Public Works (1898) Department.

RAILWAY BRANCH.

G.O., No. 899 dy

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[Despatch Abstract.]

Bubonic Plague

Pros: Lt the Dept. Communicating for information & guidance, Resolution of the Govt of India circulating for adoption, subject to certain remarks, the rules framed by the Bombay Plague Commission for combating plague, recorded.

Indexed.

[P. W. 25. 250—24-5-98.]

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Government {1898} of Madras.

LOCAL AND MUNICIPAL.

P W. Ryc № 805

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G.O., No. 396 P., 27th April 1898.

APRIL.

Bubonic Plague.

Communicating to Collectors and others, for information and guidance, resolution of the Government of India circulating for adoption, subject to certain remarks, the rules framed by the Bombay Plague Commission for combating plague.

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

READ—the following paper:—

Extract from the Proceedings of the Government of India in the Home Department, Sanitary—dated Calcutta, the 3rd February 1898, No. 227—240.

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 attendance 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 a 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 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.

Order—Ordered, that a copy of this Resolution be forwarded to local Governments and Administrations, and to the Foreign, Public Works and Military Departments.

(True Extract.)

(Signed) J. P. HEWETT,
Secy. to the Govt. of India.

To the Government of Madras.

ENCLOSURE No. 1.

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 Mámlatdár,* 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 Mámlatdár 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

* *i.e.*, the Tahsildar.

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 Pátil should discharge these duties, but the Revenue Pátil 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.

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

* *i.e.*, the Karnam.

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 re-occupied 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 moveable 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 pucka 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 ten 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 an 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 six to twelve patients, will be the best arrangement, and it is one which will admit of the higher and lower castes securing separate accommodation. Moveable 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 Vaids 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 utilized 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.

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.

Enclosure No. 2.

Letter from the Secretary to the Government of the North-Western Provinces and Oudh, Sanitation Department, to the Secretary to the Government of India, Home Department, dated 13th January 1898, No. 37.

Order—No. 396 P., dated 27th April 1898.

Communicated to all Collectors, the President, Municipal Commission, Madras, Surgeon-General, Sanitary Commissioner, and Chairmen of Municipalities for information and guidance.

2. *Paragraph 2 of the Resolution.*—The measures referred to in this paragraph have been already prescribed in the Madras Regulations as summarized below:—

(*a*) *The early recognition of the disease.*

(1) Rules 5—10 of the Rules printed in G.O., No. 522 M., dated 13th March 1897.

(2) Mufassal Regulation 17 of the Regulations issued in G.O., No. 2830 M., dated 17th December 1897, as revised by G.O., No. 466 P., dated 13th May 1898.

(3) Mufassal Regulations 6 and 7 of the Regulations issued in G.O., No. 93 P., dated 26th February 1898.

(4) Quarantine Regulation 15 of the Regulations issued in G.O., No. 745, Marine, dated 23rd August 1897.

(*b*) *The treatment of the sick in places of Segregation.*

(1) Rules 18 and 24 of the Rules printed in G.O., No. 522 M., dated 13th March 1897.

(2) Mufassal Regulations 3, 14 and 14-A of the Regulations issued in G.O., No. 2830 M., dated 17th December 1897.

(3) City Regulations 11 and 12 of the Regulations issued in G.O., No. 2830 M., dated 17th December 1897.

(4) Regulations 5, 17 and 19 of the Regulations issued in G.O., No. 93 P., dated 26th February 1898.

(5) Regulations 15, 21 and 22 of the Regulations issued in G.O., No. 745, Marine, dated 23rd August 1897.

(6) Regulation 6 of the Regulations issued in G.O., No. 879, Marine, dated 16th October 1897.

(*c*) *The removal of the other inhabitants from the infected house, locality or area.*

(1) Mufassal Regulations 3, 6, 14, 14-A and 23 of the Regulations issued in G.O., No. 2830 M., dated 17th December 1897.

(2) City Regulations 4, 11, 12 and 14 of the Regulations issued in G.O., No. 2830 M., dated 17th December 1897.

(3) Regulations 5, 17, 19, 20, 22, 23 and 24 of the Regulations issued in G.O., No. 93 P., dated 26th February 1898.

(4) Regulation 22 of the Regulations issued in G.O., No. 745, Marine, dated 23rd August 1897.

(5) Regulation 6 of the Regulations issued in G.O., No. 879, Marine, dated 16th October 1897.

(*d*) *Their Segregation for a specific period.*

(1) Mufassal Regulations 3, 6, 14 and 23 of the Regulations issued in G.O., No. 2830 M., dated 17th December 1897.

(2) City Regulations 4, 11, 12 and 14 of the Regulations issued in G.O., No. 2830 M., dated 17th December 1897.

(3) Regulation 5 of the Regulations issued in G.O., No. 93 P., dated 26th February 1898.

(4) Regulations 15 and 19 of the Regulations issued in G.O., No. 745, Marine, dated 23rd August 1897.

(5) Regulation 8 of the Regulations issued in G.O., No. 879, Marine, dated 16th October 1897.

(*e*) *The disinfection of their persons, clothing and personal effects.*

(1) Mufassal Regulations 21, 21-A and 29 of the Regulations issued in G.O., No. 2830 M., dated 17th December 1897.

(2) City Regulation 7A of the Regulations issued in G.O., No. 2830 M., dated 17th December 1897.

(3) Regulations 5, 19, 20, 22, 24 and 34 of the Regulations issued in G.O., No. 93 P., dated 26th February 1898.

(4) Regulation 25 of the Regulations issued in G.O., No. 745, Marine, dated 23rd August 1897.

(5) Regulation 6 of the Regulations issued in G.O., No. 879, Marine, dated 16th October 1897.

(*f*) *The disinfection of the houses in the infected locality and their contents*—

(1) Rule 19 of the Rules printed in G.O., No. 522 M., dated 13th March 1897.

(2) Mufassal Regulations 6 and 11 of the Regulations issued in G.O., No. 2830 M., dated 17th December 1897.

(3) City Regulations 4 and 5 of the Regulations issued in G.O., No. 2830 M., dated 17th December 1897.

(4) Regulations 19 and 22 of the Regulations issued in G.O., No. 93 P., dated 26th February 1898.

(5) Regulation 23 of the Regulations issued in G.O., No. 745, Marine, dated 23rd August 1897.

(*g*) *The improvement of the ventilation of houses, the abatement of over-crowding and the prosecution of general measures of sanitary reform*—

(1) Rules 8, 9, 10 and 17 of the Rules printed in G.O., No. 522 M., dated 13th March 1897.

(2) Mufassal Regulations 5, 6, 7, 8, 9, 10, 11, 12, 13, 20, 24, 25, 26 and 27 of the Regulations issued in G.O., No. 2830 M., dated 17th December 1897.

(3) City Regulations 2, 3, 4, 5, 6, 7, 10, 14, 15, 16, 17 and 18 of the Regulations issued in G.O., No. 2830 M., dated 17th December 1897.

(4) Regulations 4 and 26 of the Regulations issued in G.O., No. 745, Marine, dated 23rd August 1897.

3. *Paragraph 3 of the Resolution.*—The mortuary returns received from rural tracts are believed to be at present so imperfect that little reliance can be placed upon them for purposes of comparison, so that no object would be gained by making them weekly, supposing this could be done with the existing establishment. For detecting the existence of plague in villages special reports prepared by the local authorities from local knowledge seem preferable and should be submitted accordingly under clauses 5 and 11 of the revised Mufassal Regulation 17 issued in G.O., No. 466 P., dated 13th May 1898. As regards municipal towns the case is different, and weekly returns will be useful and should be submitted hereafter. The co-operation of the

residents in discovering cases of sickness (Bombay rule 8) should be secured as far as possible, and the returns should be checked in the manner suggested in Bombay rule 4 or in such other ways as Collectors may consider preferable with reference to local circumstances. Bombay rules 6 and 20 correspond to the revised Madras Mufassal Regulation 17 (G.O., No. 466 P., dated 13th May 1898) which provides for a complete system of observation of persons arriving from plague-infected tracts; but in the event of an actual outbreak of plague the more elaborate procedure prescribed by these rules should be adopted. As regards the legal obligation referred to in rule 9, the provisions of Mufassal Regulations 1 and 17 (G.O., No. 2830 M., dated 17th December 1897), City Regulation 1 (G.O., No. 2830, M., dated 17th December 1897), and Additional Regulation 17 (G.O., No. 93 P., dated 26th February 1898), seem sufficient.

4. *Paragraph 4 of the Resolution.*—Original Mufassal Regulation 25 * and City Regulation 16 * deal with the mode of disposal of plague corpses. They in no way interfere with the religious customs of any class of Her Majesty's subjects, but merely authorise the local authorities to insist on certain necessary precautions as to the routes to be taken by funeral processions and as to the place and manner of burial. Under the first part of Regulation 16 of the Regulations issued in G.O., No. 93 P., dated 26th February 1898, the Collector may require in respect of any particular area that the certificate of a medical officer shall be obtained showing the cause of every death within two hours after such death, but no one will be compelled to allow the inspection of the corpse of a deceased relative. In the event, however, of a certificate not being produced or inspection invited, it may be presumed that the death has been caused by plague and the rules regarding segregation may be enforced. It must be clearly understood that the examination of the corpses of women must be made by women, and that Additional Regulation 16 (G.O., No. 93 P., dated 26th February 1898) should not be put in force unless and until it is found that the people are concealing deaths from plague.

* G.O., No. 2830 M., dated 17th Dec. 1897.

5. *Paragraph 5 of the Resolution.*—All Collectors will now report whether the instructions contained in rule 3 of the rules printed in G.O., No. 522 M., dated 13th March 1897, for the division of municipal towns into circles have been carried out, and how many European officers and of what classes will be required for each town should plague break out. They should see how far the recommendations regarding the employment of certificated Sanitary Inspectors (G.O., No. 4 M., dated 3rd January 1897) have been complied with in each municipality, and that a stock of disinfectants is maintained as required by rule 4 of the rules printed in G.O., No. 522 M., dated 13th March 1897. The Sanitary Commissioner will report if the quantities of disinfectants prescribed in this rule should be increased in any municipal town.

6. *Paragraph 6 of the Resolution.*—Collectors should take every opportunity of explaining to the people that the segregation of plague-stricken patients and of those who have been in immediate contact with them is found by experience to be a measure absolutely necessary to stamp out the disease, especially in its early stages, and that Government seeks to enforce it only because other measures without it are not of much avail. In doing so, Government desires to meet every reasonable wish of the people and to interfere as little as possible with their habits, feelings and prejudices. They will be permitted, and should be encouraged and aided, to erect their own hospitals and their own segregation huts in sites shown to them or selected by them and approved by the authorities. Friends and relatives will be allowed to visit the patients, and, if desired, to reside near them. They can have their own food and they can bring their own doctors. Every arrangement will be made to respect the privacy of women. No particular mode of treatment will be forced upon any one, and women will, under no circumstances, be required to be examined by men. All that will be required of the people when plague breaks out is that they should vacate the infected houses or locality and reside temporarily at a place shown to them subject to certain sanitary restrictions until the disease has passed away. During their absence their houses and such of their property as may be left behind will be taken care of by Government. Adequate compensation will be paid on the spot in the case of poor people for articles condemned by the sanitary authorities. In exceptional cases, where a house is situated in the midst of a spacious compound and where no sanitary objections exist, the sick and the

other inmates of the house will be permitted to be segregated under shelter within the compound, provided they vacate the house to be disinfected. In the North-West Provinces' districts of Kumaun and Garwhal, where plague has existed for a long time in an endemic form, the villagers have learnt by experience that evacuation of the plague infected locality is their best chance of escape, and it is now their common practice to vacate the village as soon as plague appears and to camp on the hill sides (page 93, Vol I., Nathan's Plague in India). It is desirable that each class or caste of persons in towns should arrange with the district authorities for sites for hospitals and segregation camps and organize measures at once to keep everything ready for erecting them without delay when necessity arises. Collectors will make it their duty to give them every assistance.

7. *Paragraph 7 of the Resolution.*—The results of inoculation with M. Haffkine's prophylactic have been published from time to time and so far have been very encouraging. Not only is the percentage of attacks reduced, but the case mortality is materially lessened. These facts are for the people themselves to consider. It will be left entirely to them to decide whether they will or will not adopt the system. If they should determine to do so, the officers of Government should afford every facility in their power to those who wish to be inoculated.

G.O., No. 333 M., dated 1st Mar. 1897,
" " 367 M., " 4th " "
" " 2621 M., " 26th Nov. "

* *Vide* also G.O., No. 485 P., dated 16th May 1898, and Notification No. 436, *Fort St. George Gazette*, dated 27th May 1898, Part I-A, pp. 134–136.

8. *Paragraph 8 of the Resolution.*—The matters referred to in this paragraph are sufficiently provided for in the Madras Regulations, and the Bombay rules dealing with them should be taken as subsidiary suggestions for adoption subject to modifications according to local circumstances.

9. *Paragraph 9—12 of the Resolution.*—The principles enunciated by the Government of India on the subject of quarantine are those which have actuated the framing of the Madras Plague Regulations. This Government has always endeavoured to substitute observation for quarantine. Under this system all travellers except those found or suspected to be suffering from plague or considered "suspicious" are allowed to move freely, provided they report to the authorities their movements for a period of ten days after arrival from an infected area and present themselves daily for examination during that period.

10. The measures explained above apply to all alike without distinction of class or rank. Their sole object is to prevent the importation of plague into this Presidency and promptly to check its spread and stamp it out should it nevertheless appear. That object can only be fully attained if the people themselves, for whose benefit the regulations have been framed, loyally accept them and support the action of the authorities. His Excellency the Governor in Council has no doubt that in this respect he can rely on the hearty co-operation of all classes of the community.

(True Extract.)

A. Kunell.

for *Ag. Secretary to Government.*

To all Collectors.
" all Chairmen of Municipalities.
" all Presidents of District Boards.
" the President, Municipal Commission, Madras.
" the Surgeon-General.
" the Sanitary Commissioner.
" the Inspector-General of Police.
" the Public Works Department (Railway Branch).
" the Marine Department.
" the Public Department.
" the Political Department.
Editor's Table.

Desp.

No. 899. Rydt. 9.7.98

Recorded.

Agent Madras R.
" S. I. R.
" Nilgiri
" Nizam's R.
" S. M. R.
" Mysore & C.