

Local & Munl. (1899) Department.

MISCELLANEOUS.

G.O., No. 3407 sub

DATED 3/3/99

[Despatch Abstract.]

Professor Lustig's Curative Serum.

According to the letter from the Govt. of Bombay
forwarding copy of ^{the} Resolution containing
Professor Lustig's memorandum on the measures
that have been taken for the preparation of his
Curative Serum.

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

Local & Muni. (1897) Department.

CURRENT No. 3967

From The Govt. of Bombay

Order No 3469 dated 3/3/99
 Recorded
 1.2 21/11
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No. 13197

Dated 21-
 Received 24-
 Registered 24-
 } Feb 1999

Enclosures 1
 Spare copies 10 of incl.

Note
 Spare copies will be
 distributed to the
 Mague Commr.
 Sanitary Commr. ✓
 Engem-general ✓
 Presd. M.C. Madras ✓

SUBJECT.

Forwarding copy of the Resolution
 of the Govt. of Bombay, containing
 Prof. Ludwig's memorandum on
 the measures that have been taken
 for the preparation of his serum.

BACK PAPERS

G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.

Plague.—

Research Work.
Professor Lustig's Curative serum.

Plague.—

Foreign Missions and Experts.
Memorandum by Professor Lustig on the measures that have been taken for the preparation of his serum.

General Department (Plague).
No. 1273-P.

Bombay Castle,
20th February 1899.

Memorandum from the Plague Commissioner, No. 282-P.C., dated the 10th February 1899—

Submits a memorandum No. P.—5445, dated the 4th idem, from the Municipal Commissioner for the City of Bombay, forwarding for information the following memorandum by Professor Lustig:—

"1. Having obtained from the Italian Government leave only up to the 10th of February, I must start from Bombay, and I regret it is impossible for me to give my evidence to the Plague Commission.

"2. I beg to forward to the Commissioner a memorandum giving briefly my opinion on the different subjects on which I have been requested to express my views.

"3. Further explanations can be given by my Assistant Dr. Galeotti, Lecturer at the University of Florence, and by myself by letter, if the Commission find it necessary.

"4. The aim of my coming to Bombay has been to pay a visit to the Laboratory arranged by my Assistants, Drs. Galeotti and Polverini, and to have personal information of the arrangements for the preparation of the curative serum.

"5. I am very pleased to be able to express to the Commissioner that I have found the work of Drs. Galeotti and Polverini completely satisfactory in every regard, and I should be very glad if the Plague Commission would pay a visit to this Laboratory, and examine the operations for the preparation of the serum, and the experiments for the immunization of horses and other animals.

"6. Now it will be seen, from the several works published by myself and Dr. Galeotti in different and scientific papers, that we had in our researches the object of extracting from the plague bacilli a very active substance of known contribution able to induce in the animals, in which this substance has been injected, a strong local and general reaction, by means of which the serum of the blood of these animals attains specific bactericidal and antitoxic properties.

"7. Our experiments were, in the beginning, performed on animals (rabbits, rats, guinea-pigs, monkeys) and later on (July and August 1897) in Bombay and Poona with a serum prepared in Florence. With this serum we treated 30 patients in different stages of disease, and of these 24 recovered.

"8. In February 1898, I was charged by the Bombay Municipality to prepare serum in my Laboratory at Florence, and to send it here for the treatment of the plague patients in the hospitals of this town.

"9. Every time, before the sending out of the serum, I tested its preventive and curative power on rats, injecting them in the peritoneal cavity with a small quantity of a very virulent plague culture.

"10. I did not determine the minimum curative doses, because I think that such determinations have no conclusive value, it being impossible to have a standard of the strength of the injected virus.

"11. I can only say with certitude that $\frac{1}{2}$ or $\frac{1}{4}$ c. c. of serum was able to save a white rat of 100 grainsweight, if the serum not injected under the skin, 2 or 3 hours after the intraperitoneal infection with cultures able to kill rats in 12 to 18 hours.

"12. These experiments show that the serum of the No. 4 horse was the most active and that of the No. 1 horse was the weakest.

"13. The results are in accordance with the experiments made with the same serums on plague patients.

"14. With these experiments the Plague Commission have been acquainted by Dr. Galeotti and by other witnesses who had occasion to examine the treated cases, and it would be useless to report these results.

"15. Now I have found the horses treated by Dr. Galeotti in good condition, and I hope they will give an active serum.

"16. The first essays made by Dr. Galeotti on the rats gave very satisfactory results and these results will be communicated to the Plague Commission together with those of the following experiments by Dr. Galeotti himself.

"17. In accordance with my personal experience on the preparation of the curative serum in general and specially in regard to the preparation of the anti plague serum, I must say that not all the horses are able to give a serum endowed with sufficient curative properties, and that some horses are able to give a good serum, only after a long process of repeated inoculations.

"18. I believe that the strength of the serum prepared, following my method, is due to the presence in the blood of substances elaborated by the cells of the organism of the horses, during the general reaction which follows every inoculation.

"19. When the activity of the serum is in good proportion to the No. 1 strength of these reactions, the horses able to give strong reactions will furnish surely an active serum.

"20. On the contrary, the horses in bad condition of nutrition and in which the material exchange is abnormal, show, after the inoculations, phenomena of impoverishment and torpor, and are not able to give a sufficiently strong serum.

"21. For this reason, it is necessary to keep the horses quiet for some time after the first blood letting and before making the inoculations.

"22. I have requested Dr. Galeotti to give to the Plague Commission the most detailed information about the experiments which will be done on plague patients with the serum of the horses which are now under treatment, and also, in regard to the strength of the serum of every treated horse.

"23. Being requested by the Municipal Commissioner to express my opinion on the importance of rats in the diffusion of the plague, I offer the following:—

'1st. I have performed experiments on hundreds of rats of different races, and living in the most different conditions, and I have found that almost all are able to get plague.

'2nd. Keeping in a cage several infected and non-infected rats, all die in a short time, and in their bodies plague microbes are always to be found.

'3rd. Mixing a virulent plague culture with the food given to some rats, all these generally die from plague, and it is quite common to find the bacilli in their faeces.

'4th. Generally in the infected rats, the microbes enter the blood and with great facility they pass into the urine. Thus this urine becomes a very infectant liquid.

'5th. In 1897, I had occasion to examine at Poona some dead rats found in a granary and in these I found plenty of microbes.

'I investigated also the corn of this granary, but I did not discover any plague microbes in it. Nevertheless, I know that two cooks who ate of this corn died from plague a few days after.

'6th. I believe that the rats represent one of the most important means of diffusion of the disease, because they are able to carry everywhere virulent microbes.

'7th. That the destruction of the rats is one of the most important measures to be taken against the plague. For this purpose poisons can be very useful, and specially virulent to man. For this purpose, I believe that the Laser's microbe would be the best, because it was used with satisfactory results in Cessalia some years ago. I got a culture of this microbe and tried it on white mice, and obtained a culture which was very virulent, but I had not success into the black rats. I know that the same was experienced by Dr. Galeotti, to whom I sent one of my cultures of Laser's microbe. Dr. Galeotti will receive in a short time from Prague another more virulent culture of the same microbe, and will repeat the experiments."

RESOLUTION.—The memorandum by Professor Lustig should be printed and copies furnished to the Indian Plague Commission and distributed to the officers and Departments concerned for information.

A. WINGATE,
Acting Chief Secretary to Government.

To

The Secretary, Indian Plague Commission,
The Plague Commissioner,
The Surgeon General with the Government of Bombay,
The Commissioner in Sind,
The Commissioner, N. D.,
The Commissioner, C. D.,
The Commissioner, S. D.,
All Collectors, including the Collectors and Deputy Commissioners in Sind,
The Political Agents, Káthiáwár, Cutch, Kolhápur and Southern Marátha Country, Mahi Kántha and Rewa Kántha,
The Political Superintendents, Pálanpur and Sávantvádi,
The Deputy Adjutant General, Bombay Command,
The Commissioner of Customs, Salt, Opium and A'bkári,
The Collector of Land Revenue, Customs and Opium, Bombay,
The Collector of Salt Revenue,
The Health Officer of the Port of Bombay,
The Supervising Medical Officer, Railway Medical Inspection,
The Inspector General of Police,
The Commissioner of Police, Bombay,
The Sanitary Commissioner for the Government of Bombay,
The Municipal Commissioner for the City of Bombay,
All Departments of the Secretariat (except the Legislative, Ecclesiastical and Separate Departments),
The Principal Medical Officer, Bombay Command,
The Private Secretary to His Excellency the Governor,
W. M. Haffkine, Esq., C.I.E.,
The Government of India,
The Government of Madras,
The Government of Bengal,
The Government of Burma,
The Government of the North-Western Provinces and Oudh,
The Government of the Punjáb,
The Government of Ceylon,
The Agent to the Governor General at Baroda,
The Chief Commissioner, Central Provinces,
The Resident at Hyderabad,
The Resident in Mysore,
The Chief Commissioner, Assam,
The Agent to the Governor General, Central India.

By letter.

No. of 1899.

Copy forwarded for information and guidance to

enc 3967

No. $\frac{1319}{P.}$ OF 1899.

GENERAL DEPARTMENT (PLAGUE).



Bombay Castle, 21st February 1899.

FROM

THE HONOURABLE SIR A. WINGATE, K.C.I.E., I.C.S.,
Acting Chief Secretary to Government.

TO

The Secretary to the Government of Madras,
Local and Municipal Department.

SIR,

I am directed to forward for the information of the Government of Madras
10 copies of this Government Resolution No. 1273-P., dated the 20th February 1899, containing Professor Lustig's memorandum on the measures that have been taken for the preparation of his serum.

I have the honour to be,

Sir

Your most obedient Servant,

A. Wingate

Acting Chief Secretary to Government.

enc 3967 999

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AGAIN G.O., No.
 189

DATED

AGENT No.

ENCLOSURES TO C. No.

ORDER OF GOVERNMENT A A A A A A A

LETTER OF GOVERNMENT.

STATEMENT WITH DITTO.

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