

Local & Munl. (1899) Department.

MISCELLANEOUS.

G.O., No. 158 P Mis. ✓

DATED 1.2.99.

[Despatch Abstract.]

Mr. Stevens' diary on plague operations.

Recording Copy of the
Hyderabad Dy. Plague Commissioner's letter to the Plague
Commissioner, Hyderabad appending his diary when in Bom-
bay in connection with plague operations.

Local & Munl. (1898) Department.

CURRENT No. 20870

BACK PAPERS.

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

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From The Plague Com-
missioners
Hyderabad.

Order No 158 P. No. 1-2-99

Recorded

V.A.
21/1/99

No. 1348

Dated 5-10-1898

Received 5-10-1898

Registered 8-10-1898

Enclosures

Spare copies

SUBJECT.

Note

M. Haffkine's opinion on
Dr. Lawrie's discovery of plague
bacillus in the floors of infected
houses is contained in the Hyderabad
P.C's Comm. recorded in P.C's
Page no- 831 of 31298.

Forwarding for informa-
tion copy of letter
from Deputy Plague
Commissioners appended
his diary when in
Bamkay in connection
with plague operations

BACK PAPERS.

G.O.	No.	Department.	Date.

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No. 2348 of 1898.

SECRETARY TO GOVERNMENT
OFFICE OF THE
LOCAL & MUNICIPAL DEPARTMENT
HYDERABAD.
1898.

Dated Hyderabad Residency,

One printed copy of letter No. 603/B, dated 11th September 1898,
from Mr A. H. Stevens Deputy Plague Commissioner
forwarded to the Secretary to the Govt of Madras &
Municipal Dept. only for information and record.

is very extremely
to hear
in view
ie.
(By order.)

note in
office
13/10/98
HOSPT. ASST.,

8/10/98
had a meeting with
him, but
required, and arranged my visit
and deputed Dr. Cayley and one of the Plague Inspectors
worst infected portions of the city of Bombay.

Sunday 4th September.—Blank.

Monday 5th September.—In the morning I met by appointment
Dr. Choksy the officer in charge of the Municipal Plague Hospital at Arthur
Road, and he showed me all the plague cases in the Hospital; also a large
number of cases of relapsing fever, who were being kept under observation and
treatment. I was unable to obtain any specimens of the plague microbe direct
from the human subject as there were no post-mortems—only unclaimed plague
corpses being available for this purpose. I arranged to visit the hospital
again on the following day and make some microscope preparations from the
blood of some of the relapsing fever cases. In the afternoon I went to the
Bombay Municipal Laboratory and was introduced to the plague doctor
deputed by the Italian Government, to study the subject of plague, Dr. Gino
Gallioti, and his assistant Dr. Paulberine, who very kindly showed me a number
of plague preparations and cultures, and inoculated a mouse from a plague
culture. As soon as the mouse dies it is intended to make fresh plague prepa-
rations from the cadaver. Dr. Gallioti is about to commence the preparation
in Bombay of Professor Lustig's plague curative serum.

I was also introduced to Dr. Wagnora who is deputed by the Russian Government to study the subject of plague in Bombay.

Tuesday 6th September.—In the morning I visited some plague infected chawls in Colaba, and in Hamal and Bohras Street, and took floor scrapings from five rooms the result of the examination of which is given below, the preparations were made by me on the same day.

Floor scrapings from plague infected chawls in Colaba, Bombay.

No.	Address.	Description of floor.	Result of examination.
1	61 Hamal Street	Cement floor on second storey, disinfected the previous day.	A few diplo-cocci-like bacteria that may be plague.
2	61 Hamal Street	Cement floor on second storey opposite No. 1, not disinfected.	Characteristic appearance of deeply infected floor-earth.
3	60 Hamal Street	Wooden floor on third storey in which deaths had occurred, not disinfected.	Deeply infected, swarms of plague bacilli.
4	32 Bohra Street	Earth floor, not disinfected on basement.	No bacteria found.
5	41 Bohra Street	Do. do. do.	A few diplo-coccoid bacteria that may be plague.

The preparations from Nos. 2 and 3 I am sending you herewith for examination; they are most interesting, exhibiting precisely the same appearance as the hundreds of other preparations from infected floors that have been made from time to time since the outbreak of plague in His Highness the Nizam's Dominions; as well as more recently in floor scrapings from British infected villages in the Sholapore District. They show that the plague germ is met with in cement and wooden floors in exactly the same form and under the same conditions, as in the mud floors of village huts.

The earth preparations for the microscope were made in the usual manner; the scrapings were dissolved in distilled water, the solution filtered, cover glass films prepared, stained with gentian violet and carbol fuchsin, and mounted in xylol balsam.

Wednesday 7th September.—In the morning I again visited the Arthur Road Hospital, one plague case of ten days standing was operated upon and a large abscess in the neck opened. I made several preparations from this pus but found no plague bacilli in any of them. I then visited the relapsing fever ward and made six blood preparations in all of which the characteristic spirillum of relapsing fever was well marked. I send herewith two of these slides for examination.

In the afternoon I went to the Municipal Office and shewed Dr. Cayley the preparations of infected floor earth taken from the Colaba chawls. In the laboratory with Drs. Galliotti and Paulberini I made some preparations from the cadaver of a mouse inoculated from a plague culture on the previous day, plague bacilli were found in swarms in the blood, spleen etc.

Thursday 8th September.—In the afternoon I went over some of the largest and worst infected chawls in Mandvi with Dr. Cayley. Mandvi is the ward in the city in which the plague was first discovered and which has ever since, more or less successfully resisted all treatment and is to-day the ward in which the greatest number of attacks and deaths from plague occurs.

The Mandvi chawls are huge buildings six or seven stories high, containing each hundreds of separate families, the ground floors of the chawls as a rule being used for the storage of food grains.

At the time of my visit about 25 per cent only of the rooms were occupied, probably owing to the evil reputation in connection with plague they have attained, and it was therefore difficult to realize what they would be like from a sanitary point of view if fully occupied. All the rooms I saw were well ventilated with passages paved with stone running the entire length of the buildings, each separate room having at least one full sized door and window in it—all the floors of the rooms are made of cement, and speaking generally the Mandvi chawls I saw did not appear to be such a likely hot bed for plague as the dark unventilated rooms in the Colaba chawls. I omitted to mention that when inspecting the Colaba chawls, one room in which several deaths from plague had occurred—and had been in consequence evacuated prior to disinfection—was being utilized for drying rice, the entire floor surface being covered with the grain spread out to dry. *Food!*

From Mandvi I went to Professor Haffkine's Laboratory at Mazagon. I had a most interesting conversation with Professor Haffkine who informed me that he had received the orders of Government to investigate the history of the plague bacillus as it occurred in nature. He informed me that this branch of plague investigation had been previously enquired into, and he read several extracts from Dr. Hankin's printed report upon the subject from which it would appear that only in one instance had Dr. Hankin found the plague bacillus in floor earth, and even this had not been cultivated.

I was also informed that the plague bacillus had been found in the bodies of bugs, ants, fleas, and flies.

Professor Haffkine then showed me tube and plate cultures, that had been made from floor scrapings sent by the Collector of Sholapore and by yourself, from Hyderabad. From the original tubes selected colonies had been transplanted to other media, but hitherto it had been found impossible to isolate the plague bacillus. Professor Haffkine then put a series of questions to me regarding the Hyderabad plague work. I explained in detail our method of examining floor earth and of destroying the plague germ by burning by the kiln process. He then enquired about the plague work in the Laboratory at Hyderabad and asked how we proved that the bacillus found in the floor earth was the plague bacillus. I told him that our reasons for recognizing it as the plague bacillus are:— *11111. n. 3*

- (1) That it fulfills Koch's requirements and canons.
- (2) Floor earth inoculated into rabbits gave them plague, with all the characteristic symptoms of buboes etc. the plague bacillus being found p. m. in swarms in the blood, spleen, glands, etc. of the rabbits inoculated.

I also informed him that you were writing a report giving all details and a genealogical table of the generations cultivated in rabbits, agar, and broth.

- (3) The bacillus responded to Gram's solution and decolorized.
- (4) The stalactitic character of the growth in the broth cultures.
- (5) The uniformity of the results in inoculating rabbits with the plague microbe in invariably producing the disease; and the various control experiments with other putrid substances producing other forms of blood poisoning with other* and more motile bacilli.

- (7) The appearance of the growth of the plague cultures on agar-agar viz., semi-transparent raised circular colonies, sticky in composition but not very adherent to the agar.

The above seven reasons I informed Professor Haffkine were roughly as far as we knew in Hyderabad the means of proving the bacteria we found in the infected floor earth to be the true bacillus of plague, but I also informed him that I personally on practical grounds was convinced that the general microscopic appearance of plague infected floor was quite distinct and different from the appearance of floor earth containing other forms of bacteria, such as are met with in leather worker's huts, butcher's shops, or milk seller's houses, and that after examining about 500 specimens of floor earth during a period extending over 8 months in 20 villages in the Hyderabad State, as well as British villages near Sholapore and on the preceding day floor earth from Hamal Street Colaba, Bombay, I found plague infection in dwelling houses invariably accompanied with a unique and characteristic appearance of the floor earth when examined under the microscope. This required no searching for but was recognized at a glance by anybody familiar with its characteristic appearance. Every field in every preparation exhibits an unmistakable and uniform appearance, only to be met with as far as my experience goes in floor earth infected with plague.

Professor Haffkine then asked me to send him some infected floor earth for examination which I promised to do, at the same time suggesting that the very material he required was ready at hand in the Colaba chawls I had examined the preceding day; and it was arranged accordingly that after seeing the Laboratory at Mazagon we should that evening go to Colaba, and get some floor scrapings.

In the Laboratory, I saw some hundreds of large glass flasks of plague culture in broth this being the material from which the Haffkine protective

so called "Serum" is made. I particularly noticed the stalactitic growth of the plague bacillus in broth; the appearance was precisely the same as that of a similar culture made in the Hyderabad Laboratory from the floor earth of Hunia dyer's house in the village of Alland.

From Mazagon Professor Haffkine, Dr. Cayley, and myself went to the plague infected chawls in Hamal street, Colaba, where floor scrapings were taken from two houses Nos. 60 and 62. I told Professor Haffkine that in most rooms plague bacteria were not as a rule found near fire places or immediately facing doorways or windows, the most likely spots being those where the occupants slept on the floor and in the undisturbed corners of the room. We then went to Watson's Hotel where I was staying and I shewed Professor Haffkine two preparations of infected floor earth, one taken from the village of Akola near Sholapore, and the other from Hamal street, Colaba. After carefully examining both under the microscope he said "This may be plague" and subsequently "There is nothing here incompatible with the plague bacillus" he also added "If this is the plague bacillus, three days cultivation at the most should conclusively settle the point." I also shewed the various drawings and a few photographs that had been made at Hyderabad of the plague bacillus in its various forms as we found them in the series of cultures from infected floor earth.

Friday 9th September.—In the afternoon I met Dr. Cayley who informed me that he had made some preparations from the floor scrapings I had taken for professor Haffkine the previous evening, and that the same bacteria were present but not in the same characteristic masses as my slides exhibited, this was probably due to some slight difference in the method of making the preparations and was, I should say, most likely due to overfiltering the earth and water solution from which the cover glass films are made. Owing to other engagements, I was unable to go to the Mazagon Laboratory on Friday, and I left the same evening for Hyderabad.

I have the honour to be,
Sir,

Your most Obedient Servant,

A. H. STEVENS,

Dy. Plague Commissioner.

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READ AGAIN G.O., No. , DATED
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CURRENT No.

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