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2. Date of rec. 2-10-36
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MADRAS RECORD OFFICE.

Government of Madras.

Public DEPARTMENT.

G.O. No.	1067	Press
	(150-151)	~~Mis.~~
Dated	17-10-	1866.

Not to be folded or roughly handled

1 The Laws for the Regulation of Markets and Slaughter Houses.

1. The Stall is every market for the sale of meat but a street stall shall have the flooring raised at least six feet on the ground and be paved with brick, asphalt or granite, and they shall be covered with a well built tiled or terraced roof the eaves being at least eight feet high from the ground.

2. The entrance from the Public streets into the markets and Slaughter Houses shall not be of less width than twelve feet each and the gangways between the stalls shall not be of less width than eight feet each and shall be constructed of the frame of laterite and drained to the satisfaction of the Commissioners.

3. No articles shall be exposed for sale or deposited in the gangways.

4. Markets for the sale of meat, fish and vegetables shall be lime-washed within and without once at least in every six months.

5. Stalls for the sale of meat and fish shall be washed and all stalls and gangways swept and the refuse removed therefrom twice at least daily at such times as the Commissioners shall direct.

and directed deposited at such places as the Corporation may direct or appoint.

6. The place in which the body shall be buried shall be so situated that the joint of the body shall not be visible.

7. Every person who shall bring a Corpse to be buried shall be provided with a coffin or other suitable construction as the Corporation shall direct and shall appear at the place of burial.

8. Every owner of a grave or place of burial shall provide and keep in repair a suitable fence of such height and material as may be required in the Acts for the purpose of the said Act.

9. Every Grave shall be kept in the cemetery washed and swept twice a week at least and the same shall be kept in the same state as the Corporation may require.

10. Every Grave shall be kept in the cemetery washed both within and without the fence at least in every three weeks.

11. Every Grave shall be kept in the cemetery with granite stones or other facing bricks or other material and the joint of the body shall be visible.

The Laws for the Regulation of Burial and Burning Grounds.

1. No person shall bring a Corpse to be buried any Corpse in any burial ground in the Town.

Town of Maitland and in a grave constructed of masonry in such manner that the Corpse shall be at a depth of the than four and a half feet from the surface of the ground.

2. No person shall bring a Corpse to be buried in any such burial ground any Corpse in a grave or other structure of masonry which shall be less than six feet deep.

3. No person shall build or Cause to be built any structure of masonry in any such burial ground at a less distance than two feet from any grave or structure constructed of masonry.

4. No person shall bring a Corpse to be buried in any such burial ground except in the manner in writing of the Corporation.

5. No person shall burn or Cause to be burned any Corpse or part of a Corpse in any burning ground within the said Town shall permit the same or any part thereof to remain without being completely reduced to ashes or to be removed until the same be so reduced.

6. Every person who shall bring or Cause to be brought or conveyed any Corpse to any burning ground within the said Town shall cause the same to be buried within four hours after its arrival.

at the said burning ground.

7 Every Burial or Burning ground shall be surrounded by a sufficient wall or fence to the satisfaction of the Commissioners.

2 By Laws for the Regulation of Offences and dangerous trades and places, or Cart Stalls and Livery and Stack Stables.

1 Every owner or occupier of any place within the Municipal Limits used for any of the purposes specified in Section 168 of the Madras Municipal Act IX of 1865 and every owner or occupier of a Livery or Stack stable or Cart stand cattle yard or any place shall remove or cause to be removed once at least in every 24 hours at such times as the Commissioners may approve all filth dirt, and refuse which at the time of every such removal shall be in or about any such place and shall cause such filth dirt or dust to be deposited in such places as the Commissioners may approve of and provision so being or preparing the food of the Cattle and attendance shall be so made as not to be a nuisance to the neighbourhood.

2. The owner or occupier of any tannery within

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within the prescribed limits shall remove or allow to be removed any hides or skins from any pit in any such tannery for the purpose of exposing the same to the air or for any other purpose at any other time than between the hours of 5 and 8 o'clock in the morning.

3. Every Cart stand stable Cattle stall and sheep pen shall be drained and installed to the satisfaction of the Commissioners and every Cart stand and Patcher or block of huts shall be provided by the owner or farmer thereof with Latrines for males and females or males or females as the case may require of such extent and construction as the Commissioners shall approve of.

1 By Laws for the Regulation of order in the Public thoroughfare

1 No man shall fly a paper kite or engage in any other game in such a manner as to annoy or be likely to endanger passengers on the public Roads.

2. No Cart or other vehicle without springs shall be used on any portion of the Road except on the sides thereof.

3. All Carriages and Carts shall in meeting other Conveyances leave them to the right hand side and in passing them leave them to the left hand side.

4 No person shall drive, ride or lead any vehicle or animal on any path way or pavement on the side of a Public Road or Street.

5 Every person within whose premises any animal may die shall within 6 hours after its death either remove the carcass at his own expense without cutting it up or opening it to such place as may be set apart by the Commissioners for the reception of such carcasses or report its death to the Conservancy officers of the division within which such premises may be situate and in such latter case shall pay to the said officers the expense of removing the carcass at such rate as the Commissioners may from time to time determine.

6 No person shall dry or plaster the external walls of houses or yards adjoining the Public Streets.

7 The external walls of houses and yards adjoining the Public Streets shall be lime-washed once at least annually unless specially exempted by the Commissioners.

8 Every wall shall be fenced by a wall three feet high from the surface of the ground.

9 Dogs found straying in the streets will be seized and killed.

10 No person shall make use of the pavement or Verandah of his house or of any place not

not specially intended for such purpose in front of his house or by the side of any Street as a stable or stall for keeping horses ponies bulls Cows Buffaloes or any other animals.

A Table of such bye laws as are applicable to such places respectively, legibly printed or painted in English and the Vernacular languages shall be placed on boards and put up in a conspicuous place in every Market Slaughter House and Burial or Burning ground for the information and guidance of the Public.

Whoever shall commit any breach of any of the foregoing Bye Laws by doing any act prohibited by any such Bye Laws or by neglecting to do any act directed to be done by any such Bye Law or in any case however shall be liable to a penalty not exceeding 20 Rupees and in the case of a continuing breach to a further Penalty not exceeding 10 Rupees for every day during which the breach is continued after the conviction for such offence.

Municipal Commissioners Office }
Madras 18 October 1866 }

By Temple Presd.
K. S. Srinivasan
S. Srinivasan
J. G. Srinivasan
J. Srinivasan
Municipal Commissioners
for the Town of Madras.

To
The Chief Secretary to Government
Fort St. George.

Sir,

1. We have the honor to submit, duly signed, the Bye Laws returned with Proceedings of Government in the Public Department No. 995, dated 3rd Instant, for revision and signature together with the Copy containing the suggestions by the Government Solicitor.

2. We have considered the several suggestions of the Government Solicitor, and in most instances conformed thereto. Instead of naming the hours when Markets and Slaughter Houses shall be swept and washed, we have thought it better to say that they shall be so swept and washed "at such times as we shall direct". There are 35 Markets within the limits of the Town, the circumstances and hours of trade in each vary considerably, it would have caused inconvenience therefore to fix the same hour for all.

3. We

Ms. No. 110/1866/10

3.

We have added a Bye Law requiring all Burial and Burning Grounds to be enclosed, this is with the view of preventing the extension of such places on open or waste land, where they gradually become an intolerable nuisance.

11.

The Act 18, only requires the Bye Laws to be put up in some conspicuous place in the Commissioners' office, we think it will be advantageous to the Public, that all Bye Laws applicable to such places should be put up in a legible form in all Markets, Slaughter Houses and Burial or Burning Grounds.

We have the honor to be,

Sir,

Your most obedient Servants.

Frederick President

Mansoor

S. S. S. S.

J. G. S. S.

J. G. S. S.

J. G. S. S.

Municipal Commissioners
for the Town of Madras.

4/2/84

MADRAS RECORD OFFICE.

Government of Madras.

Public DEPARTMENT.

G.O. No.	1067.	Press ~~Mis.~~
Dated	30-8-1867.	

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my
AB

Ms B-2-75-66-44-26-28

1917
Jul 30 PM 11

Public 1866. *Revised*
from

The Municipal Commission
for the County of Adams

To

The Chief Secretary to Government
Fort St. George

Wales 16th 33
Received 17th 33
October 1846

Wales 16th 33
October 1846

1846

Enclosure
No 1326

Returning the 1326

and duly signed,

with certain alterations

and additions in 1846

to the Fort & do beaker

with me after

19 October 1846 B. 1067.

Received that the 1326

referred to, with translations in English, being
and a translation, as published in the
Fort St. George Gazette for a period of one
month.

19

to the Municipal Commission
and to the Fort & do beaker
with me after
1846. 4/12

Read the following :—

No. 228. Extract from the Proceedings of His Excellency the Governor General of India in Council in the Military Department; dated Simla, 17th July 1867, No. 249.

Read Extract, Home Department, No. 841, dated 25th January last, forwarding a Despatch from the Right Honorable the Secretary of State, with its enclosures, *viz.*, Reports by the Cholera Commissioners at Constantinople on the origin, propagation, &c., of cholera, and the hygienic measures to be adopted for preservation against it, with a request that the papers might be referred to the Sanitary Commissioner for Bengal, in order that he might advise the Government of India, as to any practical steps which should be taken on the recommendations of the Commissioners.

From Major G. B. MALLESON, Sanitary Commissioner for Bengal, to the Secretary to the Government of India, Military Department; dated Simla, 29th May 1867, No. 312.

I have the honor to acknowledge receipt of your docket, No. 961, dated the 29th January, and of its enclosures marginally noted. The further reports of the Constantinople Congress, promised by the Home Department, have not yet been

Copy of extract from the Proceedings of the Home Department, No. 841, dated the 25th January, and Reports (in part) from the Constantinople Cholera Congress.

received; but as it appears that considerable time must still elapse before they become available, and as they merely contain the discussions on which the general conclusions of the Congress have been based, I shall no longer delay in submitting the practical suggestions which ought, in my opinion, to be carried out, with a view both of diminishing the prevalence of cholera in India, and of preventing its spread to other countries. In arriving at any conclusions on this very important and difficult question, the abstract of the proceedings of the Congress, which has been prepared by Dr. Leith, President of the Bombay Sanitary Commission, and copy of which was received from the Home Office, has been carefully considered.

2. The more important conclusions arrived at by the Constantinople Congress, with regard to cholera in India, may be stated generally as follows :—

1. That India is the birth-place of cholera and is its permanent home.
2. That, since 1817, this country has been the focus from which the disease has radiated in every direction.
3. That the special conditions under the influence of which cholera is originated in certain localities of India, and under which it has become permanently seated there, are unknown.
4. That, in India, pilgrims are the most powerful of all the causes which tend to the development and propagation of epidemics of the disease.
5. That cholera is propagated by man, and with a swiftness in proportion to the rapidity and activity of his movements.
6. That no fact has been brought forward to prove that cholera is spread by the atmosphere alone, whatever may be its condition; that it is a law without exception that an epidemic of cholera has never spread from one place to another in a shorter time than that required for man to journey between the two places.

7. That man tainted with cholera is himself the principal agent in propagating the disease.
8. That an individual suffering only from premonitory diarrhoea may suffice to occasion an epidemic of cholera.
9. That cholera may be transmitted by articles of personal use brought from an infected locality, and especially by those made use of by cholera patients, and that importation may take place to a distance by such articles if they have been shut up from the access of fresh air.
10. That the choleraic principle is volatile, and acts like miasmatic exhalations by infecting the atmosphere.
11. That, while the atmosphere is the principal vehicle of cholera, the transmission of the disease by the atmosphere alone is limited to a very short distance from the focus of emission.
12. That water and certain *ingesta* may serve as vehicles for the introduction of the generating principle of cholera into the system.
13. That the ways by which the poisonous agent penetrates are chiefly the respiratory, and very probably also the alimentary passages, and that there is no evidence to show that it enters through the skin.
14. That the choleraic dejections are the chief seats of the morbid agent, and that, therefore, everything contaminated by such dejections becomes a receptacle whence the generating principle of cholera may be evolved under favorable conditions.
15. That while, as a rule, the generating principle of cholera rapidly loses its morbid power in free air, it may, under certain peculiar conditions of confinement, retain its activity for an indefinite time.

3. In stating these general conclusions, it would be out of place to express any opinion with regard to their accuracy, or as to how far they are borne out by experience in India. They were arrived at by the Congress after very careful and patient deliberation; they were, in almost every instance, adopted unanimously, and should not be lightly set aside. The whole practical recommendations of the Congress rest on the belief that cholera is a communicable disease, and that, except in such parts of the country in which it is an habitual resident, it spreads only by communication between man and man. Even, as regards these regions, a doubt has been expressed as to whether it is not there also propagated in the same way; but, in order to solve this question, as will be shortly pointed out, more information is desired. To this idea of contagion many authorities, especially in India, have been strenuously opposed; but it is to be remarked that the belief in the communicability of cholera is gaining ground, and in dealing with the question of what practical measures should be adopted in the hopes of checking the disease, it is necessary that this communicability should be assumed as an established fact. If cholera be an air-borne miasm, then, comparatively little can be done to arrest its progress. If, on the other hand, it be spread by man himself, much good may be anticipated by the employment of preventive measures.

4. Much of the scepticism which exists with regard to the contagious theory of cholera, is connected with the difficulty which is so generally experienced in establishing any connection between fresh cases of the disease and others which have

previously occurred. But the same difficulty is often met with in regard to diseases the contagious nature of which has been placed beyond all doubt. No more striking example of this kind could be adduced than what is furnished in the researches of the Commissioners appointed to inquire into the origin and nature of the cattle plague in Great Britain. Although the point was investigated with the greatest care, the Commissioners were yet "unable to indicate the precise channel by which the poison came into the market," and yet, from all the facts, they had no hesitation in arriving at the conclusion that the disease was not due to any occult atmospheric conditions, but that it was "spread by multiplication in the bodies of living animals." The remarks of the Commissioners, with regard to the origin and propagation of cattle plague, may, with equal truth, be applied to cholera. "If the cattle plague," they observe, "has spontaneously originated in this country from the way in which our cattle have been housed and fed, we might hope to show how such conditions act, and how they can be removed. If it originates in some wave of poisonous air which spreads over the country, and, after having a regular period of flow, has a succeeding period of ebb and disappearance, we must be content with bearing what no care can foresee, and no art control. If, however, cattle plague has been introduced among our herds by the arrival from infected places of cattle already diseased; and if it spreads entirely by contagion, it is obvious that means may be used, which, if applied strictly and carefully, will be effectual to prevent its return." Even those who are most strenuously opposed to the contagious theory of cholera must admit that any measures which have yet been taken with a view to control the propagation and spread of the disease among the general population have been attended with but little, if any, result, and that every means for guarding the community from so fatal a scourge should be diligently and carefully tried.

5. In their report on the hygienic measures to be adopted for preservation against Asiatic Cholera, the Congress has expressed its opinion that "there are no direct means of extinguishing the endemic foci of cholera, but that we may hope to arrive at that object by means of a uniform series of measures, of which hygienic measures will form the most important part." This is the general recommendation which they have made in regard to what should be done in those places which are reported to be the permanent sources of cholera, and it, therefore, applies almost exclusively to India, or rather to those parts of it in which the disease is endemic. A consideration of the practical measures which ought to be adopted in order to carry out this recommendation, involves the whole question of the general sanitary administration of the country. In his letter to the Military Department,

No. 620, * dated the 6th September 1864,

* C. February 1865, No. 2150-51.

Mr. Strachey submitted many excellent propositions on this important subject. I

beg leave to refer to that letter for full particulars of the scheme. Its chief features comprised the appointment of local Sanitary Committees in all towns, civil stations, and other places or circles in which the Local Governments should consider such a course desirable, the Magistrate of the District being *ex officio* Chairman of such Committees, and charged with the enforcement of all the rules and regulations laid down for the protection of the public health; that each District

should have a Health Officer, whose duty it would be to inform the local authorities of such influences as are acting against the healthiness of the population, to advise what steps should be taken for their removal, to execute such special functions as may devolve upon him by the orders under which he is appointed, and generally to make himself acquainted with the circumstances which affect the health of the people, and to collect all such particulars for the information of the Local Governments and the Sanitary Commission. The office of Health Officer of the District, it was suggested, should ordinarily be held by the Civil Surgeon. It was further suggested "with the object of ensuring uniformity and harmony of action in the sanitary administration of the District, and as a means of connecting together the interests of all the Committees, and helping them to co-operate with each other," that each District should have, in addition, a General Board of Health. Mr. Strachey further proposed that, in each Local Government, the Inspector General of Prisons should be appointed principal Officer of Health, advising the Government in all matters affecting the public health, ensuring the constant observance of all such sanitary rules and regulations as may be laid down, and obtaining reports from Health Officers, and exercising a supervision over the health of the whole province. Some such scheme of general sanitary administration is urgently required. It is only by arousing the people to a sense of the preventable nature of great part of the sickness and mortality which prevail amongst them, and by enlisting their active co-operation, that we can ever hope to make much impression on the vast extent of country concerned. The formation of Municipalities has already been attended with good results, and in many places, especially in the Punjab, the people are learning the value of sanitary measures, and interesting themselves in carrying them out. As education spreads, such good results will doubtless increase, but without some system of administration specially directed to enforce sanitary measures, little will be done. The subject is of very great importance both in itself and in its bearing on the health of our European troops, and I would strongly recommend it to the early attention of the Government. It is hardly necessary to discuss the pecuniary aspect of the question. Any expenditure required might well be met from Local Funds. Indeed, there appears to be no object on which Local Funds could be more fittingly expended.

6. Another important question connected with general sanitary administration is the registration of deaths and causes of death. Registration is now carried on in several of the provinces, but it appears to be very desirable that it should be universally introduced. The results might at first be far from reliable, but the measure is one of the utmost importance in a sanitary point of view, and without it, indeed, the basis of all sound sanitary progress must be wanting. In all military cantonments in particular, an accurate registration of deaths and causes of deaths is specially required. Even in those provinces in which registration is now carried out, the inhabitants of stations have not always been included, and yet a knowledge of the occurrence of disease among them, and especially of the occurrence of any disease likely to become epidemic, is of the greatest importance. As regards no disease is such information more important than as regards cholera. Here, the occurrence of the first case is a matter of the greatest moment to be at once communicated to the Sanitary Officer, who should be required to make himself

acquainted with all the facts, and take measures for preventing the spread of the disease, such as the thorough disinfection of all articles of clothing and any other things which might prove the medium of propagating the poison. In many of our stations considerable Native cities have grown up under the name of bazaars, and it is of the greatest importance that the health of their inhabitants should be under proper surveillance. The new Cantonment Rules (Chap. IV., paragraph 16) provide that "it will be the duty of all Medical Officers, and of all persons residing within the cantonment, to make known, without delay, to the Cantonment Magistrate, for the information of the Cantonment Committee, the appearance of any epidemic or contagious disease which may be dangerous to the public health." I would strongly recommend the addition of a rule requiring the registration of deaths and causes of death in all military cantonments; that a weekly statement of such registration should be drawn up by the Cantonment Magistrate, and a copy of it forwarded to the Sanitary Officer, for the information of himself and of the Committee. It is also very desirable that all such statements should be preserved for the information of those who may afterwards occupy the station. In G. O. C. C., dated 20th October 1865, it was ordered that a weekly statement of the sickness and mortality among British troops should be preserved for permanent record in each military station; but, in order to be complete, this Order should embrace all the Native troops also, and the resident Native population besides. Such a record kept by the Cantonment Committee would in time become very valuable for reference. All servants and residents in private compounds should be included in the registration.

7. The special measures which the Congress has recommended for adoption in the East are given in a separate report, devoted to the consideration of this important subject. I shall now proceed to state shortly what these are, and how they can best be carried out. Their recommendations may be divided into three heads:—

I.—Those which concern measures to be taken with a view to obtain a more accurate knowledge of cholera;

II.—Measures which should be adopted to restrain the influence of pilgrimages as the most powerful means of causing epidemics of the disease; and

III.—The precautions which should be adopted to prevent the exportation of cholera from India.

8. Under the first head, the chief points to be determined, are—What are the conditions which foster cholera in certain parts of India? In what parts of the country does the cholera exist as an endemic? What are the peculiarities of the places where its endemicity is most manifested? In those places in which it is endemic, does the poison generate itself spontaneously without the human body? Produced by some particular organic decomposition, is it born and disengaged in the manner of a paludal miasm, or, as is more probable, does the morbid principle once produced regenerate itself only by man, the soil and everything which exists on its surface being only the receptacles more or less favorable where the germ proceeding from those affected with the disease can best be preserved, and from which it is disengaged with an activity varying according to circumstances?

9. The inquiries required under this head would, as the Congress observe, form the study of years and of very careful investigation. The first point to be determined is to fix, with as great accuracy as possible, the limits within which cholera may be said to be endemic. On this question, Dr. Bryden's tables afford very valuable data as regards the troops and jails; but, to be complete, the investigation must include the whole population, and accurate statistics on this point will be the work of years. It is, therefore, very important that they should be commenced, and every means taken to perfect them, in every part of India, with as little delay as possible. An enquiry into any conditions peculiar to endemic localities, and especially into those conditions believed by Pettenkoffer to be essential to the development of cholera, might be delayed until these endemic localities had been determined with greater precision. But it is not necessary to determine these before acting on the third suggestion which has been made under this head. The point to be solved is—whether, even in those localities in which cholera is endemic, the poison generates itself spontaneously outside the human body? In other words, is the poison in such localities dependent on an emanation from the ground, or does it result from a previous case of the disease? To test such a matter among the general population would be impossible; but the jails of Bengal and the Central Provinces, throughout which cholera may be said to be more or less domesticated, afford an excellent opportunity for the purpose. By carrying out a strict system of quarantine, as regards all new admissions in these jails, by carefully disinfecting the dejecta of any cases which may occur, and by applying the same disinfection to all articles of clothing likely to be contaminated by the poison, much light might be thrown on this important point. A perfect quarantine, even in jails, is hardly possible, as the entrance of articles of food, &c., could not be dispensed with; but a quarantine, as strict as can be carried out, would be sufficient to afford valuable data. When any case occurred, pains should be taken to trace its origin, and a special remark, showing the result of this inquiry, should invariably be made in the Jail Returns. All the recommendations of the Constantinople Congress were, indeed, practically anticipated by the Sanitary Commission in the rules which were framed with a view of preventing the occurrence of epidemics in jails, and all that appears to be required is to introduce these rules into Bengal. In the other provinces they are already in operation, but, even in them, measures are required to secure a more complete separation of the new admissions into jail. The quarantine which has been in force, imperfect though it is, has, however, been attended with excellent results. There are other points also on which information is most desirable:—

What is the period of incubation of the disease, that is to say, how soon after the

poison has entered the system do the first symptoms generally show themselves?

Do the dejections of cholera patients undoubtedly contain the germs of the disease by means of which it is propagated?

If so, at what period after their passage from a person affected with the disease, is the poison most active, and, therefore, most likely to have effect?

Has carbolic acid or other disinfectants the power of destroying these germs, and rendering them altogether inert? This is a point which was investigated with much care by the Royal Commissioners with regard to the

cattle plague, and the result has left little doubt that carbolic acid has this extraordinary and valuable power on the peculiar virus of that disease.

If carbolic acid or any other agent has this effect on the poison of cholera, as found in the discharges without the body, may it not also have the power of arresting the influence of that poison once it has entered the body, and the person so affected shows the first symptoms of the disease? This is more a medical than a sanitary question, but it is one of very great importance, and would complete the inquiry. To solve such important problems, a series of experiments on the lower animals is much needed. I have been induced to make this suggestion by the perusal of a very interesting paper in the transactions of the Royal Society by Dr. J. Burdon Sanderson, giving the results of experiment on the communication of cholera to rabbits and mice and Guinea pigs. With cholera discharges which had been kept for three days, every one of the mice experimented on was seized with symptoms of cholera, and 21 per cent. died. A thorough investigation into the whole question of the cholera poison, and of the manner in which it is propagated, is much required, and nowhere could this be undertaken so well as in its home. It is little creditable that so little has been done in India to throw light upon the disease. By an extensive circulation of the report of the Congress and other papers bearing on this important question, Medical Officers might be encouraged to investigate these most important questions; but the appointment of a special Officer, with peculiar qualifications, and who would devote his whole time and attention to the inquiry, is most desirable.

10. The next group of recommendations refers to pilgrims, and the important part they play in the dissemination of cholera. They embrace, first, the carrying out of proper conservancy measures during all fairs, such as the provision of latrines for the whole assembly, the speedy removal of all filth, and the strictest cleanliness whenever any number of people are collected together; secondly, the supervision of the pilgrims on their return to their homes. Under this it is proposed that they should be prevented entering any towns or military stations, unless they can prove that they are not suffering from cholera or diarrhoea, and that, for a certain time previous, they have had no communication with any one affected with the disease; that, failing such proof, they should be detained under observation for a certain period longer—proper shelter, supplies, and medical aid being provided for them. Such measures are reported to have been carried out with excellent results both in the Madras and Bombay Presidencies.

11. As regards the sanitary arrangements of the fairs, little difficulty would be experienced. Were a system of general sanitary administration introduced, each fair would fall under the supervision of the Local Committee of the town or circle in which it takes place. The Magistrate of the District, being *ex-officio* Chairman of all such Committees, would see that arrangements were made suited to the importance of the fair and the number of people likely to be assembled, and could call in the assistance of the Health Officer of the District, if required. In all large fairs it would be advisable that the Health Officer should personally supervise the arrangements, and in all fairs where he was not present, the duties should be performed by one of his subordinates. In addition to the general cleanliness, it would be his duty to see that the market was well supplied with good food; that

the water supply was clean and wholesome. He would also be on the look-out, so that the first case of any contagious disease, and especially of cholera, should be at once detected, and, provided it appeared advisable, the Magistrate should be empowered peremptorily to break up the gathering. The fact would also be telegraphed far and wide as a precautionary measure. In carrying out such measures, little difficulty would be experienced beyond the want of sufficient funds; and, to provide these, I would suggest that a small tax should be levied on all pilgrims, to be expended for sanitary purposes. Such a tax could be raised without any hardship, and would be a fair charge on those whose presence rendered it necessary. Special rules for the proper conservancy of all fairs and places of pilgrimage, and for the management of any epidemic disease, should it appear during the gathering, will hereafter be prepared.

12. The supervision of pilgrims returning to their homes is a matter of much greater difficulty. The vast numbers of people, the numerous routes by which they travel, the ease with which many might evade the strictest cordon by leaving the main roads, the oppression and extortion to which they may be subjected by the Police, all form very serious obstacles in the way of carrying out a really efficient quarantine. I have no hesitation in coming to the conclusion that quarantine should be established; but I propose to defer the preparation of any definite rules on the subject, pending the receipt of a full report on the recent outbreak of the disease at Hurdwar, and the result of the preventive measures which were adopted both there and in the various districts through which the pilgrims passed. Full particulars have been requested, and as this is, I believe, the first occasion in which any precautions of this nature have been adopted on this side of India, it appears desirable to take advantage of the valuable experience which the epidemic has supplied. So far as yet received, all the information is in support of the belief that the disease has been carried by the pilgrims, and that in no case did any place suffer prior to the return of persons who had been at the fair. As some time may elapse before all the reports have been collected, I would suggest that a copy of this letter should be sent to all Local Governments and Administrations, and that they should be asked to give their opinions on the whole subject, and especially as to the best means by which quarantine, as regards returning pilgrims, may be carried out, and whether any fresh legislation is requisite to give them the effect of law. But the peculiar difficulties in the way of carrying out quarantine, as regards the general population, do not exist to the same extent as regards military stations. Pilgrims should be invariably discouraged from entering them, and whenever they are known or suspected to be affected with cholera, or to be coming from any quarter in which the disease has appeared, their entrance should be entirely prohibited. In Umballa this measure was adopted, but, apparently, not before many pilgrims had already passed through the station. Of the outbreak of the disease at that station full particulars have been asked for.

13. The Congress has suggested, with a view of diminishing the concourse of people at these fairs, and particularly to prevent the presence of so many beggars and others in want, who are specially apt to excite an epidemic, whether it might not be possible to oblige each intending pilgrim to take out a license before he undertakes the journey, and to show, before obtaining such a license, that he has

the means necessary for the purpose. Such a course would, it is feared, be impracticable; but whenever cholera is prevailing in any part of the country, it would be advisable, as far as possible, to prevent people from such localities attending the fair or pilgrimage. It may also be possible, so far as regards purely mercantile fairs, to fix the time for their being held at the most healthy period of the year, and, in the event of epidemic disease being prevalent in the locality, fairs of all kinds might for the time be prohibited. There can be no question that pilgrimages are attended with much privation and sickness, and any legitimate means by which they may be discouraged are deserving of serious consideration. The danger of frequenting such places should be impressed on the people. They should also be made acquainted with the importance of carefully burying the discharges of all who may be attacked, and of burning or disinfecting all articles which may have been tainted with them. Were such measures universally adopted, much might be done, according to our present knowledge of the disease, to extinguish the germ on which its propagation depends.

14. The Congress recommends that, when cholera does break out among the body of pilgrims, their departure should be arrested until the epidemic has altogether ceased, and the survivors have undergone a general disinfection. Such a measure cannot be supported, as it would greatly increase the evil, and entail the most lamentable loss of life. Safety lies in the earliest possible dispersion of any body of pilgrims among whom the disease should appear, the sick being separated and kept for treatment, and those still unaffected subjected to quarantine. What the length of the time this should last is doubtful, because we do not know the period of incubation of the disease. The Congress believes 48 hours, the time adopted in Bombay, too limited a period, and it probably is; but the longer the period of quarantine, the more difficulty in carrying it out, and the suggestion that the pilgrims should be isolated for 10 days after the last appearance of a case of cholera among their number appears to be impracticable.

15. As a first step towards our knowledge of fairs and their influence in disseminating cholera, a full account of the very numerous gatherings of this sort which are held throughout the country is very desirable. Such a statement, showing the place at which the fair is held, the season at which it usually takes place, the number of people assembled, the distances from which they come, the object of the fair (whether religious or mercenary, or both combined) would be of much value; and, if His Excellency approves, I shall be glad to collect the materials for it. Some particulars of this nature were called for in the questions to Civil Surgeons, but unfortunately they are not complete.

16. The important subject of *disinfection* requires separate consideration. If cholera depend for its propagation on some specific germ, the importance of employing agents, by means of which that germ may be destroyed, can hardly be exaggerated. The experience of disinfection in many cases, in which it has been employed with a view to checking epidemics of cholera, has been favorable, and it is very desirable that it should be carried out in this country as far as it possibly can. Whenever cholera occurs among troops, whether European or Native, among prisoners, at fairs or shrines, or in quarantine, or camps of people proceeding from such assemblages, the precautions of a thorough disinfection ought, on no account, to be

neglected. In Calcutta and in large towns, means should be taken, as far as possible, to disinfect both the dejecta, the clothings, and the habitations of all who may be suffering from the disease. It is not necessary to discuss all the various agents which have been recommended as the most efficient disinfectants. In the late epidemic of cattle plague in England, carbolic acid and sulphurous acid were found most powerful, and the Commissioners express their opinion that there is considerable evidence to show that these substances have actually the power of destroying the cattle plague poison. We have yet to discover what agents have such a power over the poison of cholera, and the subject, as has been already stated, opens up a very wide field of experiment and inquiry. Sulphurous acid can be prepared by heating sulphur—a substance easily had in every bazaar in India. Carbolic acid is procured by the distillation of coal tar, and I am now making inquiries as to whether it might not be manufactured by the Gas Company in Calcutta. Simple efficient rules for the employment of disinfectants will be prepared as soon as it is known whether carbolic acid is procurable at such a rate, and in such quantity, as would render its general and liberal use practicable.

17. It only remains to consider the precautions which ought to be adopted to prevent the exportation of the disease by means of ships. The Congress has recommended that the provisions of the Native Passenger Act of 1858 should be extended to all passengers' ships, and not confined to those sailing under the British Flag; that the sanitary condition of all the passengers embarking in any vessel should be ascertained by a competent authority, and power given to detain any person suffering from infectious disease, and especially from cholera or choleraic diarrhoea. The proportion of pilgrims who sail from this side of India is comparatively small. This part of the subject, therefore, chiefly refers to Bombay, and the recommendations made by Dr. Leith appear to meet all the requirements of the Conference.

18. In conclusion, I would remark that no additional precautions, which have been recommended consequent on the conclusions arrived at by the Constantinople Cholera Conference, should interfere with the rules already laid down for moving troops into camp on the appearance of the disease in an epidemic form.

From the Secretary to the Government of India in the Military Department, to the Adjutant General; dated Simla, 17th July 1867, No. 248.

In transmitting, for the information of His Excellency the Commander-in-Chief, copy of a letter from the Sanitary Commissioner for Bengal, No. 312, dated 29th May last, containing certain practical suggestions based on the Report of the Cholera Commissioners at Constantinople, with the view of diminishing the prevalence of cholera in India, and of preventing its spread to other countries, I am directed to state that the questions mooted will be considered by Government in the Home Department; but that the Right Honorable the Governor General in Council will be glad of His Excellency's opinion on the suggestions in paragraph 6, in regard to the accurate registration of deaths and their causes in each military cantonment, which it is supposed could be easily effected by the Cantonment Magistrate and his establishment, assisted, when necessary, by the military authorities.

2. Arrangements for prohibiting the entrance into a cantonment of pilgrims and others who may be known or suspected to be affected with cholera, or who may be coming from any quarter in which the disease has appeared, as recommended in paragraph 12, will also, His Excellency in Council concludes, be made without much difficulty.

ORDERED that copy of the foregoing be forwarded to the Home Department, for consideration and orders on the suggestions of the Sanitary Commissioner for Bengal.

(True Extract).

(Signed) B. E. BACON, Lieut. Col.,
for the Secy. to the Govt. of India.

No. 3286.

COPY forwarded to the Government of Madras, with a request for an expression of opinion on the subject of paragraph 12 of the letter from the Sanitary Commissioner.

By Order, &c.,

HOME DEPARTMENT,
SIMLA, 12th August 1867.

(Signed) A. H. HARRINGTON,
Offg. Under Secy. to the Govt. of India.

No. 229.

ORDER THEREON, 30th August 1867, No. 1067.

Ordered that copies of the foregoing extract be forwarded to the Acting Sanitary Commissioner for Madras, to the Committee appointed to report on the prevention of Cholera, and to the Inspector General, Medical Department, for any suggestions that they may have to offer on the points adverted to in paragraph 12 of the letter from the Sanitary Commissioner for Bengal.

(True Extract).

R. S. ELLIS,
Acting Chief Secretary.

To the Acting Sanitary Commissioner.

- „ Committee on Cholera.
- „ Inspector General, Medical Department.
- „ Military Department, for information.

Exd. J. H. Burns.

①

Extract from the Proceedings of His Excellency the Governor General of India in Council in the Military Department,—No. 249, under date Simla, the 17th July 1867.

READ extract, Home Department, No. 841, dated 25th January last, forwarding a Despatch from the Right Hon'ble the Secretary of State, with its enclosures, viz., Reports by the Cholera Commissioners at Constantinople on the origin, propagation, &c., of cholera, and the hygienic measures to be adopted for preservation against it; with a request that the papers might be referred to the Sanitary Commissioner for Bengal, in order that he might advise the Government of India as to any practical steps which should be taken on the recommendations of the Commissioners.

From MAJOR G. B. MALLESON, Sanitary Commissioner for Bengal, to the Secretary to the Government of India, Military Department,—(No. 312, dated Simla, the 29th May 1867).

I HAVE the honor to acknowledge receipt of your docket No. 961, dated the 29th January, and of its enclosures marginally noted. The further reports of the Constantinople Congress promised by the Home Department, have not yet been received; but as it appears that considerable time must still elapse before they become available, and as they merely contain the discussions on which the general conclusions of the Congress have been based, I shall no longer delay in submitting the preliminary suggestions which ought to be carried out, with a view both of diminishing the prevalence of cholera in India, and of preventing its spread to other countries. In arriving at any conclusions on this very important and difficult question, the abstract of the proceedings of the Congress, which has been prepared by Dr. Leith, President of the Bombay Sanitary Commission, and copy of which was received from the Home Office, has been carefully considered.

2. The more important conclusions arrived at by the Constantinople Congress, with regard to cholera in India, may be stated generally as follows:—

1. That India is the birth-place of cholera and is its permanent home.
2. That since 1817, this country has been the focus from which the disease has radiated in every direction.
3. That the special conditions under the influence of which cholera is originated in certain localities of India, and under which it has become permanently seated there, are unknown.
4. That in India pilgrims are the most powerful of all the causes which tend to the development and propagation of epidemics of the disease.
5. That cholera is propagated by man, and with a swiftness in proportion to the rapidity and activity of his movements.
6. That no fact has been brought forward to prove that cholera is spread by the atmosphere alone, whatever may be its condition; that it is a law without exception that an epidemic of cholera has never spread from one place to another in a shorter time than that required for man to journey between the two places.
7. That man tainted with cholera is himself the principal agent in propagating the disease.
8. That an individual suffering only from premonitory diarrhoea may suffice to occasion an epidemic of cholera.

9. That cholera may be transmitted by articles of personal use brought from an infected locality, and especially by those made use of by cholera patients, and that importation may take place to a distance by such articles, if they have been shut up from the access of fresh air.
10. That the choleraic principle is volatile, and acts like miasmatic exhalations by infecting the atmosphere.
11. That while the atmosphere is the principal vehicle of cholera, the transmission of the disease by the atmosphere alone is limited to a very short distance from the focus of emission.
12. That water and certain *ingesta* may serve as vehicles for the introduction of the generating principle of cholera into the system.
13. That the ways by which the poisonous agent penetrates are chiefly the respiratory, and very probably also the alimentary passages, and that there is no evidence to shew that it enters through the skin.
14. That the choleraic dejections are the chief seats of the morbid agent, and that therefore everything contaminated by such dejections, becomes a receptacle whence the generating principle of cholera may be evolved under favorable conditions.
15. That while, as a rule, the generating principle of cholera rapidly loses its morbid power in free air, it may, under certain peculiar conditions of confinement, retain its activity for an indefinite time.

3. In stating these general conclusions, it would be out of place to express any opinion with regard to their accuracy, or as to how far they are borne out by experience in India. They were arrived at by the Congress after very careful and patient deliberation; they were in almost every instance adopted unanimously, and should not be lightly set aside. The whole practical recommendations of the Congress rest on the belief that cholera is a communicable disease, and that except in such parts of the country in which it is an habitual resident, it spreads only by communication between man and man. ~~There is no doubt~~ ^{but in order to solve this question, as will be shortly pointed out, more information has been expressed as to whether it is not there also propagated in the same way;} but in order to solve this question, as will be shortly pointed out, more information has been expressed as to whether it is not there also propagated in the same way; is desired. To this idea of contagion many authorities, especially in India, have been strenuously opposed; but it is to be remarked that the belief in the communicability of cholera is gaining ground, and in dealing with the question of what practical measures should be adopted in the hopes of checking the disease, it is necessary that this communicability should be assumed as an established fact. If cholera be an air-borne miasm, then comparatively little can be done to arrest its progress. If, on the other hand, it be spread by man himself, much good may be anticipated by the employment of preventive measures.

4. Much of the scepticism which exists with regard to the contagious theory of cholera, is connected with the difficulty which is so generally experienced in establishing any connection between fresh cases of the disease and others which have previously occurred. But the same difficulty is often met with in regard to diseases, the contagious nature of which has been placed beyond all doubt. No more striking example of this kind could be adduced than what is furnished in the researches of the Commissioners appointed to enquire into the origin and nature of the cattle plague in Great Britain. Although the point was investigated with the greatest care, the Commissioners were yet "unable to indicate the precise channel by which the poison came into the market," and yet from all the facts they had no hesitation in arriving at the conclusion that the disease was not due to any occult atmospheric conditions, but that it was "spread by multiplication in the bodies of living animals." The remarks of the Commissioners, with regard to the origin and propagation of cattle plague, may, with equal truth, be applied to cholera. "If the cattle plague," they observe, "has spontaneously originated in this country from the way in which our cattle have been housed and fed, we might hope to shew how such conditions act, and how they can be removed. If it originates in some wave of poisonous air which spreads over the country, and after having a regular period of

flow has a succeeding period of ebb and disappearance, we must be content with bearing what no care can foresee, and no art control. If, however, cattle plague has been introduced among our herds by the arrival from infected places of cattle already diseased; and if it spreads entirely by contagion, it is obvious that means may be used, which, if applied strictly and carefully, will be effectual to prevent its return." Even those who are most strenuously opposed to the contagious theory of cholera must admit that any measures which have yet been taken with a view to control the propagation and spread of the disease among the general population have been attended with but little, if any result, and that every means for guarding the community from so fatal a scourge should be diligently and carefully tried.

5. In their report on the hygienic measures to be adopted for preservation against Asiatic cholera, the Congress has expressed its opinion that "there are no direct means of extinguishing the endemic foci of cholera, but that we may hope to arrive at that object by means of a uniform series of measures of which hygienic measures will form the most important part." This is the general recommendation which they have made in regard to what should be done in those places which are reported to be the permanent sources of cholera, and it therefore applies almost exclusively to India, or rather to those parts of it in which the disease is endemic. A consideration of the practical measures which ought to be adopted in order to carry out this recommendation, involves the whole question of the general sanitary administration of the country. In his letter to the Military Department, No. 620,* dated the 6th September 1864, Mr. Strachey submitted many excellent

* C. February 1865, Nos. 2150-51.

propositions on this important subject. I beg leave to refer to that letter for full particulars of the scheme. Its chief features comprised the appointment of local Sanitary Committees in all towns, civil stations, and other places or circles in which the Local Governments should consider such a course desirable, the Magistrate of the District being *ex-officio* Chairman of such Committees and charged with the enforcement of all the rules and regulations laid down for the protection of the public health; that each district should have a Health Officer whose duty it would be to inform the local authorities of such influences as are acting against the healthiness of the population, to advise what steps should be taken for their removal, to execute such special functions as may devolve upon him by the orders under which he is appointed, and generally to make himself acquainted with the circumstances which affect the health of the people, and to collect all such particulars for the information of the Local Governments and the Sanitary Commission. The office of Health Officer of the District, it was suggested, should ordinarily be held by the Civil Surgeon. It was further suggested "with the object of ensuring uniformity and harmony of action in the sanitary administration of the district, and as a means of connecting together the interests of all the Committees and helping them to co-operate with each other" that each district should have in addition a General Board of Health. Mr. Strachey further proposed that, in each Local Government, the Inspector General of Prisons should be appointed principal Officer of Health, advising the Government in all matters affecting the public health, ensuring the constant observance of all such sanitary rules and regulations as may be laid down, and obtaining reports from Health Officers, and exercising a supervision over the health of the whole province. Some such scheme of general sanitary administration is urgently required. It is only by arousing the people to a sense of the preventable nature of great part of the sickness and mortality which prevail amongst them and by enlisting their active co-operation, that we can ever hope to make much impression on the vast extent of country concerned. The formation of municipalities has already been attended with good results, and in many places, especially in the Punjab, the people are learning the value of sanitary measures, and interesting themselves in carrying them out. As education spreads, such good results will doubtless increase, but without some system of administration specially directed to enforce sanitary measures, little will be done. The subject is of very great importance both in itself and in its bearing on the health of our European troops, and I would strongly recommend it to the early attention of the Government. It is hardly necessary to discuss the pecuniary aspect of the

question. Any expenditure required might well be met from Local Funds. Indeed, there appears to be no object on which Local Funds could be more fittingly expended.

6. Another important question connected with general sanitary administration is the registration of deaths and causes of death. Registration is now carried on in several of the provinces, but it appears to be very desirable that it should be universally introduced. The results might at first be far from reliable, but the measure is one of the utmost importance in a sanitary point of view, and without it indeed the basis of all sound sanitary progress must be wanting. In all military cantonments in particular, an accurate registration of deaths and causes of deaths is specially required. Even in those provinces in which registration is now carried out, the inhabitants of stations have not always been included, and yet a knowledge of the occurrence of disease among them, and especially of the occurrence of any disease likely to become epidemic, is of the greatest importance. As regards no disease, is such information more important than as regards cholera. Here the occurrence of the first case is a matter of the greatest moment to be at once communicated to the Sanitary Officer, who should be required to make himself acquainted with all the facts, and take measures for preventing the spread of the disease, such as the thorough disinfection of all articles of clothing and any other things which might prove the medium of propagating the poison. In many of our stations considerable native cities have grown up under the name of bazaars, and it is of the greatest importance that the health of their inhabitants should be under proper surveillance. The new Cantonment Rules (Chap. IV., para. 16) provide that "it will be the duty of all Medical Officers and of all persons residing within the cantonment, to make known without delay to the Cantonment Magistrate, for the information of the Cantonment Committee, the appearance of any epidemic or contagious disease which may be dangerous to the public health." I would strongly recommend the addition of a rule requiring the registration of deaths and causes of death in all military cantonments, that a weekly statement of such registration should be drawn up by the Cantonment Magistrate, and a copy of it forwarded to the Sanitary Officer for the information of himself and of the Committee. It is also very desirable that all such statements should be preserved for the information of those who may afterwards occupy the station. In G. O. C. C., dated 20th October 1865, it was ordered that a weekly statement of the sickness and mortality among British troops should be preserved for permanent record in each military station, but in order to be complete, this order should embrace all the native troops also, and the resident native population besides. Such a record kept by the Cantonment Committee would in time become very valuable for reference. All servants and residents in private compounds should be included in the registration.

7. The special measures which the Congress has recommended for adoption in the East are given in a separate report devoted to the consideration of this important subject. I shall now proceed to state shortly what these are, and how they can best be carried out. Their recommendations may be divided into three heads,—

- I.—Those which concern measures to be taken with a view to obtain a more accurate knowledge of cholera;
- II.—Measures which should be adopted to restrain the influence of pilgrimages as the most powerful means of causing epidemics of the disease; and
- III.—The precautions which should be adopted to prevent the exportation of cholera from India.

8. Under the first head, the chief points to be determined, are,—What are the conditions which foster cholera in certain parts of India? In what parts of the country does the cholera exist as an endemic? What are the peculiarities of the places where its endemicity is most manifested? In those places in which it is endemic, does the poison generate itself spontaneously without the human body? Produced by some particular organic decomposition, is it born and disengaged in the manner of a paludal miasm, or as is more probable, does the morbid principle

once produced regenerate itself only by man, the soil and everything which exists on its surface being only the receptacles more or less favorable where the germ proceeding from those affected with the disease can best be preserved, and from which it is disengaged with an activity varying according to circumstances?

9. The enquiries required under this head would, as the Congress observe, form the study of years and of very careful investigation. The first point to be determined is to fix, with as great accuracy as possible, the limits within which cholera may be said to be endemic. On this question Dr. Bryden's tables afford very valuable data as regards the troops and jails; but to be complete, the investigation must include the whole population, and accurate statistics on this point will be the work of years. It is therefore very important that they should be commenced, and every means taken to perfect them in every part of India with as little delay as possible. An enquiry into any conditions peculiar to endemic localities, and especially into those conditions believed by Pettenkoffer to be essential to the development of cholera, might be delayed until these endemic localities had been determined with greater precision. But it is not necessary to determine these before acting on the third suggestion which has been made under this head. The point to be solved is whether, even in those localities in which cholera is endemic, the poison generates itself spontaneously outside the human body? In other words, is the poison in such localities dependent on an emanation from the ground, or does it result from a previous case of the disease? To test such a matter among the general population would be impossible; but the jails of Bengal and the Central Provinces, throughout which cholera may be said to be more or less domesticated, afford an excellent opportunity for the purpose. By carrying out a strict system of quarantine as regards all new admissions in these jails by carefully disinfecting the dejecta of any cases which may occur, and by applying the same disinfection to all articles of clothing likely to be contaminated by the poison, much light might be thrown on this important point. A perfect quarantine even in jails is hardly possible, as the entrance of articles of food, &c., could not be dispensed with; but a quarantine, as strict as can be carried out, would be sufficient to afford valuable data. When any case occurred, pains should be taken to trace its origin, and a special remark shewing the result of this enquiry should invariably be made in the Jail Returns. All the recommendations of the Constantinople Congress were indeed practically anticipated by the Sanitary Commission in the rules which were framed, with a view of preventing the occurrence of epidemics in jails, and all that appears to be required is to introduce these rules into Bengal. In the other provinces they are already in operation, but even in them measures are required to secure a more complete separation of the new admissions into jail. The quarantine which has been in force, imperfect though it is, has, however, been attended with excellent results.

There are other points also on which information is most desirable. What is the period of incubation of the disease, that is to say, how soon after the poison has entered the system, do the first symptoms generally shew themselves?

Do the dejections of cholera patients undoubtedly contain the germs of the disease by means of which it is propagated?

If so, at what period after their passage from a person affected with the disease, is the poison most active, and therefore most likely to have effect?

Has carbolic acid or other disinfectants the power of destroying these germs and rendering them altogether inert? This is a point which was investigated with much care by the Royal Commissioners with regard to the cattle plague, and the result has left little doubt that carbolic acid has this extraordinary and valuable power on the peculiar virus of that disease.

If carbolic acid or any other agent has this effect on the poison of cholera, as found in the discharges without the body, may it not also have the power of arresting the influence of that poison once it has entered the body, and the person so affected shews the first symptoms of the disease? This is more a medical than a sanitary question, but it is one of very great importance, and would complete the

enquiry. To solve such important problems, a series of experiments on the lower animals is much needed. I have been induced to make this suggestion by the perusal of a very interesting paper in the transactions of the Royal Society by Dr. J. Burdon Sanderson, giving the results of experiment on the communication of cholera to rabbits and mice and Guinea pigs. With cholera discharges which had been kept for three days, every one of the mice experimented on was seized with symptoms of cholera, and 21 per cent. died. A thorough investigation into the whole question of the cholera poison, and of the manner in which it is propagated, is much required, and nowhere could this be undertaken so well as in its home. It is little creditable that so little has been done in India to throw light upon the disease. By an extensive circulation of the report of the Congress and other papers bearing on this important question, Medical Officers might be encouraged to investigate these most important questions; but the appointment of a special Officer with peculiar qualifications, and who would devote his whole time and attention to the enquiry, is most desirable.

10. The next group of recommendations refers to pilgrims, and the important part they play in the dissemination of cholera. They embrace—*first*, the carrying out of proper conservancy measures during all fairs, such as the provision of latrines for the whole assembly, the speedy removal of all filth, and the strictest cleanliness whenever any number of people are collected together; *secondly*, the supervision of the pilgrims on their return to their homes. Under this it is proposed that they should be prevented entering any towns or military stations, unless they can prove that they are not suffering from cholera or diarrhoea, and that for a certain time previous they have had no communication with any one affected with the disease; that failing such proof, they should be detained under observation for a certain period longer—proper shelter, supplies, and medical aid being provided for them. Such measures are reported to have been carried out with excellent results both in the Madras and Bombay Presidencies.

11. As regards the sanitary arrangements of the fairs, little difficulty would be experienced. Were a system of general sanitary administration introduced, each fair would fall under the supervision of the Local Committee of the town or circle in which it takes place. The Magistrate of the district being *ex-officio* Chairman of all such Committees, would see that arrangements were made suited to the importance of the fair, and the number of people likely to be assembled, and could call in the assistance of the Health Officer of the district, if required. In all large fairs it would be advisable that the Health Officer should personally supervise the arrangements, and in all fairs where he was not present, the duties should be performed by one of his subordinates. In addition to the general cleanliness, it would be his duty to see that the market was well supplied with good food; that the water supply was clean and wholesome. He would also be on the look-out, so that the first case of any contagious disease, and especially of cholera, should be at once detected, and provided it appeared advisable, the Magistrate should be empowered peremptorily to break up the gathering. The fact would also be telegraphed far and wide as a precautionary measure. In carrying out such measures little difficulty would be experienced beyond the want of sufficient funds, and to provide these I would suggest that a small tax should be levied on all pilgrims to be expended for sanitary purposes. Such a tax could be raised without any hardship, and would be a fair charge on those whose presence rendered it necessary. Special rules for the proper conservancy of all fairs and places of pilgrimage, and for the managements of any epidemic disease, should it appear during the gathering, will hereafter be prepared.

12. The supervision of pilgrims returning to their homes is a matter of much greater difficulty. The vast numbers of people, the numerous routes by which they travel, the ease with which many might evade the strictest cordon by leaving the main roads, the oppression and extortion to which they may be subjected by the police, all form very serious obstacles in the way of carrying out a really efficient quarantine. I have no hesitation in coming to the conclusion that quarantine should be established; but I propose to defer the preparation of any definite rules on the subject, pending the receipt of a full report on the recent outbreak of the

disease at Hurdwar, and the result of the preventive measures which were adopted both there and in the various districts through which the pilgrims passed. Full particulars have been requested, and as this is, I believe, the first occasion in which any precautions of this nature have been adopted on this side of India, it appears desirable to take advantage of the valuable experience which the epidemic has supplied. So far as yet received all the information is in support of the belief that the disease has been carried by the pilgrims, and that in no case did any place suffer prior to the return of persons who had been at the fair. As some time may elapse before all the reports have been collected, I would suggest that a copy of this letter should be sent to all Local Governments and Administrations, and that they should be asked to give their opinions on the whole subject, and especially as to the best means by which quarantine, as regards returning pilgrims, may be carried out, and whether any fresh legislation is requisite to give them the effect of law. But the peculiar difficulties in the way of carrying out quarantine, as regards the general population, do not exist to the same extent as regards military stations. Pilgrims should be invariably discouraged from entering them, and whenever they are known or suspected to be affected with cholera, or to be coming from any quarter in which the disease has appeared, their entrance should be entirely prohibited. In Umballa this measure was adopted, but apparently not before many pilgrims had already passed through the station. Of the outbreak of the disease at that station full particulars have been asked for.

13. The Congress has suggested with a view of diminishing the concourse of people at these fairs, and particularly to prevent the presence of so many beggars and others in want who are specially apt to excite an epidemic, whether it might not be possible to oblige each intending pilgrim to take out a license before he undertakes the journey, and to show before obtaining such a license that he has the means necessary for the purpose. Such a course would, it is feared, be impracticable; but whenever cholera is prevailing in any part of the country, it would be advisable, as far as possible, to prevent people from such localities attending the fair or pilgrimage. It may also be possible, so far as regards purely mercantile fairs, to fix the time for their being held at the most healthy period of the year, and in the event of epidemic disease being prevalent in the locality, fairs of all kinds might for the time be prohibited. There can be no question that pilgrimages are attended with much privation and sickness, and any legitimate means by which they may be discouraged are deserving of serious consideration. The danger of frequenting such places should be impressed on the people. They should also be made acquainted with the importance of carefully burying the discharges of all who may be attacked, and of burning or disinfecting all articles which may have been tainted with them. Were such measures universally adopted, much might be done according to our present knowledge of the disease to extinguish the germs on which its propagation depends.

14. The Congress recommends that when cholera does break out among the body of pilgrims, their departure should be arrested until the epidemic has altogether ceased, and the survivors have undergone a general disinfection. Such a measure cannot be supported, as it would greatly increase the evil and entail the most lamentable loss of life. Safety lies in the earliest possible dispersion of any body of pilgrims among whom the disease should appear, the sick being separated and kept for treatment, and those still unaffected subjected to quarantine. What the length of the time this should last is doubtful, because we do not know the period of incubation of the disease. The Congress believes 48 hours, the time adopted in Bombay, too limited a period, and it probably is; but the longer the period of quarantine, the more difficulty in carrying it out, and the suggestion that the pilgrims should be isolated for 10 days after the last appearance of a case of cholera among their number, appears to be impracticable.

15. As a first step towards our knowledge of fairs and their influence in disseminating cholera, a full account of the very numerous gatherings of this sort which are held throughout the country, is very desirable. Such a statement shewing the place at which the fair is held, the season at which usually takes place, the number of people assembled, the distances from which they come, the object of the

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fair, whether religious or mercenary, or both combined, would be of much value; and if His Excellency approves, I shall be glad to collect the materials for it. Some particulars of this nature were called for in the questions to Civil Surgeons, but unfortunately they are not complete.

16. The important subject of *disinfection* requires separate consideration. If cholera depend for its propagation on some specific germ, the importance of employing agents, by means of which that germ may be destroyed, can hardly be exaggerated. The experience of disinfection in many cases in which it has been employed with a view to checking epidemics of cholera, has been favorable, and it is very desirable that it should be carried out in this country as far as it possibly can. Whenever cholera occurs among troops, whether European or Native, among prisoners, at fairs or shrines, or in quarantine, camps of people proceeding from such assemblages, the precautions of a thorough disinfection ought on no account to be neglected. In Calcutta and in large towns, means should be taken as far as possible to disinfect both the dejecta, the clothings, and the habitations of all who may be suffering from the disease. It is not necessary to discuss all the various agents which have been recommended as the most efficient disinfectants. In the late epidemic of cattle plague in England, carbolic acid and sulphurous acid were found most powerful, and the Commissioners express their opinion that there is considerable evidence to shew that these substances have actually the power of destroying the cattle plague poison. We have yet to discover what agents have such a power over the poison of cholera, and the subject, as has been already stated, opens up a very wide field of experiment and enquiry. Sulphurous acid can be prepared by heating sulphur—a substance easily had in every bazar in India. Carbolic acid is procured by the distillation of coal tar, and I am now making enquiries as to whether it might not be manufactured by the Gas Company in Calcutta. Simple efficient rules for the employment of disinfectants will be prepared as soon as it is known whether carbolic acid is procurable at such a rate and in such quantity as would render its general and liberal use practicable.

17. It only remains to consider the precautions which ought to be adopted to prevent the exportation of the disease by means of ships. The Congress has recommended that the provisions of the Native Passenger Act of 1858, should be extended to all passengers' ships, and not confined to those sailing under the British Flag; that the sanitary condition of all the passengers embarking in any vessel should be ascertained by a competent authority, and power given to detain any person suffering from infectious disease, and especially from cholera or choleraic diarrhoea. The proportion of pilgrims who sail from this side of India is comparatively small. This part of the subject therefore chiefly refers to Bombay, and the recommendations made by Dr. Leith appear to meet all the requirements of the Conference.

18. In conclusion, I would remark that no additional precautions which have been recommended consequent on the conclusions arrived at by the Constantinople Cholera Conference, should interfere with the rules already laid down for moving troops into camp on the appearance of the disease in an epidemic form.

From the Secretary to the Government of India in the Military Department, to the Adjutant General,—(No. 248, dated Simla, the 17th July 1867).

In transmitting, for the information of His Excellency the Commander-in-Chief, copy of a letter from the Sanitary Commissioner for Bengal, No. 312, dated 29th May last, containing certain practical suggestions based on the Report of the Cholera Commissioners at Constantinople, with the view of diminishing the prevalence of cholera in India, and of preventing its spread to other countries, I am directed to state that the questions mooted will be considered by Government in the Home Department; but that the Right Hon'ble the Governor General in Council will be glad of His Excellency's opinion on the suggestions in paragraph 6 in regard to the accurate registration of deaths and their causes in each Military

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cantonment, which it is supposed could be easily effected by the Cantonment Magistrate and his Establishment, assisted, when necessary, by the Military authorities.

2. Arrangements for prohibiting the entrance into a cantonment of pilgrims and others, who may be known or suspected to be affected with cholera, or who may be coming from any quarter in which the disease has appeared, as recommended in paragraph 12, will also, His Excellency in Council concludes, be made without such difficulty.

ORDERED that copy of the foregoing be forwarded to the Home Department, for consideration and orders on the suggestions of the Sanitary Commissioner for Bengal.

(True Extract.)

B. E. BACON, *Lieut.-Col.*,

for the Secretary to the Government of India.

No. 3206

Copy forwarded to the Govt. of Madras, with a request for an expression of opinion on the subject of para. 12 of the letter from the Sanitary Commissioner.

By Order, &c.,

HOME DEPARTMENT;

SIMLA,

The 12th August 1887.

Asst. Secy. to Govt.
Offg. Under-Secy. to the Govt. of India.

Public Department

PROCEEDINGS of the MADRAS GOVERNMENT.

Under the following paper
from the Madras Govt to the Govt of India
4th Sept 1867.

Recd. 12 Aug 1867 No 286

(Order from 20 Aug 1867 No 286)

Order that copies
of the foregoing Extract
be forwarded to the Acting
Sanitary Commissioner
for Madras, to the Committee
appointed to report on the
prevention of Cholera, and
to the Inspector General,
Medical Department,
for any suggestions that
they may have to offer
on the points adverted

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of 1000.

Public 1867 Sept

From Govt 30 Aug 1867

1000 to 1000
3000 to 3000
of 1000.

2/12 1867

58th Aug 1867

No 1333

Forwarded papers on the
subject of the
Commissioner's letter
in view of which
these are referred
to the Committee

to in paragraph 12 of
the letter from the Sanitary
Commissioner for Bengal.

despatches
39
to the Secy. Sanitary Comm.
" Committee on Cholera
" Insp. Gen. L. Ind. Dept.
" Military Dept. for information

Printed order despatches

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No. 28 of 1868
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No. 1007

PROCEEDINGS OF GOVERNMENT.

Dated. 30 May 1867.

792836 of 1868
11-12 of 1868