarantine against Karachi will not be re-imposed nor will intimation be sent to Foreign Governments unless there is diffusion of the malady, and it becomes necessary to take action under Chapter II., Section II., of the Venice Sanitary Convention of 1897. Careful inspection of vessels and persons arriving from Bombay and other ports on the West Coast is maintained at Karachi, and as an additional precaution travellers by rail from Karachi are inspected before departure with a view to discover any case that might have escaped detection during the examination of the vessel.

* Not reprinted.

5. We regret to have to inform Your Lordship that twelve cases of plague have been reported from Kankhal, a small town in the immediate neighbourhood of Hardwar. The Government of the North-Western Provinces and Oudh believe that this fresh outbreak was occasioned by pilgrims from the Bombay Presidency, but the cause does not appear to have been as yet ascertained with certainty. The Government of the North-Western Provinces and Oudh has taken the same stringent measures that were successfully adopted during the previous outbreak at Hardwar. The whole place has been evacuated and the inhabitants are being detained in a segregation camp, whilst their dwellings are being thoroughly cleansed and disinfected. It is stated that the disposition of the people is excellent, and we trust that the outbreak will be suppressed without difficulty. The Mahants have been persuaded to postpone the next religious fair which takes place at Hardwar. A copy of papers containing a vote of thanks presented by the members of the Hardwar Union Municipal Board on behalf of the inhabitants of Hardwar, Kankhal, and Jawalapur to the District Magistrate of Saharanpur is appended to this Despatch.* The inhabitants tendered their thanks to the officers concerned for their zeal and devotion in suppression of the disease, and for their consideration of the feelings of the people in all matters concerning their religious and social customs.

6. In paragraph 7 of our Despatch of the 11th August it was stated that we were in correspondence with the maritime Local Governments on the subject of the modification in accordance with the Venice Sanitary Convention of their rules for the examination of outward bound vessels and for the adoption of protective measures against infected posts. A copy of that correspondence and of the rules framed in accordance with our instructions by the Governments of Madras and Bengal and the draft rules prepared by the Government of Burma are appended to this Despatch.* The Government of Bombay have not yet issued their amended regulations, and a copy of them will be sent for Your Lordship's information as soon as they are published. It will be seen from the correspondence* that we were obliged to suggest a number of alterations in the draft rules originally proposed by the Government of Bombay. Your Lordship will observe that the various rules have been drawn in strict adherence to the principles and prescriptions of the Venice Sanitary Convention, and we are of opinion that they are calculated to serve well the purpose of affording practical security without unnecessary inconvenience, or hindrance to communication. Broadly the rules for the examination of outward-bound vessels require the careful examination by day of all persons, whether passengers or officers or members of the crew, sailing on the vessel. If the examination is made on shore, then any person suffering or suspected to be suffering from plague, together with persons who have been in immediate contact with him, are prevented from embarking and are kept in segregation on shore. The articles belonging to the sick person and his attendants which are deemed likely to be contaminated must also be disinfected on shore. If the examination takes place on board, then the sick person and his attendants must be removed from the vessel with their baggage, in which the articles likely to be contaminated must be disinfected, as also the portion of the vessel in which the sick person has resided. The fact of the removal of the declared or suspected case, and the precautions adopted, must be set forth in the bill of health. The rules for the treatment of arrivals in Indian ports from infected ports require "healthy" and "suspected" vessels to be dealt with in accordance with the regulations of the Venice Convention, and also provide for the "observation" or "surveillance" of persons sailing in healthy vessels which have had a passage of less than ten days from an infected port. We have throughout laid the strongest stress on the necessity of detaining the sick and the persons whom it is necessary to keep under "observation" on shore, in shelter carefully constructed with a view to proper sanitary arrangements. It appears to us to be of the greatest importance that the surroundings of the persons whom it is feared may have been in contact with infection should be as inimical as possible to the growth of the disease.

7. In only one respect has it been found necessary to depart in some degree from the letter of the Regulations of the Venice Convention. The first paragraph of Section II. of Chapter I. of the Regulations of the Venice Convention requires the examination of the persons sailing on board a vessel from an infected port to be made on shore at the time of departure. The rules which we have sanctioned, subject to Your Lordship's approval, permit the examination to be made on board if the enforcement of examination on shore would give rise to grave difficulty and inconvenience. The reasons which occasioned the adoption of this course are set forth at length in the letter of the Government of Bombay of the 22nd July and its enclosures and in our reply of the 6th August.

* Not reprinted.

The advisers of the Government of Bombay pointed out that there are very grave obstacles to the examination on shore of all persons sailing from the Port of Bombay, and the Governor in Council, accepting this view, asked that the Convention might be so modified as to allow of inspection on shore or on board, as the circumstances of any particular port might render necessary. After a careful consideration of the subject, we were constrained to accept the opinion of the Government of Bombay and their advisers and to authorize the continuance of the practice at that time adopted at the Port of Bombay, under which the examination was made on board or on shore as might be convenient. In arriving at this conclusion we were specially influenced by the following considerations. Section II. of Chapter I. of the Venice Convention, relating to sanitary measures for ships sailing from infected ports is divided into two portions, the first relating to ordinary vessels and the second relating to pilgrim ships. In the case of the latter the direction to examine on shore is followed by a remark that in carrying out this measure each Government may take local considerations and conditions into account, and a footnote explains that the Conference decided that in the Dutch Indies the inspection may be carried out on board ship. Sir James Campbell, the Commissioner of Customs at Bombay, pointed out that, if the concession of examination on board can be made in regard to the most dangerous class of passengers, namely, pilgrims, it ought also to be made in the case of other persons should circumstances render this desirable. And it was shown that the circumstances of the Port of Bombay rendered the concession imperative. It was pointed out that the most important portion of the examination is the examination of the crew, firstly because of the persons examined the greater number belong to crews of vessels, and secondly because experience has shown that the crews are much more likely to be infected than the passengers. It was further shown that in the case of the crews it is practically impossible to examine them all on shore, and that in the less important case of the passengers, though it is possible, it would give rise to very serious inconvenience both to the passengers and to the regular working of the port arrangements. Lastly, we attach particular importance to the great success that has attended the examination under the arrangements hitherto prescribed by the Government of Bombay, and we consider that this success is the strongest argument that can be urged for the continuance of those arrangements.

In the case of vessels berthed in the roadstead of the Port of Madras and sailing from the smaller ports in the Madras Presidency the same difficulty was encountered as at Bombay. At the Port of Calcutta it was found possible to arrange for examination on shore, but only at the cost of a delay and an inconvenience which called forth protestations from the mercantile community, in consequence of which we authorized the Local Government to relax the rule. In these circumstances we trust that Your Lordship will approve our action in permitting examination to be made on board in cases where strict adherence to the rule laid down by the Convention would have occasioned delay and interference with the regular working of port arrangements without any additional protection to the health of vessels sailing for foreign ports. We also trust that Your Lordship will, if necessary, cause the reasons which have led to this single modification of the Venice Convention to be explained to Foreign Governments.

8. To this Despatch are appended copies of the more important Resolutions recently issued by the Government of Bombay in connection with the plague.*

We have, &c.,
(Signed) ELGIN,
&c., &c.

Enclosures.

Telegram No. 2166, dated Simla, 21st September 1897.

From the Secretary to the Government of India, Home Department, to the Secretary to the Government of Bombay, General Department.

Present state of plague in Bombay Presidency appears to the Government of India to be very grave. They would be glad to learn how far the system devised by the Bombay Government of sending flying columns to affected localities has been followed, and whether connection of infected house is being enforced in rural tracts. The prospect of plague extending to places where the local authorities have not had personal experience in dealing with it appears to the Governor-General in Council to make it desirable to

* Not reprinted.

consider whether a committee of officers who have had such experience, might not be appointed under the presidency of some one like Wingate, to proceed to centres where outbreaks occur, with a view to aiding local authorities with their advice in dealing with it. Their functions might be somewhat similar to those recently entrusted to Drs. Lowson and Reade. Governor General in Council will be glad to learn how Bombay Government regard this suggestion, and whether they are prepared to carry it out.

Telegram, No. P-1571-P., dated Poona, 23rd September 1897.

From the Secretary to the Government of Bombay, General Department, to the Secretary to the Government of India, Home Department.

Your telegram 2166 Sanitary of 21st. Flying columns sent to Igatpuri, Lanavla, Karad, Kaledhon. District Officers understand the necessity for evacuating infected houses in rural tracts. Hitherto, rain has made provision of segregation camps very great difficulty, in some cases an impossibility. The idea of a committee did occur to this Government, but owing paucity medical and administrative officers, they have been obliged to work with single inspecting and advising officer instead of committee. Doctor Baker, with great Sind plague experience, was first appointed inspecting plague officer, but has broken down and been invalided. Succeeded by Anderson, Deputy Sanitary Commissioner, with great experience of plague in Thana last season. An experienced committee has just reported on question of preventing the spread of plague.

No. 4424—2981-P., dated Bombay Castle, 14th August 1897.

From the Secretary to the Government of Bombay, General Department, to the Secretary to the Government of India, Home Department.

With reference to your letters No. 1058, dated 25th March 1897, and No. 1853, dated the 21st July 1897, I am directed to forward, for the information of the Government of India, the accompanying copy of a Memorandum No. 3772, dated the 30th idem, from the Commissioner in Sind, furnishing the facts collected by him in connection with the Karachi Health Camps bearing on the question to what extent plague is communicable by contagion, and to state that the report referred to in the last paragraph of the Commissioner's Memorandum will be submitted to the Government of India when received.

Memorandum from the Commissioner in Sind, No. 3772, dated the 30th July 1897 ;—

“With reference to Government telegram No. P.—1071-P., dated 28th instant, the Acting Commissioner in Sind regrets that he is unable immediately to give a complete report on the subject of Government Resolution No. 1786—1245-P., of the 1st April, but the information which he is able to supply in the following paragraphs furnishes the strongest evidence that plague will not incubate for ten days or even five when the persons who have been exposed to infection are removed from the infected area to a healthy locality or camp, provided that their bodies and clothes are thoroughly disinfected before admission to the camp, and that no communication is permitted with outside during their detention.

“2. The figures of cases and deaths due to plague among the inhabitants of camps which have been regularly furnished to Government are misleading in this way that no distinction has been drawn between camps regarding the degree to which the inhabitants were exposed to infection or were liable to contract the disease during their residence.

“3. Take for an instance the Nasarpuri Camp, the first that was established. The huts were new and the locality healthy. The population was permitted to enter the camp carrying with them their sick, their dirty clothes and all their belongings. They were permitted to go daily to their work, and to have such intercourse as they pleased with the rest of the town, and no restrictions were placed upon other persons entering the camp. Add to this that the sick were not segregated from the healthy, the survivors after death were merely placed in a new hut with their belongings, the hut in which

death occurred and the clothes and bedding of the deceased only being burnt, and it is then a matter for surprise what an effect the mere removal of the inhabitants had. The Nasarpuris belonged to an influential and well-to-do class, and it was a matter of importance in the early days of the plague to induce the population to move voluntarily. The Nasarpuri Camp opened with a population varying from 2,500 to 3,000 during the first two or three weeks following the 24th January and closed with a population of nearly 1,000 at the end of May. The total numbers of cases and deaths during these five months were 97 and 80, respectively, of which 38 cases and deaths occurred within the first fortnight.

"4. The following examples, however, of camps instituted when the organization was complete, show the results which followed strict segregation and supervision. The village of Kalankot in the Trans-Lyari quarter had a record of 42 cases and 33 deaths, between the 7th and 16th March, in a population of 900 roughly. The village was entirely evacuated on the 17th March, and the inhabitants placed in huts 500 yards away. They were not disinfected before entering the camp. The following words are quoted from the Collector of Karachi's report :—

'The sick were segregated, but there was no disinfection ; 19* cases occurred during the first eight days (*i.e.*, within the ordinary incubation period) after which the disease completely disappeared, except one case, which was traced to infection from outside and occurred six weeks after the move.'

* NOTE.—The Municipal Health Officer's figures differ slightly, and he shows one case on March 30th.

"5. On the 1st and 2nd May, the inhabitants of a village called Gharibabad in the Trans-Lyari quarter, were located in the same camp, which the Kalankot population left two days previously to return to their homes. The Gharibabad population of 849 was thoroughly disinfected before they were admitted into the huts. On the 3rd May, 2 cases of plague were found, and none occurred afterwards. Twelve cases had occurred in Gharibabad village during the week previous to removal.

"6. A small village of 170 Mekranis who were badly infected, were placed in huts on the Trans-Lyari side, on the 4th May, after thorough disinfection. No further cases appeared among them.

"7. A small nest of tumble-down houses known as Nagarbai's compound, became infected. The inhabitants, about 200, were disinfected and moved into a camp not more than 100 yards away. There had been 28 cases and 18 deaths in the 20 days prior to the move, including 4 cases and 3 deaths on the day previous to, and 1 on the day of removal. Only 1 case occurred three days after removal.

"8. Plague broke out in Kiamari in February. On the 20th February the disease appeared in the old native village, where it remained till April, when the whole population was turned out and the village burnt. What is known as the new village was treated in the same way.

" 'Scarcely a hut in this area,' writes the President of the Plague Committee, 'inhabited by 1,300 persons could be declared free from infection. The Kiamari Health Camp of 255 huts, with all necessary sanitary arrangements, having been built and the camp placed under a military guard, the healthy persons were, after careful medical examination, moved into it from the infected village. Before being allowed to enter the Health Camp all persons and their belongings were most carefully disinfected by European subordinates under medical supervision. * * * * After removal to the Health Camp only two cases of plague occurred among these people. * * * * No local case occurred in the Kiamari Health Camp.' The two cases appear to have been due to infection from outside, workmen being attacked who were permitted to leave the camp by day on passes and were disinfected before re-admission at night.

"9. Two more examples may be given, in conclusion, from Sukkur :—

'On the 17th April a quarter of New Sukkur known as Gharibabad, where 106 cases had occurred in the previous three weeks, was surrounded, and the inhabitants *en masse*, to the number of about 600, were conveyed, with their goods, poultry and domestic animals to two camps of huts made of railway sleepers. Of these 367 were taken to the Gharibabad Health Camp. One case was found in this camp on the day of removal, and not a single other case occurred during their stay of one month. It may be mentioned that 5 cases and 2 corpses were found in the Gharibabad quarter on the day the inhabitants were removed.

'Exact information cannot be given regarding the remaining 215, who, being railway employes, and their families were sent to a Railway Loco camp, which contained 1,100 persons, among whom from first to last 6 cases and 4 deaths occurred.'

"10. The following is quoted from the report of the Sukkur Plague Committee :—

'A second case worth recording is that of the* Linji Charhi people. This neighbourhood was also badly infected for at least a fortnight prior to the 26th April, 4 and 5 cases occurring daily among a

* A small quarter in New Sukkur Town. somewhat limited population. * * * * The residents of this quarter were removed *en masse* on the 26th April to a camp specially set apart for them. * * * * Not a single case occurred amongst them for the month they were in camp, and since their return to their quarter they have been absolutely free from infection. The number of persons removed was 232.

'On the day of their arrival in camp their clothes and bedding were disinfected by boiling; rags and dirty bedding were destroyed * * * and their beds and furniture disinfected with perchloride solution.'

"11. Examples might be multiplied. At the New Sukkur Segregation Camp 11 cases and 7 deaths occurred among 529 people drawn from the most virulently infected parts of Sukkur Town. In the report of the Plague Committee it is stated that of these cases

1	occurred	1	day after admission.
1	do.	2	days do.
4	do.	4	do. do.
1	do.	5	do. do.
1	do.	6	do. do.
1	do.	7	do. do.
1	do.	11	do. do.
1	do.	13	do. do.

The last case was a doubtful one.

"12. The examples which have been given are those which point most conclusively to the efficacy of segregation after disinfection and supervision in stopping plague in an infected population. Enquiries are still in progress regarding cases which may have occurred under similar conditions after ten days' residence in camp. The evidence that plague does not incubate more than a few days is so strong that it may be considered that cases like the one that occurred after 11 days in the New Sukkur Segregation Camp are capable of explanation, and the simplest seems to be the supposition that in such cases the infection was taken from a previous case in the camp.

"A further report will be submitted as soon as possible dealing with cases of over ten days."

From the GOVERNMENT OF INDIA to the SECRETARY OF STATE FOR INDIA.

(Sanitary No. 25.)

MY LORD,

Simla, 4th November 1897.

WE have the honour to send for Your Lordship's information the following further narrative of matters connected with the plague, in continuation of the account contained in our Sanitary Despatch No. 24, dated the 7th October.

2. In the city of Bombay the situation remains about the same and the disease has not increased in virulence. The total number of cases reported during the month of October was 290; this gives practically the same daily rate as during the second-half of the month of September. The number of cases during the second-half of October was only slightly greater than the number during the first-half of the month. The percentage of these cases which terminated fatally was 61—an improvement on the percentage (76) for September. During the three weeks ending the 19th of October, the total mortality from all causes in the city was 2,226 as compared with an average of 1,489

during the corresponding period of the previous five years. During the preceding three weeks (ending the 28th September) the corresponding figures were 2,461 and 1,479 respectively.

3. The following is a list of the places in the Bombay Presidency now chiefly affected with the number of cases reported from each during the month of October (up to the 30th) :—

Satara District	...	...	...	...	...	3,841
Poona City	...	...	...	...	...	1,346
Poona District	...	...	...	...	...	558
Cutch State	...	...	...	...	...	464
Surat District	...	...	...	...	...	432
Palanpur State	...	...	...	...	...	240
Nasik District	...	...	...	...	...	203
Sholapur District	...	...	...	...	...	161
Ahmednagar District	...	...	...	...	...	138
Thana District	...	...	...	...	...	79
Kolaba District (including Janjira State)	...	...	...	...	...	68

The condition of the Satara district has become even worse than before, Poona City shows an alarming increase in the number of cases, and in Surat, Sholapur and Ahmednagar the disease has gained ground. On the other hand, the districts of Poona and Nasik show a great improvement, and Cutch State and Thana district a considerable improvement. In Kolaba matters remain about the same. Over the whole month the results in the Palanpur State are approximately the same as in September, but the cases have been more frequent in the second than in the first half of October. In Ratnagiri district the disease has again died out, and very few cases have been reported of late from Baroda territory.

The scene of worst infection has again shifted in the Satara district, and Supne, Masur, Karve and Kale, all situated in the Karad Taluka, are now the worst localities. Godnadi, in the Sirur Taluka, continues to be the most infected place in the interior of the Poona district, but even there the disease has greatly declined. In the districts of Nasik, Surat and Thana, the places principally affected continue to be Igatpuri, Surat and Kalyan respectively. In the town of Surat the disease has considerably increased, whilst in both Igatpuri and Kalyan the number of cases shows a marked decline. In the Sholapur district the epidemic is confined to the town of Sholapur, and in the Ahmednagar district, Javla and Ahmednagar Cantonment are the seats of the malady.

4. On the 24th of October we telegraphed to the Government of Bombay again pressing urgently on the Governor in Council the suggestion, which we had first made on the 21st September, that a committee of officers with practical experience in dealing with plague should be formed to proceed to centres where outbreaks occur, with a view to aiding local authorities with their advice in dealing with it. It was explained in the telegram of the 24th October that Madras had become an infected port within the terms of the Venice Sanitary Convention, and that the state of affairs in Poona City and Satara to the south, and in Palanpur in the direction of Northern India, constituted a grave menace to the country outside the Bombay Presidency. We expressed our readiness to give the services of Surgeon-Major-General Cleghorn for at all events the month of November, and suggested that Mr. A. Wingate, who, as Acting Commissioner in Sind, had gained great experience in the administration of measures to combat the plague, should be appointed President of the Commission. The Government of Bombay replied on the 26th of October accepting the suggestion that a Commission should be appointed with Mr. Wingate as President, and asking that Surgeon-Major-General Cleghorn should join as soon as possible. They also stated that they proposed to appoint Surgeon-Colonel Hay to be the third member of the Commission, and that the services of Surgeon-Major A. V. Anderson and Dr. Reade would be at the Committee's disposal. Mr. Wingate has already joined his appointment and has visited Palanpur, and Surgeon-Major-General Cleghorn left Simla on the 1st instant.

5. It was stated in paragraph 4 of our Despatch of the 7th October that the Government of Bombay were considering a report submitted by a committee of experienced officers appointed to devise, if possible, further means of preventing people from leaving infected localities and entering other places until suitable precautions have been taken with respect to them. The outcome of this consideration was the issue by the Government of Bombay, on the 5th October, of a set of rules to control the egress of persons from

infected localities. A copy of these regulations, together with a letter addressed by us to the Government of Bombay on the subject, is appended to this Despatch.* Broadly, the rules are intended to prohibit persons from travelling from infected localities to other places without a pass granted by the plague authority appointed for the purpose, and they provide that if it is considered necessary the pass shall not be granted until the person has been disinfected and detained under observation in an observation camp. The rules further explain generally the circumstances under which passes may be granted without previous detention, and permit certain classes of persons to travel without passes. With regard to the particular case of railway traffic the rules prohibit booking within fifteen (the distance has by a more recent notification of the Bombay Government been increased to 20) miles of the infected locality, in the cases of persons who have not (a) a pass, if they come from the infected locality, or (b) a certificate from the village officer that they have been residing in the village and have just left it, if they come from a locality outside the infected area.

After a careful consideration of these rules we were constrained to point out to the Government of Bombay that their general tenor was such as to give an indirect encouragement to land quarantine, and that the plague authorities charged with working them might easily, unless their action were carefully supervised, utilise them for the imposition of such quarantine. In writing to the Bombay Government we have again alluded to the grave objections which, as Your Lordship is aware, we have from the outset taken to the imposition of land quarantine, and observed that this view had been endorsed by the recent Sanitary Conference at Venice, and must be strictly followed by the authorities in India. We further stated that it was incumbent on the Government of Bombay to make arrangements to ensure that no action is taken under the rules which would amount practically to the imposition of land quarantine.

We also considered that the form of the rules was open to objection, inasmuch as it exempts from their operation certain classes of persons, such for instance as Europeans and Government and Railway servants, and, with the sanction of the District Magistrate, their families, and attendants. We are totally opposed to any interference with the ordinary avocations of persons who are not sick or suspicious, but in our opinion it is wrong to exempt special classes of persons from the operation of the rules. The principle which should govern the rules is that they should apply to all classes, but that detention should be enforced only in the case of such persons as are, in the exercise of the wide discretion which should be entrusted to the responsible officer, considered suspicious.

In addition to the above criticisms we considered it necessary to state our conviction that these elaborate rules for the control of the movement of people from infected localities will be powerless to check the spread of the disease unless they are accompanied by stringent measures to suppress the malady within the infected areas. In the absence of such measures the compulsory detention of the inmates in infected localities will, in our opinion, tend to foster the growth of the epidemic, and to establish plague *foci* whence the disease may not improbably spread with even greater virulence than if no measures had been devised to prevent the egress of the inhabitants. We therefore impressed upon the Government of Bombay that the most important object to aim at is not the control of the movement of the people, but the adoption of such well devised and stringent measures as will prevent the occurrence of plague cases from engendering fresh dangerous plague centres, whence the infection will certainly spread in spite of all efforts to confine it. Experience has shown that the measures upon which reliance may be placed to effect this end are in outline—

- (1) The prompt detection of cases by (a) search parties, and (b) better registration of deaths.
- (2) The removal of the sick to segregation hospitals.
- (3) The detention in segregation of healthy occupants of infected houses.
- (4) The evacuation of infected quarters.
- (5) The cleansing and disinfection of infected houses and quarters.
- (6) General sanitary improvements, such as the abatement of overcrowding and the improvement of ventilation and drainage.

We have asked the Government of Bombay for an assurance that these precautions are being generally and thoroughly carried out.

6. We regret to have to report to your Lordship that we have just been informed that twelve cases are reported to have occurred at Kotri, a small town in the Karachi district, about 100 miles from Karachi. We have not yet received intimation as to how

* Not reprinted.

this place became infected. We have also to notice the detection during the month of October of seven isolated cases outside the Bombay Presidency—two in Rajputana, one in the Central Provinces, and four in the Presidency of Madras. The cases which occurred in Rajputana were reported on the 10th and the 11th—one from Abu Road, and the other from Jodhpur; and the case from the Central Provinces was reported from Kutni on the 21st. All three cases were detected at railway inspection stations. The occurrence of cases at Madras itself has already been notified to your Lordship. The four cases which occurred in the town and Presidency were all connected with one another, and the disease had been in each case contracted at Poona. The first case occurred at Madras itself. The patient was admitted to the General Hospital on the night of the 6th October and died on the morning of the 7th. He was the servant of a gentleman who had arrived a few days previously from Poona, and he was not detained at any railway inspection station, but there is no reason to suppose that he was suffering from any symptoms of plague before he reached Madras. The second case was that of a horse-keeper, intercepted on the 7th at the inspection station at Arkonam, in the neighbourhood of Madras, and the third a native, who was discovered to be suffering from plague at the inspection station at Guntakal on the 8th. Both these persons belonged, it is said, to the same party from Poona as the servant who died at the Madras Hospital. The fourth case was that of a sweeper in the Madras General Hospital, who died on the 15th October. He had attended at the post mortem examination of the first case. The approved precautions with regard to disinfection and segregation were adopted, and there has been no further diffusion of the malady, As we telegraphed to your Lordship, the occurrence of the two cases at Madras was notified to Foreign Governments, and further intimation was sent after the expiry of ten days from the fatal termination of the last case.

7. Fifty cases of plague have occurred at Kankhal near Hardwar during the present outbreak, but the disease has not spread beyond that place. To this Despatch is appended a copy of correspondence with the Government of the North-Western Provinces and Oudh containing an account of the cases and the measures adopted to stamp out the disease and prevent its spread.* These measures have been well devised and are being carried out with promptitude and vigour. The Lieutenant-Governor reported on the 16th of October that nine *foci* of plague had established themselves in the town, which contains about 6,000 inhabitants. The blocks in which these *foci* are situated have been evacuated and are in process of disinfection house by house. The inhabitants have been segregated in camps, and arrangements are also being made to house in fresh camps as many more of the inhabitants as may become necessary. Segregation hospitals (public and private) have been provided for the plague-stricken, including huts for the attendants on the sick; and segregation huts have been prepared for the use of persons who have been in close neighbourhood to sufferers from plague. The attitude of the people is obedient and helpful, and practically no opposition has been encountered. Every effort has been made to promote the good feeling of the inhabitants.

8. This fresh outbreak of plague in the immediate neighbourhood of Hardwar and the increased virulence of the disease in the Bombay Presidency have both brought into prominence the danger which exists at present from the assemblage of large numbers of pilgrims at Hardwar. On the 29th of September, in issuing regulations for the conduct of operations in the Hardwar Union, the Government of the North-Western Provinces and Oudh made the following rule for the control of visitors from the Bombay Presidency :—

All pilgrims and visitors from the Bombay Presidency, excluding Sind or other place infected with plague, coming to Hardwar by rail or road shall reside in the camp at Hardwar provided for the purpose, where provision has been made for their accommodation. They shall be permitted during the day to visit the town, shrines and bathing *ghâts*, but must cook their food and sleep in the camp at night. Such visitors shall be liable to medical inspection from time to time.

At the instance of the Local Government a notification was issued in our Home Department under the Epidemic Diseases Act, on the 11th of October, prohibiting booking to and from Jawalapur, the railway station in the immediate vicinity of Kankhal, until further notice. The Local Government hoped by this means to keep pilgrims away from the infected quarter. On the 19th of October the Local Government telegraphed that two fairs were to be held shortly at Hardwar—one on the 25th October and the other on the 9th of the present month. Though unwilling to suggest the stoppage of the pilgrimage, the Lieutenant-Governor strongly recommended that it should be discouraged during one month by directing all railways not to run special trains for the conveyance of pilgrims to Hardwar on account of the recrudescence of plague in the Bombay Presidency.

* Minute of a Conference held at Hardwar on 16th October only reprinted.

This recommendation of the Local Government was accepted and a notification was also issued on the 23rd October under the Epidemic Diseases Act, directing that no tickets to travel by railway to Roorkee, Landhaura, Laksar, Pathri, Jawalapur and Hardwar should be sold from that date until the 16th of November. Arrangements have been made to grant passes to Government servants, students of the Roorkee College returning on the close of the vacation, Europeans, and other persons who evidently are not pilgrims. In view of the great diminution in the attendance which these measures will effect, and of the healthy condition of Hardwar itself, the Lieutenant-Governor expressed his opinion on 21st October, that the absolute prohibition of the fairs at Hardwar was not necessary, but asked for authority to enforce entire prohibition should Hardwar become infected. We were, when we received this expression of the Lieutenant-Governor's opinion, about to suggest that the Lieutenant-Governor should consider the propriety of stopping fairs at Hardwar, if matters did not in the meantime improve. It was too late to issue a prohibition against the fair of the 25th October, but it appeared to us that the notices issued by the Local Government might possibly remove the hardship in prohibiting the fair of the 9th November, and we stated that if the Local Government came to the conclusion that this or any subsequent fair should be prohibited, the Government of India would have no objection to the issue of orders to that effect. We also informed the Government of the North-Western Provinces and Oudh that pilgrims should be prevented from going to Kankhal, a visit to a temple in which is regarded by many as an important part of the pilgrimage, and that an endeavour should be made to discriminate between pilgrims from Sind and pilgrims from the Bombay Presidency, who were being treated in the same manner, and that only the latter should be lodged in the observation camp. The Government of the North-Western Provinces and Oudh replied on the following day that it was feared that the temporary prohibition of fairs might be necessary, but that before adopting this step the Lieutenant-Governor wished to secure the acquiescence of the prominent Hindu leaders. It was also stated that there were local difficulties in the way of discriminating between Bombay and Sind pilgrims and that lodgment in the observation camp did not occasion any substantial hardship. The Lieutenant-Governor promised however to endeavour to reconsider the matter.

9. We regret to state that an outbreak of plague has occurred at the village of Katkar Kalan in the Nawshahr Tahsil of the Jullunder district of the Punjab. The existence of plague in this village was brought to the notice of the Deputy Commissioner on the 16th of October, and the news was confirmed by the Civil Surgeon who went to the spot. The disease is alleged to have been imported from Hardwar as far back as May last. Several deaths are said to have occurred in May and June, and the malady again broke out at the end of September. Forty-two cases occurred between the 17th and 29th October, and on that day twenty-two patients were under treatment. Since the 22nd October there have been fifteen deaths. The Sanitary Commissioner of the Punjab has gone to the village to superintend the operations for stamping out the epidemic. The village has been evacuated and the inhabitants segregated in camp.

10. In two telegrams, dated, respectively, the 25th and the 26th October, the Chief Commissioner of Ajmere-Merwara reported that a religious and cattle fair was to be held at Pushkar in the Ajmere district early in November, and suggested that in view of the existence of plague at Palanpur the booking of railway tickets from Palanpur and neighbouring stations to Ajmere and neighbouring stations should be prohibited from the 1st to the 11th of November. We have issued a notification under the Epidemic Diseases Act in our Home Department, dated the 29th October, directing that no tickets to travel by railway to Ajmere and certain neighbouring stations should be sold between the dates specified, at Roho (on the northern border of the Palanpur State) or any station on the Bombay, Baroda and Central India Railway and the Rajputana-Malway Railway south of Roho, to any pilgrim or other person intending, or believed to be intending, to attend the Pushkar Fair. The Chief Commissioner has also requested Local Governments and Native States to warn intending pilgrims against visiting the fair, and issued a notification stating that the cattle fair and horse show would not be held.

11. In a telegram, dated the 23rd October, we stated, in reply to Your Lordship's telegram of the 21st, that the chief inspection stations on the lines of railway had been continuously maintained with a view to preventing the spread of plague from the Bombay Presidency, that some subsidiary stations had been abandoned when the epidemic declined, but that special orders had been issued on the 14th October to Local Governments to maintain the original measures for the inspection of railway passengers in their entirety.

These orders were issued in view of the recrudescence of plague in the districts of the Bombay Presidency. The inspection stations, both major and minor, are now in full working order, except the stations for the examination of travellers from Sind, which were abandoned when Sind became free from plague. It will be necessary, we fear, to resume these now that cases of plague have been reported from Kotri. With our Despatch of the 7th October we forwarded a list of the inspection stations: to this despatch is appended a map showing the position of those stations along the lines of railway communications.* We also forward for Your Lordship's information a copy of correspondence with the Government of Bengal* in which we negatived a suggestion made by that Government for the imposition of quarantine at various points on the railway lines from the Bombay Presidency, and insisted on the importance of maintaining a surveillance at their homes of travellers from the Bombay Presidency.

12. Appended to this Despatch is a letter (No. 5380, dated the 4th October 1897)* from the Government of Bombay, and enclosures, submitting a draft of rules, framed in accordance with the principles of the Venice Convention, for the treatment at Aden of vessels arriving there from ports declared to be infected with plague. We have signified our approval of the rules.

13. In conclusion we forward, for Your Lordship's information, copies of the more important resolutions* recently issued by the Government of Bombay on matters connected with the plague.

We have, &c.,
(Signed) ELGIN,
&c., &c.

Enclosures.

TELEGRAM No. 2341, dated Simla, 24th October 1897.

From the Secretary to the Government of India, Home Department, to the Secretary to the Government of Bombay, General Department.

Please refer to my telegram No. 2166 of 21st September and your reply No. 1571-P. of 23rd idem. Madras has now become an infected port within the terms of Venice Convention. State of plague in Poona City and Satara District to south and in Palanpur in direction of Northern India constitutes grave menace to country outside Bombay Presidency. Government of India understand that suggestion as to Committee was only discarded owing to paucity of officers and they would desire to press it urgently again upon consideration of Governor in Council. They are prepared to give Bombay Government services of Cleghorn at all events for month of November upon such a Committee and think that with him and Anderson Medical Department could be suitably represented. If Bombay Government could also appoint Wingate as President and some other executive officer from Bombay Presidency or Sind who has had plague experience, Government of India think that Committee would be fully representative.

TELEGRAM No. 3867-P., dated Bombay, 26th October, 1897.

From the Secretary to the Government of Bombay, General Department, to the Secretary to the Government of India, Home Department.

Your 2341, 24th. This Government accept suggestion. Plague Commission with Wingate President and Cleghorn as member. They consider it very desirable that Surgeon-Colonel Hay also should be a member. He knows Presidency and its officers and the present arrangements. If additional member desirable can be added later. Cleghorn should come as soon as possible. Governor is communicating with Lieutenant-General commanding about Hay. Wingate starts on tour immediately. Anderson and Reade will be at disposal of the Commission.

* Not reprinted.

*Extract from the Proceedings of the Government of Bombay, General Department
No. 5673—3644-P., dated Bombay Castle, the 16th October 1897.*

Letter from the Chairman, Poona Plague Committee, No. 2747, dated the 8th October 1897 :—

“I have the honour to report that, in view of the increase of plague in Poona City, as

Date	Indigenous	
	(Poona City only.)	
	Cases	Deaths.
28th September	13	15
29th do.	12	6
30th do.	17	10
1st October	7	8
2nd do.	8	6
3rd do.	14	10
4th do.	12	8
5th do.	12	6
6th do.	19	18
7th do.	18	15
8th do.	16	12
Total	148	114

shown by the marginally noted figures for each day since the present operations by the two military search divisions began, the Poona Plague Committee is of opinion that it is advisable to increase the number of military search divisions, with a view to more effective discovery and isolation of cases as they occur.

“2. The number of military search divisions should, if possible, be six, as in March-April last. With this number the whole city can be searched in five days.

“3. In order to form four divisions in addition to the two already employed, there will be required—

- 4 Commissioned officers.
- 4 Non-commissioned officers.
- At least 2 commissioned Medical officers. (1 to every two divisions.)
- 40 British soldiers.
- 80 Native soldiers.
- 12 Sappers.
- 16 Sowars.

“The Committee will make its own arrangements for native gentlemen, lady searchers, lady doctors, segregation squads, burying parties, and disinfecting and limewashing.

“4. It is most necessary that qualified medical men should be supplied to work with the search divisions. It would be better if there were one with each division; but at least one with each two divisions is indispensable. Without one the search divisions cannot work; and the Committee is not able to supply one.

“5. The first requisite therefore is at least two commissioned medical officers.

6. The number of officers and men required is taken on the same scale as that on which the existing search divisions are framed. Should it not be found possible to provide so many troops for this duty, the Committee considers that so many divisions should be formed as it may be possible to form, maintaining the present constitution of a division. With three divisions the whole city can be searched in ten days, with four in eight and with five in six.

“7. There are, however, portions of the city which are lightly infected or not at all, and others which are severely affected, especially Sadashiv Peth. These quarters would require more frequent searching than the others, and it would be possible to work with four divisions, or even three, searching the more heavily-infected quarters frequently at irregular intervals and the rest of the city only occasionally. Many cases are discovered by the Assistant Health Officers independently of the search parties; and some few come of their own accord to hospital.

“8. Whatever arrangements may be made as to an increase in the number of search divisions, the Committee desires to again draw the attention of Government to the great need which it is at present experiencing of an additional commissioned medical officer, and to express the hope that means may be found of supplying this serious want.”

Minutes of a Conference held at Hardwar on the 16th October 1897.

PRESENT.—His Honour the Lieutenant-Governor. Mr. G. R. C. Williams, I.C.S., Commissioner of the Meerut Division. Mr. E. F. L. Winter, I.C.S., Collector of the Saharanpur District. Mr. E. A. Kindall, I.C.S., Assistant Collector in charge of the Roorkee Sub-Division. Surgeon-Colonel Warburton, Inspector-General of Civil Hospitals. Surgeon-Lieutenant-Colonel S. J. Thomson, Sanitary Commissioner. Surgeon-Captain Chaytor White, Deputy Sanitary Commissioner. Surgeon-Captain Elphick, Civil Surgeon of Saharanpur. Surgeon-Captain Scotland, on special duty at Hardwar. Mr. G. E. Coles, Executive Engineer, Ganges Canal. Mr. W. H. L. Impey, I.C.S., Secretary to Government, Sanitary Department.

In the first week of September 1897, certain rumours reached the Collector and Civil Surgeon of Saharanpur that acute fever, quickly followed by death, had made its appearance in Kankhal, a town of some 6,000 inhabitants, situated on the right bank of the Ganges and one of the three towns comprising the Hardwar Union Municipality. Upon receipt of the information, the Collector (Mr. Winter) and the Civil Surgeon (Dr. Elphick) visited Kankhal, and made an inquiry into the correctness of the rumour which had reached them, directing their attention more particularly towards the ascertainment of concrete instances of the suspicious deaths to which reference had been made. The result of the investigation was to lead them to believe that merely deaths from the usual malarial fever prevalent at this time of the year had occurred. On the 16th September the Sanitary Commissioner received a telegram from the Assistant Surgeon in charge of the Hardwar Union Municipality, that a suspicious case, supposed to be plague, had been detected in Kankhal, and that the patient had been removed to the plague hospital, which had been kept up from the time of the outbreak in April, for the treatment of such cases. The Civil Surgeon (Dr. Elphick), who had also been informed of the occurrence by the Assistant Surgeon, came to Kankhal on the 17th September, and satisfied himself that the case was a general case of plague. It was accordingly reported as such to the Government.

During the previous outbreak in April and May last only case of true plague occurred in Kankhal, although there were some reasons to suspect that rats had largely died in that town. The disease however completely disappeared, and for several months no case of death from plague was brought to notice either among the inhabitants or rats in Kankhal, although careful watch was kept in the town. The medical authorities, however, think that the disease may have lain dormant during the rains, and that the present outbreak is merely a recrudescence. On the other hand, there appears to have been communication between Bombay and Kankhal during the rains, and it is not impossible that by that means the town may have become re-infected.

In accordance with instructions issued by the Government the Sanitary Commissioner (Surgeon-Lieutenant-Colonel Thomson) and the Collector proceeded to Kankhal, arriving there on the 21st September, and have remained there since up to date. The Commissioner (Mr. Williams), who reached Hardwar on the 22nd September, has visited the town at frequent intervals since.

2. Between the 16th September (on which date the first ascertained case of plague occurred) up till 12 o'clock to-day (16th October), there have been 31 cases, which have been distributed practically over the greater portion of the town of Kankhal, but have been concentrated at certain points which may be regarded as *foci* of the disease. They have been so grouped together as to form seven definite centres of the disease which have been made the basis of the proceedings subsequently taken for the evacuation of infected localities. Leaving for the present the question of establishment, which will be immediately reverted to, the proceedings followed by the Sanitary and Executive officers were as follows :—

The first step taken was to segregate the sick, and then friends and attendants, and to completely disinfect the houses in which plague cases occurred. But these measures proving ineffectual to stop the disease, it was decided to quarantine the whole town and to procure the evacuation of whole portions of the town in which the disease had shown itself or effected a lodgment. Accordingly the town of Kankhal was placed in quarantine and surrounded by guards, with orders to permit no one to enter or leave the town without the permission of the Magistrate. In case of persons wishing to leave, they will be required to pass ten days in the observation camp provided for the purpose. Some delay was caused in preparing the camps.

6. In regard to the general organization for dealing with the outbreak no improvement has to be suggested in the general system or scope of the arrangements now in force, with the exception of the possible extension by way of precaution of disinfecting operations to the towns of Hardwar and Jawalapur (in which the disease has not appeared). But the subordinate establishment and the officers on the spot are overworked, and it is necessary therefore to strengthen the staff. One tahsildar and three Naib tahsildars have been specially deputed for work in the town, and selected patwaris are called in to assist in carrying out the operations. Mr. Kindall, the Assistant Magistrate in charge of the Rurki Sub-Division, will now be temporarily relieved of the work of Sub-Divisional officer and will be placed on special duty at Kankhal, another officer being sent in his place to Rurki. In the absence of the Sanitary Commissioner, the Deputy Sanitary Commissioner will control the medical and sanitary operations, and another commissioned medical officer will be stationed temporarily at Kankhal. This will give three commissioned medical officers for the Hardwar Union Municipality. At present the following subordinate medical staff is employed :—

—					Assistant Surgeons.	Hospital Assistants.	Compounders	Dais	Vaccinators.
Kankhal	...	...	...	...	2	10	2	3	2
Jawalapur	...	...	...	...	1	2	...	1	3
Hardwar	...	...	..	...	1	1	1	...	5
Total				..	4	13	3	4	10

This staff is considered to be sufficient at the present time, but in view of the possible extension or appearance of new *foci* of the disease, and the great necessity of having on the spot sufficient expert staff to deal with such possible increase of sickness, the Lieutenant-Governor has decided to make immediate arrangements for doubling the disinfection gangs, and to this end 10 more Hospital Assistants and one additional Assistant Surgeon will be deputed to Kankhal.

7. Coming to the executive subordinate staff, ten gangs are now employed on disinfection work in Kankhal, each gang being composed of 16 men (kahars, beldars, bhistees and sweepers) in charge of a medical subordinate (Hospital Assistant or compounder). These gangs are employed on the evacuated blocks of buildings in the infected areas. They commence work at the house in which the case of plague occurred, taking the neighbours' houses next in hand, and gradually enlarging the circle. They first remove all property from the house in the presence of the owner: they then proceed to burn all worn out mats, chappars, rags and destructible articles of little value after such things have been valued by a committee of native gentlemen. Compensation is given in case of hardship. The house is then thoroughly cleaned and disinfected, the walls, floors and roofs being washed with a solution of perchloride of mercury (1 in 1000) Furniture and articles of value are taken out in the sun and treated in the same way. This procedure is followed systematically from house to house in the infected block, and in course of time the disinfection operations will be extended to every house in the town. The increased establishment now ordered will permit of this disinfecting process being even extended to blocks in which the disease has not yet appeared, and thus have, it is hoped, a salutary preventive effect. Power is left to the local officers to increase these gangs still more, should circumstances call for this.

8. The work of guarding the town of Kankhal and of preventing ingress and egress, is done at present by a force of police and chaukidars, including 92 chaukidars who have been withdrawn from villages in the neighbourhood, substitutes being temporarily employed in their place. In the same way many of the police officers have been withdrawn from police stations in other parts of the district; the services of these men can no longer be utilized and they must be sent back to their respective police stations. The Lieutenant-Governor has decided to make up the force employed at Kankhal to 15 mounted constables and 100 constables, with the necessary complement of head constables. The exact number necessary to make up this total has been now reported by the Collector, and the Inspector-General of Police has been requested to supply the men required.

9. No special disinfecting or conservancy staff is at present employed at the neighbouring towns of Hardwar and Jawalapur. The Collector will, as a precautionary measure, cause conservancy staff of those towns to be strengthened so far as, in conference with the Deputy Sanitary Commissioner and Medical Officers on the spot, he may consider expedient, reporting his action for the information of Government.

10. Inasmuch as objections are known to exist to the practice of taking specimens from the bodies of persons who are believed to have died of plague, and as there is no longer any doubt as to the nature of the disease, diagnosis of the medical officers having been confirmed by the bacteriological examinations already made, it was decided by His Honour that in order to meet the wishes of the people, such specimens should only in future be taken in cases occurring in Kankhal and in which in the opinion of the medical authorities bacteriological examination is necessary to solve an important and doubtful point, and to serve a purpose of practical utility. In the case of rats or monkeys suspected of being infected with the disease, specimens should be taken and sent to Mr. Hankin for examination.

11. On the 25th October, the Somnoli Amavas Fair will be held at Hardwar, and on the 9th November the Pur an Mashi. It is clear that it is to the general interests to discourage the influx of people to Hardwar, which is only one mile distant from Kankhal, on these occasions, although for reasons which need not be recorded, no direct prohibition is advisable. Moreover a visit to a temple at Kankhal is considered by certain people as an important part of the pilgrimage. The discouragement should take the form (1) of the issue of orders prohibiting the running by any railway of special trains for the conveyance of pilgrims to Hardwar for a month from this date, and (2) of the issue of notices in the newspapers and Government Gazettes of these and other Provinces, warning people of the danger they run in coming to Hardwar, and advising them to keep away. Finally, the subject of the danger of infection spreading to Hardwar, through the visits of pilgrims from the Bombay Presidency, was discussed. As the establishments are unable to discriminate pilgrims from the Bombay Presidency proper from pilgrims from Sind, it was decided that all pilgrims from the Bombay Presidency should be required, as before, to occupy the camp provided for their accommodation. The Government of India will also be addressed with a view to the booking of pilgrims from the Bombay Presidency to any station on the Hardwar branch line beyond Laksar, being stopped for one month from the present date.

From the GOVERNMENT OF INDIA to the SECRETARY OF STATE FOR INDIA.

(Sanitary, No. 27.)

MY LORD,

Dated Calcutta, the 9th December 1897.

In continuation of our Sanitary Despatch No. 25, dated the 4th November 1897, we have the honour to forward, for Your Lordship's information, statistics showing the progress of the plague during the month of November last, and the following further narrative of matters connected with the plague.

2. During the last half of November the number of reported seizures and deaths from plague in the City of Bombay increased considerably, the figures for the first and second halves of the month being as follows :—

							Seizures.	Deaths.
1st half	..	...	...	...	...	...	148	108
2nd half	...	...	...	...	...	...	223	144

The returns for the whole month show 371 seizures and 252 deaths against 290 seizures and 178 deaths in the month of October. The general mortality on the other hand diminished during the month, the total number of deaths from all causes having been 2,974 compared with 3,389 in the month of October. This is the lowest figure that has been reached since June last. The percentage of plague cases which terminated fatally was 68 against 61 and 76 in the months of October and September respectively.

3. The following statement shows the places in the Bombay Presidency proper

where plague is now most prevalent and compares the number of reported seizures during the months of November and October :--

	November.	October.
Satara District	4,549	3,841
Poona City ...	2,534	1,346
Sholapur District	1,123	161
Surat District	855	432
Poona District	763	558
Cutch State ...	336	464
Nasik District	262	203
Belgaum District	194	5
Ahmednagar District	161	138
Palanpur State	152	240
Kolaba District (including Janjira State) ...	74	68
Kolhapur State	47	7
Thana District	33	79
Baroda State	27	33

These figures unfortunately show a considerable increase in the extent and virulence of the plague. The increase has been mainly confined to the southern part of the Presidency. The rise has been more or less considerable in the Satara District, Poona City, the Poona District, the Sholapur District, the Belgaum District, the Kolhapur State, and the Ahmednagar District. Further north the number of cases has increased in the Surat District, and in a less degree in the Nasik District, but the outbreak in both areas is comparatively mild. A marked improvement has occurred in the Palanpur State and cases in the Thana District have become scarce. The epidemic in the villages of Cutch has also largely decreased. In Kolaba District and in Baroda the cases are few and the position has not undergone any marked change.

In the Satara District the epidemic shows no signs of abating. During the five weeks ending the 26th November plague was endemic in 84 places, the Karad Taluka being the chief seat of infection. In Poona District also the disease is widespread, and is endemic in nearly 40 places. The virulence of the disease shows, however, some signs of abating, and considerably fewer cases were reported in the second than in the first half of the month. In the City of Poona also the disease is now not quite so severe as during the middle of November. When it was at its height the virulence of the infection was so great that it ceased to confine itself to the more insanitary and crowded portions of the town and caused a number of deaths amongst the servants of Europeans. In the Sholapur District the disease is practically confined to the town of Sholapur, where the rise in the number of cases has been rapid and large. The worst outbreak in the Belgaum District is in the Cantonment. Nandras and Nagaum are the seats of the disease in Kolhapur. In Surat District, Surat itself continues to be the place most affected. In Nasik District the chief seat of infection has shifted to the town of Nasik.

4. During the past month the Plague Commission appointed by the Government of Bombay have visited a number of places in the Presidency and have given much useful advice for the improvement of the arrangements. Surgeon-Major-General Cleghorn continues to act as a Member of the Commission. He has forwarded for our information several memoranda addressed by the Commission to the Government of Bombay describing the places they have inspected, the suggestions they have made, and the improvements that have been effected. Copies of these memoranda are appended to this Despatch for Your Lordship's perusal.

The memoranda deal chiefly with—

- (a) The arrangements for combating plague at Poona, Sholapur, Hubli and Belgaum.
- (b) Inspection and detention of passengers at Wadi Railway Station in Hyderabad.
- (c) The protection of the city of Bombay from passengers coming from Poona and other infected localities.
- (d) The arrangements for disinfecting the clothing and baggage of passengers at Hotgi Junction on the Great Indian Peninsula Railway.

Another memorandum written by Dr. Cleghorn discusses the arrangements at Palanpur and Surat, and at the Ujjain and Rutlam Railway Stations in the Central India Agency.

Khankhanan is a village containing a population of nearly 3,000 inhabitants who are chiefly Jats. The measures adopted are the same as those taken in the other two villages, namely, the evacuation of the village and the segregation of the inhabitants in a camp of temporary huts, under the guard of a cordon of police. A very strong staff of executive and medical officers is on the spot, and there is every reason to hope that the carefully controlled measures will be successful in stamping out the disease.

8. No case of plague has been reported from Kankhal since the 10th of November ; the evacuation of the infected areas and the segregation of the inhabitants in camp have again been successful in stamping out the disease. On the 17th November the prohibition against booking to Roorkee and other stations in the neighbourhood of Hardwar ceased to have effect, except in the case of Jawalapur Station.

9. Special attention has been paid during the past month to the arrangements for inspecting travellers from the Bombay Presidency along the lines of railway communication, with a view to guard, as far as possible, against the danger arising from the increase in the virulence of the epidemic in the Bombay Presidency. The Government of Bengal has issued orders for the opening of three new principal inspection stations and observation camps on the frontiers of the Lower Provinces—one at Chausa, on the East Indian Railway, in the direction of Shahabad, a second at Mairwa, on the Bengal and North-Western Railway, in the District of Saran, and a third at Chakardharpur, on the Bengal-Nagpur Railway, in the District of Singhbhum. The following new principal inspection stations have been established in Madras and Hyderabad :—

Madras	...	...	Hospet	...	...	Southern Mahratta Railway.
			{ Lingampalli... Gulburga ... Mulkapur ...	...	...	Nizam's State Railway.
Hyderabad	...	...		...	...	Great Indian Peninsula Railway.
				...	...	Great Indian Peninsula Railway.

In Rajputana an increase has been made to the staff of European medical officers for the purpose of platform inspection at the railway stations of Ajmere and Mount Abu.

10. Measures to prevent travellers by rail from evading inspection and detention by re-booking have been under the consideration of the Government of India and the Local Governments. There is reason to believe that this practice has, as was to be expected, considerably increased. On the 6th November the Government of Bengal reported that the East Indian Railway Administration had represented that through-booking from Bombay and the neighbourhood to stations beyond Khana had declined by more than fifty per cent. owing to passengers from infected areas booking to stations on the Great Indian Peninsula and Bengal-Nagpur Railways, and re-booking thence to their destination. The Bengal Government made a suggestion that had been put forward by the Government of the North-Western Provinces in February last, that tickets of a distinctive colour should be issued at stations within the infected area in order that all travellers from the infected area might be at once recognised wherever they might alight. A similar suggestion was made by the Resident in Mysore. In February the suggestion was negated by us on the ground that it would tend to encourage re-booking with a view to get rid of the distinctive ticket, the object of which would soon become generally known. Although travellers have taken to re-booking it seemed to us that the issue of tickets of a distinctive colour would still further encourage them to do so. The expedient would also be of little use under existing conditions ; plague has become so widespread in the Presidency proper that it is no longer possible to distinguish travellers from infected localities within the Presidency from those who come from non-infected localities, and the only safe course is to regard all travellers from the Presidency as coming from the infected area. The Government of Bengal and the Resident of Mysore were informed of this view. At the same time the Chief Commissioner of the Central Provinces, through whose territories the Great Indian Peninsula and the Bengal-Nagpur Railway lines run on their course to Calcutta, was informed of the facts reported with regard to re-booking, and he was requested to cause a careful watch to be maintained at railway stations to prevent travellers from evading detection at their destination by alighting at an intermediate station for the purpose of re-booking. We directed that, if a passenger alights for this purpose, his name and other necessary particulars should be telegraphed to the station to which he has re-booked in order that he may be detected on arrival, and that to prevent such passengers from evading detection by alighting at a station short of the station to which they have re-booked, travellers should not be allowed to alight at stations other than those to which they have booked unless they can give a satisfactory reason for

so doing. The Government of the North-Western Provinces and Oudh was informed of the discussion and the orders. The Chief Commissioner of the Central Provinces issued a revised set of regulations on the 23rd November for dealing with travellers from the Bombay Presidency, rules 8 and 9 of which embody the instructions described above. Revised plague regulations issued by the Government of Bengal on the 10th November also contain rules devised for the same purpose, which are worked through the agency of the railway, town and rural police. We are at present considering what further precautions can be taken.

11. Before quitting the subject of the precautions adopted along the lines of railway communication, we would invite Your Lordship's attention to the letter of the Government of the Punjab, No. 1211, dated the 24th September, and its enclosures which form the twenty-first enclosure to this Despatch.* They contain very interesting reports on the excellent arrangements made at the Khanpur Station in the Bhawalpur State (the main inspection station for the protection of the Punjab) for the inspection of travellers, the detention under medical surveillance of suspicious persons, and the disinfection of travellers' baggage and clothing.

12. In paragraph 10 of our Sanitary Despatch No. 20, dated the 21st July 1897, we gave Your Lordship a summary of our correspondence with the Government of Bengal on the subject of the remodelling and revision of the plague rules in Bengal with special reference to the segregation of the sick, and of persons specially exposed to the risk of infection. It was not at that time considered necessary to issue any fresh rules as the abatement of plague in the Bombay Presidency had greatly reduced the danger to which Calcutta and Bengal had been exposed. With the recrudescence of plague in the Bombay Presidency the situation again changed, and the Government of Bengal asked our sanction to the issue of a well-devised set of regulations which it had framed on the lines of the rules in force in the North-Western Provinces and Oudh. We agreed with the Government of Bengal that it had become necessary to issue the new rules, and they were accordingly published with the Resolution of the Government of Bengal, No. 1465 T.—M., dated the 10th November. The rules and the correspondence connected with them are appended to this Despatch.† With regard to the question of segregation, His Honour the Lieutenant-Governor, after considering the alternatives of home segregation and segregation in hospital, came to the conclusion that home segregation could not be permitted on a large scale as "it would multiply the so-called 'hospitals' to such an extent that no effective control could be exercised over the intercourse of plague patients and suspects with uninfected members of the community." The regulations therefore authorize the Health Officer to cause all sufferers from plague to be removed to hospital. But in order to show all possible consideration to the feelings of the upper classes of the native community, the establishment of private hospitals is authorized "for particular castes, classes, joint families, or associations of families," the equipment and administration of which must be approved by duly appointed authority. This is an extension of the private hospital system so successfully adopted in the City of Bombay. General Gatacre refused to permit the establishment of hospitals for families and groups of families. He had, however, to deal with an already virulent epidemic, whilst in Calcutta, and in Bengal generally, there is time to make beforehand all arrangements for the crisis, should it arrive. The experience of Bombay has also shown that there is no danger to be apprehended from the existence of a considerable number of plague hospitals in a large town provided they are properly managed.

Special powers are conferred by the rules for improving the sanitary condition of municipalities, and His Honour the Lieutenant-Governor has issued orders that these powers are to be used at once in the large municipalities of the Hooghly and Howrah Districts in the neighbourhood of Calcutta, which are said to be in a dangerously insanitary state.

The regulations also contain careful provision for watching the health of arrivals from the Bombay Presidency, of localities which have intercourse with that Presidency and of the country at large. The rules previously issued by the Government of Bengal did not pay sufficient attention to these very important matters.

13. A religious festival which is usually attended by pilgrims from all parts of India will be held at Vaikanta near Trichinopoly from the 24th of this month until the 3rd of January. At the instance of the Government of Madras we have caused a notification to be issued under the Epidemic Diseases Act forbidding the sale of tickets in the Bombay Presidency and Sind and in the Provinces in the north and centre of India from the

* Notification prescribing regulations for inspection of persons, &c., only reprinted.

† Not reprinted.

10th to the 24th instant, to travel by railway to Trichinopoly and adjacent stations. We consider that the great danger of infection being spread by concourses of religious mendicants and other persons attending fairs and festivals, fully justifies the adoption of this course.

14. The twenty-five medical practitioners whom Your Lordship has procured for temporary service in India will at first be posted as follows :—

Bombay Presidency	...	...	...	...	...	...	...	13
Madras	..	...	...	...	...	...	...	5
Bengal	...	...	...	...	...	...	...	7

Should plague break out in Calcutta, the Government of Bengal estimates that it will require twenty-five special medical officers for the province in addition to those who can be provided from provincial resources. The Government of Bombay have been informed that the twenty-five doctors from England are intended to be employed in Calcutta in the event of plague breaking out there. The Government of Bombay have also been asked to state whether they require any more private practitioners from England.

With reference to Your Lordship's telegram of the 15th November, we will state the number of women doctors and nurses whom it is desirable to engage in England as soon as the Local Governments have informed us of their requirements.

A number of Staff Corps and other officers who have passed in the native languages have recently been deputed to plague duty with a view to increase the strength of the supervising staff. The duties of a supervising plague officer are executive rather than medical and it is found that, with the assistance of medical subordinates, Staff Corps Officers are able to carry out the control of plague operations in a very satisfactory manner. Their experience of organization and discipline and their knowledge of the vernacular render them peculiarly fitted for the work. The following is the number of Staff Corps Officers who have recently been deputed to plague duty :—

Bombay Presidency	...	...	...	...	...	...	...	15
Bengal	...	...	...	...	...	...	...	3
North-Western Provinces and Oudh	...	...	...	...	...	...	...	5
Central Provinces	...	...	...	...	...	...	...	2

The absence of a large number of officers on the frontier makes it more difficult to depute officers for this special duty than would ordinarily be the case, but more officers will be sent to the Bombay Presidency as soon as possible.

15. To this Despatch are appended the papers which show the measures that are being adopted to carry out the decision sanctioned in Your Lordship's telegrams of the 13th and 19th November, that the pilgrimage to the Hedjaz may be permitted during the current season, subject to the provisos that pilgrims may not start from the Port of Bombay, and that no persons may go on pilgrimage from any part of the Bombay Presidency, except Sind. Orders to this effect were issued under the Epidemic Diseases Act on the 20th November. It was stated in the notification that as plague is widely prevalent in the Bombay Presidency, it is considered essential, in view of the strong opinion of all European Governments, including Turkey, regarding the danger of plague being communicated to Europe, and in view of the danger of plague being spread by intending pilgrims from infected to non-infected portions of India, that the pilgrimage should be subjected to careful restrictions. It was further stated that, although the pilgrimage was permitted subject to certain restrictions and safeguards, intending pilgrims would nevertheless be well advised in deferring their purpose until another season, in view specially of the stringent quarantine rules imposed by the Turkish Government, and the inconvenience and harassment to which it is likely they will be subjected on arriving in Arabia. Allusion was also made to the unsettled condition of the Hedjaz. Local Governments and Administrations were directed to take all possible means to make the purport of the orders immediately and widely known, and to cause the reasons on which they are based to be explained. Instructions were also given that every endeavour should be made to dissuade intending pilgrims from going to the Hedjaz this year.

Karachi in Sind and Chittagong in the Lower Provinces of Bengal are the only ports at which the embarkation of pilgrims will be permitted. The route *viâ* Chittagong is designed for the inhabitants of Bengal, Assam and the eastern portion of the North-Western Provinces and Oudh, and the route *viâ* Karachi for the inhabitants of Sind and of Upper India. The port of Chittagong was selected in consultation with the Government of Bengal because the conditions of the port are convenient, and because it is not situated

near any large trade centre. All persons who persist in the desire to go on pilgrimage will be collected in camps of observation within the several provinces, where they will be detained under the careful superintendence of a Commissioned Medical Officer for at least ten days. Pilgrims who embark at Karachi will be sent direct to the port from the provincial observation camp, and pilgrims who embark at Chittagong will first be sent from the provincial camp to a central camp at Raneegunj, in the district of Burdwan in the Lower Provinces, whence they will be despatched to Chittagong under arrangements that are being made by the Government of Bengal. Intending pilgrims who have completed the ten days' observation period and are certified to be free from infection, will be sent to Karachi or Raneegunj, as the case may be, as soon as information is received by the Local Government concerned from Sind or Bengal that the authorities are ready to take them over. This will depend on the number of ships available and on the date on which they sail. The Government of Bombay have been asked to cause the arrangements to be made known to the shipping agents and pilgrim-brokers and to ascertain as far as possible what steamers will be available, when they will start and whether they will sail from Karachi or Chittagong. From the observation camps the pilgrims will be despatched by special train and under the charge of a responsible officer. As an additional precaution, the sale of tickets for passages to the Hedjaz has been prohibited except at the observation camps.

Pilgrims belonging to the Madras Presidency, the Hyderabad and Mysore States and the Hyderabad Assigned Districts will be collected in an observation camp in the Madras Presidency. They will then be despatched by rail to some port in the Madras Presidency (other than the port of Madras) and will proceed by sea to Karachi, transhipping at Bombay without being allowed to land. Pilgrims from beyond the Baluchistan and Punjab borders will be collected at the Baluchistan and Punjab camps.

We are at present in communication with the Government of Bombay with regard to persons from other parts of the country who have already entered the Bombay Presidency with a view to go on pilgrimage. It is undesirable to prevent them from carrying out their intention if this can be avoided, and it is proposed to allow them to sail from Karachi after passing the usual period of observation in a special camp in Sind.

16. In conclusion, we forward, for Your Lordship's information, copies of the more important Resolutions recently issued by the Government of Bombay on matters connected with the plague, and copies of some notifications issued by other Local Governments and Administrations under the Epidemic Diseases Act.*

We have, &c.,
(Signed) J. WESTLAND,
&c., &c.

Enclosures.

MEMORANDA BY THE BOMBAY PLAGUE COMMISSION.

Sholapore.

The first ascertained cases of plague occurred in quarters occupied by servants of the European officers, and were supposed to have been introduced from Poona. The disease subsequently spread to two neighbouring bazars, the police lines and ultimately to the town.

No indigenous cases have as yet been reported from the district.

As cases appeared in three different localities, a number of the residents migrated to adjoining districts and departures from the town took place on the first appearance of the disease in the two bazars. It is estimated that there is only one-third of the population, about 20,000, now left in the town; the greater number of the remaining 40,000 having departed before the city became infected.

Active measures were taken at an early period of the outbreak to remove the inhabitants from the two bazars and the police lines, and they were now comfortably settled in huts. A separate camp under the charge of Surgeon-Captain Leumann, with the usual arrangements, has been established for the city population.

The present arrangements are excellent, and, when fully organized on the arrival of the additional staff, will admit of every extension to meet all possible requirements.

The services of four Staff Corps officers have been applied for, and one Additional Assistant Collector is now being applied for, and these, with the assistance of the ordinary

* Not reprinted.

District Officers and those lately employed on famine duties, will enable the Collector to place officers in charge of defined areas, and to carry out the work of searching for the sick in a thorough and systematic manner.

It is difficult at present to obtain early and correct information of cases of sickness, but with the additional staff, and particularly with the active and zealous assistance of the more influential citizens, it is hoped that the information required will be obtainable without resorting to harsher measures. Early information as to the occurrence of sickness is absolutely essential for preventing the spread of the disease, and such information must be obtained at all costs.

It is worthy of mention that the Agent of the Sholapore Cotton Mills is prepared to provide hutting accommodation for all the Mill employes and their families. The former numbers 1,700 hands, and it may be safely estimated that huts will be required to house about 7,000 people.

The Agent has, up to the present, erected 200 huts, and others are being prepared for new arrivals.

We attach a copy of a letter, No. 5401, dated 9th November 1897, from the Collector of Sholapore, making certain recommendations for the suppression of the disease, and applying for an additional loan of Rs. 25,000.

Not received; probably submitted to Government of Bombay.

We support his proposals, and suggest that sanction should be accorded to them by wire.

Poona.

It has been suggested to us that restrictions should be placed on the booking of native passengers from Poona and the adjoining stations, as it is believed that Bombay City becomes re-infected by passengers from Poona and Satara.

It appears to us that a more effective method for protecting Bombay would be by the establishment of a disinfection station at Kalyan, where all native passengers from infected districts would be disinfected, with their clothing and personal effects. An officer of tact and experience should be appointed to supervise the operations, and he should be given discretionary powers to exempt individuals from disinfection, and, if necessary, to detain any passengers in an observation camp for any period not exceeding ten days. This would effectually meet the objection which has been raised, and would not seriously interfere with the necessities of the travelling public. It would protect Bombay from passengers arriving from Rutlam, Sholapore, Poona and Nasik Districts. And if a similar station was established at Palghar, protection would also be secured from passengers arriving from Surat and the infected districts in the North-West.

The inspecting staff at Kalyan would then, it is thought, be diminished as it would not be necessary to inspect all passengers on the platform, and the members would then be employed elsewhere.

To facilitate the arrangement the Railway authorities might be asked to reserve a certain number of carriages for passengers from Sholapore, Sullani and Poona.

The Plague Committee of Poona has undertaken the management of all operations in the City, Cantonments, Suburban Municipality and in Kirkee. These cover such a wide area, and contain such a large population, that the Committee, with the staff at its disposal, is unable to carry out those measures which, in our opinion, are necessary for the suppression of the plague. The disease is wide-spread, affecting not only those living under the worst sanitary conditions, but has also appeared with great virulence amongst the servants of the European residents, and nine individuals of pure European parentage, living under the best sanitary conditions, have up to date been attacked.

At the time of our visit, about six hundred persons were in segregation huts, who had been removed from infected houses, but taking into consideration the daily mortality, it is evident that all the people living in such houses had not been placed in the segregation huts. No attempt seems to have been made to remove people from insanitary houses, and the importance of thorough disinfection of suspected persons and clothing has evidently been insufficiently attended to.

The attention of the Committee has chiefly been directed to the city, and it has apparently not been able to avail itself, to any large extent, of the assistance which, no doubt, would be willingly given by the Military authorities. The members are thus placed at a disadvantage, and are unable to cope with the great amount of work which has been thrown upon them.

We would therefore propose that the Committee should be relieved of a large portion of its duties by placing the Cantonment with its bazars, the Suburban district and Kirkee under a Cantonment Committee composed of General Officer Commanding as President, and Surgeon-Colonel Fawcett and Major Ross as members. The Cantonment Magistrate to hold executive authority over Cantonment, Mr. Plunkett over the Suburban district, a military officer for Kirkee and Dr. Salaman for Yerrowda.

These officers would follow generally the instructions contained in the attached notes. Under such a Committee, Commissioned and Warrant Officers and Privates would be obtained in sufficient numbers for executive duties, and, if considered desirable or necessary, the organization could ultimately be extended to the city.

The General Plague Hospital contains about 460 patients, and the accommodation is being extended. The arrangements generally in connection with it are admirably managed under the control and supervision of Dr. Jones, but we consider that the aggregation of such a large number of plague cases in a limited area is not desirable, and may be followed by serious results. We would therefore propose that a separate hospital for females and children should be established in or near the city and placed under the charge of Miss Hunter.

Further relief will be given to the General Hospital by the establishment of one in Cantonments for the reception of cases occurring within the jurisdiction of the Committee whose formation we have proposed.

The relatives and friends of patients are not at present admitted into hospital, and the only means of communicating with the patients is by messengers entertained by the hospital. Such a procedure is liable to abuse; it is undoubtedly a great hardship and is in our opinion quite unnecessary. It is of course difficult to arrange for visits to patients in such a large hospital, but with a little management it would no doubt be accomplished by admitting at one time a limited number of relations, and allowing, say, 10 to 15 minutes for the interview. Such a concession would not only be humane, but it would also be highly gratifying to those concerned, and would tend to make the hospital more popular.

We would in this connection recommend that Dr. Jones, who has too many duties to discharge, should be removed from the Plague Committee, so that he may be able to give his whole time and attention to the management of the hospital. He would then be in a position to give advice and assistance, if needed, in establishing a Cantonment Hospital and one for women and children. No hospital for cases of plague should, in our opinion, contain more than about 100 beds, and we would strongly advise that immediate steps should be taken to carry out the recommendations regarding reducing the number of patients in the present one by the establishment of the two hospitals.

The following measures are recommended for adoption in addition to those detailed in Mr. Wingate's note of 27th October 1897, a copy of which is attached:—

1. The removal of the sick to a hospital situated at a convenient distance from the bazar.
2. Removal of all the inmates from the infected house.
3. Removal of the healthy from the infected quarter.

For the accommodation of these different classes it will be necessary to erect—

- (a) A hospital with the usual out-houses and quarters for attendants. The compound should be surrounded with a bamboo railing, and a guard of sepoy placed over it to prevent patients escaping.
- (b) A camp for the segregation of individuals removed from the infected houses. The compound to be surrounded with a bamboo railing, and a sepoy guard placed over the building to prevent egress of residents and ingress of unauthorized individuals.
- (c) A camp for the healthy, the residents in which may be allowed to follow their daily business on condition that they sleep in camp.
- (d) In connection with camp (b) separate huts should be erected for males and females, supplied with a suitable number of tubs containing disinfecting solutions for the different castes. Every one entering the camp to bathe in the solution, all their clothing and personal effects to be disinfected either in a boiling solution or by washing them freely with the cold solution.
- (e) One or more huts for the segregation and observation of any individuals in camps (b) and (c) who show symptoms of illness. In the event of plague developing they should immediately be removed to hospital.

- (*f*) The houses vacated by the removal of inmates to camps (*b*) and (*c*) to be thoroughly disinfected and whitewashed according to the instructions already issued. Openings to be made in walls of badly ventilated rooms and portions of the roofs to be removed.
- (*g*) Those in camp (*b*) to be kept under observation for ten days ; on the expiration of that period they may return to their houses after disinfection of clothes and personal effects unless a case of plague has occurred in the hut they occupied, when they should be kept under observation for ten days after appearance of last case.

Those in camp (*c*) to be allowed to return to their houses after disinfection of clothes and personal effects, five days after complete disinfection of their houses unless for any special reason a longer absence is considered necessary.

- (*h*) The process of disinfection should be placed under the supervision of reliable and competent subordinates. The operation in the case of males to be superintended by warrant officers and of females by nurses or Native dhais.

It will be necessary to provide food supplies for camp (*b*) by agreement with a buniyah. Both camps should be well lighted, and each should be provided with bathing platforms and latrines for both sexes.

The huts may be made 10 feet square, a space of 10 feet between each hut, and main streets to be 30 feet wide. Should a case of plague occur in camp, the hut should be at once evacuated and dismantled. The materials to be saturated with the disinfectant and exposed to the sun for two days.

They may then be utilized in the construction of a fresh hut on new ground.

To carry out the above measures so as to render them effective, it will be necessary to divide the bazaars into quarters. Each quarter to be placed under the charge of an European Superintendent, with a sufficient staff. Appointments to the latter should partly be made from the residents of the quarter, if possible, as their local knowledge will be found of great value and assistance in the discovery of cases of plague, and may render the employment of search parties necessary only occasionally or in exceptional circumstances.

A register of all individuals admitted to the two camps should be kept up to serve as a check on the individuals in residence.

We are of opinion that many of the houses in the Cantonment Bazaars are, as at present constructed, unfit for human habitation.

This is especially the case with those which are in close proximity to the middle of the three blocks in the Native Infantry lines. We would recommend that the Plague Committee should inspect all the buildings in these bazaars, and state their opinion as to the improvements to be effected in each, and the desirability of destroying some of the worst houses. With regard to the bazaar in the Native Infantry lines, it would seem desirable from every point of view that all the mud houses and temporary erections eventually should be entirely removed, as in their present state they must always be a source of danger, not only to the regiment in the vicinity, but to the whole community.

Belgaum.

Up to the 15th instant, only two cases of plague, both imported, have occurred in the town. Early information was obtained and immediate removal was effected. The other inmates of the two houses were also removed, and placed in segregation. Both houses were cleaned and disinfected.

The mortality in the town is reported to be particularly low at present, but there has been a considerable exodus of the inhabitants.

Thirty-one cases have been reported from the Cantonment Bazaar. These were confined to houses situated on low-lying ground, and all the houses in that quarter have been evacuated, and the inmates, to the number of 1,400, have been placed in huts, which have been erected on a wide and open expanse of sloping ground, at a distance of 2 or 3 miles from the bazaar.

The hospital, observation, ward and segregation sheds are situated at a short distance from the main encampment and the whole is guarded by a small body of police.

It is estimated that there are still about 7,000 people in the bazaar, but none of their houses have, as yet, been infected.

The roofs have been removed from all the houses vacated, and steps are now being taken to clean and disinfect the interiors.

These measures have been carried out, under the Plague Committee, by Major Minchin, the Cantonment Magistrate, and by Surgeon-Major Zimmerman, A.M.S.

The tact and exertions of the former officer in conducting the operations connected with the evacuation of the houses and in settling the arrangements in the camp, are deserving of the highest praise.

At a meeting of the Plague Committee, which we attended, we made the following recommendations :—

- (1) That Surgeon-Major Zimmerman should be placed in entire charge of the camp, and should reside on the spot.
- (2) That an European nurse should be attached to the hospital.

The necessary steps have been taken to place the services of Dr. Zimmerman at the disposal of the Plague Committee, and an application was forwarded to the Surgeon-General for an European nurse.

- (3) That a sepoy guard should be placed over the camp containing the hospital and segregation huts.
- (4) As the camp may become inconveniently large by fresh additions, we suggested that, in the event of it being necessary to turn out the inhabitants from any other portion of the bazaar, it would be advisable to establish a second camp, on a site at a more convenient distance from the bazaar. The original camp would thus be secured from further infection, and the inmates under such circumstances could then be permitted to return, as soon as possible, to their usual employments, returning to sleep in camp, until the houses in the bazaar have been thoroughly cleaned and disinfected—an important point, as all expenses of feeding, etc., are now paid from the plague funds.
- (5) A proper system of disinfecting the clothing of all removals to camp has also been recommended.
- (6) Instructions have been given to the Committee regarding the measures to be taken in the event of the town becoming infected, and for rendering more accurate the registration, and ascertaining the cause, of deaths, both in the town and bazaar.
- (7) We suggested that the Cantonment Bazaar be divided into quarters, and each placed under the supervision of a regimental or other trustworthy official who would take the necessary steps for discovering the sick, for their removal and for the evacuation and disinfection of the houses. The organisation would be under the control of the Cantonment Magistrate, subject to the orders of the Plague Committee.
- (8) The town should also be divided into four divisions and each placed under a Civil European officer, with the same powers as in the Cantonments.

From the 7th to 9th November, four sepoys of the Native Regiment were admitted into the Regimental hospital as suffering from remittent fever. They died in two or three days after admission, and as doubts were entertained of the diagnosis, the same precautions were taken as if they were cases of plague. No such fatal form of fever had previously occurred in the regiment, and it seems fair to conclude that they were really cases of plague, although none of the distinct symptoms were said to have been present. From the 12th to 15th three cases were admitted, which were undoubtedly plague, and were at once diagnosed as such. Of the seven cases, four were single and three married. Besides the wives, there were two children residing in the affected rooms, but none of them have, as yet, shown any symptoms of plague. Early removal of the sick, with the usual precautions in the houses infected, appears to have been effectual in preventing the spread of the disease.

It is probable that each case attacked contracted the disease in the neighbouring bazaar.

The two companies to which the patients belong have been moved into camp.

Inspection at Wadi.

Wadi is the junction for Hyderabad and is under the jurisdiction of the Nizam. It is within five hours by rail from Sholapore.

The arrangements at the station are conducted by the officials of the Nizam, and the orders issued to them are that all passengers from infected districts booked to any station on the Nizam's Railway are to be detained at Wadi for a period of ten days.

Passengers from non-infected districts to be detained for a period of 24 hours or until departure of next train.

Through passengers with symptoms of fever are detained until the nature of the illness has been ascertained.

The clothes of all patients admitted into hospital are disinfected in boiling water.

Lately a Military cordon has been placed from Naldrug across the border villages to prevent people from Sholapore entering the Nizam's territory.

The passengers detained as above are kept under observation in a long hut and partly in a portion of an adjoining serai. Both hut and serai are continuous with the village and the segregated mix freely with the villagers.

There is separate accommodation for the sick in a hut situated near the dispensary.

The staff consists of a European Medical Officer educated at the Hyderabad Medical School, a female graduate, and four hospital assistants.

Inspection and detention of sick are also carried out at Gulbarga, a station in the Nizam's territory situated between Wadi and Sholapore.

Passengers booking at Chitpur, one station beyond Wadi in the Nizam's line, are also inspected by a medical subordinate. All passengers are again inspected at the station next to Hyderabad City.

The inspections and detentions at Wadi have apparently been in operation since 22nd February last, but during the absence of Dr. Lawrie the ten days' detention of passengers from infected districts was held in abeyance from 22nd August 1897 till 20th October 1897.

From 23rd October 1897 till the 11th instant, 282 passengers were detained from Bombay, 155 from Poona and 251 from Sholapore, or a total of 688.

Only one passenger with plague has been detected since February last. A patient with high fever was removed from the train which subsequently was found to be plague, but no intimation was sent to the railway authorities, and the carriage from which the case was removed was not withdrawn from running. Should a similar case again occur the number of the carriage should be noted and information forwarded to Madras.

When passengers are detained for ten days, it seems desirable that their clothing and personal effects should be disinfected, but no arrangements exist for doing so. In disinfecting with boiling water close supervision and a powerful fire are required to ensure continuous boiling when clothes are thrown into the boiler.

The present method of segregation will surely defeat the object aimed at, if segregation is considered necessary, then it should be carried out thoroughly.

We also visited Hotgi, a junction within half an hour by rail from Sholapore. The arrangements there are not satisfactory, but if our recommendations regarding the establishment of a disinfection station at Sholapore are sanctioned, Hotgi may be abandoned and the staff of an Assistant Surgeon, a Hospital Assistant and three pupils may then be employed elsewhere.

Hubli.

There are extensive railway workshops established here, the employes residing in barracks situated in close proximity to the workshops. These barracks are about a quarter to half a mile distant from the city, and were occupied by about 1,500 men, women and children.

The first case of plague was reported on the 17th October and occurred in one of the barracks occupied by a Punjabi, who, it was stated, had been on a visit to Sholapur. On the appearance of other cases, preparations were made for the eventual evacuation of the quarters. A hospital and observation wards were erected in one field, and segregation huts for the healthy in another. There was no vacant space in the immediate neighbourhood, and a sufficient area for the huts could only be obtained by removal of the standing crops.

Evacuation of the barracks was commenced on the 30th October, and was completed on the 13th November. The personal effects of all those removed to the huts were disinfected in the perchloride of mercury solution, and all rags and refuse were burnt. As each house or room was emptied, the door was, for the time being, securely fastened with screws and the whole roof removed.

On arrival in camp, a register was kept of the members of a family occupying each hut, and a cordon of police was placed around the encampment with orders to prevent all egress. A roll call was instituted every morning and an inspection made by railway officials of all residents.

There are now about 1,500 men, women, and children residing in these huts, 1,200 in one camp, 300 in another, and 55 in the segregation and observation sheds connected with the hospital.

Water is laid on to the larger camp, and wells are available for the others. Supplies are obtainable from *bunniahs*, who have opened shops in close proximity to each camp.

The total number of plague cases, which have occurred up to date, has been 26, 12 of which appeared in the barracks, 12 after removal to the huts, and 2 imported into the city from the railway quarters.

The disease from the first has been of a serious type, and the cases have ended fatally within a short time after the first appearance of the symptoms. During the time the people are under observation, the railway company pay them half wages, but as the different blocks pass the period of ten days without a case amongst them, the occupants will be permitted to resume their work. They will, however, continue to reside in the huts until the barracks have been thoroughly cleaned and disinfected. The necessary work in connection with disinfection will be commenced at once, but it will necessarily occupy some time, more particularly as we have recommended that the ventilation of the houses should be greatly improved so as to render them safe for re-occupation.

Two residents of the barracks went to live in the city, where they were discovered to be suffering from plague, and were promptly removed to the hospital. The houses which they occupied in the city were vacated, cleaned and disinfected. These are the only cases as yet which have been reported from the city. All deaths are certified, and there is no reason to believe that plague exists there at present, but, as an additional check, the Collector has been advised to issue orders for the registration of all funerals as they pass the octroi posts.

The arrangements which are now in existence have been, when they were decided on, promptly carried out, and are of ideal excellence. The system followed appears to be complete in all respects, and the Collector, his medical advisers, and the railway officials, who have given every assistance, must be congratulated on the success which has, up to the present, followed their efforts.

Several of the towns in Dharwar are very populous, and it is highly desirable that every legitimate means should be employed to prevent plague gaining an entrance into them. We have, with this object in view, suggested to the Collector that an inspection and disinfection station should be established here, at Gadag, and at a station to the west of Dharwar. Passengers booked for any station within Dharwar District from infected districts to be registered, and, if necessary, disinfected and kept under observation at all three stations.

If these measures, combined with medical inspection and disinfection of departures from Hubli station for ten days after discharge of last case of plague from hospital, are accepted, then we consider that the booking of passengers, which has for some time past been closed, should be re-opened.

Hotgi Junction, etc.

The arrangements here are not at all satisfactory. No orders appear to have been issued to the Medical Subordinate in charge, and the measures now in force are certainly not calculated to prevent the spread of the disease. All passengers are examined by one of the staff, cases of sickness are said to be detained, and all passengers, without discrimination, in possession of dirty clothes are also detained; such clothes are disinfected in a boiling solution of phenyle.

The abuses attending such a want of system are obvious, passengers give up their clothing in preference to detention, and in our presence, a man with his family, with a through ticket from Fyzabad in Oudh, was removed from the train and kept under

observation merely for the purpose of disinfection of the dirty clothes of the party. The search is for soiled clothes and not for passengers arriving from infected districts.

The medical staff consists of a Civil Assistant Surgeon, a Hospital Assistant, and three medical pupils.

We have already suggested, in a previous communication, the establishment of a disinfecting station at Sholapur, where the disease is indigenous and beyond which it does not at present extend, and when the arrangements there are completed, the establishment at Hotgi should be removed and employed elsewhere.

It appears to us to be impossible to carry out inspection and disinfection in an efficient manner unless they are placed under the supervision of an experienced European officer. This can be easily done at Sholapur, and with European supervision abuses will be prevented. Besides, at Hotgi there are no means of obtaining supplies, should it be necessary in the future to detain any large number of passengers, the place is very small and isolated, and to introduce effective arrangements a competent staff would be necessary.

Arrangements at Sholapur would under the present conditions meet all requirements and there would be a certainty of efficiency.

Gadak.—Three imported cases have been detected at this station. All arrangements for the accommodation of cases, and for residents of infected houses have been completed and are capable of extension in the event of the disease becoming indigenous and spreading.

We met Dr. Anderson at Hubli, one of the officers placed at the disposal of Mr. Wingate by the Government of Bombay, and he has been directed to proceed to Naggar, as cases have again appeared in the Cantonment Bazaar after too early re-occupation of vacated quarters. After a few days stay there he will go to Palanpur and take charge of plague operations in that State.

Note on letter No. 8137, dated the 6th November, 1897, from the Chairman, Plague Committee, Bombay, to the Secretary to Government of Bombay, General Department.

We have been furnished with a copy of the above letter for an expression of our opinion on the proposal it contains with regard to the establishment of an observation camp in Bombay City for all arrivals by railway from infected districts.

We quite agree with Sir James Campbell as to the necessity for the adoption of preventive measures against the possibility of reinfection of the city, and accept the proposal that one or more camps are required for the segregation of suspected persons. We are, however, of opinion that the object aimed at would be secured, as far as this is practicable, by the establishment of one camp at Kalyan and of another at Palghur, on the Bombay and Baroda line. The former will arrest all passengers from infected districts to the north, east and south; and the latter, all those coming from Surat and Palanpur. Passengers by railway from all infected districts may then be kept under observation in each camp for a period not exceeding ten days from date of booking, the medical officer to exercise his discretion as to the period of detention, and also to place in segregation any other traveller whom he has reason to suspect as likely to convey the disease. Experience elsewhere has shown that it is not necessary to detain all individuals for the full period of ten days. It will, in fact, be found that in many instances a few days will be sufficient. It is in our opinion essential that the persons, clothing and personal effects of all those detained should undergo a complete system of disinfection.

Europeans and respectable natives with a fixed residence in Bombay should not ordinarily be detained in these camps. It will only be necessary for them to give their names and addresses in Bombay, particulars of which should be forwarded to the authorities in the city to enable them to arrange for visits of a medical officer to all such individuals.

The arrangements proposed by Sir James Campbell in connection with the formation of a camp inside Bombay for the segregation of arrivals by rail are, in our opinion, too complicated and of too harassing a nature to admit of success. The situation of the camps we now propose will ensure, so far as that is possible, the immunity of a wide area around Bombay City, and the transfer of the passengers to the camps will be an easy matter.

The objection that travellers from the Deccan will avoid Kalyan, urged by Sir James Campbell against a camp there, will equally apply to one in Bombay, because the

passengers, under Sir James Campbell's scheme, would be segregated in carriages at Kalyan previous to removal to camp.

The evasion will be common to both, as to any system, the difficulty in each case may be overcome to a certain extent by having inspection at the causeways.

Enclosure No. 7.

Note by SURGEON-MAJOR J. CLEGHORN on his tour of inspection to certain Stations and Districts in the Bombay Presidency.

Note on Ujjain, Rutlam, Palanpur, and Surat.

Dated the 10th November, 1897.

1. *Ujjain and Rutlam.*—Passengers in trains coming from both directions are inspected at these stations. The work appears to be done efficiently, and there are hospitals and segregation huts near the stations.

2. In Ujjain suspected individuals are kept in segregation for seven days from date of departure from infected stations. At Rutlam all passengers for the city have to report at the dispensary for six days after arrival. Suspicious cases are detained in huts until the individual is free from all symptoms.

3. No difficulty has been experienced in carrying out these measures, and no case of plague has as yet been discovered.

4. *Palanpur.*—Visited on 4th November, a walled town with a population of 17,500, locally estimated at 25,000. The town is now completely evacuated and the houses are being systematically disinfected. The inhabitants have been gradually leaving the town during the course of the epidemic, and they have been permitted to do so, without any of them having undergone a period of segregation, and without disinfection of clothing. It is estimated that 4,000 to 5,000 of the population are now either encamped in the neighbourhood or living in houses outside the city walls. The huts occupied by the former are of a very simple character, and have been constructed by the occupants themselves. They have received no assistance from the State authorities.

5. The remainder of the population have either left the district, going southwards to Baroda or taken up their residence in villages within the State. They have, therefore, in all probability carried the disease with them, and most of the villages will, it is feared, become in time infected. Reports have already been received of the presence of the disease in four villages in Chundisar, population 2,388, situated 8 miles to the west of Palanpur on the Deesa line of railway. The first cases were reported on the 7th October; but from the number then recorded, it was evident that the disease had been present in the village for some time. I visited the place and found that more than one-half of the residents had left it, squatting near their fields, it was said, but this was evidently a mistake, as I could find none of them in the neighbourhood of the village. A second village, Koronder, population 3,426, from which reports of cases had been received, is situated 7 miles to the south of Palanpur. A third, Malan, population 2,588, situated 8 miles to the north-east of Palanpur, and a fourth, Marwara, population 3,426, situated 2 miles to south-east. It is highly probable that many other villages are also infected.

6. Lieutenant O'Brien, Assistant Political Resident, recently appointed, has been placed on plague duty in the district, and Mr. Wingate, who visited Palanpur on the 29th October, left instructions for his guidance. It is, however, impossible for one officer and Dr. Rainier to superintend the necessary operations, and Mr. Wingate has to-day wired to Government of Bombay, recommending that two Staff Corps officers should be sent to Palanpur and 30 sepoy from the regiment at Deesa. The latter are required, as the subordinates of the State do not insist on the orders being carried out.

There is not, I understand, any likelihood of the disease extending eastward, as the country in that direction is covered with dense jungle.

Towards the north, the country is sparsely populated, and the people of Palanpur State have little or no connection with the inhabitants of Rajputana, and they are not likely to travel by road in a northerly direction. Some of the Marwaris residents in the city have, however, travelled by rail to towns in Rajputana and the Punjab.

During the past fortnight all booking by rail at stations within the State has been stopped, except to 1st class passengers, and those who have been in segregation for seven

days. This has practically put a stop to all travelling by rail. The ordinary passenger to obtain a ticket must either go to Sidhpur in the south, or Mount Abu in the north.

The disease is not of a very severe type, as of the 616 reported up to date, only 347 died, or a percentage of 56·3.

The percentage of deaths on cases under observation has been 69·0.

7. The medical staff at present consists of Dr. Rainier, one Civil Assistant Surgeon attached to the Agency, one State Assistant Surgeon and three Hospital Assistants. Arrangements are being made to entertain more Hospital Assistants.

The Agent to the Governor General of Rajputana may be asked, if he has not done so already, to place one or more Hospital Assistants to inspect the villages on the southern border of Rajputana, with directions to report the occurrence of any cases of plague to the nearest Residency Surgeon, or to the Administrative Medical Officer, Rajputana.

8. *Surat*.—The Collector of Surat has taken measures for placing the town under a number of Inspectors with a sufficient staff, and will carry out the necessary measures.

9. The Bombay Government have been recommended by wire to adopt strict measures of disinfection of passengers, &c., at Anand Junction, Manmad, Sholapore and Hubli Junction, and we have asked for authority to carry out such measures in direct communication with the local authorities.

10. We leave for Sholapore on morning of 8th instant, visiting other places on borders of presidency, and taking steps to try and prevent spread of the disease to adjacent territories.

J. CLEGHORN,
Director General, Indian Medical Service.

Memorandum by A. Wingate, Esq., C.I.E., I.C.S., Plague Commissioner, Bombay Presidency, dated 27th October 1897.

Questions having arisen as to when booking of passengers by railway is to be stopped, it seems desirable to circulate a few remarks explaining the intention of Rule 1 of the Rules published with No. 5391—3495-P., dated 5th October, 1897, General Department.

The energies of the Plague Authorities of an infected place are directed towards preventing the sick getting away and so spreading infection. All other towns have to defend themselves against the infected place.

Confining attention to the railway, all departing passengers are to be carefully and individually inspected by a Commissioned Medical Officer at every train day and night. If this exceeds the power of the inspecting establishment, only such number of trains must be allowed to book passengers as the staff can successfully manage. If it is ascertained or suspected that people evade inspection by going by road, it is then necessary to stop booking at one or two stations on either side of the infected town.

The departure being thus under thorough control, so that it is absolutely impossible for any one with slightest suspicion of fever to depart, it rests with the platform inspections of trains at convenient points along the railway line, and with arrangements on the arrival of the passenger at his destination, to discover any subsequent development of fever.

The arrangements at departure must of course be thorough; carriages searched for any one in hiding, off-side of train locked or guarded, and so on. The persons rejected must on no account be allowed to leave the platform, but be immediately handed over to the police guard. One deterrent to sick travelling is the certainty that they will be sent to the hospital they are trying to evade. On the other hand, many detained are free from plague, and it has a bad effect to send such to hospital. An observation shed or house under close guard, and with neighbouring accommodation for relatives, is provided, and the inspecting officer can release as soon as the patient is free from fever. It is no use permitting departure earlier even if the fever is not plague, because the traveller would be stopped at the next inspecting station.

A further precaution where a town is badly infected is to permit no one to book till his person and clothes and baggage have been disinfected. As soon as this can be arranged, the infected place causes little risk in permitting booking.

Where the rapidity of the epidemic or want of establishments prevents these measures being effectually, methodically and carefully worked, all booking must be stopped except under passes. The quicker booking can be safely re-opened the quicker is the infected place emptied.

If booking is stopped, the roads leading from the town must be carefully watched for sick, for the exodus will seek the neighbouring villages, and they will all get infected. It is obvious that it is much easier to watch the stream of travellers by rail than by road.

Travellers who alight should be examined medically by any doctor or Hospital Assistant available, and if none such, the Mamlatdar should arrange for detention outside the town, permitting business to be done, but ensuring that the passengers sleep at the place appointed, and that no towns-person sleeps there. As soon as the organisation of Superintendents, of quarters and supervisors of streets is working well the sick are taken to hospital in the earliest stage, and the members of the family and of adjoining houses are segregated. Consequently the dangerous people cannot travel. The use of passes under good organisation is thus at a minimum. The test of success of the working of any Superintendent is that no deaths from plague occur in his quarter save from some explained cause. Every death occurs in hospital, and a well-managed town ought to have very few deaths from plague out of hospital.

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, to the
RESIDENT at Hyderabad.

Home Department. No. 2588.
Sanitary.

Calcutta, 4th December 1897.

SIR,

I AM directed to forward, for your information and guidance, a copy of a note prepared by the Plague Commission*

* A. Wingate, Esq., C.S.

Surgeon-Major-General Cleghorn, C.S.I., Sanitary Commissioner with the Government of India.
Surgeon-Colonel G. W. R. Hay, M.D., Surgeon-General with the Government of Bombay.

appointed by the Government of Bombay on an inspection of the arrangements in force at Wadi Railway Station for dealing with passengers from infected districts. (See page 103.)

2. It is stated by the Commission that orders have issued for the detention at Wadi of all passengers from infected districts booked to any station on the Nizam's State Railway for a period of ten days. These orders amount to the imposition of land quarantine which, as was stated in my telegram No. 2459, dated the 11th ultimo, and in the telegram from the Government of India in the Foreign Department, No. 4280 I.A., dated the 18th ultimo, is opposed to the policy of the Government of India and cannot receive their consent. The proper manner of dealing with travellers from an infected locality was explained in my telegram No. 2346, dated the 26th October. Travellers should not be detained indiscriminately, but the Inspecting Medical Officer should be given a wide discretion to detain any one considered to be suspicious. A liberal interpretation should be placed on this order, and all persons should be detained under observation who are suspicious either through their symptoms or through the dirty condition of their clothes or effects, or who travel in large bodies, or who belong to classes which cannot readily be traced on arrival at their destination, and cannot be relied on to give information of the occurrence of cases of plague amongst them. With regard to other passengers, an endeavour should be made to keep a watch upon them after they arrive at their destination, and I am to forward, for your information, a copy of a set of rules framed by the Chief Commissioner of the Central Provinces, which shows the manner in which this watch should be maintained. As a further precaution, every means should be used to keep a watch over the health of the threatened area, and to obtain the earliest possible information of the occurrence of any cases of plague. Appended to this letter is a copy of rules which are in force in the North-Western Provinces and Oudh, the Punjab and the Central Provinces for securing early news of possible cases of plague.† Experience has shown that there is little danger to be apprehended from isolated imported cases, provided that the matter is detected in time, and that the necessary steps are taken to prevent the case from spreading infection and establishing a new plague focus. When a case of plague is detected the sick should be treated in isolation, and those who have been in contact with the sick person should also

be isolated. The clothes and bedding of the sick person and all other articles likely to have been in contact with him, must be disinfected or destroyed, and the place in which the sick person has been residing must also be disinfected.

3. It is also pointed out by the Plague Commission that passengers from infected areas are not detained in segregation, but are allowed to mix freely with the villagers. The Commission state that this method will defeat the object aimed at, and that if segregation is considered necessary, it should be thoroughly carried out. The Government of India agree fully with this view, and they consider that the system of detention described by the Commission involves considerable danger of an outbreak of plague at Wadi. I am to request that arrangements may be made for the complete segregation of the passengers whom it is considered necessary to detain under observation.

4. In conclusion I am to state that the Government of India agree with the Plague Commission that the clothing and personal effects of the person detained under observation should be carefully disinfected. In the absence of this precaution the infection of plague may be spread by the clothing, &c., of travellers as readily as by the travellers themselves.

I have, &c.,
J. P. HEWETT,
 Secretary to the Government of India.

GAZETTE NOTIFICATION.

The 10th November, 1897.

No. 1345.—*Notification.*—In exercise of the powers conferred by the Notification of the Government of India, No. 302, dated 4th February 1897, the Honourable the Lieutenant-Governor, being satisfied that the Punjab is threatened with an outbreak of a dangerous epidemic, namely, bubonic plague, and that the ordinary provisions of the law are insufficient for the purpose of preventing such outbreak, is pleased to prescribe the following Regulations for the inspection of persons travelling by railway, and the segregation of persons suspected of being infected with bubonic plague, and for other matters under sub-section (1) and sub-clause (b) of sub-section (2) of section 2 of the Epidemic Diseases Act, 1897, in supersession of the Regulations published with Notification No. 146, dated the 12th of February, 1897, as amended by Notification No. 634, dated the 8th of April, 1897 :—

- I.—In the following Regulations—
 “Place of inspection” means any place which may be notified by the Local Government to be a place of inspection.
 “Inspecting Medical Officer” means a person appointed by an order in writing by the Local Government to be an Inspecting Medical Officer.
- II.—The Local Government may notify any railway station or any place in the vicinity thereof to be a place of inspection, and may by order in writing appoint one or more Inspecting Medical Officers for the same.
- III.—Every Inspecting Medical Officer who is unavoidably prevented from discharging all or any of his functions as such, may by order in writing appoint any Assistant Surgeon or Hospital Assistant temporarily to discharge such functions, and every Assistant Surgeon and Hospital Assistant so appointed shall, so far as such functions are concerned, be deemed for the purposes of these Regulations to be an Inspecting Medical Officer.
- IV.—An Inspecting Medical Officer may at his place of inspection direct any person travelling by railway to remain in the carriage in which he is travelling, or to leave the carriage in which he is travelling and come on to the platform or on to the line, and may prohibit any such person from leaving the platform or any other portion of the place of inspection.
- V.—(1). An Inspecting Medical Officer may at his place of inspection make a medical inspection and examination of any person travelling by railway in such manner and to such extent as he thinks necessary, in order to ascertain whether there is reason to believe or suspect that such person is or may be infected with bubonic plague: Provided that such inspection or examination shall not be made in any manner or to any extent to which such person objects.

(2.) An Inspecting Medical Officer may put to any such person any questions he thinks fit in order to ascertain whether there is reason to believe or suspect as aforesaid, and such person shall be bound to answer truly any question so put to him.

VI.—Where, as the result of such inspection or examination or otherwise, the Inspecting Medical Officer considers that there is reason to believe or suspect that any person is or may be infected with bubonic plague, or where any person makes any objection under the proviso to clause V, sub-clause (1), of these Regulations, the Inspecting Medical Officer may direct that such person be removed to and detained in any building, tent or other place, whether near the place of inspection or elsewhere, until the Inspecting Medical Officer or some other Medical Officer empowered in this behalf by a written order of the Local Government certifies in writing that in his opinion there is no longer any reason for believing or suspecting such person to be infected as aforesaid.

VII.—Any person in respect to whom a direction has not been given under Clause VI may apply to the Inspecting Medical Officer to be allowed to attend upon any person in respect to whom such a direction has been given, and the Inspecting Medical Officer shall, except for reasons to be recorded by him in writing, grant such application.

VIII.—Any person who has made an application under the last foregoing clause and whose application has been granted shall be detained in such building, tent or other place, whether near the place of inspection or elsewhere, as the Inspecting Medical Officer may direct until the Inspecting Medical Officer or some other Medical Officer empowered in this behalf by a written order of the Local Government certifies in writing that in his opinion there is no longer any reason for detaining such person.

IX.—No person in respect to whom a direction under Clause VI or VIII of these Regulations has been given shall leave any building, tent or other place in which an Inspecting Medical Officer has directed him to be detained until such Inspecting Medical Officer certifies in writing that in his opinion there is no longer any reason for believing or suspecting such person to be infected as aforesaid, or that there is no longer any reason for detaining such person, as the case may be.

X.—The Inspecting Medical Officer may order the destruction or disinfection of any article which is or has been in the possession of any person in respect to whom a direction under Clause VI or VIII has been given, or which is or has been in the possession of any person whom the Inspecting Medical Officer considers to have been in dangerous proximity to such person :

Provided that compensation may, in the discretion of the officer empowered by the next following clause to award the same be paid for the destruction or injury of any article under this clause.

XI.—Applications for the payment of compensation under the last foregoing clause may be made to the District Magistrate, who shall, upon receipt of any such application, determine by order in writing the amount of such compensation, if any, and such order shall be final.

XII.—The Local Government may determine in what cases or classes of cases any charges for the provision of accommodation, diet and treatment for persons detained under these Regulations, and any sums payable as compensation under them, shall be defrayed or paid by any Local Body : and such Local Body shall thereupon become liable to defray such charges or pay such compensation accordingly.

XIII.—In every case in which any charges are to be defrayed, or any compensation is payable under these Regulations, for which no Local Body is liable under an order issued under the last preceding clause or under any other law or rule having the force of law, such charges shall be defrayed or compensation shall be paid by the Local Government :

Provided that nothing in this clause shall be deemed to prevent the Local Government from recovering any moneys thus paid from any Native State or Railway Administration or Railway Company when such moneys are by agreement or otherwise so recoverable.

XIV.—The powers conferred on the Inspecting Medical Officer by these Regulations shall be exercised subject to the control of the Magistrate of the District, the Commissioner of the Division and of the Local Government.

H. J. MAYNARD,
Junior Secretary to Government, Punjab.

No. 890-T. M., dated Darjeeling, 29th September 1897.

From C. E. A. W. OLDHAM, Esq., C.S., Officiating Secretary to the Government of Bengal, Municipal Department, to the Secretary to the Government of India, Home Department.

As a number of pilgrims have applied to the Commissioner of Police, Calcutta, for permission to go to the Hedjaz this year, I am directed to request that, with the permission of His Excellency the Governor General in Council, the Lieutenant-Governor may be favoured with an authoritative interpretation of the meaning to be attached to the words "current season" which occur in paragraph 2 of Home Department Notification No. 625, dated the 20th February 1897. I am to add that the Medical Board are of opinion that it would be unwise to allow pilgrims to leave the country at present. They suggest that pilgrimage should be stopped till matters improve in Bombay and Poona.

TELEGRAM No. 2283, dated Simla, 15th October 1897.

From the Secretary to the Government of India, Home Department, to the Secretary to the Government of Bombay, General Department.

Please refer our Notification 625 of 20th February under Epidemic Diseases Act. Under terms of Venice Convention pilgrim-ships are allowed to depart from plague-infected port on certain conditions, but Government of India think that, in view of apprehensions of European powers, it would in any case be undesirable to permit pilgrimage from Bombay at present. Does Bombay Government see any objection to permitting pilgrims to go from Karachi, and do they consider that continuance of prohibition during present outbreak of plague is likely to be resented by Muhammadan community, or would they approve of continuance of prohibition of pilgrimage from Bombay Presidency proper or from infected part thereof if that is capable of definition?

TELEGRAM No. 2284, dated Simla, 15th October 1897.

From the Secretary to the Government of India, Home Department, to the Secretary to the Government of Bengal, Marine Department.

Your letter No. 890-T.M. of 29th September. Does Government of Bengal consider that prohibition of pilgrimage during coming Haj, unless plague declines in Bombay Presidency, would be likely to be resented by Muhammadan community?

TELEGRAMS Nos. 2285—2290, dated Simla, 15th October 1897.

From the Secretary to the Government of India, Home Department, to the Secretary to the Government of Madras, Local and Municipal Department. The Secretary to the Government of the North-Western Provinces and Oudh, Judicial Department. The Chief Secretary to the Government of Burma. The Chief Commissioner of the Central Provinces. The Chief Commissioner of Assam. The Resident at Hyderabad.

Please refer Home Department Notification No. 625, dated 20th February last, under Epidemic Diseases Act. Does Government of
Do you consider that prohibition of pilgrimage during coming Haj, unless plague declines in Bombay Presidency, would be likely to be resented by Muhammadan community?

No. 2291, dated Simla, 16th October 1897.

From C. H. A. HILL, Esq., Under Secretary to the Government of India, Home Department, to the Chief Secretary to the Government of the Punjab.

With reference to Home Department Notification No. 625, dated the 20th February 1897, suspending the pilgrimage to the Hedjaz during the last pilgrim season, I am directed to enquire whether, in the opinion of His Honour, the Lieutenant-Governor, a

similar prohibition of the pilgrimage during the coming Haj would be likely to be resented by the Muhammadan community.

I am to explain that such a measure would not be resorted to in the event of the plague declining in the Bombay Presidency.

No. P.—1843-P., dated Poona, 12th October 1897.

From J. DEC. ATKINS, Esq., Secretary to the Government of Bombay, General Department, to the Secretary to the Government of India, Home Department.

I am directed to forward a copy of the papers noted in the margin, and to enquire

Letter from the Chairman, Bombay Plague Committee, No. 4919, dated 28th July 1897.

Letter to the Chairman, Bombay Plague Committee, No. 1317-P., dated 25th August 1897.

Letter from the Commissioner of Police, Bombay, No. 7149—21, dated 4th September 1897.

Letter from the Chairman, Bombay Plague Committee, No. 6572, dated 4th October 1897, with accompaniment.

whether the Government of India would have any objection to opening Bombay again as a port from which pilgrim-ships may proceed to the Hedjaz in the coming season. I am to invite attention to the fact that special provision is made in the Venice Convention for the treatment of pilgrim-ships.

No. 4919, dated Bombay, 28th July 1897.

From J. M. CAMPBELL, Esq., Chairman, Plague Committee, to the Secretary to the Government of Bombay, General Department.

I have the honour to request the favour of being informed as to whether it is the intention of Government this year to allow the Haj to proceed from Bombay. My reasons for asking are that, if it is to be, I must arrange certain alterations as regards ventilation, water, etc., in a shed to the east of the existing pilgrim-shed at Malet Bunder. The present will only accommodate 250 pilgrims.

No. 1317-P., dated 25th August 1897.

From J. DEC. ATKINS, Esq., Secretary to the Government of Bombay, General Department, to the Chairman, Bombay Plague Committee.

With reference to your letter No. 4919, dated 28th ultimo, I am directed to state that, before deciding whether a proposal should be made to the Government of India that the Haj should be allowed to proceed this year through Bombay, Government would like your opinion, after consultation with the Commissioner of Police, and such other officers as you may deem it desirable to consult, whether it would not be possible to form a pilgrim camp or depôt outside Bombay, perhaps at Kalyan (which would be convenient for both the railways) or at some place above the Ghauts. The pilgrims from this camp might by special arrangement be railed to the pilgrim-ship and put on board without any contact with the townspeople of Bombay, thus doing away with the necessity of any detention in Bombay, or the erection of any extra sheds for the accommodation of the pilgrims in Bombay.

No. 7149—21, dated 4th September 1897.

From the Commissioner of Police, Bombay, to the Secretary to the Government of Bombay, General Department.

I have the honour to report, for the information of Government, that about 31 pilgrims have recently come down to Bombay in order to proceed to Mecca, and have put up at the new Musafirkhana.* Out of them 19 are from different parts of Sind, 2 from the Punjab, and 10 from Central Asia.

2. The Central Asian pilgrims are some of those that were sent in February last to Nasik and from thence despatched to Peshawar and Rawalpindi, where they have since remained.

* Musafirkhana=traveller's resthouse.

3. It is now the time of year for pilgrims to come down to Bombay from all parts of India and from beyond the frontier to proceed on pilgrimage, and if it be the intention of Government not to allow any to proceed to the Hedjaz from Bombay this year, it would be as well that all intending pilgrims should be prevented from leaving their homes.

4. Under the circumstances, I solicit that Government may be pleased to pass early orders in the matter.

No. 897, dated Bombay, 2nd September, 1897.

From Surgeon-Major F. F. MACCARTIE, M.B., Health Officer of the Port, to the Chairman, Plague Committee, Bombay.

In acknowledging receipt of your memorandum, No. 5464, dated 27th August 1897, and forwarding letter No. 1317-P., dated 25th August 1897, from Secretary to Government, I have the honour to state as follows :—

2. The only point raised in Mr. Secretary Atkins' letter is the possibility of forming a camp for Mecca pilgrims at Kalyan or other suitable site outside Bombay, from which they can be raised to the ships awaiting them.

3. There can be no doubt as to the possibility of forming such a camp which would only be a matter of expense and organisation. It should not be placed at Kalyan, where plague, I understand, is now prevalent.

4. The question of the advisability of the camp, would, however, also seem to require consideration. It is open to doubt whether the many difficulties and expense which may be incurred by the formation and maintenance of an extra urban camp can be sufficiently balanced by any compensating advantages arising from a possible lessening of the chances of conveyance of plague cases to Jeddah; and as regards these difficulties, I would suggest that the Commissioner of Police and, through him, the Protector of Pilgrims, be consulted.

5. Amongst the many points requiring consideration is the question of food-supplies, which are usually only obtained in Bombay for the voyage just prior to sailing, and of tickets which will necessitate brokers, etc., from Bombay, mixing freely with the pilgrims in their camp. Again, the transfer of the pilgrims' kit (some carry enormous quantities, including heavy bags of grain) from the train to the ships will necessitate the use of many Bombay coolies, and the operation, which will require many hours for its accomplishment, must interfere much with the ordinary traffic of the docks. Moreover, the heavy baggage has, in accordance with the rules published under the Pilgrim-ships Act, to be delivered to the ship's commander, and registered by him on the day previous to departure. Thus the pilgrim, who, as a rule, become riotous when separated from his baggage, will have to give it up at Kalyan, or wherever the camp is, and see it disappearing into space one day at least before he can himself start for the vessel.

6. Under the circumstances, I am unable to see that any benefit will accrue from the formation of such a camp as has been suggested.

7. Should Government consider it necessary that pilgrims must be segregated in a camp before embarkation at Bombay, I would suggest that the segregation be carried out in Bombay itself. The Mody Bay Musafirkhana can in fine weather accommodate some 300 or 400 pilgrims; and it, with a temporary camp created near it, should be sufficient for the requirements. The pilgrims can then be easily prevented from visiting the city, and food, baggage and ticket difficulties will be reduced to a minimum.

8. Moreover, as I would point out, the departure of pilgrims from plague-infected ports has been provided for in the Venice Convention Regulations, and special rules have been made to meet the contingency. It cannot be claimed that much good has resulted to India from that Convention if, when plague in the city is not even of epidemic character, the departure of pilgrims for Jeddah is only to be permitted under extraordinary conditions. As I would urge, there can be no reason, unless plague again becomes of epidemic intensity, why the pilgrimage from Bombay should not be allowed as in former years, when the pilgrim had free access to the city, and was only subjected to the ordinary rules under the Pilgrim-ships Act. The Venice Convention rules and the Government Resolutions here seem to me to furnish sufficient check against plague getting into the Hedjaz from Bombay.

On arrival in Bombay, the pilgrim can be, as he had been in former years, subjected to medical supervision at the various Musafir Khanas and lodging-houses in the city ; and this and the strict individual inspection on shore before embarkation should be sufficient to prevent the disease getting into ships ; while in the event of its reaching the vessels, the Venice Convention rules, which will be enforced at Camaran, should suffice to keep it from reaching Jeddah, and thus infecting the Hedjaz. It is not denied, I believe, that the plague which broke out amongst pilgrims at Jeddah in June last, and which did not attack any of the Hajees who had left Bombay during the year, was imported from the coast of Assir, where from Lohia to Leith, on the Western Coast of Arabia, plague has been endemic for years. In fact, the disease is much more likely to reach the Hedjaz from these places than from Bombay, even when this port is heavily infected.

9. Should these views not be accepted, I would urge that in preference to a camp at Kalyan or above the Ghauts, pilgrim departures should be made from Karachi, which is now, and it is hoped will continue to be, free from plague.

No. 6572, dated Bombay, 4th October 1897.

From J. M. CAMPBELL, Esq., Chairman, Plague Committee, to the Secretary to the Government of Bombay, General Department.

As directed in your letter, No. 1317-P., dated the 25th August 1897, I have consulted the Commissioner of Police, the Collector of Customs, and the Health Officer of the Port on the question of segregation camps for pilgrims. I have the honour to submit a copy of the report of the Health Officer of the Port with which the officers consulted and I are in the main in agreement.

2. In connection with these and former papers on the subject of the advisability of providing pilgrim camps, three points have been considered :—

- (1) Up-country pilgrim centres.
- (2) Segregation camps near Bombay.
- (3) Segregation camps in Bombay.

On these points I agree with the views of the officers I have consulted. In our opinion, if it could be worked, a system of local up-country centres to collect pilgrims and pass them to Bombay in batches for a certain ship a few days before the sailing of that ship would be a relief to Bombay. The objections are that, in addition to the difficulty of collecting at local centres pilgrims who pass through as ordinary travellers to Bombay, up-country pilgrims in many cases take tickets by certain ships months before the date of starting. They therefore cannot, without serious complications, be arranged in batches which agree with the dates of sailing of the different vessels, especially as most dates of sailing are notoriously irregular. Further, the Commissioner of Police and the Health Officer of the Port agree that before sailing not less than three days are required in Bombay to check tickets and to make other arrangements. Such a detention would do away with most of the advantages of having up-country centres.

The difficulty in the way of a camp at Kalyan or other places near Bombay is that plague is as prevalent in the country round Bombay as it is in the city itself ; that at Kalyan or other small town it would not be possible for pilgrims to lay in necessary stores ; and that, as above stated, several days are required for preparations in Bombay before starting.

A suitable place for a segregation camp in Bombay has been found on the reclaimed land in Mody Bay, immediately to the west of the Messrs. Graham's bulk oil installation. This area is walled and is empty. The objections are :—

- (a) The rent, Rs. 1,000 a month.
- (b) The space. Enough for 1,000, not enough for the 2,000 or, according to the Protector of Pilgrims, even 3,000, which it occasionally might have to accommodate.

- (c) The cost of maintaining the camp. This for 800 pilgrims, in addition to all initial cost of about Rs. 3,000 for sheds, may be roughly calculated—

	Rs.
Rent	1,000 a month.
Water, Conservancy, Lighting	500 "
Attendance	100 "
Food—Rs. 200 a day (4 annas a head)	6,000 "
Monthly Total	<u>7,600</u>

NOTE.—The yearly average of outgoing pilgrims during the nine years ending 1896 has been about Rs. 14,000, or a monthly average of over Rs. 1,000. Further, the estimate of accommodation for 800 pilgrims cannot provide for more than a third of the number of pilgrims which, according to the Protector of Pilgrims, may be in Bombay at one time. In theory it might be possible to choose the 800 pilgrims who are the first to start and keep them under special supervision. The irregularity in the sailings of pilgrim-ships would in practice make any such arrangement impossible."

- (d) The fact that, if this Mody Bay site is chosen, the pilgrims will embark from the now Mody Bay pier, and the very considerable expenditure at the Mallet Bunder Inspection Shed will to a great extent be thrown away.

In Bombay pilgrims for Jeddah who gather to rest-houses and other pilgrim lodgings have, within recent years, when cholera or plague has been epidemic, been under special medical supervision at the Musafirkhanas and rest-houses. In any time of epidemic sickness it would seem to be enough to increase the strictness of this ordinary supervision. The words of the Venice Convention are—"Where there is plague in the port, embarkation on board pilgrim-ships must not take place until the pilgrims collected in groups have been subjected to an inspection sufficient to ascertain that none of them are suffering from plague." Under the existing system, before embarkation, a supervision is exercised over the pilgrims more than the Venice Convention demands, while the strict medical inspection upon embarking required by the Venice Convention and previously under the new Pilgrim Act is carefully carried out. At the same time, to guard the good name of the port and to maintain the credit of the outgoing inspection, we are of opinion that the present medical surveillance of outgoing pilgrims in Bombay, especially strict when plague is either endemic or epidemic, should be continued.

3. As regards the existing system, it is to be noted that surveillance is one of the measures favoured both by the Venice Convention and by the Government of India. And that the serious practical objection to a system of general surveillance, namely, the difficulty of finding the holder of the surveillance pass, does not exist in the case of pilgrims who in Bombay are known and are prepared to submit to any inspection which may save them the risk of missing the pilgrimage.

4. Under these circumstances, I agree with the Commissioner of Police, the Health Officer of the Port, and the other officers I have consulted, that there is no necessity either for up-country centres or for segregation camps either near or in Bombay. Further, that the present system of medical supervision is sufficient, care being taken when plague or other disease is epidemic that the medical supervision is constant and thorough.

It is worthy of note that, during the past year before the pilgrimage was stopped when plague was raging in Bombay, of 4,831 pilgrims who left Bombay, so careful was the surveillance and so searching the inspection at the pilgrim shed before embarking, that only two infected cases passed, and that both of those cases died without infecting the ship. I venture to think that a system which in so difficult a time can show the results so nearly perfect may safely be continued in the present season of greatly reduced danger.

5. One point remains.

It may be argued by those in favour either of segregating pilgrims in Bombay or of preventing them entering the city that we have to consider the protection of Bombay itself as well as of Jeddah and the west. This argument is true. It may fairly be supported by the beliefs: First, that outsiders are more apt to catch plague than residents; and, second, that up-country pilgrims, with their filthy habits, old age and bodily weakness, are specially susceptible to plague influences. These arguments, which are mainly founded on doubtful and theoretical considerations, seem to me to carry little weight

against the opinion of the Health Officer of the Port that there is nothing so special in the health or mode of living of pilgrims as to make it necessary or even advisable to isolate them. Further, this opinion is fortified by the experience that last year, though about 5,000 pilgrims were in Bombay when plague was at its worst, remarkably few suffered from the disease.

On the strength of this experience I venture to hold that, at least in existing health conditions, so far as the health of Bombay is concerned, it is in no way necessary especially to isolate pilgrims who come from uninfected districts.

No. 2495 (Sanitary).

NOTIFICATION.

Simla, November 28, 1897.

In the Notification of the Government of India in the Home Department, No. 625, dated the 20th February 1897, it was ordered under the powers conferred by section 2, sub-section (1) of the Epidemic Diseases Act (III. of 1897), that the pilgrimage to the Hedjaz should be suspended for the season of 1897.

The Government of India do not think it necessary that the pilgrimage should be altogether suspended for the current season, but as plague is widely prevalent in the south and south-west of India, they consider it essential, in view of the strong opinions of all European Governments, including Turkey, regarding the danger of plague being communicated to Europe, and in view of the danger of plague being spread by intending pilgrims from infected to non-infected portions of India, that the pilgrimage should be subjected to careful restrictions.

The Governor General in Council is therefore pleased to cancel the orders contained in the Notification of the Government of India in the Home Department, No. 625, dated the 20th February 1897.

The Governor General in Council is further pleased to direct that until further orders no person, resident permanently or temporarily in the Presidency of Bombay, with the exception of Sind, the Presidency of Madras, the Hyderabad Assigned Districts, the Hyderabad State, or the Mysore State, shall be permitted to embark from any port in India with the object of making a pilgrimage to Mecca.

The Governor-General in Council is further pleased to direct as follows :—

- (1) That no person shall be permitted to embark with the object of making a pilgrimage to Mecca, except at the ports of Karachi in Sind and Chittagong in the Lower Provinces of Bengal, and unless and until such person has been kept under observation in a place appointed for the purpose until such time as the Medical Officer in charge shall be satisfied that all risk of such person conveying the infection of plague has been completely abated ; and unless such person is conveyed from the place of observation to the place of embarkation under the orders of an officer appointed for the purpose.
- (2) That no passage tickets for the Hedjaz shall be sold, except at the places appointed for the detention of intending pilgrims under observation.
- (3) That all persons who have entered the Bombay Presidency (excluding Sind), with the object of proceeding to the Hedjaz, shall be placed in a camp of observation until such time as the Medical Officer in charge shall satisfy himself that all risk of the occurrence of plague among them has been completely abated. They shall then be sent to their homes.

Although the Government of India has decided that the pilgrimage to the Hedjaz may be permitted subject to the safeguards enumerated above, they are nevertheless convinced that intending pilgrims will be well advised in deferring their purpose until another season, in view specially of the stringent quarantine rules imposed by the Turkish Government and the inconvenience and harassment to which it is likely they will be subjected on arriving in Arabia.

J. P. HEWETT,
Secretary to the Government of India.

No. 2524 (Sanitary).

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, to the
SECRETARY TO THE GOVERNMENT OF MADRAS, Local and Municipal
Department.

SIR, Calcutta, November 21, 1897.

IN continuation of the correspondence ending with my telegram No. 2500, dated the 20th instant, I am directed to forward, for the information of the Government of Madras, a copy of a Notification, No. 2495, dated the 20th instant, issued by the Government of India under the Epidemic Diseases Act, 1897, with regard to the pilgrimage to the Hedjaz during the current season.

2. I am to request that all possible means may be taken to make the purport of the orders immediately and widely known, and to explain the reasons on which they are based. Every endeavour should also be made through Magistrates of Districts, the religious heads of the Muhammadans, pilgrim-brokers, and in any other way that the Government of Madras think best, to dissuade intending pilgrims from going to the Hedjaz this year.

3. With reference to your telegram of the 13th instant, I am to say that the Government of India consider it essential that the pilgrims from the Madras Presidency should be kept under observation for a period of ten days before being despatched to the port of embarkation. This procedure has been prescribed in the case of pilgrims from all parts of India to remove any possible danger or feeling of alarm.

4. It is still under consideration whether pilgrims from the Madras Presidency and the States of Mysore and Hyderabad shall be shipped from Karachi or Chittagong, and a further communication will shortly be sent on this subject.

I have, &c.,
(Signed) J. P. HEWETT,
Secretary to the Government of India.

No. 2501 (Sanitary).

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, to the
SECRETARY TO THE GOVERNMENT OF BOMBAY, General Department.

SIR, Calcutta, November 21, 1897.

IN continuation of my telegram, dated the 20th inst., I am directed to forward, for the information of the Government of Bombay, a copy of a Notification, No. 2495, dated the 20th inst., issued by the Government of India under the Epidemic Diseases Act, 1897, with regard to the pilgrimage to the Hedjaz during the current season.

2. I am to request that all possible means may be taken to make it immediately and widely known that the pilgrimage has been prohibited in the case of all residents of the Bombay Presidency (excluding Sind), and of the reasons for this prohibition. The Government of India are sure that the Government of Bombay will use all means in their power to make the decision as little unpalatable as possible to the Muhammadans of the Presidency.

3. I am also to forward, for the information of the Government of Bombay, a copy of a circular addressed to Local Governments and Administrations on the subject of the arrangements for despatching pilgrims from the part of India to which the prohibition does not extend to Karachi and Chittagong for the purpose of embarking them for the Hedjaz. It will be observed that the pilgrims are to be collected in camps of observation in the several provinces and detained there for at least ten days prior to their despatch by special train and under the charge of a responsible officer to Karachi or Raneegunj, as the case may be. The Local Governments and Administrations concerned have been directed to inform the Government of Bombay of the arrangements made, and to supply periodical information respecting the number of persons in the camp destined for Karachi and the period of observation that they have completed. I am to request that the Government of Bombay will enter into communication with the Local Governments and Administrations concerned on the subject of the arrangements for receiving the pilgrims from the

provincial camps and embarking them at Karachi. The Government of India will also be glad to know the arrangements that are made for the reception and despatch of the pilgrims at Karachi.

4. It will be necessary to make the arrangements known to the shipping agents and pilgrim-brokers, and the brokers must be informed that tickets may be sold only at the observation camps. It will be desirable to ascertain from the shipping agents as far as possible what steamers will be available, when they will start, and whether they will sail from Karachi or Chittagong. Any information that can be obtained about vessels starting from Chittagong should, with the permission of the Governor in Council, be communicated to the Government of Bengal.

5. It is under consideration whether pilgrims from the Madras Presidency and the States of Mysore and Hyderabad should be shipped from Karachi or Chittagong, and a further communication will be sent on this subject.

I have, &c.,
(Signed) J. P. HEWETT,
Secretary to the Government of India.

No. 2505 (Sanitary).

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, to the
SECRETARY TO THE GOVERNMENT of BENGAL, Municipal (Medical)
Department.

SIR,

Calcutta, November 21, 1897.

IN continuation of the correspondence ending with your cypher telegram, dated the 15th instant, I am directed to forward, for the information of the Government of Bengal, a copy of a Notification, No. 2495, dated the 20th instant, issued by the Government of India under the Epidemic Diseases Act, 1897, with regard to the pilgrimage to the Hedjaz during the current season.

2. I am to request that all possible means may be taken to make the purport of the orders immediately and widely known, and to explain the reasons on which they are based. Every endeavour should also be made through Magistrates of Districts, the religious heads of the Muhammadans, pilgrim-brokers, and in any other way that the Government of Bengal thinks best, to dissuade intending pilgrims from going to the Hedjaz this year.

3. I am also to forward, for the information of the Government of Bengal, a copy of a circular addressed to Local Governments and Administrations on the subject of the arrangements for despatching pilgrims from the parts of India from which the prohibition against the pilgrimage has been withdrawn, to Karachi and Chittagong, for the purpose of embarking them for the Hedjaz. It will be observed that the Government of India have accepted the proposal contained in your telegram of the 6th instant, and that pilgrims from Bengal, Assam and the eastern part of the North-Western Provinces and Oudh are to be embarked at Chittagong after being first detained under observation in a provincial observation camp, whence they are to be sent to a central camp at Raneegunj by special train and in charge of a responsible officer. The Local Governments and Administrations concerned have been directed to inform the Government of Bengal of the arrangements made, and to supply periodical information respecting the number of persons in the provincial camp destined for Raneegunj and the period of observation they have completed. I am to request that the Government of Bengal will enter into communication with the Local Governments and Administrations concerned on the subject of the arrangements for receiving pilgrims from the provincial camps at Raneegunj. The Government of India will also be glad to be informed of the arrangements made for the reception of pilgrims belonging to Bengal and other provinces at Raneegunj, and for their despatch to, and embarkation at, Chittagong.

4. Tickets are to be sold only at the observation camps, and I am to request that steps may be taken to enforce this order and make it known to pilgrim-brokers. The Government of Bombay have been requested to inform shipping agents of the arrangements, and to ascertain as far as possible the number of ships that will be available, the dates on which they will start, and whether they will sail from Karachi or Chittagong. They have also been requested to communicate to the Government of Bengal any information that may be ascertainable about vessels starting from Chittagong.

5. It is still under consideration whether pilgrims from the Madras Presidency and the States of Mysore and Hyderabad should be shipped from Karachi or Chittagong, and a further communication will be sent on this subject.

I have, &c.,
(Signed) J. P. HEWETT,
Secretary to the Government of India.

No. 2509/14 (Sanitary).

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, to the
SECRETARY TO THE GOVERNMENT OF THE NORTH-WESTERN PROVINCES AND OUDH, Medical Department.

The JUNIOR SECRETARY to the GOVERNMENT of the PUNJAB.

The CHIEF COMMISSIONER of the CENTRAL PROVINCES.

The CHIEF COMMISSIONER of ASSAM.

The AGENT to the GOVERNOR-GENERAL in RAJPUTANA.

The AGENT to the GOVERNOR-GENERAL in CENTRAL INDIA.

SIR,

Calcutta, November 21, 1897.

I AM directed to forward, for the information of the Govt of the N-W. Provinces and Oudh
the Government of the Punjab, a copy of a
your information
Notification, No. 2495, dated the 20th instant, issued by the Government of India under the Epidemic Diseases Act, 1897, with regard to the pilgrimage to the Hedjaz during the current season.

2. I am to request that all possible means may be taken to make the purport of the orders immediately and widely known, and to explain the reasons on which they are based. Every endeavour should also be made through Magistrates of Districts, the religious heads of the Muhammadans, pilgrim-brokers, and in any other way that the Govt of the N-W P. & Oudh ^{thinks}
the Government of the Punjab ^{think} best to dissuade intending pilgrims from going to the Hedjaz this year.

3. It will be observed that embarkation is permitted only at the ports of Karachi in Sind and Chittagong in the Lower Provinces of Bengal. The route *via* Chittagong is designed for the inhabitants of Bengal, Assam and the eastern portion of the North-Western Provinces and Oudh, and the route *via* Karachi for the inhabitants of Sind and of Upper India. All persons in

the North Western Provinces and Oudh
the Punjab
the Central Provinces
Assam } and neighbouring Native States
Rajputana
Central India

who persist in the desire to go on

pilgrimage must be collected at an observation camp within the Province Agency*, where they must be detained under the careful superintendence of a Commissioned Medical Officer for at least ten days. Pilgrims who embark at Karachi will be sent direct to the port from the provincial observation camp, and pilgrims who embark at Chittagong will first be sent from the provincial camp to a central camp at Raneegunj, whence they will be despatched to Chittagong under arrangements that will be made by the Government of Bengal. Intending pilgrims who have completed the ten days' observation period, and are certified to be free from infection, will be sent to Karachi†
Raneegunj‡ as soon as information is

† To Punjab and Rajputana
‡ To Assam only

received by the Government of the North-Western Provinces and Oudh
the Government of the Punjab
you

from Sind†
Bengal‡ that the authorities are ready to take them over. This will of course depend on the number of ships available and on the date on which they sail. Pilgrims must be despatched from the provincial camp by special train and under the charge of a responsible officer. It will be necessary to communicate with the political authorities in Native States with regard to the reception of pilgrims from those States in the provincial observation camp. Passage tickets to the Hedjaz may be sold only at the observation camps, and I am to request that the necessary steps may be taken to enforce this order, and, in communication with the Governments of Bombay and Bengal, make it known to shipping agents and pilgrim-brokers.

4. I am to request that a place for the observation camp may be selected at once, that arrangements may be made as quickly as possible to give effect to the instructions contained in this letter, and that the arrangements may be communicated to the Government

of India and to the Governments of Bombay and Bengal. Arrangements should be made in communication with the Governments of Bombay and Bengal for supplying a periodical statement of the number of persons in the provincial camp destined for Karachi or Raneegunj, and the period of observation they have completed, and for despatching pilgrims from the provincial camp to Karachi or the Raneegunj camp as the case may be.

I have, &c.,
(Signed) J. P. HEWETT,
Secretary to the Government of India.

No. 2549 (Sanitary).

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, to the
SECRETARY TO THE GOVERNMENT OF MADRAS, Local and Municipal
Department.

SIR,

Calcutta, 27th November 1897.

I AM directed to address you in continuation of my letter, No. 2524, dated the 21st instant, on the subject of the departure for the Hedjaz of pilgrims from the Madras Presidency, from the Mysore and Hyderabad States, and from the Hyderabad Assigned Districts. The Government of India accept the suggestions contained in your telegrams of the 11th and 13th instant that pilgrims from the Madras Presidency should be despatched by sea to Karachi *via* Bombay from some port in the Madras Presidency other than the port of Madras, and that they should be transhipped at Bombay without being permitted to land. The Government of Bombay are being requested to make the necessary arrangements for the transhipment of the pilgrims at Bombay and to enter into communication with the Government of Madras on the subject

2. The intending pilgrims should in the first place be collected in an observation camp and detained for a minimum period of ten days under the careful superintendence of a Commissioned Medical Officer. Intending pilgrims who have completed the ten days' observation period and are certified to be free from infection should be sent to a Madras port to be shipped to Bombay *en route* for Karachi. The dates of the despatch of pilgrims from the Madras port should, with the permission of the Governor in Council, be arranged in communication with the Government of Bombay, in order that they may fit in with the transhipment arrangements at Bombay and with the arrangements made at Karachi for despatching pilgrims to the Hedjaz. Pilgrims should be despatched from the provincial camp to the Madras port of departure by special train and under the charge of a responsible officer, who, the Government of India consider, should accompany the pilgrims as far as Bombay. Passage tickets to the Hedjaz may be sold only at the observation camps, and I am to request that the necessary steps may be taken to enforce this order, and, in communication with the Government of Bombay, to make it known to shipping agents and pilgrim-brokers.

3. The Government of India consider that pilgrims from the Mysore and Hyderabad States and from the Hyderabad Assigned Districts should also be collected for observation in the Madras observation camp, and that they should be shipped to Karachi along with, and under the same arrangements as, the Madras pilgrims. A copy of this letter is being sent to the Resident in Mysore and the Resident at Hyderabad, and I am to request that the Government of Madras will settle, in communication with them, the arrangements for collecting the Mysore and Hyderabad pilgrims in the Madras observation camp.

4. I am to request that, with the permission of the Governor in Council, arrangements may be made as quickly as possible to give effect to the instructions contained in this letter, and that the arrangements may be communicated to the Government of India and the Government of Bombay.

I have the honour to be, Sir,
Your most obedient Servant,
J. P. HEWETT,
Secretary to the Government of India.

From the GOVERNMENT OF BOMBAY to the SECRETARY OF STATE FOR INDIA.

(General No. 37.)

MY LORD,

Bombay Castle, December 11, 1897.

WITH reference to your Lordship's cypher telegram, dated 7th October last, we have the honour to submit for Your Lordship's information the following summary of the measures adopted by the Bombay Government for the suppression of the bubonic plague.

2. The discovery of the earliest cases of bubonic plague, whether in large towns or rural areas, has always been rendered exceedingly difficult by the persistent efforts of the people to conceal the facts, but it may be said with approximate accuracy that in the hot weather months of 1897 the disease in an epidemic form had obtained a footing in only a few very limited areas, and that by the end of the hot weather the efforts made to prevent its spread and to suppress it where it had become established appeared likely to be speedily successful. The localities especially affected were: (1) in British India, the five cities of Bombay, Poona, Karachi, Hyderabad and Sukkur, and villages skirting the sea coast in the districts of Surat, Thana and Kolaba; (2) in Native States, the port of Mandvi, and some neighbouring villages in Cutch, the town of Palanpur, in the Palanpur State, and the village of Manerajuri, in Kolhapur, and (3) in Portuguese India, the settlement of Damaun, on the borders of the south-western corner of the Surat District. Though numerous imported cases were reported from other places and small indigenous outbreaks occurred in several villages and towns, especially in Upper Sind and the Ratnagiri District, these may be neglected in presenting a general view of the extent to which the disease had attained a dangerous prominence in the hot weather months.

3. In the five cities of Bombay, Poona, Karachi, Hyderabad and Sukkur, in all of which plague was violently epidemic, the entire local control of measures to suppress the disease was eventually vested in Plague Committees. These were small executive bodies, which organised and managed the local resources and were aided in varying degrees by the military.

4. As the result of the energetic and systematic work of these Plague Committees aided by the local officers in Sind, plague had by the month of June almost entirely disappeared from the cities of Karachi, Hyderabad and Sukkur and also from such outlying villages as had been infected. The improvement continued and the Province of Sind was entirely free of plague by the beginning of August. In Poona (including the cantonment and the suburban limits) the vigorous efforts made by the Committee, of which the late Mr. Rand was Chairman, had this result that, whereas in the week ending 19th March 1897, the first week in which organised operations were in progress, the number of plague cases discovered was 311 and in the two ensuing weeks the numbers were 345 and 292, for the week ending the 11th June 4 cases only were discovered, 3 cases in the following week and none for that ending the 25th idem. In the City of Bombay, too, the general mortality had fallen to a rate below the normal rate of that season, and the average daily number of plague cases discovered for the week ending 25th June 1897 was only 4.

5. The measures adopted to clear the plague out of the districts of Surat, Thana and Kolaba met with equal success. In the week ending the 18th of June there were no cases in the Surat District, during the next week only one case was reported, and again in the following week there were none. In the Thana District the cases fell to 2 in the week ending 25th June and to 2 in the following week, and then for a long period the district was entirely free from plague. In Kolaba the success was somewhat less marked, but there too the fact that in the week ending 2nd July only 2 cases were reported for the whole district appeared to justify a hope that the efforts made by the local officers with the assistance of the Bombay Plague Committee would soon be entirely successful.

6. As regards Native States, by the end of June, plague appeared to have practically subsided in the Baroda villages which separate the northern coast talukas of the Surat District from the southern. It had some time previously entirely disappeared from Palanpur, and in Manerajuri, though cases were occasionally reported, the disease appeared to have practically subsided. In Cutch Mandvi, where plague had raged with extraordinary virulence and was still severe, a distinct improvement was noticeable, and the fact that the almost isolated position of the Cutch State rendered it possible to cut off communication with British India through Kathiawar, except by one route whereon a camp

of observation for the detention and disinfection of arrivals from Cutch had been established, diminished the danger caused to other places by the continuance of plague in this State.

7. At the end of June and beginning of July, notwithstanding the rapid disappearance of plague except in the Cutch State, it was recognized that small outbreaks might occur from time to time, and that it was of the utmost importance to instantly suppress them wherever and whenever they might occur. In order to attain this end, Dr. Lowson suggested the formation of "flying columns," to be kept ready for immediate despatch to any place where an outbreak was discovered, with a view to its immediate suppression and the prevention of its spread. The Surgeon-General, who was consulted, expressed his entire concurrence with Dr. Lowson's suggestion and stated that he could himself form and control "flying columns." Thereupon Government Resolution No. 4073—2810-p., dated the 26th July, 1897, of which a copy is appended, was issued.*

8. Accordingly "flying columns" were despatched by the Surgeon-General without delay to Lanowli and Karad, a town in the Satara District where plague had been discovered. At the beginning of August it was ascertained that plague had appeared in Igatpuri, an important railway station in the Nasik District, near the Thull Ghat. A "flying column" was promptly despatched to that place, and subsequently others were sent to other places, viz., Kaledhon and Tasgaon, in the Satara District; Sirur, in the Poona District, and more recently to the cities of Nasik, Sholapur and Hubli. In arranging for these "flying columns," serious difficulty was experienced in consequence of the scarcity of both Commissioned Medical Officers and subordinates, as the Government of India had recalled for active military service large numbers of officers and subordinates who would otherwise have been available for plague duty.

9. The origin of the outbreak of plague at Karad, from which place the disease spread rapidly through the south of the Satara District, is unknown, but it now appears certain that the existence of the disease was at first concealed and remained undiscovered until it had obtained a firm footing. The existence of plague in Karad had been alleged as early as the beginning of June, but the Collector of Satara, who was called upon to report on the matter, reported as the result of his enquiries that there had been a somewhat severe attack of ordinary fever but no plague, and that the total mortality from all causes in the first eleven days of June had been below the average. On the 10th July, however, he reported nine indigenous cases of plague in this town of some 12,000 inhabitants, but added that he was not sure that the disease was true plague, as there had been no deaths. Notwithstanding an increase in the number of medical subordinates in this town and the efforts of the Assistant Collector and of the "flying column" despatched, as already mentioned, by the Surgeon-General, the disease rapidly increased in virulence, and was accompanied by an exodus of the population, from which followed the spread of the epidemic to village after village in the south of the Satara District. The following are the villages in which the mortality from plague (shown in the columns of the statement) has been heaviest:—

Sátára District.	FORTNIGHTS ENDING								
	July 30th.	Aug. 13th.	Aug. 27th.	Sept. 10th.	Sept. 24th.	Oct 8th	Oct. 22nd.	Nov. 5th	Nov 19th.
Karád	69	167	292	335	134	88	...	...	...
Kaledhon	80	173	123	50	...	...	...
Shere	48	38	63	38	...	...
Masur	40	52	91	126	60
Vejegaon	79	104	...	...	...
Supne	48	128	...	177
Várunje	43	35	44	...
Karve	54	62	90	95
Kále	69	93	132	83
Mundhe	35	...	...	...
Belavde Haveli	57	46	31	...
Vadkhel	31	...	...	...
Chinchni	74	45	50	...
Tásgaon	45	76	147	84
Ving	55	82	45
Parli	36	31	...
Jakhinwádi	42	90	62

* Not reprinted.

Sátára District.	FORTNIGHTS ENDING								
	July 30th.	Aug. 13th.	Aug. 27th.	Sept. 10th.	Sept. 24th.	Oct. 8th.	Oct. 22nd.	Nov. 5th.	Nov. 19th.
Chikhli	35	60	43
Khodshi	35	...	...
Pachvad	36	...	...
Devikhindi	34	...	...
Dahivadi	38	69	53
Naravane	42	34	..
Bopegaon	30	...	...
Bhose	35	59	..
Aundh	44	64
Goleshwar	31	36
Vadgaon Haveli	36	75
Ond	45	...
Kival...	59	67
Sakurdi	31
Tambve	35
Sonsal	32

10. Turning now to the Poona District as distinct from the city of Poona, the returns show 4 indigenous cases at Lanowli in the week ending 25th June. There were 2 cases in the following week, 5 in the next, 10 in the next, and 34 in the next.

11. In the week ending 30th July, in addition to 32 cases from Lanowli, 14 were reported from the Kirkee Cantonment and 2 from Ghodnadi in the Sirur Taluka. The following figures show the mortality in the villages most seriously affected :—

Poona District.	FORTNIGHTS ENDING							
	August 13th.	August 27th.	September 10th.	September 24th.	October 8th.	October 22nd.	November 5th.	November 19th.
Kirkee Cantonment	106	159	207	62	...	...	...	...
Lonavla	57	...	...	...	...	...	...	...
Ghodnadi ... ..	...	40	89	101	79	39	...	...
Mawadi ... ..	...	...	...	...	...	...	38	30
Avsári Budruk ... ..	...	...	...	...	...	...	54	...
Talegaon Dábháde	...	...	...	...	...	...	...	55

and a few cases in several small villages. From the end of September plague has substantially disappeared from Kirkee and Lanowli and has diminished in Ghodnadi and Ghorpuri.

12. The violent outbreak of plague in Kirkee Cantonment which adjoins and is in constant communication with Poona City, combined with the less severe outbreak in Ghorpuri which adjoins the Poona Cantonment, led, as might be expected notwithstanding measures for watching roads and bridges, to a recrudescence of the disease in Poona City, from which plague had practically disappeared, and in the Poona Cantonment. The figures for Poona city, including the cantonment and the suburban municipality, for successive weeks are noted below :—

Week ending	No. of cases.	Week ending	No. of cases.
25th June	0	17th September	66
2nd July	3	24th "	100
9th "	19	1st October	166
16th "	8	8th "	199
23rd "	3	15th "	322
30th "	13	22nd "	349
6th August	16	29th "	510
13th "	14	5th November	651
20th "	19	12th "	522
27th "	22	19th "	611
3rd September	13	26th "	525
10th "	22		

13. In consequence of an outbreak at Ghodnadi and the adjoining town and cantonment of Sirur situated in the district of Poona on the borders of the Ahmednagar District, the disease spread to the latter district. On the 24th September 2 cases were reported in the cantonment of Ahmednagar, 2 more in the following week, and 5 in the week ending 8th October. In the latter week also the village of Jaola was infected, 14 cases being reported. In the two following weeks 6 and 11 cases, respectively, were reported from the Ahmednagar Cantonment and 10 and 16, respectively, from Jaola. Rajapur also became infected, 22 cases being reported for the week ending 22nd October.

14. Again, the virulence of the outbreak at Poona led to the importation of plague into the large towns of Sholapur, the infection, it is believed, being taken there by the servants of European officers who had come from an infected portion of the Poona Cantonment. In the week ending 1st October 11 cases were reported from Sholapur, followed in the next eight weeks by 9, 17, 48, 86, 146, 129, 200 and 327 cases respectively.

15. The first report of plague from the Nasik District was received in the week ending 6th August, in which 14 cases occurred in Igatpuri. The following statement shows the progress of plague at Igatpuri during the successive weeks:—

Week ending	No. of cases	Week ending	No. of cases
13th August	6	8th October	40
20th "	16	15th "	22
27th "	27	22nd "	18
3rd September	83	29th "	6
10th "	109	5th November ... ..	...
17th "	54	12th "	3
24th "	69	19th " ... ..	...
1st October	47	26th " ... ..	...

In the week ending 8th October 12 cases were reported at Manmad, followed in the next two weeks, respectively, by 5 and 4 cases. In the week ending the 15th October plague was discovered in the city of Nasik, 3 cases being reported in this and 9 in the following week.

16. In the Konkan there has recently been a few slight outbreaks in the Thana District, one outbreak of no serious importance in Ratnagiri and distinct recrudescence in villages previously affected in the Kolaba District, but the state of things in these districts has not hitherto given cause for serious alarm.

17. In Gujarat, on the other hand, an outbreak of great severity still prevails in the city of Surat, and the state of things in Palanpur, the capital of the Native State of that name, is a serious menace to Rajputana and Northern India. The gradual spread of the disease in Surat and Palanpur is to some extent indicated by the following statistics, but it should be borne in mind that in the city of Surat the statistics of total mortality from all causes greatly exceed the statistics of normal mortality, and that there is therefore reason to fear that in the period to which the figures given relate, a large number of plague cases remained undiscovered:—

Week ending	Surat.	Pálanpur.	Week ending	Surat.	Pálanpur.
	Cases.	Cases.		Cases.	Cases.
9th July	1	...	24th September	39	84
16th " ... ..	...	...	1st October	26	61
23rd " ... ..	...	...	8th "	34	46
30th " ... ..	...	...	15th "	91	46
6th August	2	8	22nd "	64	63
13th "	1	5	29th "	136	89
20th "	9	2	5th November	120	58
27th "	10	11	12th "	292	25
3rd September	12	35	19th "	210	16
10th "	32	28	26th "	143	5
17th "	29	81			

18. As regards the measures taken to suppress the disease where it has appeared it may in the first place be observed that the measure on which most reliance was placed in the hot weather months of 1897, both in Sind and in the Thana District, was the entire evacuation of infected villages and hamlets until they had been thoroughly disinfected. Until the dwellings in the villages had been thoroughly disinfected the inhabitants lived in huts in the fields, returning to their permanent dwellings only when permitted to do so by the local Plague authorities. The continuance of this precaution was, unfortunately, found to be impossible during the monsoon months of heavy rainfall.

19. The other measures relied on for controlling the disease are isolation of the sick in hospital; segregation of all who have been in close contact with them, for a period long enough to prove whether they have or have not in them the seeds of the disease; and thorough disinfection of all infected premises. This has necessitated the equipment as hospitals of such buildings as could be obtained, for rural towns in India have nothing more than a small dispensary and villages possess no hospital accommodation of any kind. In the dry season the defect is easily and rapidly remedied by the construction of light sheds, but in the rainy season more substantial buildings were required. Similar difficulties affected the provision of suitable segregation accommodation. In the measures here indicated the local officers, local medical practitioners and the "flying columns" despatched by the Surgeon-General to the principal centres of infection were vigorously employed.

20. The difficulties we have mentioned have fortunately disappeared with the setting in of the dry season, and accommodation for isolation of the sick and for segregation can be plentifully provided. Evacuation of infected quarters on a large scale has also become generally possible. There is, however, one difficulty always present, whatever may be the season. It is the persistent and crafty ingenuity with which the people conceal cases of plague. To this habit of the people is due the fact that plague has so often taken possession of a town before it has been possible to devise and put into operation measures for its extinction. Another difficulty is the habit people have acquired of leaving an infected area and moving in all directions, regardless of the consequences to others amongst whom they may carry infection. Most dangerous of all is the conveyance of sick persons from one part of a town to another or from one town or village to another, and hardly less dangerous is the very common practice of seeking refuge in the houses of their relatives or neighbours by those in whose house a case of plague has occurred. The object is concealment so as to escape the inconveniences of segregation, disinfection, &c., but the effect is the accelerated and easy spread of the disease. To prevent these dangers the only real remedy is to secure the co-operation of the people, and throughout all the operations this has been our endeavour. To attempt by force to eradicate a disease when the entire population exerts itself to oppose the measures adopted is an effort foredoomed to failure. In furtherance of this view, villagers have been directed not to admit into their village sites persons who come from infected places. In many places fortunately the villagers have protected themselves as directed and have accomplished by their own effort more to keep the disease out of their villages than any measures carried out in opposition to them could have achieved. But in many places the villagers are too inert, too ignorant, or too callous to take precautions themselves. In the large towns where strangers are constantly and in large numbers coming and going, self-protection of this kind is almost, if not quite, impossible. It has therefore been necessary to continue the elaborate system of inspection posts established in the previous season. Besides the large number of local inspectors appointed at railway stations to watch arrivals thereat from infected areas, what are known as first-class inspection stations have been established at Kalyan, Palghar, Ahmedabad, Bhusaval, Dhond, Hotgi, Rajewadi and Londa. At a first-class inspection station trains are emptied by night as well as by day, all passengers are individually examined by Medical Officers, and a train is not allowed to proceed until a certificate to the effect that all passengers are free from suspicion of plague has been given by the Chief Medical Officer. Kalyan and Palghar are near to Bombay City on the G. I. P. and B. B. & C. I. Railways, respectively, the former being the place at which the line bifurcates, its north-eastern branch running towards Calcutta by way of Igatpuri, Nasik and Bhusaval, and its south-eastern towards Madras by way of Lanowli, Poona, Sholapur, and Hotgi. Ahmedabad, Bhusaval and Hotgi may be regarded as frontier stations, Bhusaval protecting Bengal and the Central Provinces, and Hotgi the Madras Presidency. The Ahmedabad inspecting post is designed for the protection of Kathiawar and Rajputana among other places, but its efficacy is much diminished by the outbreak at Palanpur which lies further north.

21. It was originally arranged that all first class inspection posts should be in charge of Commissioned Medical Officers, but in consequence of the drain on the Medical Department for active military service, it has recently been found impossible to provide Commissioned Officers for this duty. In addition to first class inspection posts, it may be mentioned that special inspection of arrivals and departures is made at Poona Station, and at Manmad Junction there is a special inspection of persons travelling towards Ahmednagar by the Chord Railway. The inspection posts at Rajewadi and Londa are on the Southern Maratha Railway, which runs from Poona through the districts of Poona, Satara, Belgaum, and Dharwar and the Kolhapur State. In consequence of the severe epidemic in the Satara District, inspection of passengers by up trains as well as by down trains has for some months past been in force at Rajewadi, and arrangements have recently been made for the same reason to transfer the inspection post from Londa in the south of the Belgaum District to Kudchi in the north. At Kudchi on the Southern Maratha Railway and at Manmad on the G. I. P. Railway, arrangements are in force for the disinfection of the clothing and baggage of passengers who appear to be suspicious. Similar arrangements have been in force at the frontier stations of Bhusaval and Hotgi for more than six months past. The Kolhapur State, it may be mentioned, which lies immediately south of the Satara District, and has a branch railway line, protects itself from infection by an elaborate system for detention under observation of all persons arriving by train except those specially exempted. For the further protection both of Kolhapur and the British villages in the Satara and Poona Districts from the risk of infection by railway passengers by the Southern Maratha Railway, it was proposed, as soon as plague assumed epidemic proportions in the south of the Satara District, to establish additional first class inspection posts at Tasgaon Road and Koregaon, but the difficulties in the way of providing the necessary staff, hospitals and segregation sheds, induced Government, as a substitute, to arrange with the railway authorities to take up passengers by only two trains daily in each direction, at these and intermediate stations, and to prevent such passengers entering the trains until they had been examined by a medical inspector, whose duty it was to alight at each railway station and examine intending passengers collected by the police.

22. In view of the rapidity with which plague was spreading in the Satara District a Committee under the presidency of the Honourable Mr. J. K. Spence, I.C.S. and comprising the marginally noted officers, all of whom have had wide experience of plague measures, was appointed to devise measures for the

prevention of the spread of the disease. 'On receipt of their unanimous report, the rules, of which a copy is attached, as is also a copy of the report itself and of Colonel Wray's separate report, were distributed for the guidance of Collectors.* Action under these rules is now being vigorously taken in all infected areas of the Presidency, wide powers to engage the necessary additional establishments and incur the necessary expenditure, having been conferred on executive officers.

23. It may further be mentioned that extensive action is being taken in numerous places of importance in the Presidency for detaining and keeping under observation persons who are regarded as suspicious, in which class all persons from infected areas may be said to fall, unless they can be depended on to reside in a fixed place and to present themselves daily for medical examination for 8 or 10 days after arrival. This measure is the one to which much of the success attained last hot weather in preventing the spread of plague at a critical time from Poona to certain cities in the Deccan, from the Surat District to Broach, and from Sukkur to Shikarpur and other places in Sind is ascribed.

24. Special arrangements for training selected subordinates of all departments in disinfecting work have been made under the supervision of the Surgeon-General.

25. Lastly it may be mentioned that Mr. A. Wingate, whose administration was so successful in stamping out the disease in the Province of Sind, has been appointed to be Plague Commissioner for the Presidency and has been given very extensive powers. Surgeon-Major-General Cleghorn, Director-General, Indian Medical Service, and Surgeon-Colonel Hay, lately Officiating Surgeon-General with this Government, have hitherto been associated with him as advisers. Surgeon-Major-General Bainbridge, the newly-appointed Surgeon-General, will now replace Dr. Hay.

We have, &c.,
(Signed) SANDHURST,
&c., &c.

* Not reprinted.

From the GOVERNMENT OF INDIA to the SECRETARY OF STATE
FOR INDIA.

(Sanitary No. 1.)

MY LORD,

Calcutta, January 6, 1898.

IN continuation of our sanitary despatch, No. 27, dated the 9th December, 1897, we have the honour to forward, for Your Lordship's information, statistics showing the progress of the plague during that month, and the following further narrative of matters connected with the plague.

2. We regret to state that the rise in the number of cases in the City of Bombay reported in our last despatch has continued. The following plague seizures and deaths were reported during the first and second halves of December :—

					Seizures.	Deaths.
					—	—
1st to 16th	...	...	...	...	276	217
17th to 31st	...	...	...	...	529	427
Total					<u>805</u>	<u>644</u>

These totals compare with 371 seizures and 252 deaths reported during the month of November. The total mortality of the city increased from 3,389 in October and 2,974 in November to 3,736 in December. The disease appears also to be assuming a more virulent type, the percentage of fatal cases in December being 80 as against 68 in November. The number of reported plague seizures and deaths and the general mortality remained, however, considerably lower than during December 1896.

3. Outside the City of Bombay there has been a general improvement, especially during the second half of the month. The following statement shows the places in the Bombay Presidency proper where plague is now most prevalent, and compares the number of reported seizures during the months of December and November :—

					December.	November.
					—	—
Satara District	...	...	...	...	2,125	4,549
Poona City	...	...	...	...	1,648	2,534
Sholapur District	...	...	...	...	1,475	1,123
Surat District	...	...	...	...	646	855
Poona District	...	...	...	...	474	763
Nasik District	...	...	...	...	371	262
Belgaum District	...	...	...	...	342	194
Palanpur State	...	...	...	...	273	152
Ahmednagar District	...	...	...	...	273	161
Cutch State	...	...	...	...	151	336
Baroda State	...	...	...	...	78	27
Kolhapur State	...	...	...	...	77	47
Thana District	...	...	...	...	68	33
Khandesh District	...	...	...	...	63	1
Akalkot State	...	...	...	...	47	7
Kolaba District	...	...	...	...	36	74
Dharwar District	...	...	...	...	35	4

The improvement is even greater than is indicated by a comparison between the figures of December and November, since the Nasik, Thana and Kolaba Districts, and the Palanpur, Baroda, Kolhapur and Janjira States are the only localities in which there has not been a marked decrease in the number of cases during the second half of December. The great improvement in Satara District and Poona City, which have for some time past been the two worst localities, is specially satisfactory. The infection continues, however, to be very widespread in Satara District. In Sholapur District the disease is practically confined to the town, where the number of cases is steadily falling. The town of Surat continues to be much the worst place in the Surat District, but here also the disease shows a considerable decline. The cases in the Poona District are spread over a number of places, but are rapidly diminishing in number. The towns of Nasik and Malegaon account for the greater portion of the cases in the Nasik District, and the increase is mainly at

Nasik itself. Although there were considerably more cases in the Belgaum District in December than in November, the second half of December shows a decline in the number of cases. Belgaum town and cantonment, and Kagwad, in Taluka Athin, are the seats of infection. The town of Palanpur is now almost free from plague, and the increase in the number of cases reported from the Palanpur State is due to the spread of infection among the villages. The town of Ahmednagar, and Shrigonda, in the Taluka of the same name, are the worst places in Ahmednagar District; there has been a marked decline in the number of cases during the second half of December. In the villages of the Cutch State the epidemic continues steadily to decrease in intensity. The rise in the figures for the Baroda State is due to an increase in the number of cases in the City of Baroda. Several places are affected in Kolhapur, and there has been a slight increase in the number of cases. Bassein is responsible for the increase in the number of cases in Thana District. The increase in Khandesh District was due to an outbreak at Jalgaon which has now declined.

4. The Bombay Plague Commission, accompanied by Surgeon-Major-General Cleghorn, has completed its inspection of the infected localities and reported for the orders of the Local Government on the arrangements in force at each of them. The only infected place, outside the jurisdiction of the Bombay Government, which came under its inspection was the Baroda City. This was visited by Mr. Wingate and Dr. Cleghorn on the 17th December. The arrangements for segregating the sick and those who had lived with them, and for disinfecting the infected houses were found to be admirable. Notwithstanding these arrangements the number of cases reported from the city has continued to increase, and Dr. Cleghorn stated that a steady increase in the general death-rate points to the existence of an increasing number of undiscovered cases. The town is a large one and the position appears to us to be serious; we have therefore caused the letter of which a copy is appended to this despatch to be sent to the Agent to the Governor-General.* We have insisted that for the purpose of discovering all cases of plague and enforcing the needful precautions it is necessary that the whole city should be divided into a number of districts, each under the charge of a responsible officer, and equipped with an adequate staff. The importance of evacuating the infected portions of the city has also been impressed upon the Agent to the Governor-General. The Government of Bombay have been requested to direct Mr. Wingate to assist Colonel Martelli with his advice, and we have suggested that the staff in the employ of the State, which has done its work very well, should be re-inforced by experienced officers from the Bombay Presidency.

5. M. Haffkine and Surgeon-Major Lyons have presented a joint report on the effect of the experiments in preventive inoculation carried out during the epidemic of plague in the Portuguese territory of Damaun. The experiments were conducted on an extensive scale and the results were encouraging. M. Haffkine has suggested a scheme for the more extensive introduction of the preventive inoculation process, and we have commended the matter to the consideration of the Government of Bombay.

6. With this despatch is forwarded for Your Lordship's information a copy of a report* prepared by Major Hyde-Cates, Political Agent, Cutch, on the plague in Cutch, from the 1st October 1896 to the 15th August 1897. With reference to this report, we have again laid stress on the importance of improving the sanitary condition of the town of Cutch-Mandvi. Major Hyde-Cates's report does not show that sufficient attention has been paid to this important subject.

7. Twenty-two fresh cases of plague were reported from Kotri in Sind during December, only eight of which occurred after the 15th of the month. Appended to this despatch is a copy of correspondence with the Government of Bombay on the measures adopted to stamp out the diseases.* These measures were carried out with great care and energy, but we consider that the outbreak might have been more quickly suppressed had arrangements been made in the earlier stages of the outbreak, for the evacuation of the town and the segregation of all the inhabitants in a health camp, instead of confining them all within the infected locality. This matter was alluded to in the telegram sent to Your Lordship on the 16th December 1897. No cases of plague have occurred elsewhere in Sind.

8. Four fresh cases have been reported from the Sirohi State in Rajputana. One case occurred on the 16th and the remaining three on the 18th of the month. The inmates of

* Not reprinted.

the infected houses have been segregated, and we have suggested that a similar course should be adopted with regard to the inmates of other neighbouring houses.

9. There has been a decrease in the number of cases of plague reported from the Jullundur and Hoshiarpur Districts of the Punjab. Ninety-six cases were reported from Khankhanan from the 1st to the 16th of December and only eleven cases during the rest of the month. No cases have occurred in Khatkar Kalan since the 4th December nor in Jhander Khurd since the 19th. The infection has spread to two other neighbouring villages—Birampur and Khatkar Khurd—where a few cases have occurred. In Birampur most of the cases occurred during the middle of the month, and the number has already greatly declined. The usual precautions were adopted. Three cases were reported from Khatkar Khurd on the 29th and one on the 30th.

Two reports on the arrangements made at Khankhanan, Khatkar Khalan and Jhander Khurd* are appended to this Despatch. The precautionary measures appear to have been carried out in a very careful and energetic manner.

10. Five fresh cases of plague were reported from Khankhal in the North-Western Provinces during the month. They occurred on the 8th, 12th, 13th, 24th and 31st respectively. A suspicious case was reported from a village near Khankhal on the 31st.

11. At the instance of the Government of the North-Western Provinces we have issued orders under the Epidemic Diseases Act forbidding the sale within the Bombay Presidency (excluding Sind) of tickets to travel by railway to any of the stations named in the margin during the months of January and February to any persons intending or believed to be intending to visit the North-Western Provinces and Oudh on pilgrimage.

Ajodhya.
Fyzabad.
Allahabad.
Muttra.
Brindaban.

Benares.
Moghal Sarai.
Bindhachal.
Mirzapur.
Hardwar.

Presidency (excluding Sind) of tickets to travel by railway to any of the stations named in the margin during the months of January and February to any persons intending or believed to be intending to

The Government of the North-Western Provinces and Oudh represented that it was anticipated that large fairs would be held during the two months in question at or near the places named, and the danger of the assemblage of large numbers of pilgrims from the infected area is so great that we considered it necessary to sanction the restriction for which the Local Government asked.

12. We forward for Your Lordship's information a copy of a report* submitted by a Committee which assembled at Calcutta to consider the subject of preventing passengers from the Bombay Presidency escaping detection by re-booking at intermediate stations, and of the orders issued to Local Governments and Administrations in connection with this report. The dangers arising from the practice of re-booking to avoid detection were explained in paragraph 10 of our Despatch of the 9th December.

The following were the three main suggestions made by the Committee :—

- (1) The tickets of all passengers leaving the infected area should be punch-marked so that there may be no difficulty in recognizing them even by a dim light.
- (2) When a passenger with a marked ticket alights, his name and address should be taken by the Railway Police, and arrangements should be made by District Police that any case of sickness occurring within ten days in the house of the newly arrived traveller should be reported.
- (3) The officials who take the name and address of passengers should endeavour to identify passengers who re-book within 48 hours. The number of the fresh ticket obtained by such passengers should be telegraphed down the line, and on alighting he should be treated as a traveller coming from an infected area.

We have accepted all three suggestions made by the Committee, and instructions have issued for their general and systematic adoption. With regard to the first suggestion, the Committee represented that the names of all stations in the Bombay Presidency are not known to the police and station officials further east, and that there should be some easy mode of recognizing the fact that a ticket was issued within the Presidency. Orders are accordingly being issued for the punching of tickets on the borders of the Bombay

* Not reprinted.

Presidency in the manner suggested by the Committee. The second and third suggestions will be carried out through the agency of the railway police, and special officers will be appointed for the purpose at all railway stations along the lines leading from the Bombay Presidency. A single official will be posted at small stations, and we have suggested that it may be necessary to employ a larger staff under the superintendence of a responsible and intelligent officer at more important places. Local Governments and Administrations have been directed to enter into communication with one another to ensure cordial co-operation between the railway police of the different provinces in giving effect to the proposed arrangements. A small inspecting staff will also be appointed in each province to supervise the working of the rules.

13. Local Governments and Administrations are making arrangements for the despatch of pilgrims to the Hedjaz in accordance with the scheme which was explained in our last Despatch. Only one point has been discussed in the further correspondence on the subject which it is necessary to report for Your Lordship's information. It was stated in paragraph 15 of our Despatch of the 9th December that we were in communication with the Government of Bombay with regard to persons from other parts of the country who had already entered the Bombay Presidency with a view to go on pilgrimage. Sixty-seven pilgrims from other parts of India and from Central Asia have been collected at the Malet Bandar observation sheds at Bombay. They are at present being detained under observation and will be sent to a special camp in Sind, away from the port of Karachi, where they will remain in segregation until a vessel is ready to carry them to Jeddah. The Government of Bombay have been informed that in view of the increase of plague in the City of Bombay it is undesirable to send from that port any more intending pilgrims who may enter the Bombay Presidency, even though they belong to other parts of India, and that the pilgrims now at Malet Bandar should be sent to Sind as soon as they have completed the ten days' period of observation. Any other persons who may arrive in the Bombay Presidency with a view to go on pilgrimage will be dealt with as directed in the Notification for the control of the pilgrimage during the current season which was issued under the Epidemic Diseases Act on the 28th November last ; that is to say, they will be placed in a camp of observation until such time as the Medical Officer in charge is satisfied that all risk of the occurrence of plague amongst them has been completely abated, and they will then be sent to their homes.

14. In conclusion we forward, for Your Lordship's information, copies of the more important Resolutions recently issued by the Government of Bombay on matters connected with the plague.*

I have, &c.,
ELGIN,
&c., &c.

* Not reprinted.

Enclosures.

18763

STATEMENT showing BUBONIC PLAGUE CASES and DEATHS (imported as well as indigenous) in the BOMBAY PRESIDENCY reported to GOVERNMENT from September 1896 to week ending 24th December 1897.

1. Periods.	2. Bombay City				3. Karachi City				4. Poona City, including Suburb and Cantonment				5. Ahmedabad District.				6. Kaira District.			
	Plague Cases.	Plague Deaths	Total actual Mortality from all Causes	Total average Mortality from all Causes	Plague Cases	Plague Deaths	Total actual Mortality from all Causes	Total average Mortality from all Causes	Plague Cases	Plague Deaths	Total actual Mortality from all Causes	Total average Mortality from all Causes	Imported.		Indigenous.		Imported.		Indigenous	
													Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Total as per Statement for period from September, 1896 to week ending 17th December, 1897.	14,004	11,642	62,274	—	4,170	3,401	8,029	—	8,238	6,028	14,350	—	137	80	25	17	23	18	—	—
During week ending 24th December, 1897	*206	172	888	676	—	—	88	98	285	250	297	77	—	—	—	—	—	—	—	—
Total	14,210	11,814	63,162	—	4,170	3,401	8,117	—	8,523	6,278	14,647	—	137	80	25	17	23	18	—	—

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Periods.	7. Broach District				8. Surat District.				9. Thana District				10. Ahmednagar District				11. Khandesh District.				12. Nasik District.			
	Imported.		Indigenous.		Imported		Indigenous		Imported		Indigenous		Imported		Indigenous		Imported		Indigenous		Imported.		Indigenous	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Total as per Statement for period from September, 1896. to week ending 17th December, 1897	18	13	1	—	308	215	3,793	2,659	799	423	4,432	3,595	122	90	453	309	40	18	†41	†34	130	96	†1,006	795
During week ending 24th December, 1897.	—	—	—	—	31	31	94	88	2	1	21	15	—	—	65	51	2	2	16	17	4	5	93	70
Total	18	13	1	—	339	246	3,887	2,747	801	424	4,453	3,610	122	90	518	360	42	20	57	51	134	101	1,099	865

* These figures include 4 imported cases.

† Revised in accordance with latest reports.

STATEMENT showing BUBONIC PLAGUE CASES and DEATHS (imported as well as indigenous) in the BOMBAY PRESIDENCY reported to GOVERNMENT
 ... from September 1896 to Week ending 24th December 1897—continued.

Periods.	13. Poona District, excluding the City.				14. Satara District				15. Sholapur District.				16. Kolaba District.				17. Ratnagiri District.				18. Belgaum District.			
	Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Total as per Statement for period from September, 1896, to week ending 17th December, 1897.	640	460	2,961	2,198	*376	*313	13,063	*10,020	157	141	2,339	1,875	171	147	1,315	1,141	236	202	148	119	3	2	397	304
During week ending 24th December, 1897.	30	24	74	55	8	5	346	271	32	32	180	197	—	—	12	11	—	—	—	1	1	1	71	54
Total	670	484	3,035	2,253	384	318	13,409	10,291	189	173	2,519	2,072	171	147	1,327	1,152	236	202	148	120	4	3	468	358

Periods.	19. Dharwar District.				20. Kanara District				21. Bijapur District.				22. Baroda Territory.				23. Kathawar				24. Kolhapur.			
	Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Total as per Statement for period from September, 1896, to week ending 17th December, 1897.	7	3	*42	*42	1	—	—	—	3	3	—	—	86	62	649	526	96	47	167	121	20	14	198	134
During week ending 24th December, 1897.	—	—	2	1	—	—	—	—	—	—	—	—	1	—	39	24	—	—	—	—	2	2	34	25
Total	7	3	44	43	1	—	—	—	3	3	—	—	87	62	688	550	96	47	167	121	22	16	232	159

* Revised in accordance with latest reports

STATEMENT showing BUBONIC PLAGUE CASES and DEATHS (imported as well as indigenous) in the BOMBAY PRESIDENCY reported to GOVERNMENT from September 1896 to week ending 24th December 1897.

Periods.	25 Cutch				26 Mahi Kantha.				27 Palanpur				28 Savantvadi.				29 Karachi District, excluding the City				30 Hyderabad District.			
	Imported		Indigenous		Imported		Indigenous		Imported		Indigenous		Imported.		Indigenous.		Imported.		Indigenous.		Imported		Indigenous	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Total as per Statement for period from September, 1896, to week ending 17th December, 1897.	239	169	6,424	5,536	4	2	—	—	33	10	1,072	691	26	25	—	—	174	129	146	103	69	57	557	423
During week ending 24th December, 1897.	—	—	26	15	—	—	—	—	2	1	112	91	—	—	—	—	—	—	3	3	—	—	—	—
Total	239	169	6,450	5,551	4	2	—	—	35	11	1,184	782	26	25	—	—	174	129	149	106	69	57	557	423

Periods.	31 Shikarpur District				32 Upper Sind Frontier District.				33 Thar and Parkar				34 Janjira State.				35 Akalkot State.				36 Plague among Europeans.			
	Imported		Indigenous		Imported		Indigenous		Imported.		Indigenous		Imported.		Indigenous.		Imported.		Indigenous.		Bombay		Mofussil	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Total as per Statement for period from September, 1896, to week ending 17th December, 1897 ...	154	103	838	593	3	2	1	1	3	2	—	—	9	4	330	204	15	9	44	31	47	16	*33	†6
During week ending 24th December, 1897.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	5	—	—	12	10	—	—	‡1	—
Total	154	103	838	593	3	2	1	1	3	2	—	—	9	4	340	209	15	9	56	41	47	16	34	6

* Of these, 5 occurred at Poona, 2 at Ghorpur in the Poona District, 1 at Ahmedabad, 3 at Karachi, 1 at Cutch Mandvi, 18 in Poona Cantonment, 1 in Kirkee Cantonment, 1 at Sholapur and 1 in Poona Suburban limits.
 † Of these, 2 took place at Karachi, 1 at Cutch Mandvi, 2 in Poona Cantonment, and 1 in Kirkee Cantonment.
 ‡ Occurred in Poona Suburban limits

FROM MONS. W. M. HAFFKINE TO THE SECRETARY TO THE GOVERNMENT OF INDIA
(Home Department).

Hardwar, November 20, 1897.

I HAVE the honour to submit a report by Surgeon-Major Lyons and myself on the epidemic of plague in Lower Damaun, and on the effect of preventive inoculation there.

The delay in forwarding this report was due to the fact that while the observations collected in Damaun were being studied and classified, two epidemics occurred, one after another, in Lanowli and in Kirkee, in conditions which permitted of making a very accurate investigation on the effect of inoculation. I decided to delay the preparation of the present report and to take immediate advantage of the two outbreaks for repeating the experiments made in Damaun, and verifying, for a second and for a third time, the results obtained in the former place.

In both epidemics just referred to, as will be seen from the reports to follow, the results were slightly below those obtained in Damaun, which was due to my having been unable, while away in the affected districts, to renew the stock of lymph stored up in Bombay, and to my having had to use material of (gradually) inferior quality when the stronger was exhausted. The effect differed, however, inconsiderably, and represented in Damaun, as will be seen from the adjoined report, a reduction of 89·2 per cent. of the plague mortality, in Lanowli a reduction of 85·7 per cent., and in Kirkee of 77·9 per cent.

2. I beg, sir, to point out, in the submitted report, the following features: The great readiness and spontaneity with which the population came forward for inoculation, without any pressure being brought to bear upon them, except that of the dreaded disease; the rapidity with which the effect of the treatment was perceived and appreciated, and the fact that one assistant, deputed to the place, was able to inoculate in a few days large numbers of people, the inhabitants providing all the necessary accommodation and help. When compared with the circumstances connected with the attempts at destroying the bacilli of plague in villages and in big towns, and at keeping the sick and the healthy away from each other, and from the infected localities, the method of combating the epidemic by inoculation presents inestimable facilities.

3. I shall submit my full reports on the operations in Lanowli and Kirkee—in order to confirm the conviction which imposes itself on studying the Damaun epidemic—as early as my present absence from my office, and the time required for compiling the documents, will allow me. In view, however, of the great urgency of the case, I believe it opportune to consider, for the present, the possibility of Government deciding to introduce preventive inoculation as a means of combating the plague, on lines similar to vaccination,—combining this method, in the commencement, with other measures, but assigning to it, in the programme, a very important part. I give, therefore, below a brief sketch of the organisation necessary for that—

- (a) The staff sufficient for securing a supply of lymph for India would consist of :—
One Commissioned Medical Officer, as a permanent assistant, who will be trained to carry out and supervise all the laboratory preparations connected with the plague prophylactic,
One Military Assistant Surgeon,
One Apothecary,
One Clerk,
Two Laboratory boys,
 **One* Peon, for packing and despatching of [parcels, and
One Hamal.

I suppose, of course, that the above staff will be free from any work connected with the actual inoculations, or from any investigation duty, and will devote undividedly their whole time to the manufacturing of lymph.

- (b) The raw materials necessary for the preparation of one hundred doses of lymph cost below R1.

* Peon = messenger.

- (c) In case the Laboratory remains in Bombay, a house for its accommodation, containing 30 rooms, provided with gas and water, with an extensive compound and several out-houses and stables, is placed at our disposal, free of charge, by His Highness Aga Khan, in a suitable locality of Bombay. If the Laboratory is located elsewhere, accommodation will be required of ten rooms for the preparation and storing up of the plague prophylactic, and of another half dozen rooms for carrying on investigation work.
- (d) The actual inoculation should be carried on by the flying columns, or parties at present engaged in combating the plague in the affected districts, and which, with regard to the inoculations, should be subject to the same regulations as are in force for vaccination against small-pox. It is desirable that, in the beginning, in every new place, the inoculations should be started by a Commissioned Medical Officer, whom I shall guide personally in his first set of operations, and whose duty it should be to keep my office informed on the effect produced upon the epidemic. Afterwards, and very soon, the operations will be entrusted to an Assistant Surgeon or a Hospital Assistant.

4. I propose, unless you advise me to the contrary, to remain in Hardwar for the time necessary for ascertaining whether the disease contracted by the monkeys, and which caused only an insignificant mortality among them, is the same as the bubonic plague in men; and to return to Bombay after that.

JOINT REPORT ON THE EPIDEMIC OF PLAGUE IN LOWER DAMAUN, PORTUGUESE INDIA,
AND ON THE EFFECT OF PREVENTIVE INOCULATION THERE.

By MONS. W. M. HAFFKINE AND SURGEON-MAJOR LYONS, I.M.S., PRESIDENT.

Government Committee for Investigation of the Bubonic Plague in Bombay.

The plague prophylactic referred to in the present report has been described by Mons. W. M. Haffkine in the "British Medical Journal," May 1897, and in the "Indian Medical Gazette," June 1897.

The facts reported here have been collected by Professors Koch and Gaffky, the heads of the German Scientific Mission to Bombay, and Monsieur Haffkine, on a visit to Damaun on the 20th and 21st May last; at the end of the same month a house-to-house visitation at Damaun was undertaken and carried out, at Monsieur Haffkine's request, by Surgeon-Major Lyons, President of the Bubonic Plague Research Committee, in order to complete, by exact details, the information gathered on the first visit.

At the German Scientists and Monsieur Haffkine's inquiry at Damaun, their informants were:—

His Excellency Col. J. P. Kuchenbuck Villar, Governor of Damaun ;	
Mr. Judge, Assistant Collector, Salt and Revenue Department, in charge of the Preventive Police and the Plague Operations on the Damaun Frontier ;	
Shet Sorabjee Manockjee Damaunwalla, head of the Parsee community, assisted by his Secretary ;	
Dr. Virgilio Poiares, Physician in charge of the Plague Hospital ;	
Dr. Proença, Health Officer ;	
Dr. Pinto, in charge of the Plague Operations in Damaun Town ; and	
Dr. Da Cunha, L.R.C.P. (Edinburgh),	} Medical Practitioners of Damaun.
Dr. Moniz, L.M.S., and	
Dr. Fernandez,	

The Medical Officers above mentioned were assembled, on the 20th May, 1897, by H. E. the Governor, who was also present, and to whom we are indebted for affording every facility for making the inquiry complete. The general information given below, in the preliminary part of this report, was reported at this meeting and was supplemented by documents from the respective offices.

The history of the Damaun epidemic appears to be as follows :—

The town of Damaun is divided by a river into two parts : Lower Damaun, the largest business part of the town ; and the Fort, or upper Damaun, where the Government house and the Government offices are situated. The plague attacked almost exclusively three of the villages which make part of Lower Damaun, namely, Lower Damaun proper, having, in ordinary times, a population of 5,000 inhabitants ; Katheria, the property of Shet Sorabjee Damaunwalla, with a population of 4,700* ; and Khadiwadi, with a population of 1,200. This part of the town was in active business communication with the Bombay Presidency, and is densely populated, the inhabitants living in small houses crowded together. The Fort was cut off by a cordon from Lower Damaun as soon as the epidemic began to increase in proportion, and had only some half dozen imported cases.

The first attacks came to notice in February last, and occurred amongst new arrivals from Bulsar, a neighbouring town which was badly affected at the time, and amongst sailors from Kurrachee arriving at Damaun by sea, in native crafts. Before the end of the same month local cases began to appear among the fishermen, who have their *busti* close to the river, where crafts are moored, behind the Damaun Municipal School. In the last days of the month a hurried exodus of people began from Lower Damaun, increasing daily as the epidemic gained in intensity, until, on the 23rd of March, the Governor placed a cordon along the river, and stopped communication between the lower and upper parts of the town ; while a week later, on the 30th March, the Bombay Government, on their part, closed British territory to the inhabitants of Damaun. By this time it was estimated over 2,000 people had quitted the place.

The worst period of the epidemic corresponded to the month following the closing of the Damaun frontiers. The climax was reached in the middle of April, when the daily number of deaths remained stationary for about 8 days and then began to decline. The largest number of deaths which occurred in one day was 80.

Up to the 25th of April the daily mortality, which was closely watched by the Parsee community, who kept peons on the burial and burning grounds, was recorded officially from the information given by the inhabitants coming to the Registration Office to declare cases of deaths in their families. On the 25th April the Governor placed a guard of his own on the burial and burning grounds, and on that day, though the number of deaths reported by the inhabitants was 11, the number of bodies disposed of in the presence of the guard was 34. From the above date the Governor's guard was kept permanently on the grounds, and the official information became complete. The following is the number of bodies registered by this means from the 25th April up to the date of investigation :—

25th April 1897	34	8th May 1897	33
26th "	31	9th "	18
27th "	21	10th "	24
28th "	49	11th "	27
29th "	41	12th "	15
30th "	58	13th "	13
		14th "	17
1st May 1897	41	15th "	13
2nd "	22	16th "	20
3rd "	29	17th "	6
4th "	47	18th "	8
5th "	33	19th "	13
6th "	31		
7th "	31	25 days.	675 deaths.

Thus, during the 25 days preceding our visit, *i.e.*, between the 25th April and 19th May 1897, at a time when the population was considerably thinned by desertion and death, and when the mortality had dropped to 8 and 6 a day, the total number of bodies disposed of was 675, giving an average of 25 deaths a day. His Excellency the Governor and the medical gentlemen present at the meeting stated that they would be well within the real figure if they estimated the number of deaths which occurred in the fully populated town in the first period and during the height of the epidemic, *i.e.*, up to the time of placing the guard, at an average of 30 a day, counting from the 1st March and neglecting the mortality before that date. This estimate gives a total of 2,325 deaths as

naving occurred in Damaun from the beginning of the epidemic up to the time of the Scientific Committee's visit. Of this number, 2,093 deaths were afterwards authenticated in the particular families where they had taken place, during a house-to-house enquiry instituted by Shet Sorabjee Damaunwalla, the owner of Katheria.*

As the immunity of the inoculated in Damaun will be estimated from a comparison with the mortality in the uninoculated population, it is essential, in order to avoid the possibility of exaggerating the power of inoculation, to take for guidance the lowest figure admissible as representing the real death-rate in the place. In the following calculations, therefore, the number of deaths from plague which occurred in Damaun from the commencement of the epidemic up to the visit of the Scientific Committee is accepted as 2,093, which is the number authenticated by an enquiry in each of the affected families. This figure gives an average daily mortality from the commencement of the epidemic up to the time of placing guards on the burial and burning grounds, as being close upon 26 deaths a day. From the 21st of May up to the end of the same month, that is to say, up to the date when Surgeon-Major Lyons concluded the additional enquiry, of which the details are given below, there occurred 96 deaths more, giving a total of 2,189 deaths from plague which took place in Damaun during the period under observation.

In this number of deaths there were 24 in those inoculated, personally observed by the Medical Officers of the place; *plus* a small number of others of which they knew, but which they had not seen personally. 15 deaths of the 24 were reported by Dr. Moniz, who was said to have treated the largest number of plague patients in the place; 4 by Dr. Poiares, who also saw 4 other cases which recovered; 3 cases by Dr. Proença, all of whom recovered (these had been seen also by Dr. DaCunha); 3 deaths were known to Dr. DaCunha, and 2 to Dr. Pinto (in addition to 1 mentioned by Dr. Moniz which Dr. Pinto had seen with him).

Considering the small extent of the town, the limited number of inhabitants, and the number of Medical Officers who were looking after the place, it appeared probable that not many attacks among the inoculated escaped their notice, as such attacks usually excite much comment amongst the inhabitants and attract general attention. Indeed, the gentlemen present at the meeting seemed to know between them every place in the town where inoculated people lived, and every house which had suffered from plague or happened to have escaped. As has been mentioned already, they stated at the time that there was a small number of inoculated attacked whom they did not see, but of whom, they informed us, a record existed in the office of Shet Sorabjee Damaunwalla, where, during the plague, a dispensary was opened for distributing gratuitous medicines to the affected population.

It was on the initiative of that Parsee gentleman that the inoculations were introduced. He had a personal knowledge of the people who were inoculated, and kept a watch over the effect of the operation, collecting, with the help of his office establishment, a large number of details in this connection.

From his information it appeared that the total number of deaths amongst the inoculated was under 40, each of the cases being known to him; that amongst those

* The number of deaths from plague which took place during the *whole* epidemic up to the end of July, and a record of which could be obtained by an enquiry in the households, was 2,352, and was distributed amongst the different castes inhabiting Damaun, as follows:—

Parsees	6	Tailors	48
Brahmins	26	Ghatis	21
Parbhus	4	Potters	16
Shrawaks	11	Portuguese	34
Banias	23	Bhandarees	22
Lohanas	4	Bhayas	5
Gujrathi Goldsmiths	15	Bhateli	1
Daxini Goldsmiths	80	Dhobis	16
Hindu Barbers	27	Mochis	23
Khatris	87	Kolis	19
Coppersmiths	11	Borahs	5
Machis	600	Khojas	4
Carpenters	104	Lohars	13
Mussalmans	440	Mangelas	7
Golas	106	Hindoo Low Castes	351
Chhipas	23	Caste unknown	200
		Total	2,352

inoculated in a first series of inoculation, done in March last, a smaller proportion got affected and died than amongst those done a month later; and that in a series of inoculations carried out by the physician in charge of the Damaun Plague Hospital, with lymph supplied from our Bombay laboratory, the number of attacks was larger than amongst those inoculated by Dr. Kalapesi, Dr. Haffkine's assistant, sent from the Laboratory. These details were found afterwards, in the course of the close investigation carried out by us, to be scrupulously correct.

Mr. Sorabjee had also a guard of his own kept on the burial and burning grounds, watching the course of the mortality, and his information concurred with the statements recorded above. The number of people inoculated up to the time of the Scientific Committee's visit was 1,645; over four times that number remained uninoculated. The latter had lost from plague close upon one-third of their number, and, he considered, there could be no doubt that the inoculated exhibited a most striking degree of immunity.

The effects of inoculation were closely watched by the inhabitants as will be seen from the following observations which they brought to our notice.

There were altogether 306 Parsees in Lower Damaun, including males, females and children. Of these, 276 were inoculated twice, and one once, all the particulars being given in our inoculation register. The names and particulars of the 29 who remained uninoculated were supplied to us on the spot. The attacks and casualties from plague which occurred in the two groups after the introduction of inoculation are given below.* No deaths from any other cause occurred in the community from the beginning of the epidemic.

Occurrences of plague amongst the 277 inoculated Parsees.

- (1) Jerbai, wife of Manekji Pacha, age 35, belonging to a well-to-do family; was five months' pregnant; inoculated once on 17th April 1897, in the right arm. For about 24 hours before, she had fever and pain in the groin, but this was not known at the time of inoculation. Developed characteristic plague in the evening of the day of inoculation, had an abortion on 20th morning, died same day.
- (2) Seven other Parsees inoculated were attacked, respectively, three days, one week, twelve days, a fortnight, one month, one month and five weeks after inoculation, but all these recovered.

Occurrences of plague amongst the 29 uninoculated Parsees.

- (1) Nanabhai Jivajee, male, age 60, belonging to a well-to-do family where all the other members (14 in number), except himself, were inoculated. Attacked on 16th April 1897; bubo in left groin; died on 20th.
- (2) Merbai, daughter of Bairamjee, age 20 years, of a well-to-do family, where eight members were inoculated and four, including Merbai, were not inoculated; attacked about same time as Nanabhai Jivajee; bubo in right groin; died on 20th April.
- (3) Ratanbai Rantanjee, female, age 35, of a well-to-do family; attacked and died in the first days of May 1897, having had fever and a bubo.
- (4) An old woman, Avabai, widow of Rustomjee, age about 75 years, of a well-to-do family, where fourteen others were inoculated, Avabai and Gulbai, her daughter-in-law, being the only uninoculated. Avabai got attacked on 11th May, developed bubo two days later, died on the 13th.

Thus in the 29 uninoculated Parsees there were 4 deaths from plague, or a mortality of 13·8 per cent., while in the 277 inoculated there were 8 attacks, with only 1 death, the one who died being a woman attacked *before* inoculation, and the mortality thus produced in the inoculated being 0·36 per cent., or 38·3 times lower than in the uninoculated.

Another significant instance, in a limited number of people, was furnished by the servants belonging to Shet Sorabjee's house and to his garden. There are 50 servants in the house where he lives and about 150 in his garden, half a mile distant from the house. Round the garden the epidemic was raging violently. Of the whole number of servants, one, a deformed individual, remained uninoculated. All the others were inoculated twice. Plague appeared among the servants on the 16th May, when the only person uninoculated was attacked and succumbed on the 19th. The total number of inoculated lost also one, a child of 4 years.

The other instances given were in isolated families and referred to smaller numbers of people.

* See also attached Rolls. Not reprinted.

The German Commissioners completed this part of the inquiry by collecting information as to the soil of Upper and Lower Damaun, the hydrographic and climatic conditions obtaining in both, their comparative hygienic circumstances, etc. The facts supplied on these points were of an approximate character. The Committee returned to Bombay on the morning of the 22nd May.

Surgeon-Major Lyons went to Lower Damaun on the 26th May, 1897, the object of his visit being to find out accurately, by a minute inquiry in each house, the number of deaths which occurred amongst those inoculated. For this purpose he divided the town into four sections, and during four days, between the 26th and 30th May, 1897, visited all the houses, section by section. And as a number of dwellings had been vacated and the inhabitants encamped in the fields outside the town, Dr. Lyons visited them in their encampments and collected information from all of them. The frontier around the town being closed and guarded by a British and a Portuguese cordon, the conditions for collecting the necessary information were particularly complete.

In this manner Dr. Lyons collected the history of 33 deaths and 54 attacks with recovery which had occurred in the inoculated up to the 19th May (the time of the Scientific Committee's visit), and of 3 deaths* and 1 attack with recovery which occurred between that date and the 31st of May inclusive.

In the Appendix † are reproduced 88 "Investigation Sheets," filled up by Dr. Lyons during the house-to-house visitation, as well as one sent afterwards by His Excellency the Governor. Each of the investigation sheets contains particulars of a house where inoculated people lived and where cases of plague had occurred, either among the inoculated or the uninoculated members of the family. These sheets, therefore, do not make mention of the inoculated households where no cases of plague occurred, nor of any of the attacked houses where there were no inoculated persons.

Comparative Analysis of the Mortality from Plague in Lower Damaun, in the inoculated and uninoculated between the 26th March and the end of May 1897.

The inoculations in Damaun were done in four series :

First Series.—Between the 23rd and 26th March 1897, 846 persons were inoculated by Dr. R. M. Kalapesi, who was sent from the Laboratory, and between the 4th and 7th April, 171 persons by the Portuguese Physician in charge of the Plague Hospital in Damaun, Dr. Virgilio Poiares, who was supplied with material also from the Bombay Laboratory. The lymph used by Drs. Kalapesi and Poiares on that occasion, as will be described later on, was prepared from a strong virus, and produced a high febrile reaction when injected in the prescribed small standard doses. The operations of these two gentlemen differed in that Dr. Poiares gave doses much weaker than those given by Dr. Kalapesi, as is shown by the detailed records of their operations. It will be observed from the results given below that, though Dr. Poiares' patients appear to have given a considerable reduction of mortality when compared with the rest of the population, the results from his small doses were lower than those obtained from the same material given in larger doses.

Second Series.—A few weeks after the first series, the demand for further inoculations coming from Damaun became exceedingly persistent, as was the case, after an interval, in the six other places where inoculations were performed,—in Bombay, Mora, Damaun, Poona, Balsar and Tarapore; and though the Laboratory had run short of strong material, Dr. Kalapesi was deputed again, with a much weaker lymph than that used on the first occasion, as will be detailed later on. Between the 17th and 27th April, *i.e.*, about a month after his first visit, he performed 529 fresh inoculations, and between the 24th April and 2nd May 1897, 99 more were done by Dr. Poiares with a similar material obtained for him from the Bombay Laboratory, by the Bombay Portuguese Consulate. The lymph used on this occasion, even when injected in doses 2 to 3 times larger than the standard ones, failed to produce marked rise of temperature, though it caused considerable local reaction. As will be seen below, both Dr. Kalapesi's and Dr. Poiares' operations, on this occasion, gave a smaller lowering of mortality than those previously performed, though they had both been working with increased doses.

* In this number of 3 deaths is included one additional, in the person of Ghopal Bicaria, 9 years, communicated by Dr. Fernandez through H. E., the Governor of Damaun.

† Not reprinted.

Third Series.—Between the 21st and 23rd of May Dr. Kalapesi inoculated 362 persons with a similarly weak lymph, while Dr. DaCunha, another Portuguese Physician, who had been working in Damaun with Dr. Kalapesi, inoculated 190 persons with the same material.

Fourth Series.—Lastly, in August last, Dr. DaCunha inoculated over 100 persons with material supplied to him from the Bombay Laboratory.

Thus, altogether 2,297 persons were inoculated in Lower Damaun.

The visit of the Scientific Committee coincided with the time of the third series of inoculation, and Dr. Lyons' investigation extended to twelve days later, when the worst part of the epidemic was over, and the daily mortality had come down to below a dozen a day. The present analysis refers, therefore, to the occurrence of attacks and deaths amongst the 2,197 inoculated on the first three occasions, and is divided into three periods of observation, the first corresponding to the interval between the first and second series of inoculations, the second to the interval between the second and third series, and the third to the interval between the third series and the end of the month of May 1897, when the investigation was concluded.

First Period (between the First and Second Series of Inoculations).

At the time when the first series of inoculations was completed, the 26th March 1897, the total number of inhabitants in the affected villages of Damaun, namely 10,900 had been reduced by 670, who had died of plague before that time, and by about 2,000 who had left the place before the closing of the frontiers.

Of the 8,230 remaining, 846 were inoculated by Dr. Kalapesi and 171 by Dr. Poiares in their first series of inoculations, while 7,213 remained uninoculated.

From that time up to the time when the second series of inoculations was completed, *i.e.*, the 23rd of April, the following were the occurrences in the respective groups of people:—

- (a) Amongst the 846 inoculated by Dr. Kalapesi, there were 17 cases with 3 deaths. (Total mortality, 0·4 per cent. ; case mortality, *i.e.*, percentage of deaths to attacks, 17·6 per cent.)
- (b) Amongst the 171 inoculated by Dr. Poiares, there were 6 cases with 3 deaths. (Total mortality, 1·8 per cent. ; case mortality, 50 per cent.)
- (c) Amongst the 7,213 uninoculated, there were 716 deaths.* (Total mortality, 9·9 per cent.)

It will be seen that, if the 1,017 inoculated had exhibited the same susceptibility for plague as the uninoculated, and had had the same mortality of 9·9 per cent., the number of deaths amongst them would have been 101 instead of 6, a difference of 94·1 per cent.

Second Period (between the Second Series of inoculation and the Third Series, or the time of the Scientific Committee's visit.)

By the time when the second series of inoculations was completed, the number of those inoculated by Dr. Kalapesi had decreased by the 3 deaths mentioned above, and increased by 529 newly inoculated, giving a total of 1,372.

The number of inoculated by Dr. Poiares had decreased by 3 deaths, and increased by 99 newly inoculated, giving a total of 267.

The number of uninoculated had decreased by 716 deaths and by the 628 newly inoculated, leaving a total of 5,869 uninoculated.

From the time of the second series of inoculations up to the time of the Scientific Committee's visit, *viz.*, 19th of May last, the following were the occurrences in the three groups :

- (a) Amongst the 1,372 inoculated by Dr. Kalapesi, there were 52 cases with 18 deaths. (Total mortality, 1·3 per cent. ; case mortality, 34·6 per cent.)
- (b) Amongst the 267 inoculated by Dr. Poiares, there were 12 cases with 9 deaths. (Total mortality, 3·3 per cent. ; case mortality, 75 per cent.)
- (c) Amongst the 5,869 uninoculated, there were 674 deaths. (Total mortality, 11·5 per cent.)

* As a matter of fact, much more than that, the figure 716 deaths, 9·9 per cent., implying that during the initial three weeks of the epidemic, before the introduction of inoculation and during the first period of 4 weeks after the inoculations, the worst period in the whole epidemic, the mortality was uniformly 26 deaths a day, which of course was not the case.

It will be observed that if during the second period of observation the 1,659 inoculated had had the same mortality as the 5,869 uninoculated, they should have lost 188 instead of 27, which represents a difference of 85·6 per cent.

Third Period (between the Third Series of inoculations and the end of May, or the time when Surgeon-Major Lyons concluded his investigation).

At the time of the Scientific Committee's visit to Damaun, the number of inoculated by Dr. Kalapesi had decreased by 18 deaths, and increased by 552 inoculated by him and Dr. DaCunha, giving a total of 1,906.

The number of inoculated by Dr. Poiares has decreased by 9 deaths, leaving a total of 258 inoculated.

The number of uninoculated had decreased by 674 deaths and by 552 who got themselves inoculated, leaving 4,643 uninoculated.

During the 12 days which elapsed till Dr. Lyons completed his investigation, these groups produced—

- (a) The 1,906 inoculated by Dr. Kalapesi, 1 case with 1 death. (Mortality 0·05 per cent.)
- (b) The 258 inoculated by Dr. Poiares, 3 cases with 2 deaths. (Mortality 0·8 per cent.)
- (c) The 4,643 uninoculated—93 deaths. (Mortality 2 per cent.)

Calculating upon the death-rate amongst the uninoculated, the 2,164 inoculated should have had 43 deaths instead of the 3, which is a difference of 93 per cent.

During the three periods of observation put together, between the 26th March and the end of May, 6,033 uninoculated had 1,482 deaths (24·6 per cent.) while 2,197 inoculated had 36 deaths (1·6 per cent.). Calculating upon the death-rate among the uninoculated we have seen that the inoculated should have had altogether 332 deaths instead of 36. This represents a difference in mortality of 89·2 per cent.

Considering the large proportion in which the number of inoculated stands to the rest of the population (2,197 to 6,033), it is evidently impossible that the inoculated represented the upper, or any other particular, class of the population possessing a degree of personal or local immunity much different from that of the rest of the population, and to which their reduced death-rate could be ascribed.

This view is confirmed by the following comparison of the mortality which occurred in the inoculated and uninoculated persons belonging to the same families, who lived therefore under absolutely identical conditions of life.

In a large number of households the whole of the members of the family were inoculated, leaving none for comparison as regards susceptibility to the disease. This circumstance rendered it necessary to compare the whole inoculated population with the whole of the uninoculated population, as has been done above. However, in 62 of the inoculated families in which cases occurred, there were 124 persons who remained uninoculated, while the number of inoculated in these families was 250. A comparison between this fraction of the inoculated population with their uninoculated relatives shows the following result:

- 124 uninoculated had 54 cases (43·5 per cent.) with 37 deaths (29·8 per cent., case mortality 68·5 per cent.)
- 250 inoculated had 50 cases (20 per cent.) with 20 deaths (8 per cent., case mortality 40 per cent.)

The inoculated households lived, therefore, under no specially immune conditions, as the mortality among their uninoculated members, 29·8 per cent., was 5·2 per cent. higher than the mortality in the general uninoculated population. This must invariably be the case, as only people from badly-affected or particularly-threatened localities present themselves for inoculation. It will be noticed also that this small number of 124 uninoculated had a mortality higher by 1 death than the total mortality sustained by the 2,197 inoculated inhabitants of Damaun; and that a comparison between the inoculated and the uninoculated members of these families shows that if the 250 inoculated had exhibited

the same susceptibility as their 124 uninoculated relatives, they should have had 75 deaths instead of 20, a difference of 73·3 per cent.*

A similar conclusion is arrived at on comparing the mortality in the Parsee community quoted above, and which shows that the inoculated members gave a reduction of 97·4 per cent. of deaths when compared with the uninoculated of the same community.

It has been mentioned that the lymph used in Damaun in the first series of inoculations was of an active stock, prepared from a highly virulent microbe, and produced a brisk febrile reaction when used in relatively small doses. Owing to the great pressure of work during the epidemic, no method for keeping up the strength of the plague bacilli has been worked out, and the microbe from which the plague lymph was manufactured, was allowed to gradually sink in virulence till it became almost harmless when inoculated into rodents. It was lymph thus weakened that was used in the subsequent inoculations.

A comparison between the first and second series of inoculations† done with the strong and with the weak vaccines, respectively, shows a difference in result in direct correspondence with the difference in the material used, as will be seen from the following table :—

1,017 inoculated on the first occasion had 49 cases (4·8 per cent.) with 15 deaths (1·5 per cent., case mortality 30·6 per cent.).
628 inoculated on the second occasion had 41 cases (6·5 per cent.) with 20 deaths (3·2 per cent., case mortality 48·8 per cent.).

The total mortality and the percentage of deaths to cases amongst the inoculated on the second occasion, though they were exposed to the risk of infection during the milder period of the epidemic, was, respectively, 2·2 and 1·6 times higher than amongst those inoculated on the first occasion.

Also as mentioned already, Dr. Poiares in his operations used doses considerably lower than those given by Dr. Kalapesi. The difference in the results of these two groups of operations corresponded again to the difference in the method employed, as is seen below :—

Amongst the 1,924 inoculated by Dr. Kalapesi, there were 70 cases (3·6 per cent.) with 22 deaths (1·1 per cent., case mortality 31·4 per cent.).
Amongst the 270 inoculated by Dr. Poiares, there were 21 cases (7·8 per cent.) with 14 deaths (5·2 per cent., case mortality 66·7 per cent.).

Thus, amongst the inoculated with reduced doses, small though their death-rate (5·2 per cent.) was when compared with the death-rate in the uninoculated population (24·6 per cent.), the total mortality was 4·5 times, and the case mortality 2·1 times higher than that amongst the inoculated with larger doses.

This variation of the results, answering faithfully to the variation in the strength of the lymph and in the doses given, shows the direct connection of cause and effect in the two series of facts, and makes it probable that it will be in our power to improve upon the results obtained in Damaun.

It also indicates, when the actual figures are examined, that the plague prophylactic has a greater influence upon the number of deaths than upon the number of attacks. This result repeated itself in all the observations collected up to the present on the plague inoculation, and seems to stand in a comprehensible connection with the plan followed in working it out. If this surmise is correct, it will be in our will to effect a further

* As far as the small numbers from which the figure 73·3 per cent. is obtained permit of drawing conclusions, the comparison between this figure and 89·2 per cent. by which the mortality in the *total* inoculated population differed from the mortality in the *total* uninoculated, would seem to indicate that the presence of uninoculated members in a family reduces the safety of the inoculated, and that, like in small pox vaccination, the duty of the individual is to be inoculated for the safety of his neighbours in the community.

† The third series, done shortly before the conclusion of the observations, is left out of this comparison, only one death having occurred amongst those inoculated on the third occasion.

reduction in the number of attacks by correspondingly modifying the composition of the plague prophylactic.

The above satisfactory results were obtained in one of the most virulent outbreaks that have been observed in India in the present epidemic, and during the 9 weeks which corresponded to the highest stage of that outbreak.

The question as to the final duration of the effect of the plague inoculation remains unsolved, but loses its urgent interest in view of the above results.

(Signed) W. M. HAFFKINE.

(Signed) R. W. S. LYONS, SURGEON-MAJOR, I.M.S.

Dated Bombay, 22nd December, 1897.

From **MON. W. M. HAFFKINE** to the **SECRETARY TO THE GOVERNMENT OF INDIA,**
Home Department.

IN continuation of my letter to you, dated Hardwar, 23rd November, 1897, I have addressed to-day to the Secretary to the Surgeon-General with the Government of Bombay the following letter:—

“I have the honour to invite your attention to the joint report on the epidemic of plague in Lower Damaun and on the effect of preventive inoculation there by the President of the Bubonic Plague Research Committee and myself, sent to your address from Hardwar on the 18th November last, and to enquire whether any action is being contemplated with regard to the introduction of anti-plague inoculation in affected areas.

“It will be noted that the results of the inoculations done in Damaun are in conformity with those which were observed in the outbreak of plague in the Byculla House of Correction in January last, and with the information obtained from the inoculated in Bombay during the plague epidemic of the first part of this year. As you are aware, I have afterwards tested the method again in two subsequent epidemics at Lonavla and Kirkee, where the inoculations, according to my most careful enquiries, appear to have lowered the mortality not less than by 85·7 and 77·9 per cent. respectively. As far as it is permitted to judge from these results, we have in the inoculations an extremely powerful and rapidly acting weapon for combating the plague, the application of the method being incomparably easier and more certain than any machinery of isolation and disinfection which can ever be put in work in big centres of population. I believe, therefore, that it is a matter of very great urgency that a scheme should be considered and worked out for the gradual introduction of the inoculations in all the affected areas as the specific measure for combating the existing epidemic.

“I have scarcely to point out that the plague has now been raging in Poona for the past three months without any signs of diminution, and has resulted in the desertion of the largest part of the population and in the seizure of some 6,000 and the death of 4,500 people, in spite of the most earnest and persistent measures. There is in the Presidency a number of affected or closely threatened places of almost equal importance as Poona, such as Belgaum, Surat, Sholapur, the neighbourhood of Karad, Hubli, Wai. The initiative taken by His Highness Aga Khan with regard to the plague in Poona and the introduction of preventive inoculation there by means of hired outside agents; the attached copies of a letter by the Municipal Commissioner for the City of Bombay; of a telegram from Surgeon-Major Foreman, Belgaum; of a letter from Mr. Vyankatesh R. Mudholkar, Editor of *Vaidharbha*, and Dr. Ramchandra N. Mudholkar, Brahmin gentlemen from Amraoti; of a letter from Mr. Prabhakar Vasudeo Palnitkar, Brahmin gentlemen from Poona, are persistent indications that people ask for help, which, under the present conditions, without any organisation existing for carrying out the inoculations, it is impossible for us to render.

“I beg, therefore, to request the favour of the Surgeon-General considering the feasibility of the following suggestions:—

“A certain number of responsible officers should be appointed to carry out the inoculations in the affected districts, and, if possible, the selection should at first be made

either from amongst the officers of the Indian Medical Staff or the medical men sent out lately from England by the Secretary of State for plague duty here. To assist them in dealing with the people and also in keeping detailed records of their operations, it would be sufficient to provide each of them with a competent clerk as interpreter. In the course of their work these gentlemen can instruct in carrying on the inoculations private practitioners or the European and Native Officers of the Subordinate Medical Service, to whom the work may be handed over later on, when the people will get more familiar with the inoculations.

“In order to bring to the knowledge of the population this method of combating the disease, analogous to vaccination against small-pox, the Government be requested to be pleased to direct the District Officers to publish the data reported by this Laboratory on the effect of inoculation, so that the knowledge of the advantages to be expected therefrom may be diffused among the native officials and the masses of the population. The mamlatdars and patels be asked to render assistance to the operators, without, however, in any way forcing the people to undergo inoculation or exaggerating the amount of success derived from it, as defined by the figures given above.

“It is desirable, further, that facilities should be given to the inoculated with regard to detention under observation or restrictions upon the freedom of travelling, as requested in many letters addressed to this Laboratory, a copy of one of which is attached to the present letter (Enclosure No. 4). Such measures have already been taken in different places by the local authorities, as is also to be seen from one of the attached documents (*vide* Enclosure No. 5). It is desirable that any measures of this kind, if judged admissible, be made general and published for the information of the public, as they are a powerful inducement for the people to avail themselves of the protection by inoculation.

“That it is easy, in spite of all adverse expectations which may be formed by those who have had no personal experience in the matter, to perform numberless operations in the affected districts, is proved by my personal experience in Bombay, Mora, Bulsar, Tarapur, Damaun, Lonavla, Kirkee, where it was found that, after the first series of inoculations performed, the people perceive rapidly their protective effect, and come forward eagerly, without pressure being brought to bear upon them. I need scarcely add also that this testimony acquires weight from my four years of anti-cholera inoculations, applied in some 150 towns and villages inhabited by all kinds of races of India.

“I have no doubt that the Surgeon-General will appreciate, from the above considerations as well as from the explanations which I had the pleasure of giving him personally, how very urgent this matter is, seeing the many hundreds of preventible deaths which occur daily, and bearing in mind that the experience gained up to now in this Laboratory entitles us to hope that, by a series of inoculations, of which many thousands can be performed in a single hour, the mortality from plague may be reduced instantly by $\frac{4}{5}$ ths of its extent.

“2. It is to be understood that the present suggestions are independent of the scheme now contemplated by Government, of organising a small committee under my direction for the purpose of studying the life history of the plague microbe, which problem, as I have notified to the Director General of the Indian Medical Service, I shall be happy to undertake. This scheme is referred to in another letter addressed to you simultaneously with the present one.” (Enclosure No. 6.)

(Enclosure No. 1.)

No. 23755, dated Bombay, 16th December, 1897.

From P. C. H. SNOW, Esq., I.C.S., Municipal Commissioner, Bombay, to Professor
W. M. HAFFKINE.

In view of the increase of plague during the past week, I have the honour to request the favour of your arranging to open as early as possible a central station for inoculation by your prophylactic. Perhaps His Highness Aga Khan's bungalow in Nesbit Lane may be utilized for the purpose.

Enclosure No. 2.

Telegram from Surgeon-Major FOREMAN, Belgaum, to Dr. HAFFKINE, Bombay.

Commissioner wired 500. Think can get more. Come if possible. Will help you every way I can. Pleased to put you up.

Enclosure No. 3.

DEAR SIR,

Amraoty, 6th December 1897.

Your efforts in the direction of preventing the spread of the plague by the process of inoculation are highly spoken of everywhere.

We beg you, therefore, to be kind enough to supply us the information about the following particulars at your earliest convenience :—

- (a) Whether you have got any statistical results collected with you as to the effect of the process of inoculation.
 - (b) Whether you can send them to us.
 - (c) If you have not such results collected, whether you can let us know the source where we can get such information.
- (2) What is the cost of each person's inoculation.
 - (3) Whether it will be necessary for us to come down to Bombay to get ourselves inoculated, or you can arrange to inoculate us here.
 - (4) What is the period during which the results of inoculation last.

We beg to let you know that our province is not yet affected by the plague ; it is hovering on the borders of the province, and we think it to be advisable to take the preventive step before it reaches us.

Hoping, therefore, you will be kind enough to inform us about the above referred to particulars.

We beg to remain, &c.,
 VYANKATESH R. MUDHOLKAR,
 Editor "Vaidarbha."
 RAMCHANDRA N. MUDHOLKAR, L.M.S.,
 Medical Practitioner.

Enclosure No. 4.

RESPECTED SIR,

13th December 1897.

Will you have the kindness to let me know in short the rules pertaining an inoculated person when travelling by railway. Please let me know about the following :—

- (1) Whether he is kept in quarantines at different places.
- (2) Whether he is segregated, if any plague case occurred in his house.
- (3) Whether he is obliged to bathe on railway stations where such system is now-a-days going on.

Sir, I do not know even a bit about the above rules ; and I want to go to my native place from Poona. I have inoculated in the Sassoon General Hospital on the 7th December, and I again wish to inoculate on the next Saturday. Sir, if the above rules be favourable, my (25) twenty-five friends are also willing to inoculate and lots of other men also ; so I hope that your Honour will be kind enough to let me know the above rules ; for which act of kindness I shall be ever indebted to your Honour.

I beg to remain, &c.,
 PRABHAKAR VASUDEO PALINKAR,
 In Badhwar Peth Kale's Wada No. 452,
 Poona City.

Enclosure No. 5.

Extract from letter No. 908, dated $\frac{10th}{12th}$ December 1897, *Flying Column No. II, Karad, to Professor W. M.*

"The persons who are at present being inoculated are chiefly those who wish to go to infected villages round Karad for trade purposes on condition they submit to inoculation."

Enclosure No. 6.

Dated Bombay, 22nd December 1897.

From Mon. W. M. HAFFKINE to the Secretary to the Surgeon-General
Government of Bombay.

I have the honour to enclose, for the information of the Surgeon-General, and when done with, a telegram and letter received from Mr. H. M. Judge, Assistant Collector, Salt Revenue, Surat, asking for information as to the action of perchloride of mercury solution in the presence of cowdung.

The officers appointed to carry out the prescribed programme of combating plague are constantly confronted with difficulties of this nature and refer to this laboratory for advice. The answers, in many instances, can, however, be obtained only by new experimental work, for which my present establishment is not sufficient. I would, therefore, inquire, in order to enable me to reply to the correspondence on this subject, whether the scheme, communicated to me by the Director-General, Indian Medical Service, of placing a small Committee of Medical Officers under me for the purpose of investigating the life history of the plague bacilli, is about to be carried out?

Among the Medical Officers sent out by the Secretary of State for plague duty, the following have brought letters recommending them for laboratory work, or have expressed a wish to engage in such work :—

Dr. Maitland Gibson,
Dr. Balfour Stewart, and
Dr. Marsh.

I beg to place before the Surgeon-General these names and the letters, in order that, in case the scheme in question is sanctioned, the selection might be made of or from among the above officers, or others whom the Surgeon-General may think fit.

No. 2713, dated Calcutta, 22nd December 1897.

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, Home Department, to the Secretary to the Government of Bombay, General Department.

I am directed to forward, for the information of the Governor in Council, the accompanying copy of a letter, dated the 20th November 1897, from Mons. W. M. Haffkine, in which he suggests a system for preventive inoculation against plague on an extensive scale. M. Haffkine has been instructed to address the Government of Bombay on the subject of his proposals. The result of the inoculations performed at Damán, described in the joint report prepared by M. Haffkine and Surgeon-Major Lyons, appears to the Government of India to be distinctly encouraging, and they have no doubt that the Government of Bombay will afford M. Haffkine all practicable assistance in making a further trial of his system in the localities in the Bombay Presidency, which are at present infected with plague.

No. 2714, dated Calcutta, 22nd December 1897.

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, Home Department, to Mons. W. M. HAFFKINE, Hardwar.

I am directed to acknowledge the receipt of your letter, dated the 20th November 1897, forwarding a joint report prepared by Surgeon-Major Lyons and yourself on the epidemic of plague in Lower Damán, and on the result of preventive inoculation performed there.

The Government of India have, I am to say, read your report with the greatest interest, and consider the results of the inoculation experiments in Damán to be distinctly encouraging.

2. I am to request that you will address the Government of Bombay with regard to your suggestion that a system should be organized for carrying out preventive inoculation against plague on an extensive scale. That Government, to which a copy of your letter of 20th November has been sent, will no doubt afford you all practicable assistance in making a further trial of your system in the localities at present infected with plague.

From the GOVERNMENT OF INDIA to the SECRETARY OF STATE FOR INDIA.

(Sanitary. No. 4.)

MY LORD,

Calcutta, the 3rd February 1898.

IN continuation of our Sanitary Despatch No. 1, dated the 6th January 1898, we have the honour to forward, for Your Lordship's information, statistics showing the progress of the plague during that month, and the following further narrative of matters connected with the plague.

2. We regret to state that in the City of Bombay the disease has made alarming progress. The number of seizures and deaths reported during the month were 2,910 and 2,934, respectively, and the mortality from all causes was 6,801. The corresponding figures for the month of December 1897 were 805, 644, and 3,736. The figures during each week of the month were as follows :—

	Seizures.	Deaths.	Total mortality.
1st to 7th	375	357	1,118
8th to 14th... ..	551	557	1,423
15th to 21st	765	761	1,706
22nd to 28th	831	840	1,726
29th to 31st	388	419	828

On the other hand, the Bombay Government estimate the present population of the city at 800,000 persons as compared with about 450,000 at the same time last year. The disease appears to be of a very malignant type giving little time for the discovery of cases before death. We have been in communication with the Bombay Government as to the gravity of the present situation and have been assured by them that the system of death report is more accurate than the system which obtained last year. The best available officers are engaged on plague work in the city, the Plague Committee has been strengthened, the superior skilled staff is nearly double of that employed last year, and in addition, the opium detective staff are employed in finding out cases. For purposes of organization the city has been divided into wards which are subdivided into districts and sub-divisions of districts, and these again into smaller areas. The Government of Bombay also state that the evacuation of houses is proceeding and that persons who have been in contact with the sick are carefully segregated. About $7\frac{1}{2}$ per cent. of the persons are found to be infected.

3. In the Districts and Native States of the Bombay Presidency there continues to be a marked general improvement. The following statement shows the localities in the

Bombay Presidency proper where plague is now most prevalent, and compares the number of reported seizures during the months of January 1898 and December 1897 :—

	January 1898.	December 1897.
Satara District	1,139	2,125
Surat District	685	646
Baroda State	570	78
Sholapur District	504	1,475
Poona City	462	1,648
Nasik District	424	371
Belgaum District	399	342
Cutch State	254	151
Palanpur State	236	273
Poona District	215	474
Ahmednagar District	209	273
Kolhapur State	196	77
Thana District	120	68
Kolaba District	83	36
Khandesh District	60	63

The rapid decline in the number of cases in Poona City and District and in Satara and Sholapur Districts is very satisfactory.

The increase in the number of cases in the Baroda State is the worst feature. This increase is mainly due to the epidemic in Baroda City, which continues to gain ground in spite of all efforts to suppress it. A copy of correspondence with the Agent to the Governor General on the subject of the measures adopted in Baroda City is appended to this Despatch.* Your Lordship will observe that the Baroda Durbar have displayed great energy in endeavouring to meet the crisis. A careful organization has been established for the detection of cases of the disease, and the adoption of the prescribed precautions on the discovery of such cases, hospital and segregation accommodation has been provided, the sick are isolated, and infected houses and localities are evacuated, disinfected, and cleansed. Mr. Wingate, the Plague Commissioner for the Bombay Presidency, is assisting the local officers with his advice, and in view of the continued increase of the disease, we have suggested that an experienced Commissioned Medical Officer from the Bombay Presidency should be deputed to Baroda to supervise the arrangements. Instructions have also been given that M. Haffkine should be sent to Baroda to make arrangements for the inoculation of such of the inhabitants as desire to avail themselves of his protective system.

4. The only cases reported from Sind are nine cases at Kotri.

5. We have kept Your Lordship informed by weekly telegrams of the occurrence of cases of plague outside the Bombay Presidency and Sind. Plague exists at present in the Naldrug District of the Hyderabad State; in the Sirohi State, in Rajputana; in a small area in the Hoshiarpur and Jullunder Districts in the Punjab; and near Hardwar in the Saharanpur District, in the North-Western Provinces.

6. The Naldrug District of the Hyderabad State is situated along the borders of the Sholapur and Ahmednagar Districts of the Bombay Presidency. The existence of plague in Sholapur and Ahmednagar involved Naldrug in great danger. The spread of the infection to this tract was not discovered and reported till some time after indigenous cases had begun to occur. It appears from the communications from the Resident at Hyderabad, which are appended to this Despatch,* that the villages of Itkal, Kashgaon, Dhotri, Warligaon, Sarali, Raviamba Ajagu, and Gungoti are or have been infected. All these villages are situated near the Sholapur border. We have telegraphed instructions to the Resident at Hyderabad regarding the measures that should be taken to obtain immediate information of the occurrence of cases in and near the infected area, and the precautions that should be adopted, and have requested him to arrange for the evacuation of the infected villages and the segregation in camp of the inhabitants after disinfection of their clothing and bedding. We have asked him to have Dr. Lawrie, the Residency Surgeon, placed in charge of the operations and have also suggested that a Medical Officer with experience of plague from the Bombay Presidency should be deputed to the scene of the outbreak in order to advise regarding them. The Government of Madras have represented

* Not reprinted.

that it is desirable to stop the pilgrimage to Mecca in the case of residents in the Hyderabad State in view of the outbreak of plague in the Naldrug District. The Resident is taking measures to stop persons from the Naldrug District from going on pilgrimage, and we consider that this precaution will suffice, and that it is not necessary to altogether prohibit the pilgrimage from Hyderabad in consequence of the local outbreak on the border of the State.

7. In the Sirohi State in Rajputana the villages of Kalinderi, Shudial and Tewri, all situated near the border of the Palanpur State, are infected, but the number of cases does not show any tendency to increase, and the watch that is being kept on the neighbourhood has not disclosed any spread of infection. The inhabitants of infected houses and streets have been segregated, and the whole of Kalinderi village, with a population of some four thousand persons, was evacuated by the 16th instant.

8. The evacuation of the infected villages and the segregation of the inhabitants in camp appear to have been successful in overcoming the outbreak of plague in the Jullunder and Hoshiarpur Districts. Fifteen cases have been reported during the second-half of January from the villages of Khankhanan and Birampur, and none from Khatker Khurd and Jhander Khurd. There has been no further spread of infection. In reply to an inquiry we made as to the adequacy of the organization for detecting cases of plague in the infected neighbourhood, the Government of the Punjab stated that the Commissioner of the Jullunder Division believed that the measures were so effectual that plague could not exist undiscovered for more than forty-eight hours. A report on the measures taken at Khankhanan is appended to this Despatch, and also a copy of a very useful set of general instructions issued by the Government of the Punjab on the action to be taken on the occurrence of plague in a town or village.*

A large fair was held at Thanesar near Umballa on and about the 22nd January in connection with the solar eclipse. At the request of the Government of the Punjab we issued orders, under the Epidemic Diseases Act, on the 13th instant, prohibiting the sale in the Bombay Presidency of tickets to travel by railway to the stations near Thanesar, until the end of the month, to any pilgrim or other person intending, or believed to be intending, to go on pilgrimage to the Thanesar Fair.

9. No new cases of plague have occurred at Hardwar and Kankhal, but a few cases have been reported from the neighbouring town of Jawalapur and from the village of Jaggitpur, a few miles from Kankhal. Most of the cases occurred during the first-half of the month. To meet the danger exhibited by the tendency of the disease to spread the Government of the North-Western Provinces and Oudh has issued orders, of which a copy is appended,* for the employment of a special organization for ascertaining whether the infection extends to places other than those in which it has been detected. This organization is based upon that which was so successfully utilized in distributing relief during the recent famine, and the essence of it is that a sufficient number of European officers are employed to render the powers of search effective, and at the same time to prevent the subordinate establishment from abusing their authority.

10. The Bombay Plague Commission under Mr. Wingate having visited all the infected areas in the Bombay Presidency, and examined the arrangements in force at each place, have devised a set of rules for plague administration which have been published by the Government of Bombay in the form of instructions for the guidance of district and other officers. The rules contain a most useful description of the measures that must be taken to combat an outbreak of plague. We have caused the rules to be circulated for the guidance of other Local Governments and Administrations, stating that they are based upon principles which, subject to certain remarks on the principles to be followed by Medical Officers in detaining travellers, we approve. We have taken this opportunity to explain to Local Governments and Administrations our views on the most important features of plague administration, which we have embodied in the Resolution of which a copy is appended to this Despatch. Special attention is paid in the Resolution to the segregation of the sick and of the healthy inmates of infected houses, the evacuation of infected localities, and land quarantine. We have already from time to time explained our views on these matters to Your Lordship. Corpse inspection is mentioned in paragraph 4 of the Resolution. We will address Your Lordship separately on this subject with reference to your Revenue Despatch No. 195, dated the 4th November 1897,

* Not reprinted.

as soon as we have received the replies which are still due from the Local Governments and Administrations whose opinions we have invited.

11. In conclusion, we forward, for Your Lordship's information, copies of Notifications issued by Local Governments and Administrations under the Epidemic Diseases Act, and copies of the more important Resolutions recently issued by the Government of Bombay on matters connected with the plague.*

We have, &c.,
ELGIN,
&c., &c.

INSTRUCTIONS REGARDING PLAGUE ADMINISTRATION FOR THE GENERAL GUIDANCE OF DISTRICT AND OTHER OFFICERS.

1. Plague is a disease which is essentially associated with insanitary conditions in human habitations, the chief of which are accumulations of filth, overcrowding and the absence of light and ventilation.

2. It is, in the first instance at least, a disease of locality, and is mainly conveyed from place to place by individuals in their person, clothing and personal effects, who have resided in the infected locality.

3. The essential measures to be taken for preventing the spread of the disease are its early recognition in a locality, the removal of the inmates from the infected locality or area, which, in the first instance, may be only a room or house, their segregation for a specific period, the disinfection of their persons, clothing and personal effects, and of the houses with their contents, situated within the infected locality.

4. The first steps to be taken are in connection with the sickness and mortality. There are, at present, no methods in actual operation by which these can be accurately ascertained. Infectious diseases are not notified, and the registration of deaths is imperfect. Means must be adopted to improve the latter, and check the results by recording in towns all funerals which pass the octroi posts, noting the name of the deceased and the locality of the house in which the death occurred, and by posting trustworthy subordinates, either members of the Police force or of the Revenue Department, at all burying and burning grounds, noting similar information. These subordinates, not being connected with the Municipality, will afford valuable aid in checking the returns, and they will assist the Municipal authorities in arriving at correct results.

5. In villages, the Pátils must submit weekly returns of deaths in each village, within their respective jurisdiction, to the Mámílatdár, who will forward them to the Collector of the district, after noting on each any peculiarity in the incidence of the deaths, the mortality for the corresponding week during the past three years, and explaining, if he can, any excess. When the Mámílatdár is not satisfied as to the cause of any excessive or unusual mortality, he should cause special enquiries to be made, and, if necessary, call in the assistance of the nearest medical subordinate.

6. The Pátils should also be required to give notice at the police station of the arrival in their villages of any persons from an infected locality. The names of such persons should be entered in a register at the police station, and they should be kept outside the village under observation for ten days and on no account allowed to sleep within the village site. The cause of the death of any person who has recently been in an infected locality should be investigated. In villages remote from a police station the Police Pátíl should discharge these duties, but the Revenue Pátíl and the Kulkarni should be held equally responsible.

7. The returns referred to in paragraphs 4 and 5 will show, both in towns and villages, any unusual mortality over the average of previous years, and also the occurrence of two or more deaths in one house or localised area when immediate special enquiry is necessary.

8. For the discovery of cases of sickness it will be necessary to obtain the assistance of the more respectable residents in each quarter, street or group of houses. In any doubtful case of sickness they could obtain the services of the medical subordinate attached to the dispensary, or a hospital assistant may be specially deputed to aid the residents in the work of detection

* Not reprinted.

9. It should be made obligatory under the Epidemic Diseases Act for the occupier of each room or house in an infected town to notify all cases of sickness and death, occurring in the room or house occupied by him, and for every medical practitioner practising in such a town to report all cases of sickness and death coming to his knowledge in the practice of his profession.

10. When there is reason to believe that cases of plague are occurring in a town or are likely to occur, owing to its proximity to an infected area, the town should be divided into quarters or divisions of a size convenient for effective supervision, and each quarter should be placed, as far as possible, under the charge of an European official, who may be a civil officer, taken from any department, a military or a medical officer, according to circumstances.

11. The quarter under each officer should be subdivided into defined areas, which might consist of a street, a portion of one, or a group of houses, and each of these sub-divisions should be placed under the charge of a district or local subordinate, who may, for convenience, be called a supervisor. With each supervisor will be associated one or more residents of the sub-division, who will assist the supervisor in obtaining information regarding sickness and mortality in the areas respectively allotted to him. Under each supervisor will be a gang of coolies, varying in number to suit the requirements of each locality. The gangs working in the more populous towns should be divided into three sections, each with defined duties as follows :—

- (a) for the detection of cases and their removal to hospital ;
- (b) for the evacuation of houses and for the removal of the inmates to camp ; and
- (c) for the disinfection of houses.

12. So long as plague exists in the Presidency, it is advisable that the above organisation should be prepared for each town and district area, Native Superintendents being substituted for Europeans in the latter, and the members should be ready to act when the necessity arises. At each town exposed to danger an observation camp should be provided where all suspicious arrivals from infected areas may be detained for ten days.

13. It is believed that under such a scheme information regarding all cases of sickness will be easily and readily obtained, but should the people be unwilling to assist the authorities, or withhold the necessary information, then it will be advisable to organise search parties under the charge of the Divisional Superintendent. Each search party should be accompanied by a Medical Officer or subordinate, and by a female, either European or Native.

14. It is absolutely essential to success that all the measures mentioned above for the suppression of the disease should be carried out promptly and effectively. To ensure this being done all the members of the staff engaged in the work should have a clear idea of their duties : the operations will then be conducted in a methodical and systematic manner.

15. The Superintendent should be provided with a suitable office situated in his own division, where he should remain the whole day, except at intervals for meals. The office will be his head-quarters to which all communications should be sent, and at which the Supervisors will make their daily reports. He will exercise a general supervision over all the operations and will issue orders for the necessary action to be taken by each section of the gang of coolies.

16. No house vacated on account of plague may be reoccupied without his sanction, and he may cause a notice to that effect, to be affixed to each vacated house. He should place a seal on boxes containing valuable property left in houses which have been evacuated on account of plague. Such property may be removed by the owner, but if he declines to do so, it will remain at his risk.

17. Property of any value belonging to the poorer classes which it may be considered necessary or advisable to destroy as being infected should be appraised by two or more respectable natives and the value paid to the owner by the Superintendent of the division. Compensation should also be given without delay to the very poor for the destruction of clothes, &c., which although they may be of no market value yet serve a useful purpose to the owners.

18. After a house has been disinfected, the door will be secured by a padlock, of which the Superintendent will retain the key or entrance may be barred by any other effectual method.

19. The stock of disinfectants, padlocks and all surplus appliances for divisional use will be kept in or near the office.

20. Each Supervisor will keep a list of all residents in each house in his sub-division. He will inspect all new arrivals, and will obtain information from them as to their previous place of residence. He will, in company with the local resident appointed to assist him, visit all the houses in his sub-division, and obtain information regarding the health of the different inmates, and will, on the conclusion of his rounds, report verbally to his Superintendent the occurrence of all cases of sickness and death and any information regarding arrivals from infected localities. Any case of plague, and all doubtful ones of sickness should be at once reported to the Superintendent at his office by day, and at his house by night.

21. The Supervisor will be provided with a sufficient supply of disinfectants ready for use, with tubs, buckets, watering pots, one or two hand-pumps, either jet or spray, and implements required for unroofing houses and making holes in the walls. There should also be a dooly, charpoy or bamboo frame for the removal of the sick. It should be thoroughly washed or sprayed with perchloride of mercury solution, either at the hospital or sub-divisional depôt after use. This is necessary, as the same dooly may be used for carrying suspected cases to the observation ward. All the above articles should be kept in a room or yard near the centre of his sub-division or at the Superintendent's office.

22. On a report being received by a Superintendent of the occurrence of a case of plague, he should at once proceed to the house, and when he has satisfied himself that the case is one of plague or of a suspicious nature, he will at once give orders for the removal of the patient, either to the Plague Hospital or to the observation ward, according to the opinion he has formed of the case. The other inmates of the house, with their movable property, should be taken to the segregation camp, in charge of one or more policemen or other responsible persons.

23. They will be supplied with passes by the Superintendent admitting them into hospital and camp. These passes after countersignature by the medical officer or the officer at the camp will be returned through the policemen to the Superintendent.

24. After evacuation of the house, the walls and floors of all rooms, with their contents, except articles of food which it is not intended to destroy, and of all enclosures, should be thoroughly drenched with a solution of perchloride of mercury, and in the course of two or three days coated with freshly prepared limewash. All rags and refuse found in the house or enclosure should be burned in the presence of the Supervisor.

25. The roof, if not a pukka one, should be removed, and holes should be made in the walls to admit freely air and light to the smaller rooms and enclosures. On the completion of these operations, the door should be secured with a padlock.

26. The coolies engaged in the work of disinfection, &c., should be provided with boots or shoes, to protect their feet from the danger of infection through abraded surfaces.

27. It may be necessary, owing to the occurrence of several cases in the one area, to vacate a group of houses or a whole sub-division. Should any necessity exist for the adoption of such a measure, it should be carried out as soon as possible by placing a cordon of police or troops around the area and removing the whole population to the segregation camp. Disinfection and unroofing of the houses to be carried out in due course.

28. Experience has abundantly proved that the evacuation of an infected house or houses is seldom in itself sufficient to stamp out the disease. When plague manifests itself in one house, in an indigenous form, those in the neighbourhood have, as a rule, already become infected, and it usually follows that cases subsequently appear in them. It is therefore always a wise and prudent course on the occurrence of an indigenous case, not only to evacuate the one house but also all those in the immediate neighbourhood.

29. On the evacuation of the houses in the infected area, all the other inhabitants should be encouraged to leave the town and any obstacles which may tend to delay their departure should if possible be removed. The time for prescribing the issue of passes should be carefully considered by the Collector, as if the rules prohibiting departure without passes are applied prematurely the exodus of the inhabitants generally will be retarded, more particularly of the poorer classes, who feel diffident about applying for passes or are too apathetic to do so.

30. In a large town where the disease has become of general prevalence, every quarter being affected, and the arrangements for dealing with the epidemic are incomplete and defective, measures must be taken to regulate the departure of the population and prevent them carrying infection to healthy areas. Every effort should in the meantime be made to provide sufficient accommodation in huts for a large proportion of the population.

31. In the case of villages badly infected the whole of the inhabitants should be turned out. Villagers are accustomed to erecting shelters for themselves, but, if necessary, materials for hutting should be supplied. The sick and suspected villagers should be carefully separated from the healthy and an officer should be appointed to examine the daily health of the population and prevent migration to other villages.

32. Daily inspection of villages situated in the neighbourhood of an infected locality should be instituted and maintained during the outbreak, and continued for 10 days after the occurrence of the last case, with special reference to the exclusion of refugees who should be required to camp out.

33. A site for the hospital should be selected as near as possible to the infected population, but a permanent building, suitable in all respects for a hospital, may sometimes be obtained either inside or on the outskirts of the town. It can be easily disinfected when it is no longer required for a hospital, and such a building would be more popular and convenient than huts erected at a distance from the town.

34. If a suitable building is not available it will be necessary to erect huts for plague patients, for convalescents and for the observation of doubtful cases, on the nearest site. The hospital huts intended for females should be some distance apart from those intended for males. The size of each hut will depend on the number of patients expected, but it is advisable not to place a large number of patients in one hut. A series of huts, each capable of accommodating 6 to 12 patients, will be the best arrangement, and it is one which will admit of the higher and lower castes securing separate accommodation. Movable mat screens should be provided between the beds to secure as much privacy as is possible to each patient. Every patient should be supplied with a cheap substitute for a spittoon, and both it and the vessels used as bed pans, should contain a sufficient quantity of an effective disinfecting solution. The floor of the hospital huts should be freely watered daily with the perchloride of mercury solution, and vessels containing the same solution should always be available for the disinfection of the hands and feet of the native attendants.

35. One relative or friend may be permitted to attend a patient, and a stated time should be set apart for the visits of relatives and friends of the patients.

36. On the arrival of the patient at the hospital, all his clothing should be removed and burnt in the presence of the medical subordinate. Hospital clothing should then be supplied. On recovery the patient may be transferred to the convalescent ward or dismissed. In either case he should be given a warm bath and supplied with new clothes. The hospital clothing, on the discharge or death of the patient, should be disinfected, washed and exposed to the sun for a few hours, after which it may be again taken into use.

37. The hospital and observation wards should be surrounded with a bamboo or other fence.

38. Huts for the segregation of individuals removed from infected houses, and of all suspected persons, should, if possible, be erected at a convenient distance from the hospital compound, and should be surrounded by a bamboo or other fence. Individuals brought for admission into this camp should, for purposes of cleanliness, be bathed in a solution of carbolic acid, one to a hundred parts of water, and their clothing soaked in a solution of one to twenty; if there are no children, perchloride of mercury solution may be used for the latter purpose.

39. All the inmates should be inspected daily, either by the medical officer or a medical subordinate, and any case of plague detected should be removed at once to hospital, and doubtful cases of fever to the observation ward. If no case occurs amongst them, after an interval of 15 to 30 days, they may be allowed to return to their houses, if such houses have been cleaned and disinfected and if the local authority considers that they are fit for re-occupation, or be admitted into the camp for healthy individuals, after a second disinfection of their clothing.

40. Both the hospital compound and the segregation camp should be guarded by troops or police, to prevent the egress of inmates.

41. The establishment of separate hospitals and segregation camps for the reception of members of special castes and religions should be encouraged and every assistance should be given by the local authority for their erection and supervision. The treatment of the patients admitted into these hospitals may, if desired, be placed in the hands of Vaidis and Hakims and the internal management of both hospitals and camps may be conducted by members of the caste or religion concerned, subject however to the general supervision of a European doctor where possible and control of the local authorities and to the usual arrangements as regards guards.

42. A camp for the healthy, *i.e.*, for people removed from houses not infected, should also be arranged for. All individuals admitted into it should also be bathed and their clothes disinfected as with admissions into the segregation camp. They should be allowed to pursue their daily employments, on condition that they sleep in camp. The huts should be numbered, inmates registered and a daily inspection made of all the residents. If no case of plague has occurred in a hut for 15 to 30 days, the inmates may, after a second disinfection of clothing, be allowed to return to their houses if such houses have been cleaned and disinfected and if the local authority considers that they are fit for re-occupation.

43. Should a case of plague occur in a hut, the patient should be removed to hospital, and the other inmates to the segregation camp. The hut should be removed, the site disinfected with the perchloride of mercury solution, and the materials of the hut should be similarly disinfected and exposed to the sun for a couple of days, when they can be utilised in the erection of another hut on a new site.

44. The best arrangements should be made for a plentiful supply of water to the different camps. If the water-supply to the town is conveyed through pipes, connections should be carried into the camps. Bathing platforms at some distance apart for the two sexes should be constructed, and provided with surface drains for the removal of surplus water.

45. Separate latrines for the sexes should be erected in connection with the two camps and hospital, and they should be well lighted with ordinary post lamps.

46. Bunniahs' shops with all supplies should be provided for each of the camps.

47. Cases of plague imported into towns and villages, if they are not at once discovered and isolated, will, under existing conditions, develop new centres of the disease and thus infect fresh localities. It is a difficult matter to detect such cases in transit from an infected area.

48. Medical inspection of travellers by rail and road is useful in discovering those actually suffering from the disease or affected with the preliminary symptoms of fever, but as the period of incubation may extend to eight or nine days, it is evident that inspection is of no avail in detecting infected travellers who are in the stage of incubation. Such travellers cannot be discriminated from the non-infected, and it is necessary for their detection that they should be kept under observation for a period not exceeding ten days.

49. Passengers or travellers who can produce satisfactory evidence that they have not been exposed to infection, may be exempted from detention, as it frequently happens that only one or a few places may be infected in the particular district. The local authorities should give certificates to all persons wishing to travel from the non-infected areas in the district, stating that the holders (giving names, &c.) have not been exposed to infection.

50. The period of observation may, in the case of travellers of ascertained respectability, be converted into one of surveillance at places of destination, if they give satisfactory assurance (or furnish security) that they will report themselves daily to an authorised medical officer. Lists of such passengers should be forwarded either by wire or post to the local authority at place of destination, and any one failing to report may be prosecuted. The medical officer is not at liberty to exempt the individual from attendance without the concurrence of the local authority.

51. The inspecting officer may, however, exercise his discretion as to the necessity of detaining any particular individual.

52. In addition to medical inspection at selected stations a medical officer or subordinate should, if available, be appointed to travel by each train from or passing through an infected district for the purpose of examining passengers booking and alighting at all stations along the line.

53. The object in exercising control over the movements of travellers from an infected area is for the general welfare of the public and not to harass the individuals. It is hoped that by detaining passengers from an infected area, the healthy or non-infected will be eliminated after a few days, and allowed to proceed on their journey. If the preparatory measures as previously detailed for the suppression of the disease are carried out in an efficient manner, there is every reason to believe that restrictions on travelling will be unnecessary.

54. Any arrangement calculated to prevent the exodus of the healthy from an infected locality or area, must tend to produce a more virulent form of the disease, and its more rapid diffusion among the community.

55. Camps will be established, under the orders of Government, at selected stations suitable for detention of passengers and for the disinfection of clothing and baggage.

56. The above rules will also apply to travellers by road. 11

57. For preparation of the perchloride of mercury solution for disinfection, see Appendix.

APPENDIX.

The most convenient and satisfactory way of preparing the solution of perchloride of mercury, on a large scale, is that which has been recommended by Dr. Maynard, now on plague duty in Nasik.

The ingredients should be mixed in a 50-gallon cask in the following quantities:—to 77 lbs. of perchloride of mercury and 38½ lbs. of pure salt add 15 gallons of boiling water, stir well with a wooden stick, and then fill up the cask with cold water. The solution contains one part of perchloride to 6½ of water, and one ordinary quart bottle of it, added to 25 gallons of water—the capacity of the ordinary wooden tubs in use—will give a strength of 1 in 1,000.

The standard solution can be carried about in quart bottles placed in partitioned boxes, and is always ready for use without further weighing or measuring.

If the solution is prepared with cold water, the perchloride of mercury must be powdered and two parts of pure salt to one part of perchloride added. The whole should be well stirred until the solids are completely dissolved.

It is of advantage, for several reasons, to add one half per cent. of crude Hydrochloric acid to the solution.

Iron hoops of all casks, tubs, and buckets should be dammered. If iron receptacles are used they should be dammered inside and outside.

If metal pumps are employed for distributing the solution, they should, previous to use, be worked in vegetable oil, and after use thoroughly cleaned in water. This will tend to lessen the corrosive action of the mercury.

No. 227—240.

Extract from the proceedings of the Government of India in the Home Department, Sanitary,—dated Calcutta, the 3rd February 1898.

RESOLUTION.

The Epidemic Diseases Act (III of 1897) empowers the Governor-General in Council when satisfied that India or any part thereof is visited by, or threatened with, an outbreak of any dangerous epidemic disease, to take special measures over and above those permissible under the ordinary law, with the object of preventing the outbreak of such disease and the spread of it, and further authorizes the Governor-General in Council by general or special order to direct that the powers conferred by the Act may also be exercised by any Local Government with respect to the territories administered by it. By the Home Department Notification No. 302, dated 4th February 1897, the Governor-General in Council directed that the appropriate powers conferred by the Act might be exercised within their respective territories by the different Local Governments and Administrations in British India, and by notifications issued in the Foreign Department the Agents to the Governor-General were also empowered to issue regulations under the Act both in respect of parts of British India under their charge and in respect of territories in India under the administration of the Governor-General in Council which are not parts of British India. The Government of India have themselves from time to time issued regulations under the Act in respect of matters in which Imperial interests were involved or action had to be taken by Departments under their direct control, but their object in delegating the powers conferred by the Act to Local Governments was to avoid hampering them in action taken by them to prevent the outbreak or spread of the plague, and to admit of the regulations under the Act being adapted, so far as this is possible without preventing them from being effective, to local conditions and so as to respect local prejudices. Copies of all the regulations issued by Local Governments and Administrations have been communicated as they were issued by the different Local Governments and Administrations to the Governor-General in Council for information, and under the orders of His Excellency in Council these have been examined on their receipt, and in any case in which they have been found to be in conflict with the general principles which have guided the Government in dealing with the plague the Local Government or Administration concerned has been requested to cancel or modify them. Experience in the working of the rules has been mainly obtained in the Bombay Presidency to which, with very few exceptions, plague has been hitherto confined, and, in view of the fact that the Plague Commission under Mr. Wingate accompanied by Dr. Cleghorn, Director-General of the Indian Medical Service, have recently visited all the infected areas in the Bombay Presidency and, after examining the arrangements in force in each place, devised a set of rules of which the Government of India, subject to the remarks made in paragraph 11 of this Resolution as to the principles to be followed by medical officers in detaining passengers, approve, the Governor-General in Council proposes to take the opportunity of communicating these rules to the different Local Governments and Administrations with the suggestion that they should be utilized as a model upon which to frame rules for other Provinces.

2. The Government of India desire to express their concurrence in the statement contained in rule 3 of the rules as to the measures which must be taken to combat an outbreak of the plague. The essential measures to be taken are (1) the early recognition of the disease in a locality, (2) the treatment of the sick in places of segregation, (3) the removal of the other inhabitants from the infected house, locality or area, (4) their segregation for a specific period, (5) the disinfection of their persons, clothing and personal effects, (6) the disinfection of the houses in the infected locality and their contents, (7) the improvement of the ventilation of the houses, the abatement of overcrowding, and the prosecution of general measures of sanitary reform.

3. One of the main difficulties which have to be contended with in dealing with the plague is the absence of any efficient organization for the detection of cases before the outbreak has attained proportions which make it impossible to suppress it for a considerable time. Considering the extent to which fever prevails in the country and the ignorance of the agency responsible for reporting the occurrence and cause of deaths, it can hardly be expected that every case of plague will be brought to notice immediately after it has

occurred, and it is very desirable that where there is any reason to suspect the existence of the disease, a regular system for the detection of suspicious cases of sickness should be devised. Rules 4 and 9 of the Bombay Rules contain directions designed to secure the detection of the disease by improving the arrangements for reporting sickness and mortality, and the arrangements for rural areas described in rules 5 and 6 have for some time past been in force in the North-Western Provinces, the Punjab, the Central Provinces and Bengal. The occurrence of cases of plague in villages in the neighbourhood of Kankhal in the Saharanpur District of the North-Western Provinces has also led the Lieutenant-Governor and Chief Commissioner to issue orders for the employment of a special organization for ascertaining whether it has extended to places other than those in which it has been detected. This organization is based upon that which was so successfully utilized in distributing relief during the recent famine, and the essence of it is that a sufficient number of European officers should be employed to render the powers of search effective and at the same time prevent the subordinate establishments from abusing their authority. A copy of the orders issued by the Government of the North-Western Provinces and Oudh to the Commissioner of the Meerut Division is appended to this Resolution,* and the Governor-General in Council desires to commend them to the consideration of other Local Governments and Administrations in case there should at any time be reason to suspect that plague exists and has not been detected. For the purpose of supervising work of this nature young officers of the Staff Corps will, the Government of India believe, be found to be a most suitable agency should the Civil Establishments be insufficient, and though it may not be possible to procure the services of such officers in any numbers at the present juncture, the Government of India will endeavour, should the necessity arise, to procure them from the Military authorities when the operations at present being carried out on the North-Western frontier have terminated.

4. Another measure which has been put forward as an effective means for ascertaining the existence of plague is the inspection of corpses. The Government of India have consulted Local Governments and Administrations as to the question whether corpse inspection is a reliable means of bringing facts to light and whether the feeling of the people is opposed to it or not. The Governor-General in Council has not yet received all the replies to the reference made upon this question and it will be dealt with separately later on. On the information at present before them it appears to the Government of India to be doubtful whether the measure is likely to be of great assistance, and they fear that its general introduction would be repugnant to the feelings of the people.

5. The system prescribed in Rule 10 and the following rules issued by the Bombay Government for the division of towns which are infected or liable to infection into quarters or divisions of a size convenient for effective supervision meets with the approval of the Government of India, and in this, as indeed in all the measures taken for the suppression of the plague, it is essential to secure the supervision of an European official who will carry the people with him, and see that their customs and susceptibilities are as far as possible respected. When search parties are organized to ensure that all cases of the disease are brought to notice, and this measure will, it appears to the Government of India, be found to be a very necessary one at any place where an outbreak occurs, endeavour should be made to associate respectable native gentlemen with them, and female medical attendants should accompany them for the purpose of examining females.

6. When plague actually breaks out the segregation of the sick and of the persons who have been in immediate contact with them is a fundamental precaution which is essential to the successful issue of any operations against it. In devising means to secure this object it is necessary on the one hand to consider the urgent necessity of preventing sufferers from plague from spreading the infection among their neighbours, and on the other hand the great importance of interfering as little as possible with the customs and the feelings of the community. The Governor-General in Council considers that experience has shown that in order that segregation may be efficacious it must be carried out in hospitals or other suitable places specially appointed for the purpose. A measure of this nature can hardly be expected not to cause alarm among the people many of whom regard the privacy of their houses as sacred, and this feeling can only be allayed if those affected by it have confidence in the motives of Government, and believe that it is actuated solely by a desire to stay the pestilence. The Governor-General in Council has been much impressed by the readiness and docility with which the people in many of the infected areas have discarded their prejudices and submitted to removal from their houses, and His Excellency in Council feels confident that, if the necessity for the measure is carefully

* Not reprinted.

explained to them, the co-operation of leading men obtained as far as possible, and every consideration shown to the feelings and habits of those to whom the regulations have to be applied, this measure will be accepted without objection by the people of a locality in which plague has made its appearance. But it appears to His Excellency in Council that the prospect of such action being required of them in the event of plague appearing in their midst may not unreasonably seem distasteful to them so long as there is no immediate danger of an outbreak, and it is therefore desirable to, as far as possible, remove any cause for discontent by encouraging the people themselves to make arrangements for the establishment of private hospitals and segregation camps for particular castes, classes, joint families, and associations of families in anticipation of the necessity for their removal from their own houses arising. The equipment and administration of such hospitals must be approved by duly appointed authority. They should be conveniently placed, and it is not necessary that they should be located in remote situations. They should not, however, be situated in houses which are actually inhabited or blocks of houses or streets, for in the event of an outbreak of plague, cases of the disease might occur in the house or block which it would then be necessary to completely evacuate. While His Excellency in Council is strongly of opinion that in carrying out any measures of segregation regard should be had, as in the case of Europeans, to the position in society of those classes of the native community who can be relied on to take efficient measures with the object of preventing the spread of infection, and to other considerations of a like nature, it is not, he fears, possible save in the most exceptional cases (as for instance that of a house located in a large garden, in which a hospital or private camp can be located at a distance from the house actually infected) to permit the residents of an infected house not to evacuate the area in which it stands. His Excellency in Council therefore anticipates that in a crowded city there will be few (if any) houses which it will be safe to license as hospitals or for segregation purposes. In public as well as in private plague hospitals all possible consideration should be shown to the feelings of the inmates, and in especial caste distinctions and the privacy of females who do not appear in public should be carefully respected. His Excellency in Council also considers that it is neither necessary nor humane to separate the sufferers from their families and friends, and all plague hospitals, whether Government hospitals or private caste hospitals, should therefore be arranged so as to provide separate accommodation for the immediate family or friends of the patients. For the public hospitals it will be found convenient to utilize schools and other public buildings which are available and suitable.

7. Before leaving the subject of segregation the Governor-General in Council desires to say that, while it has not yet been shown that inoculation with prophylactic *serum* such as has been prepared by M. Haffkine, C.I.E., can be relied on as a means to prevent the spread of plague, the results of the experiments made are so distinctly encouraging that he is not without hope that it may be demonstrated that protection may be ensured by means of prophylactic inoculation. It is desirable that every opportunity should be taken to test the efficacy of inoculation, and the Governor-General in Council will feel obliged if Local Governments and Administrations, within whose territories plague now exists or may appear in the future, will place themselves in communication with M. Haffkine in order to procure a supply of *serum* for the use of persons who desire to have themselves inoculated. No person should be inoculated except with his express consent. In the event of the efficacy of inoculation being eventually established, it will, it appears to the Government of India, become possible to dispense with segregation in the case of persons who have undergone the process of inoculation. Even in this case it will, however, still be necessary to require the evacuation of infected houses and localities with a view to their thorough disinfection for the purpose of destroying the germs of infection.

8. The rules issued by the Bombay Government for the removal and burning of the clothing of a patient suffering from plague, for the disinfection of all those removed from the infected area whether to the camp for suspected persons or to that for the healthy, and for preventing the re-occupation of houses in the infected area until a certain time after they have been evacuated, cleaned and disinfected, appear to the Government of India to be full and satisfactory. The Governor-General in Council desires to impress upon Local Governments and Administrations the paramount importance of making efficient arrangements to prevent people from returning to occupy evacuated houses before the time specified, and of securing that all articles likely to convey infection are without exception removed from infected houses and immediately destroyed or disinfected.

9. It seems to the Government of India desirable to express their views upon the subject of quarantine in relation to the suppression of plague. Her Majesty's Government

and the Government of India have continuously been opposed to the view that the spread of epidemic disease can be effectively checked by the imposition of quarantine so as to prevent the movement of the people to other places from areas in which epidemic disease prevails. The first reason which has led the Government of India to this conclusion is that it is impossible to make any system of land quarantine in India effective. It could, indeed, be arranged that every traveller by railway should on leaving the infected area be placed in a segregation camp for a given time, but any attempt to block all the roads and paths from the infected area must be defeated, firstly, because the Government has not at its disposal the necessary establishments to make such a stoppage of the traffic effective, and secondly, because the establishments could not be relied on to carry out the duty. But even could it be made effective, a system of land quarantine would, in the opinion of the Government of India, be mischievous in itself and calculated to foster rather than to suppress an outbreak of epidemic disease. It is in appearance so easy a remedy that if adopted it would be apt to distract attention from those surer and most essential measures which, if plague is to be suppressed, must be taken at the place where the outbreak occurs. It causes hardship and suffering to the people who have to be detained, and it affords opportunities of every kind for bribery, blackmail and extortion to the subordinate establishments employed to enforce it. The collection in camp of large bodies of people who have previously been subject to the risk of plague infection involves danger of an outbreak of the disease in the camp, and may thus establish fresh *foci* for the dissemination of the disease. The views held by the British Government and the Government of India on the subject of quarantine were for a long time resisted on the Continent of Europe, but they have now been accepted by the European powers, and in the Dresden Conference of 1893, to which the Government of India declined to become a party for other reasons, the uselessness of land quarantine was for the first time recognized by them in respect of cholera. Prior to the assembly at Venice in the spring of 1897 of the delegates deputed to concert measures to prevent the introduction and spread of the plague in Europe, the Governor-General in Council had considered and rejected a proposal to place in quarantine the whole of the Bombay Presidency owing to the outbreak of plague within it, against the rest of India. In paragraph 3 (iii) of the Home Department letter No. 1623—26, dated June 1st, 1897, addressed to the Maritime Governments, it was noticed that the Venice Convention provided that the modern principles of disinfection should be substituted for the obsolete system of land quarantine, but, with a view to the protection of countries which may find it difficult to thus protect their borders, each of the Governments who are parties to the Convention is at liberty to close its frontiers to travellers and merchandise. The Convention also, while condemning land quarantine in general terms, permits Governments to reserve to themselves the right to take special measures with regard to certain classes of people specially—

A.—Gipsies and vagabonds.

B.—Emigrants, and persons travelling or crossing the frontier in large bodies.

10. Proceeding on the principles embodied in the Venice Convention the Government of India have from time to time expressed an opinion adverse to the establishment of cordons designed to keep the population within an infected area and have declined to agree to the general prohibition of the booking of passengers by railway to or from particular places, or to the prohibition of the booking of passengers travelling by a particular class. The detention of the inmates of an infected locality within the area of infection by means of a cordon is apt to increase the virulence of the disease, and therefore also the danger of its dissemination, by fostering the local conditions which are a main cause of its development. Experience shows that ordinarily on the outbreak of plague in a town of which part is infected and part is not, it is desirable, concurrently with the removal to a segregation camp of the inmates of the infected localities, to encourage the healthy population to leave the infected area before the disease becomes thoroughly diffused through it. But there may be cases in which the area of infection being small it may be possible to entirely evacuate it and to place the inmates of it in isolation at a place in the near neighbourhood. A guard may unobjectionably be utilized to keep the population under medical supervision within the healthy area in which it is determined to isolate them both with the object of preventing their return to the infected houses and also to minimise the possibility of infection being carried elsewhere. In such cases if proper arrangements are made for separate camps for the sick, the suspected, and the healthy, there is little or no danger of establishing a *focus* for the dissemination of the disease, while the control of the guard can be made effective and malpractices on the part of the subordinate establishments be

prevented if European agency is employed on the spot to supervise such establishments, and to check, by a system of registering the inmates of the camps, the attempts which may be made to leave them.

11. In accordance with the principles explained above the Government of India have restricted the interference with the movement of the general public by railway to medical inspection. In the terms of the Venice Convention* medical intervention is restricted to the inspection of travellers with a view to the detention of those who show symptoms of plague and to the care of the sick. The Convention also dwells on the desirability of keeping under supervision all travellers from an infected area at their homes for a period of ten days from the date of their departure from the infected area. The Government of India approve of the medical inspection being conducted so as to provide for the detention in the observation camp provided for this purpose not only of persons in whom symptoms of plague or suspicious symptoms are discovered, but of all persons from the infected area who appear to be suspicious by reason of their appearance, the dirty condition of their clothes, the fact that they are travelling in gangs or belong to classes which are likely to disseminate the disease or cannot be traced on arrival at their destination or depended upon to give information should plague occur among them after arrival at their destination. All other persons should be allowed to proceed to their destination after inspection, and the rules should not, under any circumstances, exempt from their operation any class of persons as such, or be limited to persons who travel by railway by a particular class.

12. While these are the general principles which should guide the different Local Governments and Administrations in their control over the movements of the general public travelling by railway from an infected area it may often be advisable to interpose special checks either on the movement of pilgrims from an infected area to a place of pilgrimage beyond that area, or on the movement of pilgrims to a place of pilgrimage at which plague exists. When plague exists at a place of pilgrimage it may indeed be generally the most prudent course as well as the course which will in the end cause least interference with the people to definitely prohibit the religious fair at which the pilgrims intend to collect. But there may be special circumstances in which this course may seem to be inadvisable, and in such cases it appears to the Government of India that the booking of pilgrims to the place of pilgrimage or the neighbouring railway stations may be, without objection, entirely interdicted for the time. Where, on the other hand, the place of pilgrimage lies outside the infected area and it is ordinarily visited by pilgrims from the infected area it is legitimate and advisable to prohibit for the time the passage by railway of pilgrims from the infected area to the place of pilgrimage, and in accordance with these considerations the Government of India have from time to time, during the outbreak of plague, issued orders prohibiting the sale of tickets in the Bombay Presidency to pilgrims desirous of visiting other parts of India.

[True Extract.]

J. P. HEWETT,

Secretary to the Government of India.

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EAST INDIA (PLAGUE).

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CORRESPONDENCE

REGARDING MEASURES

FOR THE

3

PREVENTION OF PLAGUE.

Presented to both Houses of Parliament by Command of His Majesty.



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EAST INDIA (PLAGUE).

CORRESPONDENCE

REGARDING MEASURES

FOR THE

PREVENTION OF PLAGUE.

No. 1.

Despatch from the Secretary of State for India to His Excellency the Governor-General of India in Council, No. 219 (Revenue), dated the 30th November, 1906.

(Extract.)

With reference to my Predecessor's Despatch No. 138 (Revenue), dated 18th August, 1905, I forward, for the consideration of Your Excellency's Government, a copy of a letter* from the Royal College of Physicians, drawing my attention to the suggestions of the deputation which waited on Mr. Brodrick in July, 1905, and also to a Memorandum in which Dr. W. J. R. Simpson has related to the Plague Committee of the College his experiences during a visit to Poona in September last, and has severely criticised the measures taken there for dealing with the plague epidemic.

* Letter dated 3th November, 1906, with Memorandum by Dr. Simpson dated 5th November, 1906.

Enclosure in No. 1.

Letter from Edward Liveing, Esq., M.D., Registrar, Royal College of Physicians, to the Secretary of State for India, dated Royal College of Physicians, London, S.W., the 8th November, 1906.

In April, 1905, in view of the constantly increasing mortality from plague in India since 1896, and of the mortality of 252,000 in January and February of 1905, this College appointed a Committee to consider and report on the subject.

In consequence of their report, a deputation consisting of the President of the College and the Members of the Committee waited on the Secretary of State for India (Mr. Brodrick) by appointment on the 24th July, 1905, and laid before him their views and suggestions on the subject, which received his attentive consideration. A *précis* of these representations entitled "Memorandum on Plague" † was submitted at the same time, a copy of which I beg leave to enclose herewith.

† Printed as H.C. 169 of Session 1907.

The Committee was asked by the College to continue their observations and to report from time to time.

The College is aware of the great decline which has taken place in the mortality from plague in India during the past year, but at a recent meeting of its Committee on the 5th instant, a communication was received from one of its members who had visited Poona during the recent severe epidemic in that town. I have been requested, Sir, to draw your attention to this communication, a copy of which I enclose, and also to the desirability of endeavouring to prevent further epidemics by the adoption of some such sanitary administrative measures as were suggested in the "Memorandum on Plague" of 1905, above referred to.

Annexure.*

Memorandum on Plague in Poona in 1906.

In September of 1906 I visited Bombay with the object of refreshing my memory on the clinical aspects of plague; while there I noticed in the newspapers that over 130 deaths a day were occurring in Poona. I accordingly made arrangements to visit that town with the view of seeing plague cases, and also of learning what plague measures were being carried out. I was curious also to ascertain if any of the measures so urgently recommended on behalf of the Royal College of Physicians by the deputation which in July, 1905, waited on the Right Honourable St. John Brodrick, the Secretary of State for India, had been carried out, and if so, how they were working.

2. Having seen the cases in the plague hospital at Poona, I was taken by the Health Officer, Dr. N. R. Satpute, and shown the death registers of the town. From these it appears that there had been one death from plague in June; 107 in July; 1,166 in August; and 1,173 deaths in the first 13 days of September. On the day I inspected the registers 90 deaths from plague had occurred before noon. Since leaving India I see that the largest number of deaths in one day has been 175. Now Poona is not a large town. It has in its normal state a population not greater than 120,000. It numbered 110,000 at the last census. Proportionately 175 deaths a day is equal to over 7,000 deaths a day in London. This will show the severity of the epidemic in Poona.

3. Under the guidance of Dr. Satpute, I visited the plague-stricken quarters of the town, and I have never witnessed in any epidemic, not even in the epidemic at Poona in 1897, such heart-rending scenes of distress, despair, and desolation. The town had the appearance of a deserted city. The streets were silent, many of them had not a single inhabitant visible, the only sounds which occasionally broke the silence as we passed through street after street were the noise and clang of the funeral processions and the wail and cries of the mourners at houses in which a death had recently occurred. In whole streets the shops and houses were closed, and in those quarters where shops were open they were served by men who only remained in them during the day and left the city for the night.

The Health Officer's estimate was that at least 60,000 of the inhabitants had fled. I visited house after house where deaths from plague had taken place, or where plague patients were lying and were being treated by one or other of the two hospital assistants under the Health Officer. There the patients lay in rooms and passages which were often so dark that it was almost impossible to see them. In the house where plague first broke out this year the owner had lost his seven sons during the seven epidemics from which Poona has suffered; similar tragedies belonged to other houses.

4. These seven epidemics have impoverished the municipality, have destroyed an enormous number of people, have brought ruin and beggary to many families, and have increased the price and scarcity of labour. Falling chiefly on the adult population, the labourers have been largely swept away by the plague. But its ravages have not affected them alone, for the Brahmins also have suffered heavily. Social disorganisation is fast beginning to be felt, large numbers of women and girls are left husbandless, young girls betrothed to young men have been made widows with no possibility of a re-marriage, but with all the drawbacks before them of an Indian widow's life. I doubt if the undercurrents and serious political and social consequences of the devastation which plague is causing are fully realised. It does not touch the European community, and the evils that follow in its train are apt to be overlooked. It is, I am sure, not a mere question of so many deaths, but the sickness and the suffering, the despair and the losses, and the evils entailed thereby, engender other evils, and a discontent which it is difficult for any Government to meet, however anxious it may be for the welfare of its subjects.

5. I shall now pass on to the measures which I found in force to deal with this great epidemic. The staff consisted of Dr. Satpute and three hospital assistants. One of these hospital assistants was employed in disinfecting houses as far as possible, and the other two in treating patients at their own homes. Good work had been done as far as such a

* See page 16 for further correspondence.

staff was able to do it, but it was a microscopic staff attempting a herculean work; 1,200 people had been inoculated since the middle of July, *i.e.*, in the course of two months. Government granted 8 annas to all its servants that were inoculated, and the Municipality 4 annas to others. Some 2,000 people had gone out to the Municipal Health Camps, which are available for those whose income was less than 16 rupees a month. Some 7,000 people had made health camps for themselves in the outskirts of the town, the rich had gone to their country houses, and the remainder of the 60,000 had taken to flight. About 20 out of every 100 were removed to the plague hospital. 2½ annas daily with medicine, milk, sago and sugar were supplied by the Municipality to the poorer patients attended by the two municipal doctors.

Four native medical men were fighting against an epidemic which had reached the proportions I have stated, and that was all.

6. The Government of Bombay had evidently at last become alarmed at the published reports, and I was informed that the day before my arrival the Honourable Mr. Fulton, a Member of His Excellency the Governor's Council, had had a conference with the Chairman of the Municipality with the object of considering further measures to be carried out to check the epidemic, and on 15th September His Excellency Lord Lamington was to visit the town and make an inspection. What the measures were I am unable to say, but whatever they were they came too late. They could not remove the bitterness I heard expressed at the apparent callousness and indifference of the authorities, and which had ample justification in the fact that no help was given until two months of the epidemic had passed, and 2,500 deaths had occurred, nor could preventive measures adopted at a stage when the epidemic was half over have the same mitigating effect or value attached to earlier measures. Moreover, when it was decided that such measures should be carried out the machinery would have to be created, which would mean further delay. So that for practical purposes it may be stated that this epidemic was left to itself, and no attention had been paid to any of the recommendations made by the Royal College of Physicians.

7. In corroboration of what I have described, I would attach to this Memorandum an Article on "Plague in Poona," which I notice has appeared in the "Times of India" for 6th October, 1906; who the correspondent is I do not know, but it is valuable as supporting from an independent source the description of a crisis through which Poona has passed, and is likely to pass again unless action is taken on the lines already recommended.

5th November, 1906.

(Signed) W. J. SIMPSON.

No. 2.

Letter from the Government of India to the Secretary of State for India, No. 8 of 1907. Home Department, Sanitary (Plague), dated Simla, the 2nd May, 1907.

(EXTRACT.)

WE have the honour to refer to Mr. Brodrick's revenue despatch, No. 138 dated the 18th August, 1905, in which he asked for our views on the suggestions contained in the memorandum on plague presented to him by the Royal College of Physicians in July of that year. We regret the delay which has occurred in the submission of our reply, but we trust that in the circumstances which we shall now set before you you will find a sufficient and satisfactory explanation of it. The memorandum of the Royal College of Physicians reached us at a critical time in the history of plague administration in this country. Measures for coping with the epidemic were then still being taken in accordance with the principles laid down by the Indian Plague Commission, but experience had shown that those principles required modification. Every expedient that the existing state of our knowledge could suggest had been considered, and although many of those tried had been attended with some success, we recognised that without more complete knowledge of the causation of the disease we were not in a position either to devise new measures or to press any of the existing measures upon the consideration of the local Governments. The Government

of India had accordingly undertaken an important laboratory investigation into the causation of plague and were engaged in collecting evidence regarding its epidemiology and the effects of administrative measures in checking its spread. At the moment therefore when the memorandum of the Royal College of Physicians reached us, we were prepared to welcome any practical suggestion from any source. Unfortunately, however, the memorandum contained nothing with which we were unacquainted, and, excepting details of organisation, which are little more than matters of nomenclature, it suggested only two measures which had not already been tried on a large scale. These were (i) the bacteriological examination of rats in order to *detect* plague, which we had never had occasion to introduce systematically, although it was often used in cases of doubt, and (ii) the disinfection of houses by fumigation, which had been found to be impracticable and very expensive. The memorandum contained evidence that the knowledge of the signatories with regard to plague administration in India was plainly defective, and while they completely ignored the history of our attempts to combat the disease, they appeared to assume that no organization for dealing with it existed. The signatories believed that the measures which have been found elsewhere to be useful in coping with plague would prove successful in India, and in their advocacy of a campaign on western lines they appeared to us rather to lose sight of the fact that the conditions of life in the East differ in material respects from those obtaining in advanced European countries. We could not forget the complete failure of the early efforts of the Government of India when they concentrated the whole available force of their medical services, reinforced by large numbers of troops and civilian volunteers, on the limited areas attacked by plague in 1897, nor could we ignore the evidence that in most cases those efforts had even in a wealthy city and among an educated and intelligent community not unaccustomed to European methods and ideas, been productive of harm rather than of good. In these circumstances we deferred replying to the memorandum until we had before us the replies of local Governments to the reference which had already been made to them. When those replies had been considered our resolution in the Home Department, Nos. 79-95, dated the 17th January, 1906, was published. This resolution, of which a copy was forwarded for your information with the Home Department letter to Sir Arthur Godley, No. 6, dated the 15th February, 1906, is in effect an answer to the memorandum. In the scheme of the Royal College of Physicians special prominence is given to measures of compulsion, of disinfection, and for the destruction of rats. In the resolution of the 17th January, 1906, we clearly stated that all measures depend for their success upon the hearty co-operation of the people, we indicated the limitations of disinfection, and, relying upon the improved sanitation in the towns, and the evacuation of houses in villages, we recommended the systematic destruction of rats. So far we were in agreement with the signatories of the memorandum. On the other hand, the facts ascertained by the general inquiry, and the proof of the flea-theory of the transmission of plague which was even then being obtained rendered a great part of the memorandum obsolete. On the 9th May, 1906, we consulted the local Governments on the suggestions of the Royal College of Physicians regarding organization. We enclose for your information a copy of their replies. You will see that the local authorities are practically unanimous in condemning the special organization suggested in the memorandum. The local Governments point out that suitable organizations for coping with the epidemic already exist, and that, although the executive may need strengthening in many cases, it is not desirable to strengthen it by importing physicians from England, who would necessarily be ignorant of the language and customs of the people and very ill-qualified to direct measures which may involve interference with religious usage and provoke a popular outbreak. Most of them, however, agree that the general sanitary service requires development, and that in this respect the needs of the times can be met by the employment of natives of this country. We have now before us proposals submitted by our Sanitary Commissioner for the extension of the existing sanitary service on these lines, which contemplate the employment of natives of India with European qualifications as medical officers of health in the larger towns, of specially qualified native assistant surgeons in the smaller towns, and of native sanitary inspectors throughout the

country. His scheme is now under our consideration and we hope shortly to arrive at a practicable and satisfactory solution of the difficulties which have to be contended with. We have carefully considered the suggestions of the Royal College of Physicians in the light of the remarks made by the local Governments, and have come to the decision that in the administration of plague we must rely, at any rate for the present, upon improved sanitation in towns, and upon the co-operation of the people in the evacuation of villages, the destruction of rats and such other measures as our further investigations may suggest. The proposal to grant scholarships for the education in England of natives of India in sanitary science has received but little support from local Governments. It is clear that until we have posts to offer we need not increase the existing supply of natives of India with European qualifications, and so far as plague is concerned special training in England is superfluous.

With reference to the assertion in the memorandum that the bacteriology of plague requires a larger staff of observers, we would remark that a Plague Research Committee nominated by the Royal Society and the Lister Institute at our request have for two years past been investigating the causation of the disease, and that we have met promptly every demand which they have made for more workers in this field of research. We think that investigations can only be profitably conducted by experts working in properly equipped laboratories, and we have already submitted proposals to you for the effective strengthening of our laboratories. In these circumstances we are unable to accept the suggestions of the Royal College of Physicians for dealing with plague in India. We forward for your information, as desired by Mr. Brodrick, a copy of the instructions recently issued by local Governments explanatory of their plague policy, and we may add that we are satisfied that all that is possible in the way of affording relief to the poor is being done.

Enclosure 1 in No. 2.

Resolution of the Government of India in the Home Department. Nos. 79-95, Sanitary (Plague), dated Calcutta, the 17th January, 1906.

Read—

Home Department letter No. 1121-1135, dated the 6th July 1905, and the replies of local Governments thereto.

More than five years have now passed since the Governor-General in Council, when reviewing the report of the Indian Plague Commission, examined in the light of the knowledge then available the various measures which had been proposed or adopted with the object of checking the diffusion of the disease and indicated the considerations of policy which must govern their introduction in India. During this period, while the efforts of Government officers have in no way relaxed, and the people themselves have in many places shown a disposition to acquiesce and even to co-operate in preventive measures which do not conflict with their social and religious usages, plague has gradually spread to almost every part of India, and, subject to certain seasonal fluctuations, tends to recur year after year with undiminished virulence. About a year ago the Government of India, acting in concert with the Royal Society and the Lister Institute, made arrangements for the appointment of a scientific commission which is now investigating the causation of plague in Bombay and the Punjab. Pending the completion of these researches, which may extend over a long time and will in any case be directed mainly to the scientific aspects of the problem, the

Governor General in Council considered it desirable to place on record in a concise form the results of the practical experience which has been acquired in the last five years of actual plague administration. Local Governments were accordingly asked for reports, based as far as possible on the personal experience of their officers, on the conditions affecting the origin and spread of plague, the character of the measures to be adopted against it, the degree of success attained and the causes upon which success or failure depend. The ample materials thus collected place the Governor General in Council in a position to indicate those preventive measures which appear under present conditions most likely to be successful in the future.

2. The most conspicuous change in the opinion of experts in India regarding plague since the issue of the Resolution of 16th July, 1900, is the greatly increased importance now ascribed to the part played by rats in spreading and keeping alive the disease. Rats are exceedingly susceptible to plague, and when once they are infected they usually communicate the infection not only to man, but also to houses which have undergone thorough disinfection. It is therefore as essential to the safety of the community to destroy infected rats as to segregate plague-stricken people. In fact almost all the evidence regarding the causation of plague may be regarded as pointing to the rat as the chief agent in its diffusion. For this reason the importance of destroying rats has been insisted on by the framers of the Paris Convention of 1903, and although European opinion is not unanimous on the point, the Governor General in Council considers that the experience recently acquired in India warrants the belief that the systematic destruction of these animals promises to be one of the most effective measures that can be adopted for preventing the spread of plague.

3. Observation has also shown that plague is most severe where the houses of the people are crowded together, ill built and imperfectly ventilated, while it usually spares those areas in towns where the streets are wide, the houses well built, the alleys and side-walks paved, and the drains properly constructed. It follows that municipalities and local bodies should be encouraged and assisted to demolish insanitary quarters, to improve the paving of alleys and side-walks, to neglect no opportunities of widening narrow streets, to enforce simple building rules, and to perfect their systems of drainage and conservancy. All godowns where grain is stored should be rendered rat-proof and should be liable to periodical inspection.

4. In theory the disinfection of both houses and clothing takes a high place among preventive measures and in cases of pneumonic plague it must be regarded as imperative. But the great difficulty of carrying out the process thoroughly in a house casts some doubt upon its practical utility, and the Government of India leave it to the local authorities to determine the extent to which it should be enforced with reference to the prevalent structural conditions. In any case the efficacy of house disinfection depends entirely upon the methods employed. The fluids used must be really germicidal, such as solutions of corrosive sublimate, cyllin, or izal; they must be intelligently applied under proper supervision, and care must be taken to prevent the reinfection of the building by rats. These observations apply in their full force only to towns where the disease has not fully established itself. In villages the disinfection of houses is seldom of much use, while in towns where plague has become indigenous the difficulty of completely excluding the rats leads to constant reinfection.

5. Of the various measures hitherto adopted with the object of arresting an outbreak of plague none has proved so efficacious as the prompt abandonment of the affected locality for a period that varies with local conditions. In the case of villages, indeed, the evacuation of all the houses, accompanied by systematic destruction of rats, is probably the only means of effectually combating the disease. It is, however, essential that evacuation should be carried out thoroughly: if a portion of the inhabitants remain behind the disease will continue to spread. In all cases where evacuation is feasible the people should be encouraged to resort to it and

assisted by the grant of blankets and warm clothing where necessary, and by the provision of huts or the materials for building them.

6. The evidence which has been collected shows that the inspection of travellers by railway, road, and steamship is often successful in averting or delaying the spread of plague, but that the efficacy of this measure depends on the circumstances in which it is applied. It is of most value in protecting limited areas, such as hill stations, and places so situated that the inspection posts command all routes of access. The mere inspection of persons arriving by steamer is, however, of little use, unless the rats on board the vessel are destroyed or are prevented from reaching the shore. A segregation camp for the detention of the sick is a necessary adjunct to every inspection station, but no one need be detained who is not actually suffering from plague. In all other cases it is sufficient to record the travellers' names and addresses and to arrange for their being under surveillance for five days. Experience has shown that mere contact with a case of bubonic plague in a railway carriage involves little danger of infection.

7. The example of prisons proves that quarantine may be relied upon to prevent the spread of plague by human beings, but it can seldom be applied effectually except by the people themselves, who have sometimes combined to prevent persons from infected places from entering their villages and have provided accommodation for them outside the inhabited site. In rural areas the adoption of these measures may properly be encouraged : but they do not admit of application to towns.

8. The removal of the sick to hospital, while it is eminently desirable in their own interests, has always been unpopular, and in cases of bubonic plague the necessity for it may be avoided, provided that the surroundings of the patient can be kept clean and free from rats. That the measure is instrumental, however, in delaying the spread of the disease is undeniable and even though segregation may be relaxed when indigenous cases become widespread, the first few cases imported into a plague-free town should, whenever possible, be segregated without delay. Cases of pneumonic plague, which is directly infectious from man to man, ought always to be segregated.

9. The segregation of persons who have been in contact with a patient suffering from bubonic plague is often impossible in practice. When it can be carried out with the good-will of the people the measure is no doubt useful, but where coercion has to be employed more harm than good is likely to result. In cases of pneumonic plague, however, the segregation of contacts is necessary as the risk of infection is extreme.

10. Inoculation with the prophylactic fluid now manufactured at the Parel Laboratory is of value not merely for the protection which it affords against plague but also by reason of its effect in mitigating the violence of an attack. The extent to which it may be adopted depends upon the strength of the popular sentiment in its favour or against it, and the Government of India hope that the people may be encouraged to have recourse to it.

11. While the experience of the last five years establishes the utility of the measures enumerated above, it equally teaches that their application must depend upon the circumstances of the locality, the character of the people, the stage which the disease has reached, and the agency available for dealing with it. What is necessary in a district free from plague may be useless or vexatious where plague has become indigenous ; what is effectual in one part of the country may be inoperative in another ; a degree of control which is acceptable to a particular community may be strongly resented by people who observe a different code of social usage ; and in a province with a well developed system of village officials more can be attempted than in a province where no such organization exists. Where the conditions vary so widely from province to province as is the case in India it is manifestly impossible for the Governor-General in Council to lay

down a uniform scheme of plague administration. The local Governments alone are competent to determine what measures are practicable or expedient at particular times and places, and it is upon them that the Government of India rely to make the best use of the opportunities which present themselves for checking the spread of the disease. Finally the Governor-General in Council would observe that in the last resort all preventive measures depend for their success upon the hearty co-operation of the people themselves, and that every effort should be made to enlist their sympathies and to bring home to them through their natural leaders, and in any other way that may be practicable, that it rests mainly with them to bring about by their own action the cessation of plague in India, as it has long ago disappeared from Europe. When this conviction has been firmly established in the minds of the people, the task of the district officers throughout India will be materially lightened. But that end can only be attained by carrying out thoroughly whatever measures it may be decided to introduce and by impressing upon all officers concerned in plague administration that when a decision has been arrived at there must be no hesitation in giving effect to the policy approved by the local Government.

Enclosure 2 in No. 2.

Letter from H. D. Taylor, Esq., I.C.S., Acting Secretary to the Government of Madras, Local and Municipal Department, to the Secretary to the Government of India, Home Department, No. 994-P., dated Ootacamund, the 21st September, 1906.

(Extract.)

I am directed to acknowledge the receipt of Mr. Fergusson's letter No. 871, Sanitary—Plague, dated 9th May, 1906, calling for the views of this Government on certain suggestions made by the Royal College of Physicians for dealing with plague in India. The main suggestion of the Royal College of Physicians is that a special medical and sanitary organisation should be created for dealing with plague in selected localities, that this organization should consist of officers of the Indian Medical Service and physicians brought out from England, and of a large subordinate staff (to be gradually increased in numbers and trained to greater responsibilities) of male and female native medical assistants, the whole working under the direction of a special headquarters department, and that it should be divided into three sections—(i) an intelligence branch, (ii) a sanitary branch working at practical measures on the scene of the outbreak, and (iii) a bacteriological branch. I am directed to state that this scheme is for all practical purposes not materially different from that which is now in existence in this Presidency. The arrangements in force are briefly described in the following paragraphs.

(i) *Intelligence Branch.*—The passport system in force under which persons arriving from infected areas are observed for the incubation period of ten days, enables the local authorities to gain early intelligence of imported plague cases. At seaports passports are issued under the supervision of the Port Health Officer, at railway stations either by stationmasters or by officials specially appointed, and at other places by medical, sanitary or special officers. The official who is required to observe passport-holders is either the local medical officer, the police station-house officer, the headman of the village or any fit person appointed by the Collector of the district for the purpose; and the Tahsildar of the taluk or the Chairman of the municipality, as the case may be, is responsible for seeing that the passport-holders are duly observed. Arrangements also exist for enabling the District Medical and Sanitary Officer to check the work of the local officers and see whether all passport-holders have been duly observed. With regard to the local detection of plague, the existing scheme provides that, when any district, town, village or other area is threatened with plague by its proximity to a plague-infected area or otherwise, it is kept under observation, the area being divided into ranges

with an Inspector for each range. The Range Inspector is either a certificated sanitary inspector, a hospital assistant or one who has been specially trained for plague duty. Certificated sanitary inspectors are men who have undergone a five months' course in physiology, hygiene and bacteriological demonstrations and have passed the Intermediate Technical Examination in physiology and hygiene or equivalent examinations. Some of them are trained also in minor sanitary engineering. Persons specially trained for plague duty are ordinarily selected locally in the districts in which they are to be employed and, before employment, are given instruction in sanitation specially applicable to plague, water, ventilation, and conservancy, with practical instruction in the preparation and use of disinfectants and in methods of disinfection as applied to buildings, furniture, clothing and the person. The duties of the Range Inspector are to patrol his range constantly and systematically in order to gain the earliest possible information of any suspicious death or of the occurrence of any actual case of plague, to report immediately any such case or suspected case, to remove with the aid of the ordinary conservancy establishment defects in sanitation which would favour the propagation of plague, to check the possession of passports in the case of persons arriving from an infected locality, to ascertain whether any special sickness or mortality has occurred among rats, to examine sick or dead rats for the presence of enlarged glands, to keep a record in communication with the village headman of all persons suffering from continuous fever for more than twelve hours, and to inspect such persons. In municipalities a Divisional Inspector is appointed for every three ranges to supervise the work of the Range Inspectors. A Supervisor may also be employed to check the work of the Divisional and Range Inspectors. In rural areas Supervisors are generally appointed to check the work of the Range Inspectors. The Divisional Inspectors are either certificated sanitary inspectors, hospital assistants or persons trained for plague duty. The Supervisors are frequently Europeans or Eurasians and are selected with reference to their previous training in other departments and their fitness to maintain discipline. Frontier inspection stations also exist at railway stations for the examination of persons entering an area under observation from an infected area. Passengers are allowed to proceed to their destination, passports being issued to them, but if they exhibit symptoms of plague or appear for any reason to be specially dangerous or cannot be trusted to report themselves daily for the period of observation, they may be detained at the inspection station. Similar inspection stations are established on roads leading over mountain passes or ghâts, but such stations are limited to localities in which alternative routes are not available, and where no opportunities for evading observation exist. When a case of plague or suspected plague occurs, the village headman or other local authority or the Range Inspector who detects the case reports the occurrence to the Tahsildar or Deputy Tahsildar in rural areas, to the Special Plague Officer, if the area is under special observation, or to the Chairman in a Municipality; and the Tahsildar, Deputy Tahsildar, Special Plague Officer or the Municipal Chairman, as the case may be, communicates the information to the Collector of the district who sends a telegraphic report to Government. Vigilance committees composed of influential men likely to possess an intimate knowledge of the habits of the people are also sometimes appointed in towns and villages to detect plague cases and to explain to the people the benevolent intentions of Government in their operations for the repression of plague.

(ii) *Sanitary branch working practical measures on the scene of an outbreak.*—On the occurrence of plague in any place, the size of the observation ranges, if any have been established, is reduced so as to enable the inspector to patrol his range more frequently; and if an observation staff has not been already appointed, the staff is at once organized. An ambulance staff provided with the necessary equipment is also despatched to the affected area. This ambulance staff consists of a sanitary section and a medical section, the former headed by a sanitary inspector with a corps of disinfectors and sanitary menials, the latter composed of two hospital assistants with nurses, attendants, washermen and cooks. This staff carries all requisites for the furnishing of a temporary hospital as well as the sanitary equipment for the disinfection of the infected area. The sanitary section attends to disinfection and the medical

section to the treatment and nursing of the patients. The staff and equipment are increased if the state of plague in the affected area demands it ; sepoys have sometimes been employed for the systematic disinfection of towns which have been evacuated on account of plague. The whole plague staff is controlled by "Plague Officers" and "Assistant Plague Officers," who are responsible for seeing that the sanitary measures of isolation, evacuation and disinfection are carried out. The Sanitary Commissioner as the chief adviser of Government is at the head of the plague administration in the Presidency and the district Collectors are held responsible for the operations carried out in their districts. The "Plague Officers" and "Assistant Plague Officers" include the executive authorities of the district subordinate to the Collector, together with the District Medical and Sanitary Officers and other medical officers or private physicians who may be employed for the duty.

(iii) *Bacteriological Branch.*—The necessary microscopic examinations for the detection of plague are performed as a rule by the medical officers on the spot ; and further bacteriological analyses are made at the King Institute of Preventive Medicine at Guindy to determine doubtful diagnoses. The foregoing detailed account of the methods adopted in this Presidency in the three directions indicated in clause I (b) of your letter under reply will, the Governor in Council believes, show that these give effect substantially to the objects which the Royal College of Physicians consider should be the aim of a properly designed system of dealing with plague. As to the establishment of an independent central authority or head-quarter department charged with the conduct of plague administration, I am to say that here a special department, constituted some years ago, in the Government Secretariat deals with the subject, the technical adviser being the Sanitary Commissioner to the Government, who has also in his official capacity a general executive and advisory control over all the local plague organizations. So long as plague is confined in this Presidency to its present comparatively small dimensions, no further specialization of authority seems needed. If, however, the disease should spread widely, the Governor in Council agrees that the appointment of a special officer with large powers would be desirable, just as a special Famine Commissioner is appointed when a devastating famine has declared itself. In regard to the suggestion that a systematic examination of rats in plague-stricken districts should be conducted, especially before the re-appearance of the epidemic in the cold season, I am to state that the importance of the destruction of rats not only in infected but also in uninfected areas has already been recognised by this Government, and that local officers have been instructed to see that measures for the destruction of rats are universally adopted. A scheme drawn up by the Sanitary Commissioner for the systematic extermination of rats has been promulgated and instructions for obtaining bacteriological examinations at the King Institute have been issued, and it has also been ruled that when rat mortality has declared itself in a particular locality and when bacteriological examination has proved plague bacilli to exist, that locality should, apart from any ascertained human infection or mortality, be declared to be plague infected. As to the suggestion that the services of educated natives should be utilised for sanitary work in affected areas and that scholarships should be granted to those who have the requisite medical training, to enable them to proceed to England and fit themselves for employment as Plague Health Officers, I am directed to state that classes for the training of educated natives as sanitary inspectors were established in 1895, that since the outbreak of plague in 1898, men have been specially trained for plague work, that the training given has been progressively improved and that every effort is being made to advance the knowledge imparted. The Government have also approved the proposal that, where funds permit, District Medical and Sanitary Officers should be provided, at the cost of local funds, with the services of sanitary assistants for the supervision of sanitation and vaccination ; and five districts have already been supplied with such officers. These sanitary assistants are selected from the grade of Civil Assistant Surgeons or from graduates of the Medical College, and are required to undergo a five months' course in minor sanitary engineering ; and from 1st April, 1908, preference is to be given to men possessing a University degree in Sanitary Science. It is under contemplation to give these officers a special training in bacteriological and

microscopical work also at the King Institute. In these circumstances His Excellency the Governor in Council considers that it is scarcely necessary to offer scholarships for the special study in Europe of plague.

Enclosure 3 in No. 2.

Letter from H. O. Quin, Esq., I.C.S., Secretary to Government, to the Secretary to the Government of India, Home Department (Sanitary—Plague), No. 1611-P. General Department (Plague), dated Bombay Castle, the 10th November, 1906.

(Extract.)

His Excellency the Governor in Council has had under very careful consideration your letter No. 872-Sanitary—Plague, dated the 9th May, 1906, regarding the memorandum on plague submitted to the Secretary of State for India by the Royal College of Physicians. The Government of India desire to be informed of the views of this Government on the following points :—

- (i) The practicability, so far as it is not anticipated by existing arrangements, of a scheme formulated by the Royal College of Physicians for the creation of a special medical and sanitary organisation for dealing with plague in selected localities, of which the main features are—
 - (a) that it should consist of officers of the Indian Medical Service and physicians brought out from England, having under their control a large staff of male and female native medical assistants, the whole working under the direction of a special head-quarters department ; and
 - (b) that it should be divided into three sections : an intelligence branch, a sanitary branch working at practical measures on the scene of the outbreak and a bacteriological branch.
- (ii) The utilisation of educated natives of India in a sanitary service for work in plague-infected areas, in order to obviate the expense either of increasing the Indian Medical Service or of specially importing physicians from England.
- (iii) The grant of scholarships to such natives of India as have the requisite medical training to enable them to proceed to England and fit themselves by a course of study in laboratories and elsewhere for ultimate employment in India as Plague Health Officers.

With reference to the first point, I am directed to state that, after consultation with the Surgeon-General with this Government, who was asked to obtain the opinions of the Sanitary Commissioner for this Government and of such other officers as he thought were likely to give useful advice, His Excellency in Council has come to the conclusion that in the present state of our knowledge as to the causes of plague, the circumstances favourable to its development and the methods by which it spreads from one locality to another, the creation of a Special Plague Department such as that suggested by the College of Physicians would not be of any practical utility. It is possible that the investigations now being carried on at the Bacteriological Laboratory at Paréil may lead to discoveries which may indicate how plague is to be averted or cured, but, so far, the uncertainty as to the conditions which generate the disease is such that to the Governor in Council it seems impossible for Government to do more than endeavour to deal with an outbreak, when it occurs, by evacuation, inoculation and good hospital arrangements for all who are willing to take advantage of them. The establishment of such a Special Plague Department as is suggested would, in the opinion of this Government, involve, almost necessarily, the re-introduction of a certain number of the compulsory measures which have already been tried, and the failure of which has been signally demonstrated. An elaborate Intelligence Branch, for instance, would be of very little use unless people are compelled to give information as to matters

which it is often their chief desire at the moment to conceal, and the house-to-house investigation suggested by the Royal College of Physicians would certainly be impracticable unless Government were prepared to face again the popular opposition which was aroused by that measure when adopted some years ago. Surgeon-General Greany is of opinion that the scheme formulated by the Royal College of Physicians has been drawn up without sufficient regard to the differences between the conditions of life in India and those obtaining in the more advanced European countries, and that while in a highly civilised and highly organised community such a scheme could no doubt be carried out without much difficulty, in a country like India it seems, for the present at least, to be impracticable. In this opinion, I am to say, the Governor in Council concurs. As regards the special measures proposed under the scheme, it is observed that special prominence is given to the disinfection of the houses or huts with an improved fumigating apparatus capable of destroying rats, bugs, fleas and all insects in the house. Such an apparatus has, so far as the Governor in Council is aware, yet to be invented, and looking to the flimsy nature of the huts occupied by so large a proportion of the people of this country, it would seem almost impossible that thorough fumigation—and nothing less would be effective—can ever be obtained in India. The Plague Research Commission working at Parel has, it is believed, come to the conclusion that plague is a disease which is communicated to man chiefly by the bite of the rat flea (*pulex cheopis*), and it has shown that the plague germ can exist for only a very short period outside the bodies of living creatures. In view of these discoveries it would appear inadvisable to incur the large expenditure which disinfection and such like measures would entail when carried out on the extensive scale and with the elaborate arrangements for supervision recommended by the Royal College of Physicians. The second measure proposed is the wholesale destruction of rats. This year the poisoning of rats on a large scale was tried in Bombay, but the Surgeon-General informs Government that this had no marked effect in checking the spread of the disease. The operations appear to have resulted in the destruction of a number of brown rats of the species "*mus decumanus*," which live in the gullies and drains, but left untouched those of the species "*mus rattus*," which live in the houses with the people. It is, in Surgeon-General Greany's opinion, more than doubtful if this is a good plan, as it is "*mus rattus*" we wish to destroy and replace, if possible, by "*mus decumanus*," and he states that he is forced to conclude that we have not enough knowledge to make us certain that we can do very much good by this measure. Improvement in the building of dwelling houses and the isolation of all granaries and stables from human habitations would, in the Surgeon-General's opinion, prove more effectual in banishing "*mus rattus*" from our midst than any measures such as poisoning. But of course, as he points out, such improvements can only be carried out by slow degrees. I am to transcribe the following passage from the Surgeon-General's report, and to say that it has the general concurrence of His Excellency the Governor in Council :—

"The prophylactic measures referred to in the scheme, I presume, include evacuation and inoculation. These in the opinion of the scientific expert are the only measures under the conditions now prevailing in India that are of any practical value in combating plague, and on them must the Sanitarian, for the present at least, rely. Unfortunately evacuation is not always practicable, and inoculation, so far, has not been popular. Since plague began in this country many and various schemes have been tried to eradicate it, but all have been either only temporarily successful or have failed entirely in their object. The want of success has not been due to the lack of energy or thoroughness in carrying them out, but has been due for the most part to the want of co-operation on the part of the people. Co-operation is of vital importance, and in it lies the key to success. Without it no sanitary measures, however conscientiously and efficiently carried out, will succeed in stamping out plague. As the people come to understand Western sanitation and the good results that follow its adoption, their distrust and resentment will gradually disappear, and then only will there be any hope of obtaining a whole-hearted co-operation. It cannot, however, be expected that the ignorance and prejudices of such a heterogeneous mass as forms the population of India will disappear in a day. The process of education in sanitation must be gradual.

"I consider, therefore, that the scheme of the Royal College of Physicians, while it would involve a very great expenditure of money, would not prove any more successful than the many schemes which have already been tried."

In connection with the suggestion for the creation of an Intelligence Branch a passing allusion has been made above to the difficulty which would be experienced in obtaining important particulars regarding outbreaks of plague. I am now to invite your attention to the following observations of Captain Liston, the senior member of the Plague Research Commission on this subject:—

“The Plague Commission have attempted, with the aid of the elaborate organisation of the Bombay Municipal Health Department, to trace the origin and spread of the plague in Bombay. It was soon found that any detailed investigation of each case, in spite of the employment of the large and trained staff of the Health Department, was practically impossible; only broad generalisations as to the association of human cases with plague-infected rats could be made. This result was more or less anticipated in the town itself, but it was thought that a more careful and complete observation under the direct supervision of the Plague Commission might be made in four small villages in the Bombay Island, viz., at the isolated villages of Parel, Worli, Sion and Wadala. The people in these villages were assembled, the objects of the Commission were explained to them, viz., that the Commission were anxious to find out the cause and origin of plague in these villages, and therefore they wanted the co-operation of the villagers and undertook that if they gave early information regarding the occurrence of dead rats or the appearance of plague cases, they would be interfered with in no way either by the Commission or the Municipal Health Department; they would not be turned out of their houses, nor would they be inconvenienced by any compulsory measures of disinfection. Moreover, the Commission were willing to assist them in any way they desired to combat the plague. The Commission asked them to choose among themselves a man who could act as clerk and take charge of rat-traps set in the houses of the village. This man was to visit every house at least once or twice a week so that every villager could become familiar with him and know the purpose of his visits. A Hospital Assistant with a dispensary was established in each village to attend to the sick free of charge; drugs were also supplied free. In spite of this, early information regarding the outbreak of plague in the villages was not got, death from the disease being generally the first information obtained. Dead rats when found were, as a rule, thrown out, and the fact that rats had died in a house was discovered by the evacuation of the house by the tenants. In one instance a clerk in the Laboratory, who lived in one of the villages under observation, was attacked with plague. This clerk was perfectly aware of the objects of our inquiry, yet only when he became ill did the Commission discover that his uncle and niece had died of plague some days previously to his attack, their deaths having been recorded as “Elephantiasis” and “Fever with Bronchitis.” These patients were actually ill when an adjoining room of the same house was visited, where we had ascertained that a plague case existed. The reasons for this concealment are extremely hard to find out, but this defect, associated with barefaced lying to cover the concealment, seems to be inherent in the character of the native of this part of India at any rate.”

The scheme of the Royal College of Physicians includes the maintenance of a Sanitary Branch working at practical measures on the scene of the outbreak. With reference to this, the Surgeon-General has expressed the opinion that results more commensurate with the expenditure involved would be gained by permanently increasing the existing Sanitary Department and including in it specially trained officers and subordinates, the question of dealing with all epidemics being left to that Department. I am to observe that the question of strengthening the Sanitary Department of this Presidency for ordinary work is now being considered by this Government, and that His Excellency in Council is of opinion that if any additional and special staff are to be entertained for dealing with plague, that portion of it which would be employed in the Bombay Presidency should form a branch of the Provincial Sanitary Department. As regards the bacteriological investigations suggested by the Royal College of Physicians, I am to point out that such investigations are already being undertaken by the Bombay Bacteriological Laboratory and am to say that, in the opinion of the Governor in Council, this arrangement satisfies all the requirements in this respect. If necessary, the staff of that institution could be increased as occasion arose. The proposal to utilise educated natives of India in a Sanitary Service for work in plague-infected areas is one which, I am to say, commends itself to this Government. The measures now under consideration with the object of strengthening the Sanitary Department of this Presidency include the appointment of qualified Assistant Surgeons as Assistants to the Deputy Sanitary Commissioners, and in the event of its being at any time decided to organise a special branch for dealing with plague, the Governor in Council would certainly propose that some of its members should be educated natives of India. I am at the same time, however, to point out that it will be necessary always to arrange for adequate supervision by officers of the Indian Medical Service. Adverting to

the last point mentioned in my opening paragraph, I am to state that the Governor in Council, after careful consideration, has come to the conclusion that it is not necessary to give scholarships for the training in England of natives of India for employment on sanitary work. Satisfactory arrangements for such training can, it is thought, be made in Bombay without difficulty. On this point the Surgeon General remarks as follows:—

“The proposal that scholarships be granted to enable natives of India to go to England for training in Sanitary Science is in my opinion quite unnecessary. When the laboratories now being established in the various Presidency towns get into working order, there will be no necessity to send students of Hygiene out of this country. The abundant material available in India for the study of tropical diseases would make it an easy matter to arrange courses of instruction in the laboratories and to give practical demonstrations, under local conditions, of much greater value to Indian medical students than anything they could learn in England. It is in fact difficult to conceive a better training ground than the country in which plague is epidemic.”

Enclosure 4 in No. 2.

Letter from J. C. Fergusson, Esq., Under Secretary to the Government of India, Home Department, to the Secretary to the Government of Bombay, General Department (Plague), No. 2231, dated Calcutta, the 18th December, 1906.

I am directed to forward, for the information of the Governor in Council, a copy of a memorandum* on plague in Poona, by Dr. W. J. R. Simpson, in which he has related his experiences during a visit to that town in September, 1906, and has severely criticised the measures taken there for dealing with the plague epidemic. I am to request that, with the permission of the Governor in Council, the Government of India may be furnished at a very early date with a report on the arrangements at Poona which are commented on in the memorandum.

Enclosure 5 in No. 2.

Letter from R. E. Enthoven, Esq., I.C.S., Acting Secretary to the Government of Bombay, General Department (Plague), to the Secretary to the Government of India, Home Department (Sanitary—Plague), No. 418-P., dated Bombay Castle, the 26th March, 1907.

I am directed to reply to letter No. 2231, dated December 18th, 1906, from the Government of India in the Home Department forwarding certain criticisms* of Dr. Simpson on the measures adopted to cope with the last plague epidemic in Poona City.

2. I am in the first place to remark that His Excellency the Governor in Council observes with no little surprise that no attempt was made by Dr. Simpson to communicate with the local officials and to ascertain the true facts of the case before formulating his indictment against the authorities. Dr. Simpson has referred to the complaints evoked by the apparent callousness and indifference of the authorities, and offered his opinion that ample justification for these complaints existed in the fact that no help was given until two months of the epidemic had passed. I am directed by His Excellency the Governor in Council to record an emphatic protest against the use of language of this description. Dr. Simpson's statement that “no help was given until two months of the epidemic had passed” has no foundation in fact, and I am now to furnish for the information of the Government of India a full account of the measures adopted for dealing with the epidemic.

3. The arrangements for dealing with plague in Poona City, with the exception of the management of the General Plague Hospital, are made by the municipality, who annually on the outbreak of an epidemic appoint a committee for the purpose of supervising plague measures. The special measures adopted by the municipality in face of the epidemic of 1906 are described below. To assist the Municipality Captain McPherson, I.M.S., Superintendent of Plague Operations for this Presidency, addressed a public meeting in July, when an epidemic seemed imminent, on the subject of plague and the best means for

* See p. 4.

combating it. He pointed out to the people that the two most effective measures for dealing with an epidemic were—

- (1) the evacuation of infected areas,
- (2) inoculation.

At this meeting many of the leading citizens of Poona were present, and it was strongly impressed on them, both by the Collector, who presided, and by Captain McPherson, that they should use their influence in popularising these measures. A few days later, Captain McPherson invited all the medical practitioners of Poona to meet and discuss measures for encouraging inoculation, but the meeting was scantily attended. In August, an inoculator was placed at the disposal of the municipality in connection with their scheme for offering rewards for inoculation. On the 8th September, when the severity of the epidemic had become more marked, the Honourable Mr. Fulton held a meeting with the Collector, the President of the Municipality and the Superintendent, Plague Operations, to consider whether anything could be done to supplement the measures adopted by the municipality to stay the progress of the disease. The President of the Municipality then reported that there was ample accommodation in the Health Camps for all who wished to evacuate their houses in the city, and that every facility for inoculation was being offered. It was, however, agreed that another inoculator might be of use to the municipality, and the services of a second were therefore placed at their disposal. About a week later a further conference was held. The accommodation in the Health Camps, and the arrangements for inoculation, were found to be all that was required. At the Plague Hospital, under the supervision of Captain McPherson, ample accommodation was available for all who sought admission. At no time did the number of patients exceed 250, although the hospital could without difficulty have provided accommodation for 800. It is to be remarked that Dr. Simpson is reported by the Surgeon-General to have visited this hospital and expressed his satisfaction with the arrangements made for the comfort of the patients.

4. I now pass to the measures taken by the municipality. These consisted of the following :—

(1) *Collection of information of cases and deaths.*

No separate establishment was maintained for this work. The work was entrusted to 31 subordinates of the municipality who visited every lane and street daily.

(2) *Registration of cases and deaths.*

An establishment of four clerks was especially engaged for this work, and issued passes for the removal of the dead.

(3) *Disinfection.*

A special establishment of one hospital assistant, three supervisors, and such coolies as were required was entertained. Houses in which dead rats were found or in which cases had occurred were disinfected with perchloride of mercury.

(4) *Removal of the sick.*

All who were willing to go to the General Plague Hospital were removed by a special staff, consisting of an ambulance and driver, one supervisor and two coolies, unless the relations preferred to make their own arrangements for the removal. In the greater number of cases the sick were privately removed to hospital.

(5) *Erection and maintenance of Health Camps.*

Five camps were maintained by the municipality in different localities. Each camp was in charge of a clerk and watchman, and the lighting and conservancy were provided by the Health and Engineering Departments of the Municipality. These camps provided accommodation for 3,500 persons. In addition, a very large number of private health camps were erected. The conservancy and lighting of these camps were also duly supervised. It was found that the people preferred to select their own sites for camping, and no objection was raised to this course, the municipality confining its assistance to the conservancy and lighting arrangements.

(6) *Medical relief.*

In addition to the Plague Hospital, a staff of twelve D. M. and S's., as many hospital assistants, and eight *Vaidyas*, treated patients in their houses.

For those who could not afford to call in any of the above, a special staff, consisting of a medical officer, two hospital assistants, and two compounders, was employed to treat such cases in their houses, and supply such medicine, clothing, and nourishment as was necessary.

(7) *Rat extermination.*

A special establishment of one inspector, five supervisors, and the necessary coolies was in charge of rat destruction. Traps were supplied, properly baited, and a reward of 6 pies per living rat and 3 pies per dead rat paid.

(8) *Inoculation.*

The Municipal Health Officer, aided by three assistant surgeons with three clerks and three coolies, performed inoculations, assisted further by the Assistant Surgeon of the Khan Bahadur Pestonji Sorabji Charitable Dispensary. In all 4,500 were inoculated, rewards of from 2 to 8 annas being paid in each case.

5. With reference to these municipal measures, it may be admitted that the operations for the disinfection of houses and killing of rats were on a small scale. But the municipality cannot be taken to task for not embarking on a large expenditure in these directions until really efficient methods have been devised. Disinfection by perchloride of mercury is admittedly of very little use. Pesterine was tried without any appreciable result. Fumigation to kill vermin is beset with great difficulty in houses with bamboo and tile roofs, which the rats affect; and fumigation only temporarily rids a house of rats. In fact it must be borne in mind that the municipal action was severely limited by the necessity of obtaining the co-operation of an ignorant population, and by the fact that no efficient preventive of plague has yet been discovered.

6. Dr. Simpson has referred in his communication to the recommendations made by the Royal College of Physicians. In this connection I am to invite your attention to letter No. 1611-P. of November 10th, 1906, from this Government, in which the proposals of the College of Physicians were discussed. For the reasons therein given it has not been found possible to adopt their suggestions.

7. His Excellency the Governor in Council admits with regret the terrible ravages of the plague epidemic in Poona City during the past monsoon, and he is fully aware of the distressing consequences that such an epidemic must produce in the social life of the local population. I am directed, however, to remark that Dr. Simpson's insinuation that this Government were either callous or indifferent to the sufferings of the people is utterly baseless, and is entirely inconsistent with the whole history of plague administration in this presidency. In formulating his indictment Dr. Simpson appears deliberately to have ignored the fruits of ten years' experience of plague measures in Bombay. It has been clearly established that no useful results can be secured by forcing preventive measures on an unwilling population. The inhabitants of Poona suffered acutely from the ravages of the recent epidemic; but they would have actively resisted any attempt to shield them from its effects by such compulsory measures as have been adopted by this Government in the past; and it cannot be denied that these measures have been followed by signally incommensurate results.

Enclosure 6 in No. 2.

Letter from H. J. McIntosh, Esq., I.C.S., Officiating Secretary to the Government of Bengal, Municipal (Medical—Plague) Department, to the Secretary to the Government of India, Home Department, No. 73-Med.—P., dated the 24th January, 1907.

(Extract.)

I am directed to acknowledge the receipt of Mr. Fergusson's letter No. 873, dated the 9th May, 1906, forwarding a copy of a despatch from the Secretary of State in which the Government of India is asked—

- (I) To consider and report upon the practicability, so far as it is not anticipated by existing arrangements, of a scheme formulated by the Royal College of Physicians for the creation of a special medical

and sanitary organization for dealing with plague in selected localities, of which the main features are—

- (a) that it should consist of officers of the Indian Medical Service and physicians brought out from England, having under their control a large staff (to be gradually increased in numbers and trained to greater responsibilities) of male and female native medical assistants; the whole working under the direction of a special head-quarters department; and
 - (b) that it should be divided into three sections:—an intelligence branch, a sanitary branch working at practical measures on the scene of the outbreak, and a bacteriological branch:
- (II) To send copies of any instructions recently issued by local Governments to their officers explanatory of their plague policy and to report whether, in the opinion of the Government of India, all that is possible in the way of affording relief is being done:
- (III) To consider suggestions made—
- (a) for the systematic examination of rats in plague-stricken districts, especially before the reappearance of the epidemic in the cold season, with a view to the inception of active measures for their destruction if they are found infected;
 - (b) for the utilisation of educated natives of India in a sanitary service for work in plague-infected areas, in order to obviate the expense either of increasing the Indian Medical Service or of specially importing physicians from England;
 - (c) for the grant of scholarships to such natives of India as have the requisite medical training to enable them to proceed to England and fit themselves by a course of study in laboratories and elsewhere for ultimate employment in India as plague health officers; and
- (IV) To report in what way, if any, the Royal College of Physicians can assist the Government of India in combating plague.

In order to furnish the information required by the Secretary of State, the Government of India desire to be informed of the Lieutenant-Governor's views on the points referred to in Clauses I, III (b), and III (c), and to be furnished with copies of any instructions which have been issued recently by this Government explanatory of its plague policy. I am to say that the Inspector-General of Civil Hospitals, Bengal, the Sanitary Commissioner, Bengal, the Chairman of the Calcutta Corporation, and the Commissioners of Bhagalpur and Patna (the two divisions in this province where plague is chiefly prevalent) were consulted on the subject. I am now to submit, for the information of the Government of India, a copy of their replies, and to invite special attention to the replies received from the Inspector-General of Civil Hospitals, Bengal, and the Sanitary Commissioner. It will be seen that generally speaking the officers who have been consulted are not in favour of the institution of any such special medical and sanitary organization as is contemplated in the scheme advocated by the Royal College of Physicians. In existing circumstances when plague breaks out in a district, the local officers, Medical and Civil in combination, deal with it so long as it is within their capacity. When it exceeds that limit, special medical officers are deputed to supervise the plague work, and these in combination with the civil officers form their own intelligence branch. It is far from probable that the institution of a special department and of a special organization for the purpose of obtaining information as to cases of plague or suspected plague would lead to any improvement in this direction; at all events to any improvement which would be at all commensurate with the expenditure involved. It is exceedingly doubtful whether in rural areas extensive disinfection or fumigation such as is apparently advocated by the Royal College of Physicians is of much value. No doubt if these measures could be efficiently carried out they would be useful; but the practical difficulty of disinfecting or fumigating with any success the bamboo and mud huts in which the greater portion of the population of this province lives is

very great ; and it is not unlikely that more harm than good would result from the adoption of the system proposed. There is now a consensus of expert opinion that rats and the vermin which infest them are the chief agency in the spread of plague. Plague measures in rural areas are now chiefly directed to the evacuation of houses when rats commence to die, and to the killing of rats at all times, but particularly before the breeding season. It seems obvious that the carrying out of these or similar measures must to a large extent depend on the people themselves, and that it would be hopeless to attempt to enforce such measures through any paid organization. When plague first broke out in this province, organizations somewhat on the lines now proposed were started. Large sums of money were expended in wages and disinfectants ; but practically no useful result was obtained. There are, therefore, very grave reasons for doubting whether the measures proposed by the Royal College of Physicians would be any improvement upon the existing system ; and they would certainly entail a very great expenditure. Other practical difficulties that would have to be overcome before effect could be given to the proposals are very forcibly stated by the Inspector-General of Civil Hospitals, Bengal. An integral part of the contemplated scheme is the institution of a Bacteriological section who would carry out laboratory work at the various administrative centres in close association with the proposed Intelligence and Sanitary branches. The Sanitary Commissioner has stated that what is really required at present is a fuller knowledge of the life history of the plague bacillus and its *habitat* in what is known as the "quiescent period." He is therefore much more in sympathy with that part of the proposal which deals with bacteriological research work, both in the laboratory and at the scene of the epidemic. He does not, however, consider that any new organization is necessary, but thinks that all that is required could be met by strengthening the existing Sanitary Department under the Sanitary Commissioner with the Government of India. The Lieutenant-Governor agrees in the main with the opinions which have been expressed by the officers consulted. While fully accepting the general principles underlying the proposed scheme and acknowledging the generous offer of assistance which has been made by the Royal College of Physicians, His Honour does not think that the scheme would, in existing circumstances, be practicable, or that the results that might be hoped for would be commensurate with the expense. He is therefore not in favour of the creation of a special medical and sanitary organization such as has been advocated. He is, however, strongly in favour of extensive bacteriological research work, both in the laboratory and at the scene of the epidemic ; and he would welcome any suitable proposals to this effect. It is probable, however, that Captain Clemesha is correct in thinking that no new organization is required for this, and that it would be sufficient if the existing Sanitary Department under the Sanitary Commissioner with the Government of India were strengthened, and if more adequate arrangements were made for the early deputation of special officers to the scene of the epidemic. It is, however, essential that the officers of the Sanitary Department who are deputed to carry out research work at the scene of the epidemic should work in co-operation with and subject to the general (non-professional) control of the District Officer. With regard to paragraph 3 (b) and (c) of Mr. Fergusson's letter, the Lieutenant-Governor is certainly of opinion that the services of carefully selected educated natives of India should be utilized for research work, so far as suitable men can be obtained. He would not, however, recommend that any physicians should be specially brought out from England except for laboratory work, and then only under exceptional circumstances. Suitable natives of India should, so far as is possible, be trained for practical sanitary work and for research. They should be trained in this country, but a certain number of carefully selected men who give good promise might be granted scholarships to enable them to proceed to England and fit themselves by a course of study in laboratories and elsewhere for ultimate employment in India as Plague Health Officers.

Annexure 1.

Letter from Captain W. W. Clemesha, M.D., D.P.H., I.M.S., Offg. Sanitary Commissioner, Bengal, to the Secretary to the Government of Bengal, Municipal Department, No. 3557, dated Calcutta, the 15th June, 1906.

I have the honour to acknowledge the receipt of Government Order No. 110 T.—P., dated the 24th ultimo, asking for an expression of my opinion on the points referred to in Clauses I, III (b) and III (c) of Paragraph 1 of the Government of India, Home Department, letter, forwarded therewith, regarding a scheme formulated by the Royal College of Physicians for the creation of a special medical and sanitary organization for dealing with plague in selected localities.

2. In reply, I have the honour to state as follows :—

Clause I.—I am not in favour of the establishment of a special medical and sanitary organization on the lines laid down by the Royal College of Physicians, principally because the time has now passed when it can be of much use. If the scheme had been brought into operation as soon as plague made its appearance in a Province, it might have helped in reducing the sufferings of the people and in increasing our knowledge of the disease. But at this stage, it would be a complete change of policy, and it is very doubtful if the proposed measure would be an improvement. Plague measures in the rural areas will probably resolve themselves into obeying one or two very simple instructions, such as “Kill rats at all times but particularly in February and September before the breeding season, and evacuate houses when rats commence to die.” Now it is obvious that the carrying out of these or similar measures must to a large extent depend on the people themselves. The cost of any organization to carry out even these simple instructions for a large province would be enormous; besides it is not the right way to set about the matter. The people must be taught to do these things for themselves. The money necessary for an expensive organization, such as is proposed, would be infinitely better spent by placing it at the disposal of Magistrates of Districts and Subdivisional Officers for creating small object-lessons to the people of their districts and in helping the poor for carrying out these simple instructions.

In nearly every place where Plague broke out, an organization, more or less on the lines of the one proposed, was started. Very large sums of money were expended in wages and disinfectants, but the resulting good was not at all in proportion to the expense incurred. The people are naturally suspicious of all newly constituted authorities; whereas they will frequently take advice from the District Officials whom they know. I have always strongly maintained that the proper people to carry out Plague measures are the District Officers, and that it is infinitely better and cheaper to give an extra I.M.S. Officer and a couple of young Civilians to each district than to engage a large staff of subordinates of no recognised position.

What we are really in need of is knowledge of the life history of the Plague bacillus and its habitat in what is known as the “quiescent period.” Therefore I am much more in sympathy with the part of the proposal that deals with bacteriological research work, both in the laboratory and at the scene of the epidemic. I consider that every available officer who is qualified should be employed in elucidating these problems; for this, no new organization is necessary, it simply requires that the existing Sanitary Department under the Sanitary Commissioner with the Government of India should be strengthened numerically.

To condense the above into a few words, I consider that as regards the Intelligence Branch and the Branch working at practical preventive measures, better results will accrue if they are left to the District Officers, but that more may be done in the way of investigation of the various problems that are at the foundation of the prevention of the disease.

I wish to state that I am particularly averse to bringing men out from home for anything but research work, because as administrative officers they are both expensive and inefficient.

Clause III (b).—Carefully selected educated natives may be of great use in plague preventive work, but by far the majority are of very little good in this Province. The best educated class, viz., the Bengali, will not live in a tent, cannot ride, and is of very little use in district work. In cities they may be of more use.

Clause III (c).—I do not approve the suggestion contained in this clause, because we have far greater facilities for teaching useful and practical sanitary work in this country than exist at Home.

Annexure 2.

Letter from the Honourable Mr. C. G. H. Allen, I.C.S., Chairman of the Corporation of Calcutta, to the Secretary to the Government of Bengal, Municipal Department, No. 3460-H., dated Calcutta, the 3rd July, 1906.

With reference to your letter No. 141-T. P., dated the 2nd June, 1906, I have the honour to forward herewith the opinion of the Special Health Officer on the scheme formulated by the Royal College of Physicians for the creation of a special medical and sanitary organisation for dealing with plague in selected localities, and to say that I have nothing to add to it.

OPINION.

CHAIRMAN—

With reference to the letter of Government asking for an expression of opinion concerning—

- (1) Scheme of Royal College of Physicians.
- (2) The utilization of educated natives in a sanitary service.
- (3) Grant of Scholarships to natives to pursue special training.

1. The scheme is not very clearly detailed, but it evidently involves a comprehensive organisation and a large staff. It is apparently intended for plague only. I cannot see the force of having two sets of medical officers, Sections A and B. The officers who obtain the knowledge of plague cases are the best men to have the duties of Section B carried out. With regard to Section A (1) I suggest the organisation adopted in Calcutta, viz., qualified native medical men to enquire into the causes of every death for living cases of plague.

There is plenty of information already available concerning the incidence of the disease in dwellings and areas and of the epidemiology of the disease in the various plague reports from different parts of the country.

Concerning Section B (1) there has yet to be invented the fumigating apparatus which will destroy the vermin alluded to in bamboo and mud huts whether in town and country.

It is absolutely necessary to have the space made air-tight, and this is impossible. The only apparatus of the kind in existence is Clayton's, used for the destruction of rats on board ship. This apparatus has been recently reported upon by an officer of the Local Government Board and has been shown to be effective for this purpose on board ship. The paragraph in the memorandum concerning the fumigating operation is useless. Some *pukka* buildings might be so treated, but for huts there is no known method of disinfection of any appreciable value.

Section B (2), Destruction of rats.—This I am strongly in favour of, and it might be carried out more systematically and thoroughly.

Section C refers to laboratory work but involves a skilled bacteriologist. This scientific section is absolutely necessary to assist and confirm the work of the executive and administrative officers of the other two sections.

2. With regard to Clause III (b) there is no difficulty. And the same may be said of Clause III (c).

3. The scheme seems to include only :—

- (a) the discovery of cases,
- (b) the recording of information concerning the incidence of cases,
- (c) the disinfection of dwellings,
- (d) the destruction of rats,
- (e) local bacteriological work.

All these as a matter of fact are done now, and with regard to "general administrative and prophylactic measures" there is nothing mentioned.

I understand the plague policy of the Government of India to be—

- (a) to discover and record cases and deaths,
- (b) to disinfect wherever possible,
- (c) to evacuate dwellings where feasible, and I cannot see that the scheme of the College of Physicians goes beyond what is already being done.

4. My own opinion from all recent evidence is that the disease is spread chiefly by means of the rat. If that be admitted, measures must be directed towards the extermination of these vermin. Permissive legislation for this purpose is hopeless. The active work carried out in Australia (Sydney) has apparently been the means of subduing the disease there, but the evidence that the partial destruction of the rat population in the cities of India has had any appreciable effect is very slight. Co-operation by the people is wanting, and therefore this measure must be carried out by a special organization and by compulsion.

F. PEARSE,
Special Health Officer.

The 20th June, 1906.

Annexure 3.

Letter from D. J. Macpherson, Esq., C.I.E., Commissioner of the Bhagalpur Division, to the Secretary to the Government of Bengal, Municipal Department, No. 1078-J., dated Bhagalpur, the 22nd August, 1906.

With reference to your No. 139-T—P., dated the 2nd June, 1906, calling for an expression of my opinion on the points referred to in clauses I, III (b) and (c) in paragraph 1 of the Government of India's letter No. 873, dated the 9th May, 1906, regarding a scheme formulated by the Royal College of Physicians for the creation of a special medical and sanitary organisation for dealing with plague in selected localities, I have the honour to state that I have consulted the Magistrates of Monghyr and Bhagalpur (Messrs. Duval and Lyall), and the Deputy Commissioner of the Sonthal Parganas (Mr. Scroope) in whose districts there has been plague. I enclose a copy of Mr. Lyall's letter No. 1748-J., dated the 4th August, 1906, on the subject. The views of the others will be sufficiently apparent from the subjoined summary.

2. *Clause I (a).*—Mr. Duval, Magistrate of Monghyr, considers that it might be possible to largely increase the present Sanitary Department for the purpose of dealing with plague, but that whoever be employed in a district should be under its Civil Surgeon and not directly under a special head-quarters department. Mr. Scroope, the Deputy Commissioner of the Sonthal Parganas, thinks it eminently desirable that there should be a special medical organisation to deal with plague in those localities which are severely affected. Mr. Lyall, Magistrate of Bhagalpur, as will be seen from his letter, does not consider it necessary to have a special service for plague alone, but he would welcome the creation of a sanitary service in which educated natives of India would be employed, for combating at the same time malaria, cholera, small-pox and other diseases. On the whole, I agree with the views expressed by Mr. Lyall. I consider that it would be premature to establish a special service for dealing with plague alone, until the investigations at present being carried on into etiology of the disease have yielded definite results. So far, expert opinion seems to point to rats as the agency by which plague is spread throughout a locality. In so far as this is the case, no special medical or sanitary staff is needed to cope with the situation. It can be met by executive action on the part of Government and Municipal Officers, whose great endeavour should be made to enlist the co-operation of the people themselves. Personally I consider that much of the distrust and suspicion which plague measures excited in the earlier years of the epidemic in India was due to too free a hand being given to medical officers to enforce their theories in a drastic manner without paying sufficient regard to the customs and prejudices of the masses. Left to themselves, the people have now learnt by experience the advantage of prompt evacuation of plague-infected houses and villages, and are not slow to carry out this measure in practice. In the same way, except in the case of certain sections of the community who are averse from the taking animal life, there seems no reason why the people should not learn in time to co-operate with the authorities in destroying rats. No doubt, organised measures for effecting their destruction will require a strengthening of the staff at the disposal of the District authorities, but that staff need not consist of medical or sanitary experts, nor need the Civil Surgeon even have anything to do with its working, except as the professional adviser of the District Officer and Municipal authorities. Where expert aid is required, and required urgently, is in the matter of research, not only as to the agency by which the disease is spread, but as to the means by which, once it has got a footing, its germs persist in the locality from season to season.

3. *Clause I (b).*—Mr. Duval does not think that it would be possible to keep the Intelligence and the Sanitary branches in a district distinct. He says: "The amount of information available largely depends on the trust reposed in the seeker of it by the uneducated native, and I doubt whether the average native subordinate who would probably be sent would be able to secure the confidence of the people if all he did was to report, and leave it to another to take sanitary measures." At the same time he does not look on the Police as a good agency for the reporting of epidemics, but considers that a good combined staff working with the village panchayats under the Civil Surgeon to be what should be aimed at. As regards the bacteriological branch, he thinks that "it might be quite distinct and might be confined to large towns." He adds: "Its object, I gather, is to have the causation, prevention and cure of plague investigated, and then to instruct the sanitary staff how to deal with it. This I think would be of great use, but how far it would be necessary for this section to send its officers to tour in infected tracts is a matter on which I do not think I can express an opinion." Mr. Lyall would employ only a bacteriological branch. Mr. Scroope says nothing specific regarding this matter.

For the reasons I have already expressed, I see no necessity for a special sanitary staff of medical officers and subordinates working at practical measures on the scene of an outbreak of plague, and still less for an Intelligence branch of a special service. To my mind the more drastic the measures which the sanitary branch would enforce the less chance would an Intelligence branch have of succeeding. I am afraid much cannot in any case be done to secure early intelligence except by improving the work of existing agencies. The introduction of a special staff for the purpose, unless of an expensive nature, would lead to blackmailing and defeat its own object. By all means, however, let a special bacteriological staff be developed: there is great room for this in the country.

4. *Clause III (b).*—Messrs. Duval and Scroope support the suggestion made for the utilisation of educated natives of India in a sanitary service for work in plague-infected areas, and Mr. Lyall, as already observed, would welcome it also, provided it were to deal with other epidemic diseases besides plague. I quite agree that a sanitary service composed in the main of educated natives of India should be organised, but it should be at the disposal of the District Officer and not directly under the head of the Sanitary Department in the province, and its efforts should on no account be confined to dealing with plague.

5. *Clause III (c).*—Mr. Duval is generally for encouraging natives of India to go to England to study sanitation and public health, but thinks that if the bacteriological section had, as he supposes is intended, large laboratories in this country a large number could be trained in India without the expense of sending them to England. Mr. Scroope states that the proposal has his support. Mr. Lyall is not, however, in favour of it. I am disposed to agree with Mr. Duval. I think that well equipped and well conducted bacteriological laboratories should be established at suitable centres in India to enable bacteriological examinations to be carried out in large numbers with the requisite degree of promptness; and when these are in working order it should be possible to impart a sufficient training to natives of this country at such institutions. Selected young men who may show most promise at them may afterwards be encouraged by the grant of scholarships to proceed to Europe to acquaint themselves fully with the latest methods and results.

Annexure 4.

Letter from F. F. Lyall, Esq., Magistrate of Bhagalpur, to the Commissioner of the Bhagalpur Division, No. 1748-J., dated Bhagalpur, the 4th August, 1906.

With reference to your No. 760-J., dated the 11th June, 1906, asking for my opinion on clauses I, III (b), III (c) in paragraph 1 of the Government of India's letter No. 873, dated 9th May, 1906, I have the honour to reply as follows.

2. The special medical and sanitary organisation suggested would seem to be likely to be a very costly affair, and before it is embarked on, Government should, I think, be very clear that the result of any measures taken on such lines are likely to really reduce plague. Up to the last year or two researches seem to have yielded no very precise results in the direction of any means of reducing the extent or virulence of plague, except in the one vitally important direction that apparently a diminution in the rat population is likely to be attended with a diminution in plague. I therefore think that it would be unjustifiable to employ any but the bacteriological branch and that only if the state of the finances admitted of it. Until some more definite knowledge in prophylactic medical measures or sanitary measures is arrived at, expenditure on this head would be unjustifiable; and an agency to carry out a campaign against rats can be organised locally and much more cheaply than the proposed agency.

3. It follows from this that though I would advocate the utilisation of educated natives of India in this rat crusade, the need of a special sanitary service for plague alone does not appear to be clearly established. That such a service is needed in rural Bengal is undoubted; in fact, combating malaria, small-pox, cholera and other illnesses, is a long recognised want; and on general grounds I could not too warmly welcome the creation of such a service, provided funds are forthcoming for it. But when expert knowledge has so far been able to point only to rat extermination as the one hopeful measure, the need of such a staff for plague only is not made out.

4. For this reason also I would not uphold the proposal in clause III (c).

Annexure 5.

Letter from W. Maude, Esq., Commissioner of the Patna Division, to the Secretary to the Government of Bengal, Municipal Department, No. 39—G.-107-06, dated Bankipur, the 8th September, 1906.

I have the honour to acknowledge the receipt of your letter No. 140-T.—P., dated the 2nd June, 1906, with which you forwarded copy of a letter from the Government of India, No. 873, dated the 9th May, 1906, and of a memorandum on plague formulated by the Royal College of Physicians of England, and desired my opinion on the following points:—

- (1) the desirability of forming a Plague Department consisting of officers of the Indian Medical Service and Physicians brought out from England, with a large staff under their control of male and female native assistants;
- (2) the desirability of dividing such a department into 3 sections—
 - (a) an intelligence branch;
 - (b) a sanitary branch;
 - (c) a bacteriological branch;
- (3) the question of utilising educated natives of India in a sanitary service for work in plague-infected areas;
- (4) the grant of scholarships to natives of India for a course of study in laboratories and elsewhere, with a view to employment as Plague Health Officers.

2. I have consulted the District Officers of this Division, and enclose copies of their reports. It will be seen that Mr. Thomson, Magistrate of Patna, and Mr. Foley, Magistrate of Gaya, do not consider a special Plague Department necessary, and that they lay stress on the primary need of finding out, in due course, by bacteriological research, the real origin of plague and therefrom its true prophylactics and remedies.

3. The scheme gives no hint as to the size of the proposed Plague Department, and it is altogether so vague that it is difficult to discuss it. It appears, however, that even on the smallest possible basis it would be a matter of very large expenditure, and the first question that naturally arises is whether the establishment of an elaborate department at great cost could be justified when we have no certainty that plague is going to remain in an epidemic form in this country.

4. In the second place the scheme appears to ignore the fact that any special measures in connection with the investigation into the causes of, and the check of, plague have ever been taken. The question arises, whether the proposals put forward by the Royal College of Physicians would be any real improvement on present methods. They propose to open administrative centres with a department, or portion of a department, in charge of each; and each centre is to have—(a) its intelligence officer, (b) its sanitary officers, and (c) its bacteriological officers.

What has happened hitherto has been that, when plague breaks out in a district, the local officers, medical and civil in combination, deal with it so long as it is within their capacity. When it exceeds that limit, Government supplies extra help, as has been done in the past two years in this Division, by the deputation of special Medical Officers for plague work. These officers have, in combination with the civil officers, been their own

intelligence branch, and I see no reason to imagine that the work would be more effectively done by a special department, unless Government is prepared to spend a very much greater amount on that department than it has spent hitherto on plague prevention. No doubt if Captains King and Weinman had had trained medical staffs and large intelligence staffs under them, they might have done more than they could do with the very limited materials at their disposal; but as far as intelligence and sanitation measures are concerned, there is nothing that a department could have done better than these officers did.

5. As to the bacteriological section, I am not in a position to judge, but the necessity of having a number of centres for bacteriological research is not apparent. The department already, I understand, exists, and can probably carry out its work best at a central station.

6. I do not therefore consider the necessity of a special Plague Department proved, nor do I see the object of separating the intelligence from the sanitary branches of such a department if it were created, of having a bacteriological branch at each centre.

7. I now turn to the question of utilising natives of India in the sanitary branch.

The chief work of the branch would appear from the memorandum of the Royal College of Physicians, to be—(a) disinfection, (b) destruction of rats, and (c) other prophylactic and administrative measures. The services of natives are already utilised in such measures. They are not trained, except by such training as they soon pick up under the direction and control of the Medical and Civil Officers, which appears to be sufficient. The work is not highly scientific. European supervision is essential.

8. The other question on which opinion is asked is the grant of scholarships to natives of India for pursuing a course of study in laboratories or elsewhere, with a view to employment as Health Officers.

This is surely unobjectionable, if Government is prepared to find the money.

Annexure 6.

Letter from W. B. Thomson, Esq. Magistrate of Patna, to the Commissioner of the Patna Division. No. M-323/12-06, dated Bankipur, the 6th July, 1906.

With reference to your No. G-39/79 of 3rd July, 1906, calling for a report on Clauses I, III (b) and III (c) of Government of India, No. 873, of 9th May, 1906. I have the honour to report as follows:—

1.—I do not anticipate that any substantial benefit would result from the creation of the proposed Medical Department. It is very probable that plague will never be stopped, until the nature of the microbe which causes it is ascertained and the means of counteracting it are discovered. This can only be done by a study of the microbe itself, and more particularly of the causes which make it active in certain localities and not in others, and which make its activity vary with climatic changes. There are already sufficient statistics to show the existence of these variations, and an Intelligence Department to collect further statistics seems to me quite unnecessary.

In speaking of disinfecting infected houses so as to destroy all rats, bugs, fleas, and other insects, so that the inhabitants should not be kept out of their houses more than a day, the Royal College of Physicians propose what practice has shown to be impossible in the Indian houses in which plague occurs. Disinfection is no doubt useful, but it has its limitations. The outbreak of plague in a house means that the rats in the locality are infected, and even if a house could be disinfected as thoroughly as it is proposed to be done, plague will be liable to re-appear in it as soon as any fresh rats gain admission to it.

Bitter experience has shown that, whilst disinfection is useful, evacuation is the only absolute safeguard. The destruction of rats is a desirable object, but this can be done by a less expensive agency than that proposed.

The one part of the proposal which commends itself to me is the study of the disease from a bacteriological point of view. The destruction of rats and disinfection and evacuation of houses and improved sanitation, which are the only measures at present of any practical use, may lessen the ravages of plague, but they alone will never stop it. The only hope of doing so seems to be in the discovery of the nature of the plague microbe, the causes which render its activity dependent on seasons and localities, and the means of counteracting it, and this discovery can only be effected by scientific investigation.

2. III (b).—An agency less expensive than increasing the Indian Medical Service can be found among the educated natives of India. The reduction of plague by improved sanitation is entirely a question of the funds available for it.

3. III (c).—A Plague Health Officer does not need the elaborate training proposed. His duties are purely executive, and scientific researches should be left to experts.

Annexure 7.

Letter from B. Foley, Esq., I.C.S., Magistrate of Gaya, to the Commissioner of the Patna Division No. G-181/6, dated Gaya, 11th July, 1906.

(Extract.)

I have the honour to acknowledge the receipt of your No. G-89/79, dated 4th July, 1906, forwarding correspondence about a scheme formulated by the Royal College of

Physicians for the creation of a special medical and sanitary organization for dealing with plague, I am desired to report on the points referred to in paragraphs I, III (b), and III (c) of the letter of the Government of India of 9th May, 1906. With reference to paragraph I, the scheme seems a workable one, if expense is no object. To be effective, however, the Plague Department must be a department of the Local Government, and the local plague officers must form part of the district staff. A separate organization working independently of the district officials would probably not be able to do much good, but it should not be difficult to amalgamate the organization proposed with the district staff. The question that arises however, is, whether the time has yet come when the enormous expenditure which the scheme will entail should be incurred, or whether it would not be better to wait till more is known about plague and till it has practically been ascertained for certain what are the best methods to deal with plague before planning an elaborate organization to enforce the best methods that are known at present. Of course my opinion on the subject is of no value, but it seems to me that the time has not yet come for a scheme like that proposed by the Royal College of Physicians. When plague first appeared in India nothing was thought effective except the isolation of the infected and the segregation of the contacts. This was subsequently found impossible to enforce and useless, and reliance was placed on disinfection. It has lately been decided that disinfection is generally useless and nothing is effective except the destruction of rats. In what exact manner, however, rats communicate the disease has not yet apparently been definitely determined, and it is merely known that it is a good thing to kill all rats in a place infected with plague. It is not impossible that shortly it may be discovered that other measures are necessary for the stamping out of plague, and that the destruction of rats is only a detail; what is wanted is that the causes of plague should be investigated and that the necessary measures for combating it should be discovered. This, I believe, is being done sufficiently by the establishments that now exist in India. It would be premature at present to introduce an elaborate sanitary service for the purpose of enforcing measures which the present imperfect knowledge of the subject only tentatively assumes to be the best. The waste of money that would probably be involved would be great. With reference to paragraph 3 (a), I should have thought the examination of rats in plague-stricken districts was sufficiently systematic in India, and that more Medical Officers were not required to be sent out in order to deal with this subject. Speaking for the town of Gaya, which suffers more from plague than any other town in this district, rat killing goes on throughout the year. The measures taken for the destruction of rats when plague reappears would not, I think, be more active than those taken at present, even if every rat that was killed were examined and every infected rat detected. With reference to paragraph 3 (c), the plague health officers that are required in this district are not men that have been highly trained in laboratories. Plague preventive measures, if they are to be effective here, must be quite simple, and the plague health officer that is wanted is a man who can induce or compel the people to adopt those simple measures. In the town of Tekari, for instance, I am informed that it is difficult to make the people believe that the destruction of rats is of any use as a preventive against plague. A native of India trained at home in sanitary science would hardly be the person to stir up those people to the necessary amount of energy in this direction. It is suggested that, after plague has been stamped out, the organization might be retained as a sanitary service. I believe the proposal for a sanitary service has been before the Government of India for many years. A scheme was submitted by the Government of Bengal in 1896 as far as Bengal was concerned, but this was finally negatived by the Government of India. The grounds for and against such a service must therefore be well known to Government. It would seem advisable to keep it quite distinct from the present idea of a Plague Department.

Annexure 8.

Letter from W. A. Marr, Esq., I.C.S., District Magistrate of Shahabad, to the Commissioner of the Patna Division, Bankipore, No. 1496-J., dated Arrah, the 4th August, 1906.

In reply to your memorandum No. G-29/79, dated the 3rd July, 1906, on organisation of plague measures, I have the honour to forward a copy of a note on the subject by Captain A. F. Stevens, I.M.S., Civil Surgeon of the district, and to state that I agree with the views set forth in his able and suggestive note, and have really nothing to add to them.

I think it is most desirable to co-ordinate plague work under a separate organised department which should be maintained either until plague has been stamped out, or, if found practicable, merely until the people of the plague-affected areas have thoroughly learnt and adopted approved prophylactic measures.

The division of the staff into three sections is reasonable and natural, but I do not see that the members of sections need consist to any large extent of medical men. Most of the work assigned to that section could, under proper supervision, be carried out by any energetic, tactful and intelligent layman, and his services could probably be secured more cheaply.

At present I am afraid that educated Indians cannot be usefully employed to any large extent in positions of responsibility in plague and sanitary measures. Their mental attitude towards sanitation is so different from that of Saxon races that thoroughness cannot be expected from them, and thoroughness I imagine is the main thing in plague

and sanitary measures. The main bulk of the workers, in section B at least, must be Indians, but they should work at first under European or Eurasian supervision.

I think the sending of selected Indian-born Europeans, Indians and Eurasians of suitable medical qualifications to England for a course of training in laboratory work and public health is most desirable. These men would presumably imbibe to some extent the Western mental attitude towards sanitary work, and would retain on their return that spirit of thoroughness and enthusiasm which would entitle them to responsible posts in the fighting line.

I am not of opinion that any large number of medical men should be imported from England for plague work. Their ignorance of the language and the customs of the country would render them useless, except in the laboratory for the first year or two, and there would be difficulty in providing them with permanent posts after their plague work had come to a close. They would also be expensive.

I think a system by which the existing medical men in India would be used and Indian-born Europeans, Eurasians and Indians of suitable medical qualifications sent to England in yearly batches for training in laboratory work and public health and then drafted into the plague and sanitary departments would give more satisfactory results and at a smaller ultimate cost to the country, since these trained men would be a permanent acquisition.

Annexure 9.

Note by Captain A. F. Stevens, I.M.S., Officiating Civil Surgeon, Shahabad, dated Arrah, the 27th July, 1906.

I am entirely of opinion that plague-workers throughout India should be amalgamated into one corporate and co-ordinate whole under the control of one head. Much money and effort has been practically wasted by the lack of such co-ordination, besides which the general populace have no set place in the scheme, or rather lack of scheme, under which we are at present working. If a definite policy and definite methods of procedure be put before them, I am sure we will find many willing co-operators amongst them who at present are lukewarm in their endeavours to give us their aid; lukewarm simply because of the perplexity and confusion existing in their minds which has been brought about by the conflicting counsels tendered them officially and non-officially. You may ask a man to do a certain thing: he answers at once "I am willing to do so; but this is not what so-and-so says or what they do in such-and-such a district," and the aid given is only half-hearted.

Plague-workers themselves also are quite unaware of the measures undertaken by their fellow-workers in other districts or the results of such measures, except from what they gather from such disjointed smatterings as are published in the lay or medical press. The staffing of such a service, for it will have to become a practically separate Department comparable with the "Foreign Department," will of course be a matter of considerable difficulty and expense. Should physicians be imported from Europe, they will be of very little use for some time after their arrival in the country, especially in the "fighting line," on account of their ignorance of language and custom. So, if imported, their services at all events at first will be available practically only for bacteriological and laboratory work.

Natives of the country (even native gentlemen) do not view sanitation in the same light as we Europeans do, and they are not at all likely to become strenuous and efficient sanitary officials. Though of course some individuals occur to every District Officer's mind whose services would probably be very useful, but such individuals unfortunately are very few in number.

The bulk therefore of the officering of such a service must be performed by the Indian Medical Service, or by medical men with knowledge of the country, its language and customs; that is to say, if only medical men be wanted. But since the operations likely to be undertaken will be chiefly cleansing and rat-catching, is there any need that only medical men be employed on those services? The young soldier and engineer, or even the young man in search of employment, could make themselves very useful, and on the hoped-for cessation of the necessity of their employment could be returned to their own departments drafted into services for such as they have shown themselves adapted. This probation on active service might be of the greatest use to Government in helping to select active, intelligent, steady recruits for Departments for which no previous special training be required. Any of the latter class of candidates entertained should of course be of exceptional social standing, and likely to exercise good influence over their subordinates. The work they will be employed on will be one that requires great tact and delicacy on handling for the subordinate ranks, which for the most part must consist of a good class of native; room might be found for many intelligent and capable Eurasians, who I am sure would be willing to serve.

There is one point more in this connection: though the fighting and intelligence lines must consist of British subjects, I should imagine that there would be no insuperable objections to asking the aid of other interested countries in establishing bacteriological and laboratory research depôts in various parts of the country to work in connection with the above scheme. For, in waging war against plague, we are fighting not only on our own behalf or for purely British interests, but also on behalf of the whole civilised world.

I think the proposal for the division of the Department into three branches a most natural one. To aid the Intelligence Branch, trained naturalists are wanted; in this matter the Linnæan Society might be asked for advice and help. And to help in the fighting line,

I propose importation of trained rat-catchers, if none can be found in British regiments in India, and ferrets, or, better still, enquiries should be set afoot for some chemical means of destroying or stifling animals with their vermin in their holes. Owing to the great prolificity of the rat, it is uphill work trying to kill them by ordinary open-air methods. We must carry the war into their stronghold.

III (b) (c). I have practically answered these questions above.

(b) To repeat, very few natives of India in my opinion would make efficient Sanitary Officers. Their whole training and early surroundings and influences are against it. Some few, however, would be invaluable. More is to be expected from the European country-born and the better class Eurasian who have a much higher standard of living.

(c) The experiment might certainly be made of sending a selected few, both of natives and Eurasians, to Europe for bacteriological training.

I believe Burmans would show great aptitude for this work, but I think little can be expected of the less intelligent and practical races.

Annexure 10.

Letter from C. A. Bell, Esq., I.C.S., District Magistrate of Saran, to the Commissioner of the Patna Division, Bankipore. No. 1,600, dated Chapra, the 30th July, 1906.

With reference to your memorandum No. G.39/79, dated 3rd instant, asking my opinion on the points referred to in Clauses I, III (b) and III (c), paragraph 1 of the India Government letter therewith forwarded, regarding the creation of a special medical and sanitary organization for dealing with plague in selected localities, I have the honour to submit herewith copy of Civil Surgeon's opinion on the subject, and to say that I agree with it.

Annexure 11.

Letter from the Civil Surgeon of Saran, to the District Magistrate of Saran. No. dated Saran, the 16th July, 1906.

In compliance with your memorandum No. 1,421, forwarding copy of a letter No. 140-T. P., from the Government of Bengal, Municipal Department, Medical (Plague) Branch, I have the honour to state—

(1) that the creation of a special medical and sanitary organization for dealing with plague will meet a long-felt want, in that it will create a special service trained to combat plague who will be able to give their whole time and attention to it.

(2) That in my opinion the duties of the Intelligence Branch and the Sanitary Branch as pointed out in sections A and B in the memorandum of the Royal College of Physicians could well be carried out by one officer having separate intelligence and sanitary staff working under him.

(3) With reference to paragraphs IV (b) and (c), I am of opinion that Assistant Surgeons, both Military and Civil, might be selected for plague service, and be granted scholarships to enable them to proceed to England and qualify themselves by a course of study for employment as Plague Health Officers of districts. These could be given charge of districts, and would perform the duties of intelligence and sanitary officers, and would be under the direction of superior officers who would be posted to divisions, and who would have at their headquarters a subordinate trained to carry out the duties of the Bacteriological Branch as pointed out in section (c).

Annexure 12.

Letter from R. G. Kilby, Esq., I.C.S., District Magistrate of Muzaffarpur, to the Commissioner of the Patna Division, Bankipore, No. G. 50/103-06, dated Muzaffarpur, the 27th July, 1906.

With reference to your memorandum No. G. 39/79, dated 3rd July, 1906, forwarding a copy of letter from the Government of India in the Home Department, No. 873, dated 9th May, 1906, I have the honour to forward herewith a copy of a report by the Civil Surgeon in his letter No. 567, dated 16th July, 1906. The suggestion put forward in paragraphs I and III (b) and (c) all appear perfectly practicable and most desirable.

Annexure 13.

Letter from Lt.-Col. T. Grainger, I.M.S., Civil Surgeon of Muzaffarpur, to the Magistrate of Muzaffarpur, No. 56, dated Muzaffarpur, the 16th and 17th July, 1906.

In reply to your No. G. 50/94-06 of the 9th July, 1906, forwarding the Government of India No. 873 of the 9th May, 1906, regarding certain proposals for the organization of

a special service for the management and prevention of plague epidemics, I have the honour to report on the various parts as follows :—

Paragraph I., Clause 1.—The proposal in sub-clause (a) is feasible. The various medical schools in the country are turning out every year a number of practitioners of the assistant-surgeon and hospital assistant classes, who, for several years after they receive their diplomas, find it very hard to make a living. From amongst these it should be possible to enlist a sufficient number of men for plague work, provided they are treated liberally in respect of pay, and a prospect is held out of subsequent employment in the Sanitary Department, or the grant of a substantial gratuity when they are no longer required for plague work.

By taking them into the plague service young they are more likely to prove energetic, and be more content to bear the hardships which are unavoidable in the work, while the holding out of such prospects as I have suggested (subject to the condition of approved service) will keep a part of them at least up to their work.

As regards female medical assistants, they would be of use for work in towns, but most of them in Bengal at least are rather bulky, and for work in rural areas they would be of little use, and be a considerable incubus.

The employment of officers of the Indian Medical Service and English physicians, is merely a matter of men and money, and the provision of both is a question for the Head of the Department and the Government of India.

Sub-clause (b).—I do not see that any practical purpose is served by separating the Intelligence Branch from the Sanitary Branch. The Bacteriological Branch must be separate. For plague measures to be successful, the area under operation must not be too large, and I think that there would be a considerable saving without loss of efficiency if the two first branches were merged into one. If kept separate, there is likely to be a waste of labour, as from time to time either branch will have very little to do.

Paragraph I, clause III (b).—I do not think the suggested economy is to be recommended. In fact I think it would defeat its own object. If money is to be spent at all, it is worth while taking precautions to have it spent to the best advantage. This can only be secured by utilizing the energy, honesty and personal influence of the European. If anything can be argued from famine experiences, the pay for European supervision would be but a fraction of the saving resulting to Government.

In order to give plague measures the remotest chance of success, it is necessary to obtain the trust and confidence of the people. The results of not taking this into consideration when plague first broke out in India were deplorable, and have to be contended with even to the present day, over and above the natural suspicion and distrust with which every new measure, however beneficial its aim may be, is regarded. In my opinion the establishment and maintenance of this feeling of trust can only be secured by the personal influence of Europeans in charge of the work, entirely dissociated from the influence of the local executive and police.

Clause III (e).—The proposal contained in this clause is not quite satisfactory, and I doubt if it would be availed of to any extent by the men whom it is intended to benefit.

It would entail a considerable amount of hardship on them, as well as expense, and judging by what I have seen of Indian students in England, I doubt if the majority of them would take full advantage of the instruction offered. Besides, the course for the D.P.H. contains much that would be useless to them in the present stage of India in respect of sanitation. This would have to be learned only to be forgotten, and the time spent on it could be much more profitably spent otherwise.

Bacteriological and chemical laboratories do exist in India, and it is to be hoped that the time is not far distant when their numbers will have increased so as to bear some small proportion to the needs of the country. Regular courses could be held at these, in which instruction similar to the D. P. H. courses in England could be given, while instruction could also be given in sanitary service adapted to Indian requirements. In fact an Indian D. P. H. could be instituted, which all men desirous of becoming Medical Officers of Health, or of employment in the Sanitary Department, would be obliged to obtain. Something of this kind is required to bring medical teaching in India more in line with modern requirements, and it cannot be long before the want is supplied.

It would have the advantage of turning out as many trained men as may be required, and granting the necessity for laboratories and for facilities for the teaching of sanitary science as part of what is owed to the country, a considerable number could be trained at a smaller expense than would be incurred by sending a few men to England for that purpose.

The original papers are herewith returned.

Annexure 14.

Letter from W. Egerton, Esq., I.C.S., District Magistrate, Darbhanga, to the Commissioner of the Patna Division, No. 2191, dated Laheria-Serai, the 15/17th August, 1906.

With reference to your memorandum No. G. 39/79-06 of 1906, dated the 3rd ultimo, forwarding a copy of Government of Bengal's letter No. 140-T.P., dated the 2nd June, 1906, with enclosures, regarding a scheme formulated by the Royal College of Physicians for the creation of a special medical and sanitary organisation for dealing with plague in

selected localities, I have the honour to submit the following report on clauses I., III. (b), and III. (c) of paragraph I. of letter No. 873, dated 9th May, 1906, from the Government of India.

Clause I., 2.—The idea of having a special Plague Department, European and native, under the Government of India, with a considerable staff from which officers can be deputed to deal with local outbreaks, seems an excellent one. It is desirable that a medical man having a thorough training in Modern Bacteriology, and Epidemiology, and some knowledge of India, should be employed in every district or division (if the expense is too great otherwise) in which plague has become epidemic, for acquiring more knowledge of the disease for teaching the people; so much of what we at present know of the causes and prevention of plague and for assisting the local administration in carrying out measures for prevention. He would require competent assistants.

Clause III. (b), 3.—I do not understand whether it is proposed to make a new Sanitary Department with a special staff of officers selected from educated natives, or merely to utilise the service of educated natives as far as they can be obtained voluntarily for sanitary work during a plague epidemic. Educated natives who will give up their time gratis to sanitary work will not be numerous. An increase in the number of Assistant Surgeons and Hospital Assistants specially trained for sanitary work would be the easier way of getting a trained sanitary service.

Clause III. (c), 4.—The grant of scholarships to specially selected natives would be likely to induce some of them to go to England for a special training, if it was probable that they would get Government service in the end, but it would be possible, I think, to devise and execute a scheme for their training in India.

Annexure 15.

Letter from Colonel A. M. Crofts, C.I.E., I.M.S., Officiating Inspector-General of Civil Hospitals Bengal, to the Secretary to the Government of Bengal, Municipal Department. No. 7350, dated Calcutta, the 29th November, 1906.

(Extract.)

With reference to your letter, No. 109 T.—P., dated the 24th May, 1906, with enclosures, I have the honour to make the following remarks:—That the Sanitary Service of India as at present constituted is altogether inadequate to meet the requirements of the country even under ordinary conditions is, I think, admitted by everyone, and this inadequacy has become even more apparent since the appearance of plague. The efforts which have been made to meet the exigencies caused by the advent of plague have been based on methods practically similar to those which are now advocated by the Royal College of Physicians in their memorandum, and their proposals, if adopted, would in the main simply amount to increasing the existing staff of the Sanitary Department, but differing in so far as this additional staff should be a separate service for the purpose of carrying out measures against plague alone, which, it is argued, would thus be more efficiently done than has hitherto been possible on account of the paucity of agents for so doing. They propose that the separate Department thus formed should be composed of officers who would be familiar with the customs and habits of the people, and the appointments in it should be filled by Indian Medical Service officers, as well as physicians sent out from England for special plague duty, who should direct and supervise a large corps of native medical persons, male and female, the Department being divided into sections A, B and C, each section having definite duties to perform. I have nothing but the heartiest commendations for the principle underlying the proposed scheme, but I would invite serious attention to the following points:—It has been tacitly assumed in the memorandum that the measures advocated to prevent the spread of plague will have the support and approval of at least a majority of the population amongst whom and for whose benefit it is proposed to carry these measures out, but if any one thing more than another has been conclusively proved by the experience hitherto gained in connection with plague measures, it is that this approval and support is, as a rule, conspicuous by its absence, and that most of those, who by birth, education, and position, may be regarded as leaders of the people, while loudly protesting their approval to the measures taken or proposed, either give them no practical support or secretly encourage opposition to their being carried out, and it is mainly on this account and on the superstitious ignorance of the people that plague continues to exist to the extent it does, and it is on these facts, borne out by the experience of past years, and on the conspicuous failure of legislative measures, introduced with a view to counteract their paralyzing effect on plague measures, that the present plague policy of the Government of India is based. There is a consensus of opinion of all those who are best qualified to speak from experience that, until the habits, customs, and mode of thought of the people are changed, until they are educated in sanitary measures up to a higher standard than at present, and are prepared to voluntarily accept and actively co-operate in the carrying out of measures for staying plague, it is worse than useless to employ methods which are generally applicable to, and effective in, more civilised countries where different conditions obtain. Again it has been tacitly assumed that there will be no difficulty in obtaining a large staff of native medical assistants whom, it is proposed to form into a sanitary corps. Anyone conversant with native ideas knows how uncongenial to the educated native or to a native of any but the lowest caste, the practical work of sanitation is, especially in connection with plague or epidemic disease of any kind, and how little they can be depended on to efficiently inspect or supervise the cleaning out of filthy bazaars, latrines and drains by mehters. A native will learn the

theory and laws of sanitation, and will pass brilliant examinations thereon, but he will not assimilate them or put them into practice, as he has been taught from childhood to look upon such work as derogatory to his dignity and as lowering to his caste. The men, therefore, who might be expected to enlist in the proposed sanitary corps would be persons of the lowest caste, and supervised by the same class of native overseer, at present employed, over which constant and efficient European supervision would have to be exercised to prevent the oppression of the people and extortion which, in too many instances, is now practised. Again it has been found impossible to obtain native women to learn the work of hospital assistants, compounders, nurses, dressers and *dhais*, although inducements have been offered to them in the shape of scholarships, pay, etc., amounting in some instances to more than double the pay which they could earn under ordinary circumstances; if the inducements thus offered have failed to obtain recruits, even for instruction, how much more impossible will it be to obtain recruits for the much more uncongenial work of carrying out sanitary measures. I believe it would be impossible to do so. I do not question the ability of the educated native to become a brilliant bacteriologist. He possesses many qualities which would go far in this direction, but these are not what India wants so much at present; a few such will suffice, and these can be trained as well in the existing bacteriological laboratories in this country, which in equipment are now as good as any in England, and, being in India, offer better opportunities for the necessary instruction on diseases peculiar to this country being given. It is not by granting scholarships to natives of India to enable them to study in laboratories that the present sanitary needs of India can be met. These men will have their place after many years have passed, but their time is not yet. Laboratory experience and methods are not required for the grosser sanitary requirements of India in the way of better water supply, better drainage, better scavenging, better ventilation, and lighting in dwellings, &c., &c. Dirt and darkness are the primary factors in spreading plague; the absence of these in the environment of the field-rat is one of the chief causes of his being innocuous as a plague carrier, and the domestic rat, placed under similar sanitary conditions, would become just as innocuous. I am convinced that it is not by the formation of a separate Medical Service for the carrying out of measures against plague alone that the exigencies of the situation can be best met, not by the importation of physicians from England, ignorant of the customs and habits of the people, but by the inauguration of widespread measures, not specially against plague, but against the grosser sanitary defects now existing in every town and city in India. If public sanitation in towns and villages is improved, a standard will be gradually set up, and an improvement in private domestic hygiene will assuredly follow; the people themselves will be educated in the principles of sanitation, and will be brought to realize the advantages to be derived by accepting these principles. When this attitude of the people is attained, India will be far on the road to victory, not alone over plague, but over epidemic disease of every kind; then, and then only, will be present the two absolutely essential conditions for successfully combating plague or any epidemic disease, namely, the voluntary acceptance by the people of the measures proposed and their active co-operation and assistance in carrying out these measures; and I would submit that the experience of the past ten years has conclusively proved that the absence of this voluntary acceptance by, and assistance of, the people would render ineffectual the efforts of a battalion of sanitary experts and an army corps of assistants, and that the acceptance of and putting into practice the proposals contained in the memorandum under notice would be like trying to teach a child to run before he is able to walk, and would be doomed to failure. With all due respect to the Royal College of Physicians, it is only fair to assume that the proposals were made in ignorance of local conditions and of the habits and customs of the people of India. The increasing scarcity of labourers and recruits for the army is dwelt on in paragraph 6 as one of the reasons showing the necessity for the organization of the sanitary corps. Labourers and recruits are drawn from the inhabitants of country districts, and ignorance of the structural conditions of the huts of this class can alone have led to the proposal contained in Section B (1) of the memorandum. An ignorance similar to that which led a distinguished medical authority in England to assert some years ago that half the diseases in India might be abolished by putting up iron boilers in every village and making them the sole source of the water-supply.

Enclosure 7 in No. 2.

Letter from E. F. L. Winter, Esq., Secretary to Government, United Provinces, to the Secretary to the Government of India, Home Department, Sanitary (Plague). No. 287 of 1906, dated Naini Tal, the 3rd October, 1906.

(Extract).

In reply to Mr. Fergusson's letter, No. 874, dated the 9th May, 1906, I am directed to enclose a copy of a letter, No. G-1067 C.O., dated 3rd September, 1906, from the Inspector-General of civil hospitals which details the organization employed in this province for combating plague. With reference to clause 1 of the letter under reply, I am to say that the Lieutenant-Governor would deprecate the employment of any special staff to detect the first cases of plague. The

experience gained in this province is that any such staff would defeat the object with which it was created: it would be viewed with distrust and lead to the concealment of the earlier plague cases, which was so common during the first years of the epidemic, and which it has been the constant endeavour of this Government to counteract. Any inquiries into the circumstances of every case of plague and the method by which the house was infected would be strongly resented, especially if the inquiry were made by persons who were strangers to the people and in whom they had not full confidence. Such inquiry would result in the concealment of plague cases, in the removal of patients, and the spread of the infection. The importance of vigorous action on the occurrence of the first cases has been fully recognised by this Government and has been impressed on all officers, both medical and executive, but at the same time it has been realised that reliance must be placed on the people themselves to report the first cases. When a town is attacked for the first time, the earlier cases will always be concealed. The people, however, learn by experience the danger incurred by concealment and the advantages of prompt action, and when a town is attacked for a third or fourth time, the earlier cases are, it is believed, promptly reported, the houses are vacated, and disinfection is applied for. As showing the importance now attached by the people to early action, it may be mentioned that the destruction of rats has been frequently objected to on the ground that they give warning of a house having become infected; in the absence of rats there would be no such warning. There is therefore no necessity for, and, indeed, there are weighty objections against, the employment of a special staff as intelligence officers. The existing organization in towns is sufficient, and in villages no organization of the kind would be practicable. With regard to the proposed sanitary branch to work at practical measures on the scene of the outbreak, I am to say that in this province operations of this kind are undertaken by the civil surgeon and in the larger towns by special health officers with trained medical subordinates when needed. In the Lieutenant-Governor's opinion it is essential that these establishments should be under the control of the civil surgeons. Success will never follow in the wake of operations for stamping out the disease unless the confidence of the people is gained, and medical officers imported from Europe, ignorant of the customs and language of the people, will not gain their confidence. His Honour therefore does not recommend the introduction of medical men from England, nor the multiplication of medical subordinates. It is not difficult to train non-medical men in the work of disinfection, and the people prefer the work to be done by people that they know. It is not possible to compulsorily disinfect every house in an infected area; it has therefore been the object of this Government to induce people to disinfect their houses themselves or to apply for disinfection. No remedy for the disease has been discovered. Prevention is mainly a matter of sanitation, and in this province more money could usefully be employed on the sanitation of towns. His Honour sees no object in the creation of a separate staff for bacteriological purposes, but it would obviously be an advantage to encourage civil surgeons and their assistants to undertake microscopic experiments and minor bacteriological work. Money would be well spent in supplying them with the necessary facilities. His Honour would not, therefore, for the reasons given in the preceding paragraphs, recommend the creation of a special medical and sanitary organisation on the lines proposed by the Royal College of Physicians. With regard to clause III. (b) of Mr. Fergusson's letter, I am to say that the Lieutenant-Governor thinks that sanitary and medical work offers a singularly congenial career to the educated natives of the country, and that they are well adapted to work of the kind, but at present the means of training them are limited; there is work for far more than can be trained at existing institutions. This difficulty will be met by the establishment of the Medical College at Lucknow. His Honour also entirely approves of the proposal to grant scholarships to natives of India who have sufficient medical training to enable them to go to England to be trained in bacteriological laboratories and also more particularly to be trained in sanitary work for employment as health officers.

Annexure.

Letter from Colonel R. D. Murray, I.M.S., Inspector-General of Civil Hospitals, United Provinces, to Secretary to Government, United Provinces, No. G-1067C.O., dated Naini Tal, the 3rd September, 1906.

With reference to clauses I, III (b), and III (c) of paragraph I of the Government of India's letter received with G. O. No. 166/XVI-903B, Sanitation Department, dated the 24th May, 1906, I have the honour to report as follows.

2. The existing medical staff for dealing with plague in these provinces is as follows. The Inspector-General of civil hospitals, with the Chief Plague Officer as his personal assistant, is in charge of all plague operations, and has as his staff all the civil surgeons of the different districts. In places which are badly infected, or in towns which, from their size or for other reasons, are more important, native assistant surgeons are deputed as special health officers to assist the civil surgeons, and elsewhere hospital assistants and native doctors are appointed whenever required. These assistant surgeons, hospital assistants, and native doctors are, as far as possible, kept on duty all the year round, even though there be no plague, so that they may keep in touch with, and have the confidence of, the people. The names of others are kept in special registers and appointed, when available, year after year, so that all have now become to a considerable extent specially trained in the work.

Bacteriological diagnoses and investigations are performed at the Government laboratories in Agra.

3. The above arrangements differ from those suggested in clause I. of the above-quoted letter only in the following points :—

(a) it is not a special staff whose sole work is connected with plague, and

(b) it is not divided into different sections—intelligence, sanitary, and bacteriological.

These two points are much interwoven and cannot be wholly dissociated, but in discussing them it is convenient to consider (b) first—the division of the staff into special sections, each having its own branch of work. Such a division from a scientific point of view would be in many ways very desirable and would, were the epidemic in England, be quite practicable. It is not a division, however, which (with the exception of bacteriology—and this is referred to more fully below) is essential to the study of the disease, and it would necessitate a very large increase in staff as much of the work of different sections would overlap. The chief objection, however, would be the multiplication of special officers, and this leads us to (a).

In India since the first outbreak of plague the great difficulty and chief obstacle to progress both in gaining knowledge of the disease and in applying that knowledge practically has been the distrust and suspicion of the people with whom we have to deal. Only now is that distrust and suspicion of our motives beginning to be allayed, and this I attribute greatly to the fact that plague operations are undertaken by the civil surgeon, an officer who is in the district all the year round and who is in constant touch with the people. The special officer has the advantage of the civil surgeon in being able to devote the whole of his attention to the one object and in his previous and wider experience, but he comes as an unknown quantity. The mere name of plague officer is at present sufficient to ensure his being regarded with distrust, and he ever so tactful, much of his work must be nullified by his not having the confidence of the people. I am sure that at present much more progress will be made by working through the civil surgeons.

4. With reference to the bacteriological work connected with the epidemics, there are special difficulties in carrying out this locally, the chief of which are the great expense that would be involved in the equipment and moving of laboratories and the difficulty of obtaining suitable men. A considerable advance could, however, I think, be made on lines parallel to those suggested by the provision to all civil surgeons of a full equipment for microscopical and minor bacteriological work. Complete bacteriological investigations must always be relegated to specialists in fully equipped laboratories.

5. With reference to III (b), regarding utilisation of educated natives. This is at present being done in these provinces so far as assistant surgeons, hospital assistants, and native doctors are concerned. Were a sufficient number of these classes not available, other educated natives would be employed.

6. With reference to III (c), regarding grant of scholarships, I consider that the extension of this procedure would be very desirable, as were such granted for good plague work, not only would it serve to procure a better class of men, but it would insure their giving their very best work. Plague prevention is now recognised as largely a matter of sanitation, and in this special branch a training in England is very valuable, and a class of natives with such training would be a valuable asset to Government as special health officers.

Enclosure 8 in No. 2.

Letter from A. B. Kettlewell, Esq., Secretary to Government, Punjab and its Dependencies, to the Secretary to the Government of India, Home Department, No. 883 S, dated Simla, 7th July, 1906.

(Extract.)

I am directed to acknowledge the receipt of Mr. Fergusson's letter No. 875, dated the 9th May, 1906, requesting an expression of the Lieutenant-Governor's opinion on the practicability of the scheme formulated by the Royal College of Physicians for the creation of a medical and sanitary organisation for dealing with plague in selected places, and also on the suggestion to utilise the services of educated natives of India in connection therewith. In reply, I am directed to forward a copy of a letter, No. 99 S., dated the 14th June, 1906, from the Inspector-General of Civil Hospitals, Punjab, and to say that the Lieutenant-Governor entirely agrees in the views expressed by that officer on the points referred for consideration. Sir Charles Rivaz thinks that the memorandum submitted by the Royal College of Physicians must have been written under some misapprehension of the actual conditions under which the work of dealing with plague is carried on in India. It would seem to assume that no special organization for dealing with plague exists, and that Government is not in a position to adopt "those measures which have elsewhere been found useful in coping with the disease." As the Government of India are aware, this is far from being a correct exposition of the situation. Not only has a special organization for coping with the epidemic been in existence for some considerable period, but, further, that organization has been mainly employed both on the remedial measures which local and outside experience has endorsed from time to time as being effective, and also on scientific investigations of the nature suggested in the memorandum. It is no doubt a fact that the efforts of Government have to a considerable extent been hampered by inadequacy of staff, but it is also none the less true that, so far as the subordinate agency is concerned, all available sources of supply have been tapped, and that the suggestions put forward by the College of Physicians offer no practical solution of the main difficulty which confronts Government at every turn. The proposal to create a special staff of male and female native medical assistants is suitable enough, but it merely represents the system on which this Government has been trying to work for a long time past, and which has only met with partial success owing to the simple fact that the supply of medical assistants turned out by our colleges is unequal to the demand. Of two suggestions advanced for meeting this difficulty, viz., the recruitment of physicians in England and the grant of scholarships to natives of India—the former has been tried and has proved unsatisfactory, while the latter would supply us with a class of man whose English experience would offer no real guarantee of his fitness for the practical administration of plague measures in India. In the matter of utilising educated natives in a sanitary and plague service, the Lieutenant-Governor understands that what is meant is not the mere enlistment of educated persons in the work of plague administration, but the creation of a special service of *medically-trained* Government servants who have made sanitary science their special study. Here again the same difficulty recurs; for the supply of medically-trained natives is—owing to the exigencies created by plague—far below the demand, and it will probably be impossible in any reasonable period of time to create a body of servants of this class. The Inspector-General of Civil Hospitals has given good reasons in paragraphs 6 and 7 of his letter for rejecting the proposals to divide the special plague organization into sections, and His Honour has nothing to add to his remarks on the subject.

Annexure.

Letter from Colonel T. E. L. Bate, C.I.E., I.M.S., Inspector-General of Civil Hospitals, Punjab, to the Secretary to Government, Punjab, No. 99 S., dated the 14th June, 1906.

(Extract.)

With reference to your endorsement No. 246 S., dated 30th May, 1906, forwarding the letter of the Government of India, Home Department, No. 875, dated 9th May, 1906, I

have the honour to submit the following opinion and report. *Clause I (a) of above-quoted letter—The creation of a special medical and sanitary organization.*—All that need be said on this point is that such an organization is in existence; but as the suggestion of creation implies that there is none, it may perhaps be well to give a sketch of our present arrangements. The plague medical staff works under the control of a special headquarters department, including the Inspector-General of Civil Hospitals and his Assistant, the Chief Plague Medical Officer of the Province. In each district, of which there are 29, the Civil Surgeon is *ex-officio* the District Plague Medical Officer; and he is responsible for the direction of plague operations within his jurisdiction. Under the District Plague Medical Officers are a number of Assistant Plague Medical Officers, including Indian Medical Service Officers and Doctors specially imported from England, who are assisted by Native Assistant Surgeons holding Indian or home diplomas, Native Hospital Assistants, Dispensers, trained disinfectors, &c. The strength of the superior staff on the 1st May last was—Indian Medical Service Officers 10, specially imported officers 4, Assistant Surgeons 23 and Hospital Assistants 38. When the enormous area of infection is considered, we cannot pretend that the above staff is an adequate one, but we can say that we are utilizing every available trained medical man; unfortunately, the supply is not equal to the demand. In the case of officers of the Indian Medical Service, we asked for 20, and we have been supplied with all that can be spared, 9 in number. With regard to the importing of physicians from home, we have had a large experience; the system has proved unsatisfactory and cannot be recommended. The employment offered is temporary with no future prospects, and consequently the best class of men is not attracted; and even the good men who come are practically useless for a considerable time, until they get sufficient acquaintance with the language and customs of the people. And by the time they become of use they return to England in search of permanent employment. The system would only become a satisfactory one if permanent employment were offered, with prospects of advancement and pension, which would be equivalent to increasing the cadre of the Indian Medical Service. And I may add that, in my opinion, this is the best solution of the difficulty. Native medical practitioners have been utilized to the utmost extent of the supply: we have not only obtained every man we can in this Province, but we have also engaged as many as we could from other Provinces; the latter have not as a rule proved suitable. I have perhaps said enough to show that our plague medical staff is as large as it can possibly be made in existing circumstances. It is principally in the number of European Officers, versed in the language and customs of the people, that augmentation is required; we especially need more Indian Medical Service Officers who know the people, their language and their customs. They are, moreover, stimulated in the discharge of their duties by the knowledge that their efforts will certainly affect their future career in the service. With hardly an exception the officers deputed to this Province have worked with admirable zeal and judgment; and the work entrusted to them has been invariably well done. *Clause I (b)—The medical organization having been created, it is suggested that it should be divided into three branches, intelligence, sanitary and bacteriological.*—Under the conditions in existence, I do not consider that there is anything to be gained by a separation of the medical staff into intelligence and sanitary branches; on the contrary, I think that the combination of the two is essentially practical and obvious. It seems that there is nothing to be gained by one Medical Officer being specially detailed to obtain information and another to act on it. Our medical staff discovering the facts for themselves proceed at once to act; and I maintain that this is conducive not only to economy in personnel but to efficiency. The reporting of information from Assistant to District Plague Medical Officer and again from District Plague Medical Officer to Chief Plague Medical Officer and the issue of general and special instructions in the same channel is well calculated to obtain as uniform and effective action as is possible. With regard to the suggestion of a bacteriological branch whose sphere would either be confined to research pure and simple—and on this I am not required to express an opinion—or to observations carried on with a view to directly influencing practical action. The latter I consider to be an impracticable ideal. I may, perhaps, take as an instance the systematic examination of rats in the “free” season. Now, in the village Kasel, which was pointed out by us to the Plague Commission for purposes of investigation as a place where plague infection was supposed to be endemic, very complete arrangements were made for the daily systematic examination of rats; and, although I am not in possession of any official information, I believe it to be true that the examination went on for some weeks before infection was discovered. It is, therefore, I think, impossible to contemplate any such action in any large number of towns and villages. In my opinion a Medical Officer would be much more profitably engaged in attacking with the means at our disposal places which have been marked down as probable centres of endemic plague, with a view to preventing a recrudescence, than in sitting down with a microscope in one place for a couple of months in order to definitely find out whether infection is present or not. *Clause III (b)—The utilization of educated natives for plague work.*—I have already pointed out that, as far as the supply goes, the medically educated native is utilized for work in plague infected areas. With regard to native laymen, I may say that a most important part of our work is the education of the people in those measures for the prevention and suppression of plague which they can actually carry out themselves. Leaflets embodying short and simple instructions have been distributed to all villages; placards are hung up in all dispensaries, committee rooms, tahsil head-quarters and other important places; pamphlets have been distributed to all schools; and, finally, we have the teaching of the touring medical staff. There is, I think, room for more definite steps in this direction, and the natural leaders of the people could be specially instructed in the method of carrying out ordinary anti-plague measures, so as to become most useful auxiliaries in campaigns against the disease. *Clause III (c)—The grant of*

scholarships to medically trained natives for a course of study in England.—In my opinion the school of practical experience in this country under Medical Officers expert in plague politics is the best, indeed the only one, for educating the medically trained native in the duties of a plague health officer.

Enclosure 9 in No. 2.

Letter from W. F. Rice, Esq., I.C.S., Secretary to the Government of Burma, to the Secretary to the Government of India, Home Department, No. 773, dated Rangoon, the 21st September, 1906.

(Extract.)

I am directed to acknowledge the receipt of your letter, No. 876 (Sanitary Plague), dated the 9th May, 1906, forwarding a copy of a Despatch from His Majesty's Secretary of State for India, No. 138 (Revenue), dated the 18th August, 1905, on the subject of a Memorandum on Plague submitted to him by the Royal College of Physicians. With regard to the points referred to in clauses I, III (b), and III (c) of the first paragraph of your letter under reply, I am to submit for the information of the Government of India a copy of a letter, No. 250-C., dated the 1st August, 1906, from the Sanitary Commissioner on the subject. The Lieutenant-Governor concurs in the opinion expressed by Colonel King that in this Province a special medical and sanitary department to deal with plague only is not required. Such an organisation would, in the Lieutenant-Governor's opinion, be apt to give rise to inconvenience in respect to its relation to the provincial, medical, and sanitary establishments which are already in existence. These establishments, as explained by Colonel King, already perform the duties in connection with plague which the Royal College of Physicians propose to allot to Sections A, B, and C of the special Medical Department suggested by them. The system of dealing with plague in this province, which is embodied in the rules now submitted, and which is carried out in practice, includes among the means of guarding against an outbreak of plague measures designed to ensure the receipt of the earliest possible information of cases of plague or suspected plague in human beings and in animals, and provides also for inquiry into the circumstances under which infection occurs, and for the prompt report to and record by the central sanitary authority of the information so obtained. The immediate disinfection of all infected houses and their contents, as well as of other houses in the neighbourhood, in the most effective manner possible in the circumstances which prevail, is provided for, while the regular and systematic destruction of rats is prescribed as one of the most effective measures for preventing the spread of the disease. The method of disinfection which has, on the advice of the Sanitary Commissioner been approved by the local Government is shown in Appendix II.* attached to the rules which accompany this letter. The Lieutenant-Governor shares the doubt expressed by Colonel King, whether, having regard to the nature of the houses occupied by the majority of the people of this province, any fumigating apparatus such as that described in paragraph 7 of the Memorandum would be effective. The measure of rat-destruction is not one in which active co-operation can be expected from persons professing the Buddhist religion, and in some places the results obtained have been somewhat disappointing. No active hostility, however, is displayed by the people, and large quantities of rats have been and are being continually destroyed. So far as the Lieutenant-Governor is aware, the arrangements provided for the diagnosis of doubtful cases and for the bacteriological examination of rats and other subjects, which are described in the Sanitary Commissioner's letter, are adequate. The Lieutenant-Governor is disposed to think that, so far as this Province is concerned, the medical staff, reinforced as it has been on account of plague, is sufficient. He doubts whether it is necessary to grant special scholarships to qualified natives of the Province to enable them to proceed to England for further study in order to fit them for employment as plague health officers. Such persons in Burma would in any case be hard to find. The greatest hindrance which is experienced is that to which attention is drawn by Colonel King, namely, the absence of a qualified subordinate sanitary establishment. The

* Not printed.

Lieutenant-Governor has accordingly welcomed a suggestion from the Sanitary Commissioner to submit proposals for the creation of a Provincial service of trained Sanitary Inspectors. The proposals have not yet reached the local Government in a concrete form, but His Honour hopes to be in a position to submit them to the Government of India without much delay. Should the proposals meet with approval, these Sanitary Inspectors would be subordinate to the Civil Surgeons and Health Officers who are included in the regular Provincial and Municipal establishments, and would deal with all matters connected with sanitation including the prevention and suppression of plague. In the meantime, a course of instruction for the training of natives of the Province to be employed temporarily as Inspectors in connection with plague measures has been instituted in Rangoon, in order that qualified men may be available for employment on plague duty in any town or district as soon as the necessity arises. The Lieutenant-Governor is inclined to think that action on these lines is sufficient. To this extent His Honour fully concurs in the advice of the Royal College of Physicians that the services of educated natives should be utilized in a sanitary service for work in plague-infected areas.

Annexure.

Letter from Colonel W. G. King, M.B., C.I.E., I.M.S., Sanitary Commissioner, Burma, to the Secretary to the Government of Burma, No. 250 C, dated the 1st August, 1906.

With reference to your letter No. 150, dated the 6th June, in which you require me to report on certain specified points contained in Mr. Ferguson's letter No. 876, dated 9th May, I have the honour to state, in regard to the suggestions conveyed in paragraph I (a) of that letter that I do not see, on referring to paragraph 7 of the Royal College of Physicians' Memorandum on plague, that any arrangements other than those now in force are advised. For example, in regard to the duties of Section A of the proposed staff; at the present moment, orders exist throughout the Province which secure (1) that telegraphic information shall be given to the Sanitary Commissioner as to all imported, and the first three cases of indigenous or suspected, plague, in human beings or animals. In respect to such cases, (ii) standard forms requiring all details as to history of origin, attending circumstances, and sanitary treatment are supplied by medical officers of districts, and when it is found by me on perusal of these reports that the information furnished is faulty, or that neglect by any authority has occurred, the attention of officers responsible is at once directed to it. Lastly, (iii) these reports are maintained on record, and are therefore available for epidemiological comparisons.

2. As regards the duties required of Section B of the proposed staff, I would state that houses in which infected rats occur are always treated as infected.

3. As to the suggestion that disinfection should take the form of fumigation, whilst I am prepared, in accord with the general advance of knowledge of new methods, to adopt this or any other effective system, I am at present certain that for treatment of Burmese houses any known method would be impracticable. If any improvement upon the chemical fluids now employed is to be hoped for, I think the direction would (in India at least, where houses are more suitable) take the direction of "direct flaming." This method I reported on in 1898, and in 1905, with an improved apparatus, the results were shown to be absolute by Captain Christophers, I.M.S., Madras.

4. As to not keeping the people out of their houses more than six or eight hours, this is aimed at, if the neighbourhood is not rat-infected. In the latter case disinfected houses are protected from re-infection by rats by use of tar and sulphuric acid mixture.

5. As a fact, throughout the province, rats are destroyed by regular and systematic methods, as far as the prejudices of Buddhists will allow. In the plague infected centres of Rangoon and Mandalay not less than 5 per cent. of rats are examined as to infection, and when intermission occurred in Mandalay, examination has been adhered to notwithstanding absence of plague in man.

6. Administrative methods, as far as fall within the functions of the Indian Medical Service, are daily attended to. Prophylactic inoculation and sanitary preparation of towns are systematically attended to.

7. All medical officers of districts in Burma are furnished with microscopes, and if the microscopical characteristics and history do not suffice for diagnosis, standing orders exist for the forwarding of specimens to the Government bacteriologist.

8. Whilst, then, I do not think that the Committee has pointed out any new lines upon which action can be taken, I am not prepared to say that, if the staff at my disposal were increased, it will not enable such action to be much more effective. The superior staff of medical officers of the Indian Medical Service certainly requires strengthening to meet the demands upon their services on account of plague. To bring this about, all I think that is necessary is that to Local Governments should be given the right to import and dispense with medical men from England or elsewhere for temporary employment, without its being necessary that such matters be referred either to the Government of India or to the Secretary

of State—more especially should Local Governments have the right to expand temporarily their bacteriological enquiries, without sanction of the Government of India and the Secretary of State.

9. I would, therefore, adopt the recommendations of the Committee in so far as strengthening and developing the existing arrangements are concerned; but would not form a *special department*, as I believe it would practically be powerless, and, if it were not so, might well lead to the faulty political policy which was the outcome of advice tendered by imported experts when plague first reached India. Further, the Sanitary Commissioner should possess an office staff such as would enable him to deal with the very wide range of subjects and compilation of records that are really requisite.

10. But no amount of administrative skill is of the slightest avail as to plague, until there is at disposal of those responsible, firstly, legislation that will adopt unreservedly, within limits of possible political trouble, obvious sanitary dictates, and, secondly, a large number of well-educated and scientifically trained sanitary inspectors as the executive backbone of organization. Until such men are obtainable, and it is possible to post them, from a standing reserve, without a moment's delay in positions wherever desired by the Sanitary Commissioner without encountering a debate with local authorities as a preliminary, not only to plague infected localities, but to all threatened localities, would it be possible to possess an organization otherwise than *pour rire*. The Government of Burma has already assented to the principle that this invaluable class of executive officers should be produced as quickly as feasible.

11. In regard to III (b) and III (c) of Mr. Ferguson's letter, I fully agree with the principles enunciated, which are but the corollary of the first steps of employing trained sanitary inspectors and reasonable legislation. In my opinion, in each district there should be at the disposal of the civil surgeon an assistant surgeon, exclusively for sanitary and vaccination work, irrespective of one for medical work. Although I should be glad to see a scholarship available for education of selected native medical men in Europe, I think there is no reason to consider that ordinarily a sanitary assistant surgeon should be sent to Europe for this training. As already stated, a course for certificated sanitary inspectors should be shortly available in this country, which assistant surgeons should attend as a post-graduate course in hygiene; and to complete their education in bacteriology and minor sanitary engineering it would be an easy matter for the Government of Burma to make arrangements for the training of their assistant surgeons in bacteriology and minor sanitary engineering in Madras, where these courses are already given to sanitary assistant surgeons of districts at the "King Institute." Why I consider it is not necessary to look to Great Britain for training, except when an expert may be expected to be evolved, is that the type of officer required for assistant to the civil surgeon in health matters is not one who would be able to settle by obtruse investigation a leading matter on public health, but who would have such complete training that facts could readily be observed and specimens for bacteriological and parasitological research could be collected and sought for in a sound and practical manner under the particular direction of civil surgeons and bacteriologists at distinct centres, which in a country with fairly developed communications need not be numerous.

Enclosure 10 in No. 2.

Letter from L. J. Kershaw, Esq., I.C.S., Financial Secretary to Government of Eastern Bengal and Assam, Municipal Department, to the Secretary to the Government of India, Home Department, No. 7708-F, dated Shillong, the 28th July, 1906.

(Extract.)

I am directed to acknowledge the receipt of Mr. Fergusson's letter No. 877, dated the 9th May, 1906, asking for the views of the Lieutenant-Governor on a scheme formulated by the Royal College of Physicians for the creation of a special medical and sanitary organisation for dealing with plague. In reply, I am to submit, for the information of the Government of India copies of

(1.) Letter No. 2061, dated the 25th June, 1906, from the Sanitary Commissioner, Eastern Bengal and Assam.

(2.) Letter No. 3747, dated the 26th June, 1906, from the Inspector-General of Civil Hospitals, Eastern Bengal and Assam.

the communications noted in the margin, and to say that this province has fortunately yielded practically no opportunities of gaining plague experience, and that the Lieutenant-Governor feels much hesitation in advancing an opinion on the questions that are raised. Of one thing there appears to be no question—that no pains or expenditure should be grudged in the endeavour to ascertain the facts upon which depend the continuance and transmission of the disease. It hardly appears, however, that for this purpose it would be necessary to establish centres of research in several localities. It is, of course, not essential that the scientists who are engaged in

this inquiry should have much special Indian experience, and it is believed that the Government have already recognised the desirability of enlisting in the investigation the best talents that are procurable in any country. But for carrying into effect preventive measures which science recommends, local influence and authority are needed as well as some knowledge of the country and people, and it seems doubtful whether success would be approached more nearly than at present by the employment of a novel form of departmental agency. It does not appear that an executive staff employed for the prevention of plague need be endowed with much scientific knowledge, for its duties would, after all, mainly consist in carrying certain rules into effect. Such a staff would, of course, consist very largely of Indians, and it would probably be within the power of the Government of this country to organize local agencies which would carry out pretty effectually the mandates of science if only the Government and the people could be assured that the mandates were final and rested upon exact knowledge.

Annexure 1.

Letter from Major E. C. Hare, I.M.S., Sanitary Commissioner, Eastern Bengal and Assam, to the Secretary to the Government of Eastern Bengal and Assam, General Department, No. 2061, dated Shillong, the 25th June, 1906.

In reply to your letter No. 6650-51 J., dated the 14th June, 1906, with enclosures, asking me to report on the scheme outlined by the Royal College of Physicians for dealing with the plague, I have the honour to say—

1. That in suggesting that officers of the Indian Medical Service and "Physicians brought out from England," should form a special corps for dealing with the epidemic, the committee appear to have overlooked the fact that no scheme can be of any practical value unless it makes use of the District Officer, who has been trained in the country and is experienced in the ways and habits of the people.

In India no compulsory measures are possible, and the District Officer, as the representative of Government is the only person who has any prestige or authority, and every detail of the operations must be carried out under his direction, if there is to be a chance of success.

2. With regard to the suggestions of the committee in clause III (b) and (c) that the services of educated native Medical Officers should be utilised to obviate the expense of increasing the cadre of the Indian Medical Service, or of specially importing physicians from England, I consider that Medical Officers of the Civil or Military Assistant Surgeon class might with advantage be utilized to act as Medical advisers. Previous special training in the habits of micro-organisms, and in the methods of dealing with them would, however, be necessary, and if such a course of training could not be found in India it would be necessary to send them to England. I think, however, that training in India would be a great advantage, because it would not only obviate delay and expense, but teaching would be given them by men who had both a practical and a laboratory knowledge of the conditions of bacterial life in the Tropics.

3. It must, I think, be admitted that our theoretical knowledge of plague at the present time is much in advance of our power of applying that knowledge, and that our present methods of dealing with the epidemic might be improved upon; but I doubt if the scheme proposed by the Royal College of Physicians would be more successful than any other of the proposals which have hitherto been suggested.

Annexure 2.

Letter from Colonel David Wilkie, M.B., I.M.S., Inspector-General of Civil Hospitals, Eastern Bengal and Assam, to the Secretary to the Government of Eastern Bengal and Assam, General Department, No. 3747, dated Shillong, the 26th June, 1906.

In reply to your letter No. 6650-51 J., dated the 14th June, 1906, I have the honour to advise as follows:—

2. The scheme reads well as a whole, but promises to be very expensive.

3. As to I (a) I make the following remarks. From the data given it is not possible to say whether the Government of India will be able to afford the required number of Indian Medical Service officers. The "physicians brought out from England" for the special Punjab campaign which ended so dramatically in the disaster of Mulkowal were not all, I understand, of a desirable stamp. Even at great expense it will therefore probably be difficult to get men perfectly suitable in conduct and professional efficiency; and when they have been obtained, they will at first be useless for their special purpose, because quite ignorant of India and of the languages, ways, feelings, and modes of thought of the people of India, without the advantage of the gradual breaking in which members of the services have undergone. This will hamper their dealings also with the

“large staff of male and female native medical assistants,” who have their own idiosyncrasies of feeling and their own ideas of what is due to them. Such of these native medical assistants as are not in the regular Government service will expect high pay for unusually hard and dangerous work; and Government is not likely to have a large number of its own men to spare. If it enlarges its cadres permanently for the purpose, the result will be great expense. No details are given as to the nature of the special headquarters department. But care should be taken that no man from England with an axe of his own to grind shall attain in India, or in a province, a position in any way independent of, or other than subordinate to, the Sanitary Commissioner with the Government of India, or of the province.

4. The division of work proposed in I (b) seems to be admirable.

5. I support “the utilization of educated natives of India in a sanitary service,” as suggested in III (b). But I doubt whether educated natives of India other than medical men would be forthcoming in sufficient numbers for plague work, even if well paid. They fear the disease too much. Nor would the native private practitioner be very anxious to join; and if he did, he would, as I have said, expect very high pay. The cadres of assistant surgeons and hospital assistants might be expanded to the necessary extent, if Government can see its way to assume the burden of the expense. This again would probably necessitate some addition to the numbers of the Indian Medical Service. A regular corps of trained menials would be another necessary part of the scheme. But the matter is one for the Sanitary Commissioner with the Government of India to work out.

6. I think, as regards III (c), that the bulk of the men should be trained in India both as to town and village sanitation and as to laboratory work. Scholarships in India would only be required for men that were not already medical men and employés of Government. But I contemplate, by preference, a sanitary service of which the two middle grades shall be assistant surgeons and hospital assistants. Deputation to England, or any other country offering the necessary facilities, at Government expense or with a scholarship, might, with rare exceptions, be confined to picked members of these two corps, who have shown special aptitude for the work, are likely to profit by work abroad, and are suitable for promotion beyond the common.

Enclosure 11 in No. 2.

Letter from W. N. Maw, Esq., I.C.S., Second Secretary to the Chief Commissioner, Central Provinces, to the Secretary to the Government of India, Home Department, No. 601/VI—25-F, dated Nagpur, the 17th September, 1906.

(Extract.)

I am directed to acknowledge the receipt of Mr. Fergusson's letter, No. 878, dated the 9th May, 1906, and of its enclosures, on the subject of a scheme formulated by the Royal College of Physicians, for the creation of a special medical and sanitary organisation for dealing with plague in selected localities. After consulting those local officers in the Provinces who have had most experience in dealing with plague epidemics, the Chief Commissioner desires me to submit the following reply to the points raised by the Government of India. The opinions submitted by local officers on the proposals formulated in paragraph 7 of the memorandum of the Royal College of Physicians, are unanimously adverse to the scheme. It is urged that its feasibility depends on the existence of a sympathy and good-will on the part of the native community which cannot be taken for granted, and for which it is hardly possible even to hope; that the work of preventing and combating an outbreak of plague is essentially of an executive nature, needing no special skill nor scientific knowledge, and that it can only be entrusted to the ordinary executive staff; and that physicians freshly arrived from England, and unacquainted with the language, customs, and prejudices of the people, would be unable to achieve any practical results so far as the executive side of the scheme is concerned. Mr. Craddock, Commissioner of Nagpur, who has had special experience in dealing with plague, considers that it is impossible to work on other lines than those on which the present policy of Government is laid. He points out that of the two aspects of plague work, viz., scientific investigation and executive prevention, the former is capable of expansion and can—and indeed must—be entrusted to a special staff; but that the real problem for solution in connection with the latter is the general improvement of sanitary conditions throughout the country, and that this is a task which cannot be

carried through precipitately, but must proceed gradually, hand in hand with the advance of popular enlightenment and education. If reform is needed, it lies in the improvement and strengthening of the existing executive staff, who from their experience and local knowledge are best qualified to cope with the special difficulties of the situation, rather than in the adoption of such a scheme as that suggested by the Royal College of Physicians. With the views expressed above the Chief Commissioner is in substantial agreement. He considers that the appointment of the special staff suggested would be apt to arouse alarm and suspicion, and that its efforts would meet with opposition instead of sympathy. He would accordingly deprecate the introduction of any scheme on the lines of that formulated in the memorandum. The Chief Commissioner finds somewhat more difficulty in dealing with the suggestion made in paragraphs 1 (iii) (b) of Mr. Fergusson's letter for the utilization of the native of India in a sanitary service for work in plague-infected areas in India. From the theoretical point of view the organization of such a service, not merely for work in connection with plague but for general sanitary work, has much to commend it, and the opinions received have not on the whole been adverse to the proposal. Consistently, however, with the views already expressed, the Chief Commissioner is unable to hold that the improvement of sanitary conditions can be entrusted to any but executive officers. The country is not, in Mr. Ismay's opinion, ripe for a sanitary service, the members of which, working in the villages without the support of any executive officers, would in all probability fail to make any impression on the sanitary conditions already prevailing, and would merely be a constant source of discontent. Their measures would be opposed by the people, and the friction which would arise would effectually prevent the accomplishment of any really good or useful work. As regards the suggestion made in paragraph 1 (iii) (c) of Mr. Fergusson's letter for the grant of scholarships to natives of India to enable them to proceed to England and fit themselves for employment as plague health officers, if it be decided that a special sanitary service is impracticable, the object of these scholarships disappears. If on the other hand the object of the scholarships were to improve the existing medical service, much might be said in favour of the proposal. Even then, however, Mr. Ismay would be inclined to hold that the improvement contemplated could be more easily and more economically secured by making arrangements for improved facilities in India for medical and sanitary instruction.

Enclosure 12 in No. 2.

Letter from the Honourable Mr. S. M. Fraser, C.I.E., Resident in Mysore, to the Secretary to the Government of India, Home Department. No. 950-P, Enclosure 2, dated Bangalore, the 28th August, 1906.

(Extract.)

I have the honour to acknowledge the receipt of Mr. Fergusson's letter, No. 889, dated the 9th May, 1906, on the subject of a scheme formulated by the Royal College of Physicians for the creation of a special medical and sanitary organization for dealing with plague in selected localities. In the Civil and Military Station of Bangalore there is a special plague staff consisting of three military assistant surgeons and an adequate staff at a cost of about Rs. 2,300 per mensem. There is also a separate sanitary staff, maintained by the local municipality, consisting of a health officer (the present incumbent is an M.B., C.M. and D.P.H.) and qualified subordinates for attending to the general sanitary requirements of the station. The working of these two branches is co-ordinated and supervised by the Residency surgeon, who is an officer of the Indian Medical Service. The existing organization devotes attention to the three sections of work, viz., intelligence, sanitary, and bacteriological, recommended in paragraph 1 (b) of the letter under acknowledgment. The bacteriological work done is practically confined to the analysis of water and milk supplied to the station, specimens of blood sent from hospitals, and rats suspected of being plague-infected. Speaking generally, the ordinary

superior medical staff of Bangalore, viz., the Residency surgeon, assisted by the municipal health officer and his subordinates, appears sufficient to deal with plague in its recent dimensions, which it is hoped will be still further reduced by the rat-killing measures now in operation. In these circumstances it appears to me that no need exists here for increasing the staff of officers belonging to the Indian Medical Service, or of specially importing physicians from England, and consequently the necessity for a scheme such as that formulated by the Royal College of Physicians, however desirable it may be for rural areas, is not felt in Bangalore.

Enclosure 13 in No. 2.

Letter from R. C. H. Moss King, Esq., I.C.S., Secretary to the Chief Commissioner of Coorg, to the Secretary to the Government of India, Home Department. No. 877, dated Bangalore, the 12th June, 1906.

(Extract).

I am directed to acknowledge the receipt of Mr. Fergusson's letter, No. 879, dated the 9th May, 1906, regarding a scheme formulated by the Royal College of Physicians for the creation of a special medical and sanitary organisation for dealing with plague in selected localities. The Province of Coorg was visited by plague only twice, namely, in the years 1903 and 1904, when there occurred 128 attacks and 57 deaths. The epidemic was then successfully dealt with by the Commissioner and Civil Surgeon, with the aid of the ordinary Municipal and Revenue officials, as detailed in the report submitted with my letter, No. 1,131, dated the 30th August, 1905. In view of the special circumstances of this isolated Province as stated in paragraph 2 of my letter cited above, it appears unnecessary to consider the necessity of providing any special medical and sanitary organisation such as is referred to in the letter under reply.

Enclosure 14 in No. 2.

Letter from The Honourable Lieutenant-Colonel Sir Harold Deane, K.C.S.I., Agent to the Governor-General and Chief Commissioner, North-West Frontier Province, to the Under Secretary to the Government of India, Home Department No. 1283-G., dated Nathia Gali, the 30th June 1906.

(Extract.)

I have the honour to acknowledge the receipt of your letter No. 881, dated 9th May 1906, in which an expression of my opinion is invited upon certain points raised in the despatch from the Secretary of State No. 138 (Revenue), dated 18th August, 1905, regarding the measures to be adopted for dealing with plague. Except for a few sporadic cases which have appeared from time to time, plague has never established itself in the North-West Frontier Province, either in an epidemic or endemic form. I have, therefore, no provincial experience to enable me to criticise the proposals put forward in your letter. At the same time in view of the possibility of a visitation of plague, a policy has been formulated, such as is suited to the peculiar conditions of the frontier and the character of its inhabitants. This policy is set forth in the memorandum attached to the letter No. 1856-G., dated 15th December, 1904, to the address of all Deputy Commissioners on the frontier. From this it will be seen that it has been thought advisable to abstain from all compulsion of any kind except (i) that all plague cases and deaths from plague must be reported, and (ii) that in municipal towns, strangers and friendless persons falling sick of plague in serais must be removed to public hospitals.

For the rest all measures of precaution, and measures of prevention, such as disinfection and the evacuation of villages, must be left to the discretion of the people themselves. On a late occasion when plague appeared in villages on the Hazara bank of the Indus, the Pathan villagers in Yusufzai at once refused to allow strangers in their villages, a practical step against introduction of plague into them. At the same time, should the people be wise enough to wish for help in such measures, the administration will have an agency ready to render the necessary assistance. Such being the policy adopted by this administration, it remains for me to offer an opinion as to the extent to which the proposals put forward in your letter would conduce to the successful working of this policy. As regards I (a) and (b)—I don't think that a special plague service, such as is proposed, would work well in this province. It is essential that the plague staff generally should consist of officers and subordinates acquainted with frontier conditions, who should be under the control of the Administrative Medical Officer of the North-West Frontier Province, who has the local expert knowledge necessary. On the frontier grave political considerations must necessarily be involved in dealing with a plague epidemic, and it is not desirable that a central plague department should have the control of the measures for dealing with it. For purposes of intelligence and sanitary work, should the people show themselves willing to adopt disinfection and similar measures, it would doubtless be necessary to increase the staff of officers and subordinates under the Administrative Medical Officer. But I am strongly of opinion that the general control should remain in the hands of the local administration. As regards the bacteriological work, I admit that the proper facilities for such work do not exist in this province, and that it would be well that bacteriological references from this province should be dealt with by a branch at headquarters, if such be established, or failing that by the officers of the Punjab entrusted with this work. As regards III (b), *viz.*, the proposal to utilise educated natives in a sanitary service for work in plague-infected areas, I do not think that there are many educated natives of sufficient social standing in this province who would readily join such a service. To import educated natives from other provinces for this work would be to court friction and to set the people against such sanitary measures, as they might be persuaded to adopt under more familiar guidance. We must trust here to the spontaneous efforts of the leading men, who, for the most part, have the good sense to understand the advantages of sanitary measures. To attempt to enrol them in a sanitary service would be to deprive them of that spontaneity of action, which can alone guarantee whole-hearted work. As regards III (c), *viz.*, the proposal to grant scholarships to such natives of India as have the necessary medical training to enable them to proceed to England and fit themselves as plague health officers, I consider the suggestion sound although the cost involved would doubtless be considerable. It would undoubtedly be a great advantage to the Administrative Medical Officer of this province to have at his disposal in the event of an outbreak of plague a number of Assistant Surgeons, who had been specially trained as plague health officers. But the greatest care would be required in the selection of scholars, with a view to obtaining men not only of sufficient intellectual capacity but of good social standing and conspicuous respectability, who might be trusted when qualified to shun the malpractices which have made plague measures so bitterly unpopular in many parts of Northern India. In the case generally of this province the people who are not devoid of the instinct of self-preservation will, if left alone, certainly apply for assistance if they are threatened with an outbreak of plague. Such assistance, to be effectual, must be worked through the communities and leading men without the introduction of subordinate native officials. In the large city of Peshawar, where endeavours to induce the people to agree to a definite line of action failed, the few cases introduced from Rawalpindi were at once traced by the people of the city and removed by them to the hospital provided for plague patients—and a large number of people who fled from Rawalpindi to Peshawar to avoid the plague found local feeling so strong against their presence that they all returned to the Punjab.

Enclosure 15 in No. 2.

Letter from the Honourable Mr. A. L. P. Tucker, C. I. E., Officiating Agent to the Governor-General and Chief Commissioner in Baluchistan, to the Secretary to the Government of India, Home Department, No. 4288, dated Quetta, the 25th September, 1906.

With reference to the letter from the Government of India in the Home Department No. 882, dated the 9th May, 1906, regarding the creation of a special medical and sanitary organization for dealing with plague, I have the honour to say that Baluchistan has hitherto enjoyed immunity from plague and that I am not, in consequence, able to submit to the Government of India any views on the points under reference to which the weight of experience can be attached. In the event of the establishment of the disease in Baluchistan we should certainly require an organization for dealing with it such as that mentioned in clause 1, sections (a) and (b) of the letter to which I am replying. We could not, however, except in one or two localities, employ male and female native medical assistants other than Muhammadans. We could only in the same way use educated natives of India in a sanitary service for work in plague-infected areas if they were Muhammadans and were acquainted with the languages of the country: possibly at Quetta and at one or two other places an exception might be made. The grant of scholarships to qualified natives of India to enable them to proceed to England and fit themselves for ultimate employment as plague health officers in India is a measure which I support. No instructions explanatory of plague policy have been issued by myself or by my predecessors as there has been no occasion for them.

Enclosure No 16 in No. 2.

Letter from the Honourable Major H. Daly, C.S.I., C.I.E., Agent to the Governor-General in Central India, to the Secretary to the Government of India, Home Department, No. 3961-D, dated the 26th December, 1906.

(Extract).

I HAVE the honour to reply to your letter, No. 883, dated the 9th May, 1906, which forwarded for my information and for report upon certain points a copy of a despatch from the Secretary of State, 138 (Revenue), dated the 18th August, 1905, with enclosure, relating to plague. As regards the practicability of the scheme formulated by the Royal College of Physicians, it will, I think, be sufficient for me to observe that no such scheme could in present circumstances be conveniently introduced, at any rate in its entirety, in such an area as Central India. Speaking generally, the Durbars are without the staff which would be required for the initiation of such a scheme; their finances, with one or two exceptions, would not admit of the expenditure which the scheme would involve; and it would in any case be most undesirable for political reasons, to move the Durbars to undertake such expenditure unless and until the scheme has been given a successful trial in British India. Incidentally I may remark that it seems to me to be doubtful whether the institution of a highly trained Intelligence Branch is really necessary or desirable. It is probable that such a staff would not be in a position to obtain better information than the Magistrate or other local authority, while the class of subordinate at present employed upon inspection duty is probably just as likely to obtain information as to the course of an outbreak. A special sanitary staff, which could be employed to reinforce the existing staff at the scene of an outbreak, might no doubt prove valuable; but the charges for such a staff would in my opinion certainly have to be defrayed from Imperial revenues. As regards head III., I may observe (a) that the treatment of rats offers special difficulties in areas where the population are averse to the destruction of animal life in any circumstances. This has been well exemplified during the recent outbreak at Indore. In the Residency Bazaar and in the Indore City rewards were offered by the local authorities of one anna for a

dead rat and two annas for a live rat; as soon as this became known, the banias and others, many of whom are Jains, at once offered rewards of three annas for a live rat, and released all rats as soon as they were brought to them; (b) I have recently had the advantage of considering in communication with Colonel Leslie, the Sanitary Commissioner with the Government of India, who paid a visit to Indore at my request, the feasibility of introducing improved sanitary arrangements in the Indore Residency Bazaar, and I hope shortly to arrange for the employment of an expert to draw up a scheme. It is by no means improbable that the Indore Darbar, who also consulted Colonel Leslie during his recent visit, may take advantage of the visit of this expert to devise a similar scheme for the improvement of sanitation in the city. Should a practical scheme for the Residency Bazaars be produced, I propose to invite the Government of India to assist me by placing the necessary funds at my disposal. The employment of educated natives of India on sanitary service would be conveniently considered, so far as local needs are concerned, in connection with such a scheme. But here again little or nothing could be done without assistance from Imperial funds; (c) the suggestion to grant scholarships to natives of India, who have received the requisite medical training, in order to enable them to proceed to England for further study appears, if I may venture to say so, to go somewhat beyond the present needs of the case. A month or two of practical work in an infected area under the supervision of a good medical officer would, as it seems to me, be more likely to provide the practical training which is desirable than any course of study in Europe. Major J. R. Roberts, the Administrative Medical Officer in Central India,

* I do not forward copies of the reports received from the other Agency Surgeons as they contain nothing helpful.

was consulted upon receipt of your letter and I now enclose a copy of his reply, together with a copy of the report* furnished by Captain J. B. Grant, the only other medical officer now serving in Central India who has had any extensive experience of plague. Captain Grant's remarks will be read with interest. The results of the campaign instituted in 1897 by Lieutenant-Colonel A. M. Crofts, then Medical Officer in Gwalior, in connection with the outbreak of plague at Khandraoni village in that State, are well known to the Government of India, as his report, dated the 8th May, 1897 was duly submitted to them at the time. I may mention here that the only Agency in Central India which (with the exception of the Datia State) had so far been practically free from plague is that of Bundelkhand. It may be of interest to mention that some four years ago several cases of plague occurred in a house in Tikamgarh, the capital of the Orchha State. The Maharaja, of his own motion, destroyed by fire the house in which the cases occurred, together with three or four other houses in the immediate neighbourhood, and the whole of their contents (paying liberal compensation). No further case of plague occurred, and Tikamgarh has since remained entirely free from the disease. Since Major Roberts wrote his letter of the 23rd July, there has been a further severe outbreak of plague at Indore, and the total number of seizures and deaths in Central India during the four months, August to November inclusive, were 11,761 and 8,889 respectively. This to some extent vitiates Major Roberts's hopeful statement that the epidemics are being held in check. Nevertheless the figures for 1906 are very considerably lower than those for 1903 and 1904. I append a chart† which indicates the seizures and deaths during the past four years. In connection with the low figures for 1905 it may be of interest to remark that in that year there was a severe and widespread epidemic of small-pox. The fact that plague has not spread more widely in Central India is, in my opinion, to be ascribed—*firstly*, to the circumstance that the people have now learnt by sad experience the wisdom of rapidly vacating infected areas; and, *secondly*, to the species of quarantine which is maintained by the Darbars. Their system is well understood and leads to no serious complaints. The general results of experience in Central India supports Captain Grant's view that disinfection alone is of little or no practical use. The difficulties in the way of thorough disinfection are enormous. I may mention that, when recently proceeding to Europe on leave, I had the advantage of travelling with Doctor W. J. R. Simpson, one of the Signatories of the Memorandum of

† Not printed.

the Royal College of Physicians, whose acquaintance I had already enjoyed at Calcutta. I had some very interesting conversations on the subject of plague with Doctor Simpson, whose view is that the true remedy lies in endeavouring to improve the ordinary houses in cities and bazaars where plague generally takes a hold by giving them more ventilation and by admitting the sun to them. This is obviously a matter of the greatest difficulty, and it is a measure which could only be carried out very gradually and at great expense. Doctor Simpson kindly offered to endeavour to make practical suggestions on the point if I would supply him with plans and sketches of typical buildings in infected areas in Central India. I have accordingly sent Doctor Simpson some plans of typical buildings from the Indore Bazaar, and the investigations necessary for the preparation of these plans showed how crowded and insanitary the ordinary tenements are and how difficult it will be to improve them. One serious obstacle in the way of improvement is that, in many parts of Central India, the only form of roofing within the means of the poorer classes consists of the common curved country tiles, roofs formed of which give ready shelter to rats. The local clay is often not of a type to admit of the construction of the flat tiles in which rats could find no shelter. I have discussed the whole subject with His Highness the Maharaja Scindia, who, as the Government of India are aware, is deeply interested in sanitary improvements, and His Highness is also preparing for me some plans of typical buildings in Gwalior which I propose to forward to Doctor Simpson. At the Maharaja's request Colonel Leslie, Sanitary Commissioner, has just visited Gwalior. The Maharaja had heard with much interest of the measures, which are being taken elsewhere in the way of constructing model villages on sanitary lines. This is a measure to which attention might doubtless be very profitably devoted, and, in connection with the scheme for the improved sanitation of the Indore Residency Bazaar, I shall perhaps move the Government of India to place me in a position to make experiments in this direction also.

Annexure 1.

Letter from Major J. R. Roberts, M.B., I.M.S., Administrative Medical Officer in Central India, to the First Assistant to the Agent to the Governor-General in Central India, No. 650, dated the 23rd July, 1906.

I have the honour, in reply to your No. 1764-D/230-6 of 31st May, 1906, to forward reports on the Memorandum on Plague of the Royal College of Physicians, London, by the Agency Surgeons in Central India. I presume that it is unnecessary on my part to criticise the suggestions made in the memorandum as one has to consider not so much these points, as their applicability to the Central India States. I do not advise any further interference in the measures adopted by the various Darbars as the figures of plague for the last three years show that the epidemics are being held in check, and it would be an unnecessary counsel of perfection were we to suggest to the States a further increase in their endeavours. During 1903 there were registered 26,169 deaths from plague, in 1904 26,545, and in 1905, 2,855. The figures speak for themselves.

Annexure 2.

Letter from Captain J. B. Grant, I.M.S., Agency Surgeon in Bhopal, to the Administrative Medical Officer in Central India, No. 451, dated 7th June, 1906.

In compliance with your No. 481, of the 1st instant, asking for an early report on the proposals of the Royal College of Physicians for combating plague, I have the honour to reply as follows :—

I have had practical experience of plague, more or less for nine years, and as, with the exception of Lieutenant-Colonel Crofts, late Residency Surgeon in Gwalior, I was the first in India to deal successfully with an epidemic, I venture to say that I may speak with some authority.

Before criticising the proposals of the Royal College of Physicians, I shall relate my own experience and conclusions drawn therefrom, as well as from observing the measures adopted in dealing with plague epidemics elsewhere.

In 1897, I was sent to Sirohi in Rajputana, where plague had broken out in four villages, one of which had a population of about 10,000. All the villages were completely evacuated, and the disease was stamped out in about four months (for details see my report, printed with letter No. 2346-G., dated 23rd June, 1898, from the Agent to the Governor General in Rajputana).

When I went to Sirohi, plague had broken out in the Punjab, only two villages being then infected. Evacuation was not enforced there, but segregation of sick and contacts, with disinfection. Result—*Plague continuous since then, and spread all over the Punjab.* It has been suggested that the conditions in Rajputana were not favourable to the extension of plague: the history of the 1836 (Pali) epidemic fully disproves that.

Many Bombay Baniyas have their families in Rajputana, and when plague becomes severe in Bombay these leave for their homes, carrying infection with them. To combat that, quarantine (to give it its proper name) was established at railway stations, and all passengers from infected areas detained for ten days. During 1898 and 1899 these measures were strictly enforced, with the result that, although several died in the quarantine camps, not a single indigenous case of plague occurred in Rajputana. In 1900, the orders of the Government of India on the subject were so emphatic, that the Agent to the Governor-General could no longer retain the quarantine camps: *they were given up and plague came in.* I left Rajputana in 1900, and cannot say definitely what happened after, but the mortality from plague is still low in that province, and I understand that the Durbars now protect themselves by quarantine, using the euphemism "Observation Camps."

Briefly my experience is—

- | | | | | | |
|-------------------------------|-----|-----|-----|-----|-------------|
| (1) To prevent plague | ... | ... | ... | ... | Quarantine. |
| (2) After plague has occurred | ... | ... | ... | ... | Evacuation. |

I would now add to the above a third, namely, inoculation with plague prophylactic, which, in my opinion, has a marked protective power.

I have referred to the work of Lieutenant-Colonel Crofts, I.M.S., who was the first in India to deal successfully with an outbreak of plague. He burnt the villages, or the infected parts of them. I was present when he gave evidence before the Plague Commission. His measures were considered too drastic and expensive. Were they so? Consider what he saved Gwalior, and what the Punjab would have been saved if similar measures had been adopted with the two villages infected in 1897 . . . millions of men and money.

During the last few years, reams have been written about plague, and the suggestions for dealing with it are many. I say, without fear of contradiction, that no measures have had the slightest effect in preventing or modifying a plague epidemic than those enumerated, namely, (1) Quarantine; (2) Evacuation of villages; (3) Inoculation, and they are here given in the order of their value.

Much is said about sanitation, and as far as water-borne diseases are concerned, something has been done in India. But plague does not depend on the water-supply nor on the condition of the streets and lanes, but on the condition of the houses in which the people live. These are as they were in the time of Akbar. There was plague in his time, and it was combated by the people protecting themselves and not allowing outsiders to come in to their villages or districts. When their villages became infected, they fled from them, that is to say, the measures effective then were (1) Quarantine, (2) Evacuation.

Regarding the proposals of the Royal College of Physicians, they are excellent for a country advanced in modern civilization, but in India, for practical purposes, they are utterly and absolutely useless.

To review them briefly:—

SECTION A.

- (1) "To obtain information as early as possible of cases of plague in human beings and in animals."

What can a special scientific staff do in collecting information, when well over 90 per cent. of the population of India do all they can to conceal cases of plague? Regarding animals, if plague once gets in among rats, it goes on among them, and extends to human beings. Nothing can stop it. It is hard to see what use early information would be, except for early evacuation by human beings of that locality. But the natives of India will not evacuate early.

- (2) "To inquire into and report on the circumstances under which every plague case has occurred and the method by which the house becomes infected or maintains its infection."

There is no doubt about the method by which plague first occurs. It is carried into a locality by human beings, either suffering from the disease, or with it in the incubation period. It is carried from house to house by rats.

- (3) "To record information obtained."

The native of India has a genius for giving false information, and of what use can such be?

SECTION B.

The duties of this section will be—

- (1) "To disinfect the house or hut when death or recovery has taken place."

If the Royal College of Physicians had any experience of plague in India, they would know that it is most dangerous to the other members of the family to leave them in a house or hut till recovery has taken place, and a plague patient cannot be left alone. Besides that, once plague is established in a town or village, disinfection (without evacuation) is worse than useless, for it gives a false sense of security. Again and again have I seen plague recur in houses in Bombay which had been thoroughly disinfected. That was in 1897, before the rôle of the rat and his fleas was understood. The only circumstances in which disinfection is really of use is for imported cases *before rats have become infected.* During the last two years, at different times, about half-a-dozen cases of plague occurred in Sehore among arrivals from plague-infected areas. By good luck, we got to hear of them (not reported by parties concerned) and I think within three days of the

onset. In each case, all the inmates were sent to camp, the houses thoroughly disinfected. No dead rats were found. Had they not been disinfected, it is highly probable that some material would have been left behind from which rats would be infected. Had that been so, there would have been a general epidemic of plague in Sehore, as was the case three years ago.

(2) "To destroy rats generally by regular and systematic methods."

Excellent, but does it require experts in sanitary science to do that?

(3) "To carry out general administrative and prophylactic measures."

What can be done when 95 per cent. of the population live in huts with one-tenth to one-twentieth of the cubic space necessary, are filthy in their surroundings and habits? During the cold season every hole and crevice in their little huts is stuffed up.

SECTION C.

(1) "Diagnosis of doubtful cases."

I presume by this is meant diagnosis by microscopic examination. How often will a native of India allow a puncture? If he suspects plague he certainly will not.

(2) "Bacteriological examination of rats to see if 'plague infected.'"

It is useful to destroy rats before plague infected, as then there will be fewer carriers and disseminators of disease. But once rats become infected, it spreads to human beings, and there is only too little room for doubt about diagnosis. I fail to see what useful practical purpose this would serve.

(3) "Such bacteriological work as may be suggested from headquarters."

This is vague in the extreme.

The plague prophylactic is of value. It does not give protection universally. Still less will the population universally avail themselves of it. But by all means let bacteriologists work on these lines, with the object of discovering something still more useful.

I do not think it necessary to go further into detail. All that the sanitary service as proposed can do will be to give advice, which the Oriental will receive with his usual politeness, but will not act on it. India now has more expert advice than she makes use of. Not only medical officers, but all district officers; in fact, every intelligent European is capable of giving advice. But what use is it to advise a village to be cleaned when there is no conservancy establishment to carry it out, apart from the fact that the villager does not consider it of any good.

There are two ways by which plague may be dealt with successfully:—

(1) By modern methods:

For these to be of use, India will have to be made sanitary, which means that every town, village, and practically every house in the Empire has to be rebuilt. Even then, the natives of India will have to be educated up to *using*, and not *excluding* light and air. That will take time: how long I do not venture to predict, but I know that the East will not be hustled. Of course in all my remarks, I exclude Indians who are really *modern* European in their modes of living, but these form only a fractional percentage, which may be disregarded among 300 millions.

(2) India now being (with the exception of public thoroughfares, and in some few cases, of water supply) in the same sanitary condition as it was during the Moghal Emperors, employs the measures which were found effective in dealing with plague during that period.

Enclosure 17 in No. 2.

Letter from the Honourable Mr. E. G. Colvin, I.C.S., C.S.I., Agent to the Governor-General, Rajputana, and Chief Commissioner, Ajmer-Merwara, to H. B. Risley, Esq., I.C.S., C.S.I., Secretary to the Government of India, Home Department. No. 223, dated Abu, the 10th July, 1906.

(Extract).

I have the honour to acknowledge the receipt of letter, No. 884, dated the 9th May, 1906, from the Government of India in the Home Department, in which my opinion is invited on a scheme formulated by the Royal College of Physicians for the creation of a special medical and sanitary organization for dealing with plague in India. The Royal College of Physicians has perhaps not appreciated fully the special difficulties which are met with in India in dealing with an epidemic of this kind, arising not only from the apathy and inertia of the people themselves but from their active resentment against any interference with their domestic arrangements. The medical authorities in India have always been ready enough to conduct a campaign against plague, and they were at first strongly supported by the executive and by the Government of India. The result was concealment of cases, opposition, frequent riots of a very serious character and no real progress made against the epidemic. Eventually a policy of "laissez faire" and of leaving the people to learn by

experience was almost forced upon the Government of India, and it certainly seems to be quite as successful as the other treatment, for plague appears to be really on the decrease. My own experience is that people are learning that evacuation is the best remedy and I have heard now of several instances where whole vilages have adopted this plan of their own accord. There is reason to hope that it will soon become general, and control of the disease will then be greatly facilitated, as infection will be communicated by railway only, where fairly effective precautions can be and in fact are enforced. The connection of the disease with rat mortality is also gradually coming to be understood. So far as the scheme propounded by the Royal College of Physicians aims at a reversion to the old policy of interference with the prejudices of the people in the actual treatment of cases, I am not in favour of it. In other words Section B of the Medical Department proposed by them is not required. No real progress can be made against the disease without the support and co-operation of the people themselves, and where this is forthcoming, the existing medical establishments of the Government of India are ready and willing and adequate to perform the duty. The introduction of a number of physicians from England, unacquainted with the language, the customs and prejudices of the people, is likely to be productive of more harm than good. There might be also administrative difficulties in co-ordinating the proposed organisation with the existing medical administrative system of India. So far, however, as the scheme aims at the collection of more complete information and the bacteriological study of the disease, the assistance offered might be of the greatest benefit and should in my opinion be welcomed. For such purposes, and for the freer dissemination among their compatriots of more enlightened ideas on the subject of sanitary science and self protection, I see no objection to the proposals made in paragraph III (b) and (c) of the letter under reply. If, however, the facilities which exist in India for the bacteriological study of the disease are sufficient, it would be far better that the natives of India who are granted the scholarships should prosecute their studies in this country rather than proceed to England for the purpose.

Enclosure No. 18 in No. 2.

Letter from Sir Francis Younghusband, K.C.I.E., Resident in Kashmir, to the Secretary to the Government of India, Home Department, No. 5443, dated the 10th/16th November, 1906.

With reference to Home Department letter, No. 885, dated the 9th May, 1906, forwarding a copy of a despatch from the Secretary of State, No. 138 (Revenue), dated the 18th August, 1905 (and of its enclosure), I have the honour to forward, for the information of the Government of India, copies of the reports of Lieutenant-Colonel W. R. Edwards, M.D., C.M.G., I.M.S., Doctor A. Neve, Mission Hospital, Srinagar, and Dr. A. Mitra, Chief Medical Officer, Kashmir. The former officer has 20 years' service in India and the two latter have been engaged for over 20 years in medical work in Kashmir, so that the opinions of these officers are deserving of considerable attention.

Annexure 1.

Comments by Lieutenant-Colonel W. R. Edwards, M.D., C.M.G., I.M.S., on a scheme for the prevention of plague which has been submitted by the Royal College of Physicians.

I may begin by saying that I agree with the notes sent by Rai Bahadur Dr. A. Mitra. For the following reasons I am totally averse to the scheme now submitted by the Royal College of Physicians—

1. It is an extremely expensive scheme.
2. It will fail for the same reason that our original efforts to deal with plague have failed.
3. It involves bringing out a number of men from England. Such importations have been tried and failed in the past and will fail again.
4. It proposes sending a number of natives of India to England for their education; this I consider for many reasons objectionable. }

5. It suggests disinfection by fumigation. This by most men who have had real experience, will be considered utterly impracticable and a great waste of money.
6. It does not take the feelings of the people of India into consideration.
7. It does not aim sufficiently at the education of the people of India in simple hygienic requirements. For the rest, it appears to me that there is little in this scheme which is original, and that little is futile.

If a scheme is required, and I think one is, I recommend—

- (i.) That a circular should be sent to all doctors in India, who have had practical and continuous experience in combating plague, asking each one to send up a complete scheme of his own.
- (ii.) A committee of the most experienced men should be chosen to examine these schemes and to award prizes for the three best. I venture to say that most of the schemes thus received will be more practicable than the one now submitted.
- (iii.) With these schemes before them, the committee should then draw up one, which before being submitted to the Government of India should be laid before the Congress of India. The Congress, as a body of men who are presumably devoted to the welfare of India and who are more intimately acquainted with the customs and prejudices of the people than we are, should be requested to express their opinion on the scheme before them.

If they approve of it, they should be asked to give their unreserved support, both practically and in writing. If not they should be asked to choose three of their number to consult with the above mentioned committee and to formulate a practical scheme which will be acceptable to the people of India.

I lay stress on this point, because I know that it is so absolutely essential for the success of any scheme that nothing should be left undone which may tend to remove the present hostile attitude of the people towards sanitary measures.

- (iv.) The Government of India should spend money freely in improving the research laboratories already in India. For instance, those in Bombay, Calcutta, Kasauli and Lahore. One or two of these should be made into first-class institutions, and capable of granting a really valuable Diploma of Public Health. They should be sufficiently well endowed to earn a European reputation, and to attract some of the best European professors to their chairs.
- (v.) Natives of India should be encouraged by the creation of well paid public health appointments to enter for the Indian D. P. H.
- (vi.) Officers of the Indian Medical Service showing any aptitude for original research should receive every possible encouragement. The Government of India should be quick to recognise and reward good work. This alone would cause an immense change for the better. I see no reason why one or more prizes should not be offered yearly for the best original research work done, after the manner of the Nobel prize.
- (vii.) Above all, knowledge must be diffused among the people. Not only the little knowledge we have of plague itself but more especially that of simple hygiene. To this end a prize should be offered for the best elementary book on hygiene, with special reference to plague and the infectious diseases. It must be suitable to the needs of people of India, and this book then should be used as a text-book in every school throughout India. The help of the Educational Department must be enlisted for this purpose.
- (viii.) The extermination of rats is, I fear, a hopeless task. Private individuals might, however, with the help of poison, traps, and cats do much to assist, and might at least succeed in keeping rats out of their houses. Hindus being averse to taking life will probably prefer to make use of the cat or possibly the mongoose.

One thing I am certain of, and that is, that unless the people of India understand and approve of our aims it is not of the least use trying to force sanitary measures on them.

Annexure 2.

Letter from Dr. Arthur Neve, F.R.C.S.E., Kashmir Mission Hospital, to the Residency Surgeon in Kashmir, dated the 9th June, 1906.

With regard to the plague memorandum of the Royal College of Physicians. I cordially agree with your reply to the memorandum. I do not consider that it is desirable to give scholarships to Indians for study in England. Nor do I consider that a separate department for combating plague is necessary. Officers of the Indian Medical Service should be encouraged to take the D.P.H., and I think the suggestion of Dr. A. Mitra is good, that there should be a special college for sanitary education in India, at Bombay or elsewhere, to which Indian assistant surgeons might be sent for practical training.

I lay great stress on the personal influence of European medical officers in India, and consider that this is much hindered by :—

- (1) The constant changes from place to place. In the Church Mission Society we practically spend our whole service in one district.

- (2) The administrative work which takes up a large proportion of the time of all so that most civil surgeons see little of the outpatients, &c., too much is left to subordinates; there is not enough personal contact with the people, and at a time when a man has the ripest experience he is altogether withdrawn for higher administrative work, and has no professional opportunities. There are some noble exceptions.

Annexure 3.

Memorandum by Rai Bahadur Doctor A. Mitra, Chief Medical Officer, Kashmir, dated Srinagar, 5th June, 1906.

1. I think that any active policy in the matter of plague repression which involves interference with the people is bound to fail.
2. The most important help which the State can give is to encourage evacuation of houses by grant of money as compensation and affording every facilities for temporary houses.
3. Disinfection of houses is a very difficult thing to do. Disinfection by chemicals and taking such measures as will expose all parts of a house to the desiccating influence of sun and air are perhaps all that can be done practically. But the result is always doubtful.
4. Extermination of rats is still more difficult.
5. In my opinion the duty of the State is not so much to combat plague when it is actually raging as to take measures which may prove of great use hereafter. These measures are chiefly to improve the dwelling houses of the people, specially of the poor. Such duties devolved principally on municipalities and district boards which should be helped by the State with grant-in-aid—
 - (1) Providing poor lodging houses based on sanitary principles.
 - (2) Framing and enforcing sanitary building regulations.
 - (3) If necessary giving money grant for improvement of existing houses. In my opinion the key to the solution of the plague problem is in the sanitary improvement of towns and villages.
6. It will be an undoubted advantage to train Indian Medical men in modern practical hygiene, and facilities for such study should be afforded in all medical colleges and schools. There should be special classes in them for bacteriology, practical hygiene, &c., under expert teachers, if necessary, brought from England. The universities in India should examine for and give the diploma of D.P.H., which should be made compulsory in case of all assistant surgeons, seeking Government employment. The money spent on the organization of thoroughly equipped D.P.H. classes in medical colleges in India will be far more usefully spent in that way than by giving scholarships to Indians for study of sanitary sciences in England. Such scholarships will be but few. To be of any practical good a good sound knowledge of hygiene should be disseminated among the practitioners throughout the country.

It is admitted that the general practitioners in England have done more to spread sound sanitary principles amongst the people than expert laboratory trained bacteriologists. These D.P.H. diplomas should be opened to general practitioners. All large municipalities and groups of small municipalities should appoint these Indian D.P.H. as health officers. This will form a nucleus of a future sanitary service in India.

Sanitation for India can surely be learnt in India if proper facilities are given. Sound training in bacteriology by expert teachers in well-equipped laboratories specially adapted for teaching purposes is much required.
7. The Royal College divides the works into three sections. The duties of sections A and B can, I think, be best done by one set of medical officers. The division may produce confusion.

Section C or bacteriologists may work in laboratories at the Presidency towns, where medical colleges exist.
8. The Civil Surgeon of a district with one or more Indians with Indian D.P.H., such as I have described above, can do all the duties mentioned in sections A and B, in the Royal College of Physicians' memorandum.

Enclosure 19 in No. 2.

Letter from Major C. H. Pritchard, I.A., Officiating Resident at Baroda, to the Under Secretary to the Government of India, Home Department, Sanitary—Plague, No. 7677, dated Baroda, the 25th May, 1906.

I have the honour to reply to your letter No. 886, dated the 9th May, 1906, regarding special plague measures recommended by the Royal College of Physicians in England.

2. The scheme described in I (a) and (b) for the creation of a special medical and sanitary organization for dealing with plague in selected localities is, undoubtedly, most excellent, and it may be deemed that at the present juncture an organization of the kind is absolutely imperative.

3. The key-note of the working of all the three sections mentioned in (b) should, I think, be to work with the full knowledge of, and, in full sympathy with, and through the natives themselves.

In any locality selected for the operations of the organization, before anything is done, a committee, composed of one influential, and, if possible, educated, member of *each* caste in the locality, should be formed, and nothing at all should be done without the knowledge of this native committee, and measures should be carried out through the native committee.

4. Everything should be done to assuage native prejudice, and to induce the natives themselves to understand the why and the wherefore and the value of all measures proposed. Money should be provided liberally, so that no native shall be put to any loss by measures enforced. Liberality in affording compensation immediately to any who suffer pecuniary loss by plague measures, is most imperatively necessary, if plague measures are to be successful.

The natives should be induced to undertake all measures themselves through the influence of their better educated and wiser caste people, and no plague measures should ever be attempted "by order."

5. The tendency of the Oriental to see some ulterior and malign motive in the most benignly intended action of executive authority, should always be borne in mind by those charged with directing plague measures.

6. The proposals made in III (b) and (c) of your letter under reply are admirable. It is by educating the natives of India to understand and to value hygiene and sanitation, and to carry out the necessary hygienic and sanitary measures themselves, that it may be possible to effectually combat plague in India.

No. 3.

Despatch from the Secretary of State for India to His Excellency the Right Honourable the Governor-General of India in Council, No. 118 (Revenue), dated the 26th July 1907.

MY LORD,

I have considered in Council the letter of Your Excellency's Government, No. 8 (Sanitary), dated the 2nd May, 1907, in which you reply to Mr. Brodrick's despatch of the 18th August, 1905, transmitting a "Memorandum on Plague," presented to him by the Royal College of Physicians in July of that year.

2. The memorandum, after dwelling on the grave dangers arising from an epidemic of the magnitude and duration of the plague in India, offered suggestions for the more effective prevention of the disease. It laid stress on the inadequacy of the sanitary service of India as at present organised, and recommended the creation of a special sanitary service for the purpose of dealing with plague. It recommended that a special service should be formed, consisting in the superior grades of officers of the Indian Medical Service and of physicians sent out from this country, and in the lower grades of natives of India, that it should be divided into an Intelligence Branch, an Administrative Branch, and a Laboratory Research Branch, and that its operations should be directed by a special Plague Department at headquarters. Among the preventive measures to which the Memorandum drew special attention were the destruction of rats and the disinfection of houses by means of a fumigatory apparatus.

3. My predecessor, in forwarding the Memorandum to Lord Curzon's Government for an expression of their views, stated that the deputation had

plague-affected districts, and the desirability of utilizing in the sanitary department to a greater extent than at present the services of properly trained natives of India. He desired that these matters should be fully examined, and expressed himself as ready to view favourably any increase in the cost of the sanitary services or of remedial measures that might prove to be desirable.

4. The importance of the questions thus remitted to you for investigation, and the urgency imported into the discussion by the continued progress of plague, have made me anxious to be placed in possession at the earliest possible date of the views of your Government, and I regret that greater expedition should not have been found practicable. You explain that the Memorandum reached you at a time when you were collecting evidence regarding the epidemiology of plague and the effect of various preventive measures, and that you decided to deal with its suggestions when the reports called for from Local Governments had been received. You refer to your Resolution of the 17th January, 1906, as containing the result of your examination of the reports and of the Memorandum, and as setting out your final conclusions as to the preventive measures best calculated to be successful under existing conditions in India. You desire that the Resolution should be taken as in effect a response to the recommendations in the Memorandum, so far as these relate to specific measures to be adopted by sanitary and medical officers when plague is imminent or present. You consider that there is a large measure of agreement between them and your own scheme of action, and that, though the measures approved by you do not go as far as the Memorandum recommends in the matter of compulsion, you have found by experience that in this respect it is necessary to pay most careful regard to the habits and sentiments of the general population. The importance of this aspect of plague measures is more fully explained in the Resolution of January, 1906. Your policy, in brief, is to rely for the present upon improved sanitation in towns, the co-operation of the people in the evacuation of villages, the destruction of rats, and such other measures as further investigations may suggest.

5. You go on to explain that, after issuing the Resolution, you again consulted the Local Governments as to the expediency of constituting a special organisation for dealing with plague, such as is recommended in the Memorandum, but that the reports of the Governments consulted are practically unanimous in condemning it as unsuited to Indian needs. Their reports are to the effect that suitable organisations for coping with the epidemic already exist, and that, although the executive may need strengthening in many cases it is not desirable to strengthen it by importing medical men from England, who, being unfamiliar with the language and customs of the people, would not be qualified to direct measures which might involve interference with religious usage, and provoke a popular outbreak. The reports frankly recognise that the general sanitary service requires development, and that in this respect the needs of the times can be met by the employment of natives of the country. You state that proposals to this end are at present under your consideration.

6. With reference to the suggestion in the Memorandum that the bacteriology of plague requires a larger staff of observers, you remark that a Plague Research Committee nominated, on your invitation, by the Royal Society and the Lister Institute have for two years past been investigating the causation of the disease, and that you have met promptly every demand which the Committee have made for more workers in this field of research. The work done by the Committee has been eminently fruitful in scientific results, and bears out your opinion that investigations of the kind, to be successful, require to be conducted by experts working in properly equipped laboratories. Measures have been taken, with my concurrence, to improve and strengthen, at considerable cost, the research laboratories of the country.

7. I desire to record my sense of the service which the Royal College of Physicians have rendered, and of the obligation which rests on the responsible authorities to exhaust every possible means of combating plague. The particular suggestions offered by them may, as you point out, have been anticipated by measures already in force in India, or else may be unsuited to local circumstances. Your prolonged experience in dealing with the disease, and your acquaintance with the habits and sentiments of the people, enable you to say with unrivalled

authority what is the best form of sanitary organization, what measures are expedient and can be enforced with good results, and at what point intervention becomes mischievous and dangerous. But the fact that plague has been fatally active in India over 11 years, that the number of victims exceeds 5½ millions, that its virulence is unabated and its progress uncontrolled, necessarily give rise to doubt as to whether everything that can be done has been done by the responsible authorities, and whether the last word of medical science and administrative skill has really been said. The Memorandum presented to Mr. Brodrick gave expression to this doubt. It has called from you and from the Local Governments reports which are highly valuable and informing, presenting as they do a clear idea of the sanitary services which you have at your command, and of the preventive and remedial measures which, as the result of much experience, commend themselves to your judgment.

8. I wish with you that your efforts were attended with a greater measure of success. The conclusion expressed in the Resolution of January, 1906, that "in the last resort all preventive measures depend for their success upon the hearty co-operation of the people themselves," while it defines the conditions of success, does not affect the obligation resting upon the governing powers of the country to endeavour to improve the quality of these measures, and win acceptance for them by skilled and considerate administration. I desire that no effort should be spared to arrest the spread of the disease by means acceptable to the people, and to give aid to the sufferers. I shall be glad to receive at an early date the proposals which are under your consideration for extending the general sanitary service by the increased employment of qualified natives of the country as medical officers of health and sanitary inspectors. Within reasonable limits of cost any proposals of the kind which you may submit will have my cordial support.

9. I propose to publish the papers for public information.

I have, &c.,

(Signed) JOHN MORLEY.