[L. & M. 1,000—16-5-99]

Local & Munl. (1899) Department.

Plague.

MISCELLANEOUS.

G.O., No. 1568

DATED 30 to 98
Rpd. 31. 10. 98

[Despatch Abstract.]

Coolies for disinfecting work at Hozen

Forwards proposal of the Collector of Salem &c.

BACK PAPERS.

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

FURTHER PAPERS.

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

[L. & M. 1,000—16-5-90.]

PLAGUE.

LOCAL AND MUNICIPAL DEPARTMENT.

Again G.O., No. , dated 189 .

Current No. of 189 , dated from the

Current No. 31829 of 1899, dated 4 — 12 — 99 from the Collr of Salem

SUBJECT.

Entertainment of additional Coolies for disinfection work at Hosur

FOR ORDERS.

Rep: D

" C

The Collector of Salem applies for sanction for the entertainment of 10 Coolies for disinfection work at Hosur in addition to 30 Coolies sanctioned in G.O. No. 1829 dated 31-6-99 & 1205 dated 7-8-99. These men are proposed to be employed at Salem as an experiment, presumably to make them sleep in the Camp without mingling with the villagers after work, as those recruited at Hosur are apt to return to their homes after work, and thus possibly carry infection from the Camp. Besides payment of the pay at the rate of 8 per mensem with a batta of 2 annas per diem when employed outside the Hosur Town, the Collr recommends the payment of an advance of Rs. 5 to be recovered in 5 monthly instalments, and the 3rd class railway fare from Suramangalam to

malur to all the Coolies referred to, so as to induce them to go for plague duty. The salary should be paid by the Collr and the payment of the advance recommended may be sanctioned - The payment of railway fare is inadmissible under art 1190 & 1191 of the C.S. Regs; but the Financial department sanctioned the payment of railway fare to a sick Coolie attendant of the Jolarpet camp under art 2754 of the Civil account Code (vide Fin no: 1080 dt 3-4-95) The charge in that case was Provincial, and the charges connected with the Coolies appointment of the Coolies are Local. Hon Accountant General may pass the Charge. The charge being local may be treated by this Deptt

Order No 1568 Prin 23/10/99 22/10

The Collector's proposals are sanctioned.

22/10/99

To The Coll of Salem Pd:O

31.10.99

Local & Munl. (1899) Department.

CURRENT No. 3183?

From The Collector of Salem

Order.

Dep. No. 1710 OC.

Dated 17 October 1899

Received 19 OCT. 1899

Registered 19 Oct 99.

Enclosures

Spare " "

SUBJECT.

Requesting Sanction for the entertainment of 10 more Coolies on certain terms for the disinfection staff & stating that these will be entertained in anticipation of Sanction

19/10

BACK PAPERS.

G.O.	No.	Department.	Date.
P	829	P	16-9
"	1205	P	7-8-9
"	1431	P	28-9
"	1570	P	6-10-9

FURTHER PAPERS.

G.O.	No.	Department.	Date.

Ref

No.

SALEM COLLECTOR'S OFFICE,
17th October 1899.

FROM

Robert B. Clegg ESQ.,
Ag COLLECTOR AND DISTRICT MAGISTRATE,
Salem,

To

THE SECRETARY TO GOVERNMENT,
Local and Municipal DEPARTMENT,
Madras.

SIR,

At present the disinfection staff consists of 30 coolies. Owing to a number of villages having since become infected and Hosur town in danger, this staff is unable to cope with the increased work and I have the honor to request that sanction may be accorded for the appointment of 10 more coolies. In anticipation of sanction I have directed that these may be engaged at Salem as an experiment. The difficulty is that the coolies recruited at Hosur cannot altogether be prevented from returning to their houses after work although every possible arrangement is made and there is risk of infection being thus communicated. The men will be paid pay at the rate of Rs 8 per mensem with a batta of 2 annas per diem when employed outside the Hosur town. They want an advance of Rs 5 to be recovered from their pay in 5 monthly instalments of one rupee each. As also 3d class railway

…e from Jutaun… request recommend that these terms may be sanctioned as otherwise it is difficult to induce men to go for plague duty.

I have the honor to be,
Sir,
Your most obedient Servant

R A Jenkins

Forage Collector.

Rev
10-10-99

When given for copying ____
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When signed ____
} 189

READ AGAIN G.O., No. 189 , DATED

CURRENT No.

ENCLOSURES TO C. No.

ORDER OF GOVERNMENT	A	A	A	A	A	A	A
LETTER OF GOVERNMENT.							
STATEMENT WITH [illegible]							
PAPERS NOT FILED UP, BEING MEANT FOR DESPATCH IN ORIGINAL.							

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Government {1899} of Madras.

LOCAL AND MUNICIPAL.

Recd.

1899.

Enclosures

Spare copies

in), b 1569, 1569-A P., 31st October 1899.

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ENCLOSURES.

REPORT on the outbreak of Plague in the Anantapur District, 1898-9 Major Robert Robertson, I.M.S.

On the 6th August 1898 an anonymous letter was sent to the Collector from Guntakal Junction to the effect that Lala, a sweetmeat seller from Hubli, had brought the plague, and that the writer had seen in the house of Ḥáfiẓ Ḵẖan, a railway contractor, two or three deaths occurring. On the 9th instant the Deputy Collector held an enquiry at Guntakal Junction along with the District Medical and Sanitary Officer. The enquiry shows that a sweetmeat seller named Hari Deo employed two servants Ram Lal and Behari Lal and a cooly Raghubeir Das. The employer with his servants lived in different rooms in the same block as far as I can understand, and the cooly at some distance. The cooly * seems to have been ailing for a few days with sore-eyes and then contracted fever and died after 5 or 6 days. The two servants † were simultaneously attacked with high fever and on the 3rd of August were placed under the treatment of the railway apothecary. These men all died within 5 days. (One of the servants had a small bubo due to a weight falling on his leg). None of the deceased had been to Hubli, but the employer had been there and returned $1\frac{1}{2}$ months previously. Fever had been prevalent for some time amongst the railway employés and this was put down to bad water. The District Medical and Sanitary Officer examined the iron reservoir

* 1st case.
† 2nd and 3rd cases.

and found a quantity of "greenish stuff" floating about and to this was attributed to a great extent the bad health of the employés. The source of the water at Nancherla, 4 miles distant, was also examined. The report concludes that the deaths are due to ordinary fever.

The next item of history is that the railway apothecary wired to the District Medical and Sanitary Officer at Anantapur on 13th that he should come and examine a case of fever.* Dr. Chalke arrived in the evening and met Captain Williams of Bellary who was passing through Guntakal—both examined the case (case 4) described as a Muhammadan mendicant and pronounced it plague. This man was found lying under a bread stall and after the diagnosis was established he was removed to a plague shed.

* 4th case.

A Komati woman † was also found on 14th to be suffering from plague, she was living near the sweetmeat sellers and she was conveyed to the plague sheds.

† 5th case.

On evening of 13th a Muhammadan, Shali Sahib, ‡ platform cooly living near the sweetmeat sellers, left his hut when he found he was suffering with fever and with his family lived in a vacant temple near Guntakal village; this family were taken charge of. It appears that Shali Sahib frequented the house of the Komati woman.

‡ 6th case.

The families who lived near the attacked persons were segregated and their houses burned down.

Muhammad Ismail and his mother § Ashabi brought in on 23rd. They lived in a house near No. 5.

§ 7th and 8th cases.

Krishnasamy ‖ arrived from Bangalore three days ago. Admitted 24th August. He lived in a brakesman's house in staff lines. The man's name, house, &c., was wired to Bangalore and plague found in his house there. This was undoubtedly an imported case.

‖ 9th case.

From this date there were no further cases until the 7th September when three ¶ more cases were found in two huts about two furlongs from the original focus, one of this family was a woman who sold hoppers and used to frequent the infected focus on business, but next door to her was a dhoby who, I suspect, received clothes from a guard at Hubli for washing in lieu of house-rent. This dhoby disappeared when plague broke out, but was afterwards captured.

¶ 10th, 11th and 12th cases.

Two ** more cases occurred on 16th—both were mail sorters. The above were all the cases in the railway quarters at the junction. It appears to me if these cases had been diagnosed by the railway apothecary who was undoubtedly very casual, considerable saving of life and money would have been effected. The whole spread of plague in the northern area of this district can be traced from this outbreak at the junction. It is also regrettable that Dr. Chalke did not suspect something wrong when three deaths occurred within five days and one case had in addition a bubo, as the Deputy Collector says. Dr. Chalke seems to have been puzzled and jumped to the water although he must have known that every one drank the same water at the junction. From the junction the disease slowly travelled to Timmancherla, a small village about one mile south alongside the Madras Railway. The disease here started in a house inhabited by the relations of the Komati people who were driven from the junction. The junction family came here for a few days and four of the family having taken ill, these fugitives again went off, one woman and child to Guntakal and another girl to Chobala. These four people in Timmancherla died, but nothing was known of it for several days. Yet it appears that a family of poor people lived behind this Komati house and they came and assisted the old Komati woman and her three children when ill. A father and son of this family now died and on the 3rd son becoming ill I was informed. On arrival plague was diagnosed and the above facts were elicited with the addition that some sick people were taken away in carts at

** 13th and 14th cases.

nights. Two other houses in the vicinity of this Komati house were affected. These four houses were burnt down and the other houses in the block cleaned. Burning was the only cleansing that could be done to those houses. As the disease had been very virulent, a number of dead rats were found in each of these houses. The disease did not stop now but crossed over to another block so that fully 70 houses in two blocks were vacated.

This evacuation undoubtedly broke the back of the disease. About this time a child who had been taken ill and recovered somewhat in the jungle was brought back by the people into the village, she may have been in a few hours when the fact was brought to my notice, I had this entire family removed to camp. Notwithstanding this, three Komati families who lived alongside this particular house were attacked by plague. The disease now abated after a loss of about 26 lives and no further cases occurred in the village. The people evacuated lived in a field about one mile from the village in old tents supplied by the Government. These people after a time could hardly be persuaded to leave the tents and go back to the village; the same thing was observed at Guntakal.

The first intimation of plague at Guntakal was received on the 9th October. Four or five days previous to that I had informed the Tahsildar and kept a sanitary inspector on the look out that rats were dying in the village. The villagers denied that rats were dying. The first case was a boy Govindappa 15, I found him dead, his father said the boy had been ill for 36 hours. The father, a Komati, kept an open shop and his father died a week previous in the same shop. Two days afterwards, 11th October, four cases of plague were found in the village. Of these four, three were taken from a house immediately behind that of a Komati women who fled from Timmancherla and died at Guntakal. This infected house had been cleaned about the middle of September on the supposition that the woman had died of plague and then locked up—possibly those old people had assisted at the funeral ceremonies. From this date the disease spread more and more, the Hindu families all left but the Muhammadans refused to leave; then summons were issued and the whole village emptied. The temporary evacuation of a house for a few hours for disinfection was tried but failed—plague again started after a few days. In round numbers there were about 150 deaths in this village. The Hindus went to their fields and erected huts, others got tents if their circumstances were such as to entitle them. Bamboo blocks of eight huts were erected for the poorer Mussalman families. The police quarters had also to be vacated owing to rats dying in them. There is no evidence to show that water had anything to do with the spread. About 500 inoculations were done in this village. The people erected caste camps on a small scale for themselves; a suspect and a plague block for Muhammadans and the same for Hindus. They were very kutcha and the people would not allow Government servants near them. The upshot was their sick died and the others would not go near the sheds but preferred dying in the fields.

Kottala.—On 21st November information was brought that plague had broken out at this hamlet. It appears a father with his two sons and one daughter lived together in a small house. The father was a stone-cutter and earned a livelihood working around the vicinity. He and one son and his daughter caught plague. On the father and son dying the remaining son ran away, the daughter was found dead on the 21st. The neighbours said that the father died about ten days previous and the son a few days before the daughter. The house, a small one, was burnt to the ground. About the 13th December an outbreak occurred (I was at Bangalore then), eleven attacks one day and twelve or so the following. There is no doubt but that rats were the carriers of the infection in this case, as the caste of the stone hewer and the ryots was such that the former would not be allowed to enter the houses of the latter. The burial of the daughter was performed by plague hospital servants and that of the father and son by Pariahs. This small hamlet lost about 33 souls.

Konakondla and Poliki.—Konakondla is situated about four miles from Guntakal. Plague started here about the beginning of January. It is presumed that fugitives from Guntakal village must have obtained a footing here. The possibility of an army of rats proceeding from Guntakal was broached, but there is no evidence to support this theory. Any way the disease again started in Komati houses and the people of

the village cleared out of their own accord. Dr. Murray with No. 1 ambulance column was stationed here—*vide* Dr. Murray's report attached. Poliki was about five miles west of Konakondla and this is a repetition of Konakondla. The disease spread here owing to the ineffectual segregation by the Reddi. The first cases were located together in a temple and I approved of the shelter on 24th December, but the Reddi allowed ingress and egress, the result was a sharp outbreak—63 attacks and 60 deaths.

Karúr, a village six miles from Konakondla. The disease was in all probability conveyed from Konakondla. Dr. Murray reported 29 cases with 17 deaths.

Gooty was attacked early in January. There were 20 attacks with fifteen deaths. Dr. Roberts was stationed here with an ambulance column. His report is attached.

Hindúpur is not referred to as Dr. Hunter treats of it.

(Intld.) B.M.

The above are the main attacks in the district. Imported cases occurred at Uravakonda, Dharmavaram and Anantapur, but these were easily followed up.

DISINFECTION.

Disinfection was carried out according to the Plague Regulations up to the end of January. Prior to my assuming charge of the district, all the houses attacked were burnt down, excepting a railway brakeman's house, in the hope of stamping out the disease. After my assumption I recommended one house in Guntakal junction and the first four houses attacked in Timmancherla to be burnt down in the hopes of stamping out the disease; but as I found that this energetic mode of stamping out plague only succeeded in the burnt house and that other methods were equally efficacious and frightened the people less, I abandoned conflagrations except in a few cases where a small hut made of cholam stalks and grass roofs were concerned, as in these cases the ordinary methods of disinfection would be futile.

2. *Regarding opening up the roofs of dark infected houses.*—Openings were always made to the extent of four square feet. The roofs are usually made of branches of jungle wood with a palm leaf mat or a few inches of cholam stalks laid over this and then mud plastered on top. There is no hardship in opening up a roof of this nature. I frequently found that the house occupier would himself repair his roof without permission, so that I concluded there was no great strain on his pocket.

3. The kiln method was carried out in its entirety at Guntakal junction, Timmancherla, Guntakal village, Konakondla, Poliki and Karúr and in the Hindúpur taluk generally. This method of disinfection is very laborious and expensive and I question very much if as good results could not be obtained by a (1—500) perchloride solution with an excess of acid; it would certainly be cheaper, as perchloride is put on in any case to keep down the dust.

4. The walls for four feet, good clothes, household utensils, &c., were all disinfected with perchloride solution. I have not seen any bad effects on clothing from the use of this solution. Woollen goods of course will shrink with ordinary water.

5. The use of limewash I consider superfluous where perchloride has been applied and only neutralises any excess of perchloride that has been applied. Caustic lime is obtained with considerable difficulty and in many cases it is mixed with ordinary whitewashing chunam which, of course, detracts from its value. A cartload of caustic lime costs about six rupees and half of this nearly is unusable as silt. I have not the figures with me as to the cost of whitewashing Guntakal village, but I am sure it will turn out a very expensive item. Limewashing certainly makes a village look nice, clean and æsthetic, but in my opinion does little else except in chemically neutralising the effects of perchloride solution.

Carbolic acid solutions were not employed as there was no occasion for the use of this feeble disinfectant.

6. *The agency by which disinfection was carried out.*—Guntakal junction and Timmancherla were disinfected by hired labour—it was well done, but the work was very slow as the coolies could not be got to work steadily and frequently stayed away for a day's holiday, so that, an infected house might have to lie over for a day or two before disinfection; this was a serious delay. Undoubtedly the best agency is the

sepoys under a British officer. I regret to say from the inspection of work done in the Hindúpur taluk (out-lying villages) the work was bad, both the Head Assistant Collector and the Plague Commissioner agreed with me. The reason for this was bad supervision, a dozen of sepoys under a Havildar were sent to a village with the necessary implements and no one, except a sanitary inspector, supervised their work; this state of affairs was at once remedied by ordering Lieutenant Ames and the Deputy Collector Mr. Marshall from Guntakal to Hindúpur; Mr. Ames was then required to personally pass each house disinfected. Both Lieutenant Ames and his predecessor Lieutenant Peart did excellent work. I have also to thank both the Native officers attached to the Guntakal detachment, both of whom behaved excellently in trying to quiet the fears of the Guntakal villagers and dissuading them to oppose the Government measures. In closing this section I cannot do better than to denounce the Chinese pump. No one in the district could use them—sepoys, inspectors, &c.; the reason is the valves became blocked with sand, &c., and the teak or dealwood of which it is constructed cannot stand the climate or uses to which it is put. I have seen two sepoys trying to lift the piston in vain on account of the swollen condition of the wood. It is also a very expensive toy. At first it cost Rs. 10 each at Bellary and Madras, but later on I procured as many as I wanted at Bombay at Rs. 32–8–0 per dozen.

Brass garden pumps are likewise useless, the perchloride melts the solder in two days' time. Both Lieutenant Peart and Ames and the Native officers were in favour of the ordinary garden watering pot with a rose which they used freely. The cost is only 10 or 12 annas and somehow lasts, strange to say, over a month (I fear the Native solder must be good) and has the advantage of being procurable in almost any bazaar.

PLAGUE HOSPITALS.

Three large suspect and plague hospitals, immobile, were built and equipped during the season—Guntakal, Hindúpur and Tadpatri. The remains (two sheds) of a pilgrim camp were still standing on my arrival in September, and this afforded some shelter for plague cases at this period. The camp now gives excellent accommodation for ten cases (Native) and two (European) with shelter for families, servants, &c.

The suspect camp has accommodated 150 pilgrims on occasion. There is furnished accommodation here also for four Europeans.

Two hospital assistants, one Apothecary and a nurse were in charge of the camp.

2. Hindúpur camp is on a smaller scale and different design. It will afford complete accommodation for ten Natives and two Europeans, whilst the suspect camp will accommodate over 100 Natives. This camp was in charge of an Assistant Surgeon, two hospital assistants and a nurse, &c. Both Guntakal and Hindúpúr camps were serviceable in treating plague cases.

3. Tadpatri camp only dates from February of this year, it is well equipped and in charge of an Assistant Surgeon and one hospital assistant. No plague has yet been treated here.

4. At Anantapur, the Municipality have erected sufficient accommodation for a few plague cases. One has already been treated there, no special hospital assistant has been detailed for these sheds.

5. The various Unions as Gooty, Tadpatri, Uravakonda, Dharmavaram, Penukonda and Bukkapatnam had a small supply of condemned tents allotted to them for plague uses, so that immediate segregation could be resorted to if necessary. In addition to this at these stations the Local Fund Medical officer had a good supply of disinfectants and medical comforts given to him for plague purposes only.

RAILWAY INSPECTION STATIONS.

1. *Hindúpur* was the railway frontier inspection station. All passengers from Mysore territory were here examined. An Assistant Surgeon, nurse and several writers completed the staff. During the plague season there were really only two trains passing—10–30 P.M. Mail from Bangalore and a Local about 1 P.M. in the afternoon. A good look out on the down Mail to Bangalore was also kept up. Two or three cases from Bangalore were removed from the train suffering with plague and a considerable number of suspects were detrained.

2. *Guntakal Junction.*—The railway inspection staff examined all trains—Southern Mahratta Railway and Madras Railway—arriving, and passports were issued to those detraining from infected parts. Five cases in Bangalore were taken out of the train suffering from plague. The establishment here was an Assistant Surgeon, a nurse, hospital assistant and one peon. Quarters were provided for the staff close to the station.

3. *Tadpatri.*—An inspecting staff was stationed here in February for the examination of all passengers on the Mail, this examination did away with an examination carried out at Guntakal for this train, the object of this movement was to bar the Reddi from Gooty town inspected. The staff was identical. The disease was in all probability Guntakal plague camp. ported 29 cases with 17 deaths in January. There were 20 at those travellers

4. Besides these railway ere with an ambulance with that in charge of the detraining is not refer inspection stations there were examination of passengers ing and the issue of passports to them. At Penukonda station an assistant sanitary inspector issued passports, at Dharmavaram a hospital assistant, this man also looked after the South Indian Railway passengers. At Anantapur a hospital assistant, at Gooty station a hospital assistant and at Tadpatri until the regular staff were appointed, a sanitary inspector issued passports, &c.

5. *Circle Inspectors.*—Hindúpur and Madakasíra taluks were each divided out into seven circles. Two supervisors watched the work of the sanitary inspectors in the Hindúpur taluk and only one supervisor for the Madakasíra taluk. The Kalyandrug-Mysore frontier was watched by three Inspectors and one supervisor.

The Gooty Taluk.—Three inspectors and a supervisor stationed round the neighbourhood of Gooty; these men did excellent work in patrolling.

Between Guntakal and Uravakonda there were four sanitary inspectors and round the neighbourhood of Uravakonda there were two others. These six inspectors were under one supervisor and did fairly good work on the whole. The diameter of each was between five and six miles and each inspector had in his possession a riding pony. These inspectors latterly were of a very poor class, many of them could not tell the truth, so that the distance travelled, &c., as noted in their diaries were frequently found to be false. Some could not speak English or write it, so that their diaries came to be written by others. Two men came to the district who could not speak Telugu. Muhammadan sanitary inspectors I could not trust, the three whom I had may have been an exceptionally bad lot.

The supervisors were on the whole a mixed lot. One was a certificated inspector, P. Kothandarama Row, he did very good work; his brother P. Runga Row, who started without sanitary education, came out most brilliantly; he had plague in almost all his circles, six in number, and came out of it all splendidly. This man came out of the Collector's office at Cuddapah.

At Hindúpur Mr. Brito, Salt Inspector, did excellent work, he saw no plague before coming to the district. Mr. *Gotting had had previous experience of plague at Bombay, he worked very satisfactorily.

* This is doubtful.
(Intld.) B.M.

The supervisor at Madakasíra was a †clerk in the Collector's office, he knew nothing.

† English Head Accountant.
(Intld.) H.W.B.

The supervisor at Kalyandrug was a Revenue Inspector ‡, he would have been of little use if plague had occurred in his charge. As a supervisor holds a very responsible position, I am of opinion no one should be given such a post unless he holds a sanitary certificate. As a rule I found the temporary sanitary inspectors are indifferent and overpaid body compared with the certificated men.

‡ Ag. Taluk Sheristadar, Dharmavaram.
(Intld.) H.W.B.

Ambulance Columns.

Three ambulance columns were equipped and employed most of the season.

The first column under Dr. Chalke proceeded to Uravakonda in September and remained there until it was obvious that plague was not to spread.

The second column was sent to Dharmavaram under Dr. Charlesworth on 6th October and remained there for about four weeks. No. 1 column was again brought into Guntakal village under Dr. Charlesworth in November and remained there until January 3, 1899, when it proceeded to Konakondla under Dr. Murray.

No. 2 ambulance column went to Hindúpur under Dr. Hunter's charge about the middle of December; the object of sending this column to Hindúpur, where a plague camp already existed, was to split it up into sections for various infected villages.

No. 3 column was sent to Gooty under Dr. Roberts early in January 1899. Each column was fully equipped except No. 3, as from our previous experience we anticipated no one would seek aid and this actually occurred. From my experience in Anantapur district I do not think those expensive columns are of much use from a hospital point of view. The people refuse to go near them. Dr. Murray tried hard at Konakondla and Poliki to win the people but in vain. Each of these columns mean an English plague doctor, a nurse, a hospital assistant and a compounder with a menial staff about twenty, all doing nothing. If those sick people are to be successfully won, it can only be by the local medical officer whom they have known for a long period.

I may add that a reserve Medical Officer Dr. Beach was kept in readiness at Anantapur in view of a possible outbreak at Tadpatri or elsewhere.

Road Frontier Stations.—Four road frontier stations were opened in the district, two amongst the Penukonda hills, one at Govindapuram amongst the hills and a fourth at Kodúr; this last was, in my opinion, useless as it did not command the road and any one could evade it. Whereas the others were situated on the only track —a road which winds in and out of the hills. These stations were equipped according to regulation. Accommodation for plague and suspect cases were provided at each.

Originally five, but the one at Hindúpur was soon abolished.
(Intld.) H.W.B.

Inoculation.—Roughly speaking, about 3,000 inoculations were performed in the Anantapur district from September to April. The majority of those inoculated were of the poorer classes. In very few instances could observations be made after inoculation. I personally am not aware of any deaths due to inoculation. I have not seen abscesses resulting from inoculation but have known them to occur. I consider abscesses due to a badly-cleaned arm or a dirty needle. From January inoculation practically ceased, this was undoubtedly due to the remarks of Lieutenant-Colonel Lawrie on Dr. Haffkine's serum. Children and men bear inoculation excellently, women indifferently and pregnant women badly. Of course it is to be understood that all inoculated persons are selected as being in good health.

Amongst the inoculated there have been five deaths and three recoveries. Amongst the deaths one was inoculated twenty-one days previous, another three, another seven, another ten, and one case at Hindupúr which Dr. Hunter will furnish details of—*vide* case No. 10 in list.

List of persons attacked is appended—

Number.	Name.	Age.	Date of inoculation.	Date of attack.	Date of death.	Remarks.
1	Streenivasa Row ..	24	11th Sept. 1898.	14th Sept. 1898.	January 1899.	....
2	Seenaya	25	1st Oct. ,,	21st Oct. ,,	....	Recovered.
3	W. Lutchmanan ..	45	7th ,, ,,	26th ,, ,,	28th Oct. 1898.	Large diffused axillary abscess.
4	Veerasamy	28	8th ,, ,,	17th ,, ,,	....	Recovered.
5	Nagamma	26	9th ,, ,,	24th ,, ,,	24th Oct. 1898.	This woman was found dead in her own house, a fortnight after her child had died of convulsions. I cannot certify her case as plague.
6	Tippanna	12	13th ,, ,,	23rd ,, ,,	23rd ,, ,,	Found dead.
7	Erappa	40	15th ,, ,,	19th ,, ,,	19th ,, ,,	Found dead. I could not certify this as plague although adjoining a plague-stricken house.
8	Rahim Bee	26	22nd ,, ,,	26th ,, ,,	....	Recovered.
9	Mahaboo Bee ..	5	22nd ,, ,,	27th ,, ,,	29th Oct. 1898.	..
10	Pakka Madava Row..	30	4th Nov. ,,	25th Jan. 1899.	1st Feb. 1899.	In same house one inoculated male, one uninoculated male and one uninoculated female escaped attack; one uninoculated female had plague and recovered.

In concluding my report I must bring to your notice the services of Mr. Marshall, Deputy Collector on plague duty. He has throughout done excellent work and worked with zeal both round Guntakal and at Hindúpur. The work has been very irksome sometimes for him, but he has never tired. I trust Government will take favourable notice of his services.

I also desire to bring to the Collector's notice the services of Dr. Murray, Mr. Vasudeva Row, B.A., Tahsildar of Gooty, Apothecary Parrie and Supervisors Mr. Brito, P. Kothandaram Row and P. Runga Row. These have all done good work.

I have withheld my remarks on Hindúpur as Dr. Hunter's report will deal more fully on that subject.

From W. H. MURRAY, Esq., M.B., C.M., Additional Medical Officer, Anantapur, to the District Medical and Sanitary Officer, Anantapur, dated 28th March 1899.

From J. HUNTER, Esq., M.B., C.M., Additional Medical Officer, Hindúpur, to the Collector of Anantapur, dated 19th May 1899, No. 1795.

From H. T. L. ROBERTS, Esq., Additional Medical Officer, Gooty, to the District Medical and Sanitary Officer, Anantapur, dated 31st March 1899.

BELLARY.

From E. A. ELWIN, Esq., Collector of Bellary, to the Secretary to Government, Local and Municipal Department (through the Sanitary Commissioner and the Surgeon-General), dated 14th and 19th June 1899, No. 250-P.

ABSTRACT.—Forwarding the report of the District Medical and Sanitary Officer and the following narratives relating to plague-infected places in the district:—

Chippagiri, Alúr taluk.—This village (population 1,884) is situated at a distance of 5 miles from Guntakal junction in the Anantapur district where plague had appeared about the middle of August. Suspicion of the existence of plague in the village was first aroused early in September 1898, at which time the Collector was, with reference to Additional Regulation 22, arranging for the formation of an observation circle consisting of this particular village and all villages situated within a radius of 6 miles of it. On 6th September 1898, two individuals were taken ill with fever. One of them, an adult male, died on the night of the 9th idem from what the apothecary of Alúr who treated the case and the District Medical and Sanitary Officer who examined the corpse the following morning were practically certain, was plague. The other individual, a female, died on 11th September 1898, but the District Medical and Sanitary Officer felt doubtful whether it was a case of plague.

2. As the plague was apparently indigenous and as Government on hearing of the occurrence, telegraphed to the Collector on 10th September 1898 to proceed to the spot with the additional medical officer and take all precautionary measures, arrangements were at once made for the formation of a new observation group consisting of four observation circles with Chippagiri as head-quarters, and for the despatch to the village for cordon duty of the company of sepoys of the Ninth Madras Infantry that had been placed at the Collector's disposal in the previous March and for duties connected with the treatment of the sick the ambulance staff that had for some time been assembled in readiness at Bellary.

3. On the advice of the District Medical and Sanitary Officer who examined on 10th September 1898, the first suspicious case of fever which proved fatal as above stated, the shed in which the patient died, the house in which he was living before the attack and the village gate-way to which he was removed were all burnt. The inmates of the adjoining house in which the second fever case of the 6th September which was not pronounced to be plague occurred and several others were temporarily segregated in their own houses pending the construction of segregation, etc., camps.

The Collector himself proceeded to the village on the morning of 12th September 1898 to personally supervise the plague-preventive measures and the sepoys arrived there on the next morning under the command of a British officer. A cordon was immediately placed round the village as the villagers seemed disposed to leave their homes for other villages and the pass system was introduced. No one was allowed either to leave or to enter the village unless provided with a general or a special pass, the issue of general passes being entrusted to the Tahsildar and that of special passes being reserved by the Collector to himself. The ambulance staff arrived on 14th September 1898.

4. On the arrival of the sepoys in the village, the home-segregated persons were removed for observation to a segregation shed which had been prepared in the meantime for the purpose. Temporary sheds for the accommodation of patients were put up, and a health camp consisting of several temporary sheds and some tents obtained from the Collector of Anantapur was formed. Guards were placed over all these camps. As a regular hospital a nicely-thatched building containing wards capable of holding ten persons was afterwards erected.

5. On the arrival of the ambulance staff a house-to-house inspection was begun with a view to ascertain whether there were any suspicious cases of fever. The inspection party which consisted of the revenue and medical officials and the Plague Inspector was always accompanied by two or three respectable inhabitants of the village in whose presence the inspection was conducted agreeably to the customs and wishes of the people. This measure of daily inspection, however, proved so unpopular with the people that it had to be given up and an informal sort of inspection by the Tahsildar substituted. As the officer in command of the detachment of sepoys reported on 16th September 1898 that his 100 men were insufficient for cordon duty, and as it was apprehended that the villagers would abscond unless properly controlled should fresh cases of plague occur, application was made to Government and sanction obtained for an extra force of 100 men. These men arrived in the village on 19th September 1898 and were at first employed on cordon duty along with the other men.

6. There was no fresh case of plague in the village for ten days after the first attack and the Collector therefore ordered the cordon and ambulance staffs to disperse and himself left for Tungabhadra on the night of 21st September 1898. The additional medical officer and the ambulance staff left for Bellary on the 22nd morning and the cordon staff was also about to set out on the same day when the Tahsildar and Plague Supervisor discovered in a hut, on the confines of the village, a case of plague that appeared to have been imported from Guntakal. The patient—a boy—and the other members of his family were immediately removed to the temporary plague sheds outside the village and the apothecary in charge of the Local Fund hospital at Alúr sent for. The latter agreed with the Tahsildar and the Supervisor that the boy was suffering from plague and treated him till his death which occurred on the 23rd night. Immediately on the discovery of this case, all necessary precautions were re-adopted and the additional medical officer and ambulance staff recalled. The Collector himself returned to the village from Tungabhadra on the 23rd morning. From this day forward there were a series of indigenous cases as noted on the margin, all of which proved fatal.

Date.	Number of seizures.
23rd September 1898.	3
24th „ „	1
26th „ „	1
29th „ „	1
1st October „	1

7. With a view to stamp out the disease in the village and prevent its spread to the adjoining villages, the village was declared to be an infected area under Additional Regulation No. 21 and a notification published in the District Gazette Extraordinary, dated 24th September 1898. The following measures were also promptly taken with the result that the disease did not spread to any appreciable extent, the total number of cases which occurred in the village being eight indigenous and one imported:—

(i) Removal of the patients to the plague hospital.
(ii) Segregation of the contacts.
(iii) Removal to the health camp of the inmates of the houses situated in the blocks adjoining those infected and the complete evacuation of the houses whether infected or situated in the adjoining blocks.

(iv) Disinfection of the above houses and their contents in the manner laid down in the regulations.

(v) *Inoculation.*—Forty-nine houses were in all evacuated and disinfected, the inmates thereof numbering 161 having been removed to the health camp. The disinfection was at first done by coolies specially engaged for the purpose, but this system did not work well and the business was subsequently undertaken and completed in a very satisfactory manner by a portion of the troops that was spared from cordon and guard duties. The mode of disinfection followed was that prescribed in G.O., No. 487 P., dated 17th May 1898, and all the houses were, after disinfection, white-washed. Subsequent to 15th September 1898, no houses were destroyed by fire, but all articles of trifling value condemned by medical officers as liable to retain infection were thus destroyed. To the owners of the property who were affected by this measure, compensation amounting to Rs. 519 in all was paid.

There was at first considerable difficulty experienced in inducing the villagers to submit themselves to the operation of inoculation, but their reluctance was gradually overcome by persuasion and owing to the good example set by the Tahsildar and sepoys. Five hundred and forty-one persons were in all inoculated.

8. The last plague case which broke out in the village proved fatal on 2nd October 1898 and after the lapse of 20 days from the last attack, it was considered that all danger of infection had passed away. The cordon was accordingly withdrawn and the ambulance staff permitted to return to Bellary on 21st October 1898.

9. There has up to date been no recrudescence of the disease in this village.

10. *Molagavalli, Alúr taluk.*—The next village where plague broke out was Molagavalli situated at a distance of 3 miles from the railway station of the same name on the Madras Railway line and of about 8 miles from Chippagiri with a population of 3,216. On 2nd November 1898, *i.e.*, 12 days after the withdrawal of the cordon and ambulance staff from the latter village, the Tahsildar of Alúr received a report from the Plague Inspector of the circle of the discovery at Molagavalli of a case of fever with glandular swellings under the arm-pit, and at once proceeded to the village with the Civil Apothecary, Alúr. The latter had the patient under his observation till the following morning and found that he was developing symptoms of plague. The Tahsildar had the patient removed to a temporary shed put up outside the village and the contacts, eight in number, segregated in another shed. The sheds were guarded by the police.

11. The patient was a Komati, by name Iswarayya. He had been to Gooty on business on the morning of 22nd October 1898 and returned to Molagavalli on the night of the following day *viâ* Guntakal. He was apparently in good health till 31st October 1898, when the fever already alluded to began. He is supposed to have contracted the infection when at Gooty or Guntakal.

12. On the receipt of information of the above case on 3rd November 1898, the Collector at once made arrangements for the despatch of the ambulance staff and himself started for the spot with the District Medical and Sanitary Officer on 4th November 1898. The District Medical and Sanitary Officer examined the patient the next morning and pronounced the case to be one of plague. Thereupon the disinfection of the man's house and the evacuation and disinfection of the neighbouring houses were ordered and put in hand under the personal superintendence of the Collector and the District Medical and Sanitary Officer. The disinfection was at first carried out by the ambulance staff assisted by a few coolies of the village specially engaged for the purpose.

13. On the afternoon of 5th November 1898, an indigenous plague case was detected in the house opposite to that of Komati Iswarayya above mentioned. The patient, a golla, male, aged 30 years, was removed to the camp outside the village the next morning, but died within an hour or two afterwards. The contacts were segregated.

14. The inmates of the houses in that portion of the village held to be infected were at first sent to a health camp but they were subsequently allowed to remove themselves to sheds in their own fields at a distance from the village where they were subjected to daily inspection.

15. There were no fresh attacks reported till 18th November 1898, when a toti woman attached to the ambulance staff developed plague and died the next day. She was the only uninoculated member of the ambulance staff and apparently caught the infection in the discharge of her duties which frequently brought her in contact with the first patient who eventually recovered. Between 19th November 1898 and 30th November 1898 there were three more indigenous cases outside, but near, the infected portion of the village, all of which proved fatal.

16. In the meantime many of the villagers had removed from the village to temporary sheds put up in their fields and it was found out towards the end of the month that there had been several suspicious fever cases which had not been reported to the authorities, the corpses in the fatal cases being disposed of by clandestine burial. Subsequent enquiries showed that whenever an inmate of any particular house was attacked with fever, the other inmates at once took him and as much of their property as possible and left the village at night for the fields; this could be done without much fear of immediate detection owing to the fact that house-to-house inspection could not be resorted to as the people threatened to run away to other places if they were worried in that way and that the vast black cotton plain in the midst of which the village is situated afforded any amount of hiding places. It was tolerably clear by 9th December 1898 that the village was infected in almost every corner and orders were accordingly issued to evacuate the whole place except a substantially built house occupied by the reddi whose whole family had been inoculated. Seven hundred and sixty-eight houses in all were evacuated and disinfected the inmates thereof numbering 3,210 having removed to the fields. A detachment of 100 sepoys under a British officer for disinfection work was obtained from Bellary on 12th December 1898, and with the help of a few coolies employed to do odd jobs, such as fetching water, completed the disinfection of the village by 30th January 1899. A Special Deputy Tahsildar to relieve the Tahsildar of some of his ordinary work was appointed about this time; his appointment lasted till the end of the official year.

17. The last attack of plague occurred in the fields on 30th January 1899, but the people were not allowed to re-occupy the village until 14th March 1899, when orders were issued permitting re-occupation of the houses, the villagers being directed to boil all their clothing and expose it to the sun before re-entry.

18. During the outbreak the Special Deputy Collector and the additional Medical Officer were generally encamped at the place and engaged in patrolling the camps and supervising the preventive measures. The Collector paid several visits to the village. Inoculation was not so popular as at Chippagiri, the total number inoculated being only 112; the chief reason for this was that at least five persons, who had no doubt incipient plague at the time of the operation, died within a few days after inoculation and their fate led others to regard inoculation with suspicion.

19. The total number of attacks reported was 129, 106 of which proved fatal, but it is believed that several persons were attacked and perished in the fields whose cases were never heard of.

20. *Peddahotur.*— * * *

* * * * *

29. *Hospet Union, Hospet Taluk.*—Hospet village is the head-quarters of the taluk of the same name and has a population of 12,878 and comprises with the adjoining villages of Chitwadigi (population 3,278) and Mudlapur (population 253), the Hospet Union.

30. *First outbreak.*—The disease first appeared in an indigenous form early in December 1898 at Mudlapur close to the Hospet railway station. The Sanitary Commissioner for Madras inoculated on 2nd December 1898 a girl of ten years' age, a member of the family of the railway stationmaster, who was apparently in good health at the time the operation was performed. On the second day after inoculation the child had mild re-actionary symptoms and apparently recovered in a day or two. On the seventh day after inoculation, *i.e.*, 8th December 1898, she was attacked, however, with high fever accompanied by convulsions and developing symptoms of plague two days later died on the night of 11th December 1898, when the Plague Commissioner and the Collector were on the spot. How the infection was communicated to the child it has never been ascertained.

31. The house in which the death occurred was thoroughly disinfected and the contacts of the deceased were after disinfection removed to the camp attached to the railway inspection station. Two of the contacts—the wife and a son of the stationmaster—developed symptoms of plague on 17th December 1898 while under observation, but eventually recovered.

32. *Second outbreak.*— As in the case of the first outbreak, nothing definite has been ascertained about the origin of this outbreak. It is probable, however, that the disease was introduced by persons of the Boya caste who after the fall of the Tungabhadra river at the end of November were in the habit of resorting in large numbers to the toddy shops situated at a distance of a few miles from Hospet in the infected Kopbal jaghir of the Hyderabad State.

33. On 7th January 1899 a Boya boy aged six years was brought to the Hospet hospital suffering from fever. On examination the civil apothecary found symptoms of plague, and immediately had the patient removed to the plague hospital attached to the railway inspection station and the contacts segregated. As there was nothing to show the case to be an imported one, suspicion that other cases were being concealed was aroused and accordingly on that evening the Tahsildar in company of the Civil Apothecary and the Inspector of Police made a house-to-house inspection in the Boya quarters and discovered three more cases of plague in different houses. The inspection was continued the next morning (8th January 1899) when another case was discovered. In the evening a Kuruba woman was brought to the hospital by a man who turned out to be her husband and left by him in the verandah; a few minutes later she was examined and found to have symptoms of plague. The patients in all the above cases were removed to the plague hospital and the contacts to the observation camp. It was by this time quite clear that there was indigenous plague in the village.

34. On hearing of the outbreak, the Collector at once arranged for the despatch of an ambulance staff and himself proceeded to the spot on 9th January 1899 with the additional Medical Officer. The Sanitary Commissioner also arrived there on the next day and gave personal instructions regarding evacuation and disinfection. In order to protect Bellary and other places, the Collector under Additional Regulation 21 notified the Hospet Union as an infected locality and introduced the pass system. The civil apothecary, who has considerable influence in the village, was relieved of his work at the hospital by one of the hospital assistants attached to the ambulance staff and put on the special duty of inspecting the houses in view to the discovery of any fresh cases that might occur. The people in the Boya quarters and others living near the infected houses were persuaded to evacuate their houses and remove themselves to the fields. Disinfection under the supervision of the Plague Supervisor of the local group was begun, coolies being specially employed for the purpose. In spite of these precautions the infection gradually spread to many parts of the village and at length reached the village of Chitwadigi, where the first attack occurred on 18th February 1899, and subsequently cases occurred in different parts of that village.

35. As the disease had evidently taken a firm hold on Hospet and Chitwadigi, it was considered necessary to adopt drastic measures for its eradication, and the evacuation of the whole of the houses, except a few detached ones that had in all probability not become infected, was resolved upon. There was at first a little opposition to the proposal, but through the exertions of the local officers, the reluctance of the people was overcome and the evacuation which was first begun at Hospet in the Boya quarters on 8th January 1899 was completed on 15th February 1899. In Chitwadigi the evacuation was commenced immediately after the first attack there and was completed about 23rd March 1899. The whole population of Chitwadigi (3,278) and of the Hospet town (12,898), with the exception of some 200 who lived in detached Petas outside the town, vacated their houses and settled themselves in temporary sheds built in the fields and scattered over an area of fifteen square miles round the two villages. Care was taken that the sheds were at least twenty yards apart from each other, so that should plague break out in any one of them there would be no great risk of the spread of contagion and infected materials might easily be destroyed by fire without endangering the safety of other habitations.

36. Simultaneously with the evacuation, the disinfection of houses was begun, special coolies, and not sepoys as in other parts of the district, being employed for the purpose. Excluding a special gang for urgent work and odd jobs, there were in all eighty coolies divided into eight gangs of ten each. Mr. Moore, one of the Assistant Collectors, was placed in charge of the disinfection operations, assisted by a Plague Supervisor who was relieved of his ordinary duties and specially posted to Hospet and Chitwadigi. In order to ensure constant supervision over the coolies, each gang was placed under the control of a maistri and over every two maistries was an assistant Plague Inspector. The detailed scheme for disinfection was approved by the Plague Commissioner in his Proceedings, No. 913, dated 5th March 1899. Three thousand one hundred and forty-seven houses in Hospet and 711 in Chitwadigi were in all disinfected, the work was begun early in March and completed on 17th May 1899. The total cost of the disinfection amounted to Rs. 3,800. The work of this kind that was being carried out during my visit to the place in January was not very thorough, and there had been several attacks between that period and the time when wholesale evacuation was decided upon. I, therefore, after the scheme referred to above received formal sanction, had the houses already disinfected in the earlier days of the outbreaks disinfected over again for safety's sake.

37. In addition to the measures detailed above and with a view to stamp out the disease and prevent its spread to the adjoining villages, the people in the camps were not allowed to return to the town without permission nor were they allowed to leave Hospet for other villages without obtaining special passes from the Stationary Sub-Magistrate, Hospet, who was authorized to issue them in consultation with the local medical officer. Instructions were also issued to the village officers of the Hospet taluk not to allow the Hospet people enter their villages unless they held passes issued by the Stationary Sub-Magistrate. The Hospet and Hansi observation circles were each sub-divided into two and each sub-division placed in charge of a Plague Inspector to ensure more systematic patrol of the villages and prompt detection of any suspicious cases that there might be. Four camp Superintendents were employed to watch the movements of the people in the camps and report on their health daily. The civil apothecary, who was on special duty from the beginning, was constantly going round the camps. The result of these measures was that the disease did not spread beyond the Hospet union.

38. During the Plague Commissioner's visit to Hospet on 22nd March 1899, the people in the camps complained to him of the hardship of the rule preventing their return to the town. The rich people wanted to guard their property; the weavers said they were at the end of their resources and could not weave in their camps; the cultivators wanted to take manure to the fields; and the merchants had to store jaggery in their homes. The Commissioner referred their complaint to the Collector with his remarks for disposal. The Collector granted the concessions sought for under certain limitations. As regards the complaint of the rich people, only inoculated persons were allowed to remain in the village after dark; they were compelled to sleep on the flat roofs of their houses and were disinfected in the mornings before their return to the camps. In the case of weavers it was considered desirable to keep them entirely out of the town and such of them as were unable to maintain themselves were paid half wages during the period of their detention in camps. (Plague Commissioner's Proceedings, No. 1084, dated 18th April 1899). The carting of manure was allowed under proper precautions and with reference to the system of passes. The merchants were allowed to store jaggery in houses that had been thoroughly disinfected, provided the cartmen and coolies obtain passes and did not remain in the town longer than was absolutely necessary.

39. In August last the leading inhabitants of Hospet applied for permission to erect separate sheds for the disinfection and segregation of the different castes of the observation camp attached to the Hospet railway inspection station. The application was granted in G.O., No. 827-P., dated 17th August 1898, and in the Plague Commissioner's Proceedings, No. 623, dated 4th March 1899, a contribution of Rs. 621 being the moiety of the cost of the private sheds constructed by the people of Hospet was sanctioned. The people of Chitwadigi raised among themselves subscriptions amounting to Rs. 1,000 and constructed their own plague hospital adopting the plan of sick

hospitals attached to the plague camp. Three patients and 21 contacts of Chitwadigi were removed to, and segregated in, the private camp. They were treated and observed here by the Civil Apothecary Mr. Stocking. The Hospet people also constructed a similar hospital, but none was treated or segregated therein. With the exceptions noted above all the plague patients were removed to the Government camp for treatment. The contacts of plague patients were for some time segregated in the observation camp attached to the railway inspection station, but as it was considered objectionable to detain them in the same camp along with those detained from the trains, separate sheds were constructed for the use of the Hospet contacts.

40. Inoculation was not at all popular during the second outbreak as the first indigenous attack of plague that proved fatal on 11th December 1898 was attributed by the people to the operation performed on the patient some days previously by the Sanitary Commissioner. The prejudice of the people was, however, ultimately removed to some extent and 993 people were in all inoculated. Of these, 43 were Muhammadans of Chitwadigi who were encouraged to submit to the operation by their Moulvi Saiyid Ala-ud-din Ṣáhib; this gentleman also assisted the authorities by persuading his co-religionists to evacuate their houses and he has since had the title of Khan Ṣáhib bestowed on him.

41. The number of indigenous attacks and deaths were as shown below :—

	Number of attacks.	Number of deaths.
Hospet	71	61
Chitwadigi	19	13
Mudlapur	3	1
Total ..	93	75

There have been no fresh attacks since 7th April 1899 in Hospet and since 8th April 1899 in Chitwadigi.

42. A Special Deputy Tahsildar was appointed to relieve the Tahsildar of a part of his ordinary duties.

43. The District Medical and Sanitary Officer, after inspecting the union on 16th May 1899, reported that the disinfection had been satisfactorily done and recommended that re-occupation of the houses might be permitted. On the same day, instructions were accordingly given permitting re-occupation, prior right of entrance being given to those inoculated.

44. *Chinnahotur and Marakattu, Alur taluk.*—From Peddahotur the plague spread to Chinnahotur and Marakattu, which are within a mile's distance. The Peddahotur ryots were resorting to the house of the Chinnahotur blacksmith. The smith's child, a girl of two years old, who had previously been suffering from fever, developed symptoms of plague on 3rd February 1899 and died on the same day. The body was buried with the usual precautions and the contacts were segregated in their own fields as they were unwilling to go to the segregation camp at Peddahotur. The house in which the case occurred and seven adjoining houses were evacuated and disinfected. By the adoption of timely measures, the spread of infection was arrested in this village.

45. In Marakattu, the plague assumed the choleraic form. Cholera had been prevalent in the village for some days prior to the outbreak of plague and the villagers were frequently resorting to Peddahotur on business. On 28th February 1899, two cases of cholera were discovered with buboes. The hospital assistant attached to the ambulance staff at Peddahotur examined the cases and declared them to be plague. One of the patients, an adult male, died on that date (28th February 1899), and the other, a Kuruba boy of 15 years, was removed to the Peddahotur plague camp and eventually recovered. On 5th March 1899, there were two more cases, one of which proved fatal on the same day. The other, which was treated as suspicious, survived.

After the outbreak of cholera in the village on 15th February 1899, the villagers on the advice of the Tahsildar left their houses and encamped in their fields. To stamp out the cholera and plague, all the houses in the village numbering 140 were

disinfected by sepoys sent from Peddahotur. The work was begun on 7th March 1899 and completed in a week. There were no further attacks subsequent to 5th March 1899 and orders were issued for the re-occupation of the village on 11th April 1899.

46. *Turuvagallu, Alúr taluk.*—This village is situated at the north-eastern corner of the taluk within a mile from Togalagallu and Doddagonda, two of the infected villages in the Pattikonda taluk of the Kurnool district. Dead rats were found in the house of a man of Uppara caste who had taken a lease of the tamarind trees at Togalagallu, and in three other adjoining houses.

47. The first case of plague occurred in the Uppara's house on 8th February 1899 and proved fatal. On the same day there was another in the adjoining house of a Pujari, which also proved fatal on 11th February 1899. The contacts were segregated in their fields and the villagers advised to vacate their houses which they did willingly. As the discovery of dead rats in large numbers in several houses in the infected ward and outside it showed that the infection was widespread in the village, it was considered desirable to disinfect all the evacuated houses. Accordingly a detachment of sepoys was sent from Peddahotur for the work. The sepoys began disinfection on 8th March 1899, and completed it on 11th March 1899, the number of houses desinfected being 140. With these measures, the further outbreak of the disease in the village was stopped.

48. *Alúr—Alúr taluk.*—Alúr is the head-quarters of the taluk of the same name and has a population of 2,766. It is situated at a distance of about 5 miles from Peddahotur and 8 miles from Molagavalli, both of which were infected with plague.

49. The agricultural labourers of Alúr used to go to the Molagavalli and Peddahotur fields for work. On 16th February 1899, a boya woman, aged 22 years, was found suffering from high fever at Alúr. The Tahsildar on enquiry ascertained that she had been resorting to the fields and mixing with the people of the two infected villages and had her kept under observation. The next day (17th February 1899) she developed symptoms of plague and was isolated in her husband's field outside the village as objection was taken to her being treated in the plague camp. The house in which the patient was living and one of the adjoining houses were disinfected, dead rats having been found in them. The contacts were also segregated in their own fields, their persons, clothing, bedding, etc., being disinfected under the supervision of the Civil Apothecary, Alúr, and the sanitary inspector before removal.

50. The boya patient eventually recovered, but her step-daughter, a girl of four years age, who had been in contact with her, was attacked with plague on 18th February 1899 and died two days later. From then onwards, a series of cases broke out as noted below :—

Date.	Number of attacks.	Number of deaths.
20th February 1899	2	2
22nd " "	5	2
23rd " "	2	3
24th " "	1	..
25th " "	1	1
26th " "	1	1
27th " "	..	1
6th March 1899	1	1
Total ..	13	11

51. As dead rats had been found in some of the infected and other houses, the evacuation of the portion of the town known as the peta was resolved upon and the residents were persuaded to remove themselves to the fields. The houses evacuated were disinfected by coolies employed for the purpose under the supervision of the local officers.

52. After 6th March 1899 there was no further attack till 4th April 1899. On that date when everything was ready for the re-occupation of the evacuated portion of the town, a case of high fever with a bubo in the groin was discovered in another

portion of the town known as the fort. The patient was a boya woman and it was suspected that she had been stealthily visiting the contacts of the patients whose death occurred on 22nd February 1899 and to whom she was related. She was removed to a field outside the village and has survived the attack. Another case occurred in the same portion of the town on 10th April 1899 and two more cases on 12th April 1899. These three proved fatal.

53. As there were thus four indigenous cases in the fort and as the place consists of narrow lanes and ill-ventilated houses, the District Medical and Sanitary Officer considered that the place should be thoroughly disinfected to prevent a recurrence of the disease.

On 13th April 1899 instructions were issued to the Tahsildar to have the fort thoroughly evacuated and the houses secured against entrance pending the arrival of a company of sepoys for disinfection duty. An application for the services of the sepoys having been submitted to and approved by Government, a company consisting of about 75 men under a British officer arrived at Alúr on 25th April 1899. It was subsequently agreed between the Collector and the District Medical and Sanitary Officer that every portion of the village, whether previously disinfected by coolies or not, ought to be disinfected by the sepoys in view to prevent any further outbreaks in this important centre, and orders were issued to take up work first in the fort and afterwards in the other quarters.

54. By the time the disinfection was begun by the sepoys the third portion of the village, viz., the chuckler hamlet, had not been infected. This hamlet is situated outside the fort and separated from it by a road. On the advice of the District Medical and Sanitary Officer, the hamlet was on 28th April 1899 ordered to be evacuated, but the people did not remove for a week subsequently, as they required time to put up sheds in the fields. In the meantime, there was heavy rain followed by high winds and before the evacution of the hamlet took place, the infection must have been carried into it from the fort. A chuckler girl, aged 12 years, had fever for two days after the removal of her family to the fields on 4th May 1899. On 6th May 1899, the Additional Medical Officer who examined her declared it to be a case of plague of abdominal type. She died the next day (7th May 1899) in her shed before she could be removed to the plague camp. The shed, etc., were burnt and the burial of the deceased was conducted in accordance with the rules. The contacts were disinfected and segregated.

This attack was followed by another on 15th May 1899 which also proved fatal; in this case the patient was a cooly employed to do odd jobs in connection with the disinfection by the sepoys who must have contracted the disease through walking about in the infected houses. After this attack the Tahsildar was reminded of the absolute necessity for seeing that all persons engaged in such work wear shoes and are disinfected every evening before returning to their homes. The village has now been free from plague for exactly a month. The disinfection will be completed in a day or two, when the villagers will, with the permission of the District Medical and Sanitary Officer, be allowed to re-occupy their houses.

There were in all 20 attacks and 16 deaths from 16th February 1899.

Officers specially commended for good work.

Chippagiri—

M.R.Ry. M. Sambasiva Rau Nayudu, Tahsildar of Alúr. This officer did excellent work under most trying circumstances.

Other villages in the Alúr taluk—

M.R.Ry. P. Venkobachari, Acting Tahsildar of Alúr.
Mr. J. T. Lever, Special Deputy Collector.

Molagavalli—

Molagavalli Sanna Reddi, Acting Headman of Molagavalli.

Hospet Union—

M.R.Ry. P. Rama Rau, Rao Bahadur, Acting Tahsildar of Hospet.
'Abd-ul-karím Sáhib, Inspector of Police.
Mr. E. Stocking, Civil Apothecary.
Bharatappa, Reddi of Hospet.

(Signed) E. A. ELWIN,
Acting Collector.

From the District Medical and Sanitary Officer, Bellary, dated 26th May 1899, No. 1135-P.

KURNOOL.

From MUHAMMAD RAZÁ KHÁN, Esq., I.C.S., Collector of Kurnool (on leave), to the Secretary to Government, Local and Municipal Department (through the Sanitary Commissioner and the Surgeon-General), dated St. Thomé, Madras, 18th June 1899, No. L-1.

ABSTRACT.—Reporting on the outbreak of plague in his district.

From the District Medical and Sanitary Officer, Kurnool, to the Collector of Kurnool, dated 18th May 1899.

NORTH ARCOT.

From R. H. CAMPBELL, Esq., Ag. Collector and District Magistrate, North Arcot, to the Secretary to Government, Local and Municipal Department, dated Chittoor, 3rd June 1899, Ref. No. 1842-P. of 1899.

With reference to the Plague Commissioner's Reference on C. No. 4608, dated 1st May 1899, I have the honour to submit the following narrative of the measures taken to combat the recent outbreaks of plague in this district.

I understand that the expression "recent outbreaks" includes not only indigenous cases which occurred since the commencement of this year, but also imported cases which occurred during 1898.

2. Until plague broke out in Bangalore at the beginning of August 1898, this district was considered to be practically safe from infection as the chances of the disease spreading into this district from Bombay and Hyderabad were very remote. When, however, a few cases of plague had occurred in Bangalore, a porter employed under the Madras Railway Company, who had lost two of his children from the disease, left Bangalore on the night of the 12th August 1898 and arrived at a village in this district called Jangalapalle near Tiruvallam Railway station on the morning of the 13th idem. He was accompanied by his wife and four children, and all of them had contracted the disease before they left Bangalore. The porter and his four children died shortly after their arrival, and the wife alone survived. These were the first cases which occurred in this district, excepting of course the one case detained in the plague camp, Arkonam, in October 1897. The late Collector Mr. Batten himself proceeded to the village and supervised the work of disinfection, which was carried out thoroughly without any opposition being met with. As the plague increased in virulence at Bangalore, a general exodus of the population commenced, and many of the refugees came to this district with the inevitable result that imported cases of plague began to occur in a number of towns and villages of this district. The immigrants from Bangalore settled mainly in the towns of Vellore, Arcot, and Wallajah and in villages lying in the vicinity of the South-West line of the Madras Railway. This is evidenced by the fact that, while almost all imported and indigenous cases occurred in the tracts referred to above, the northern portion of the district was almost free from the disease. The number of plague cases imported in October 1898 was considerably

larger than that imported in the other months, and it is therefore probable that the bulk of the immigration took place in October. The following table shows the number of imported cases which occurred during each of the months in last year:—

Month.	Imported.		Indigenous.	
	Seizures.	Deaths.	Seizures.	Deaths.
August 1898	7	6	..	..
September ,, ...	1	1	..	..
October ,, ...	25	24	2	1
November ,, ...	11	10	3	3
December ,, ...	8	5	1	2

All these cases were imported by rail either from Bangalore or from other places in the Mysore province.

3. After the occurrence of the first few imported cases, the following general measures were adopted to prevent the spread of the disease from the Mysore province:—

(*a*) Railway inspection stations were established at Pakala and Jalarpet in order to prevent the importation of plague by rail.

(*b*) Four road frontier inspection stations were established on the chief roads leading from the Mysore province into this district in order to prevent importation by road.

(*c*) Seven observation circles were started along the Mysore frontier and were placed under the charge of trained Sanitary Inspectors.

(*d*) The railway stations of Patchur, Mulanur, Kuppamu, Gudupalle and Bisanatham on the Bangalore section of the Madras Railway were declared infected in order to prevent persons from the Mysore province booking at those stations and escaping observation.

(*e*) A hospital assistant was deputed to examine all passengers alighting at Kuppam railway station and was empowered by the Collector under Regulation 29 of the Original Mufassal Plague Regulations to detain all suspicious persons in huts specially provided for the purpose. This was found to be necessary in order to prevent suspicious persons breaking their journey at Kuppamu and proceeding to their places of destination by road.

(*f*) The Chairmen of all the Municipalities in the district were requested to entertain the observation staff prescribed in G.O., No. 522 M., dated 13th March 1897.

(*g*) Two ambulance staffs were formed with complete equipments and stationed at Palmanér and Vellore.

(*h*) A staff corps officer was put on the special duty of supervising all the plague arrangements on the Mysore frontier, and the District Medical and Sanitary Officer was relieved of all his ordinary duties so that he might devote his whole time to plague work.

(*i*) The attendance of pilgrims at all important fairs and festivals at which a large number of persons from infected areas were expected was prohibited with the sanction of Government.

(*j*) In order to popularize inoculation and its effects, Mr. Batten induced Major Bannerman, I.M.S., to deliver four lectures at Tirupati, Wallajah, Vellore and Chittoor. The good effect of these lectures was, however, counteracted by the publication and circulation of vernacular translations of Dr. Lawrie's evidence before the Plague Commission.

4. The railway inspection station at Pakala and the four road frontier inspection stations did not justify the expenditure incurred on them. The latter could easily be evaded owing to the many cart-tracks and paths crossing the frontier in spite of a frontier patrol by plague inspectors and supervisors organized by Mr. Batten.

5. The special measures prescribed in the regulations for stamping out the infection in individual cases, such as evacuation of infected houses, segregation of patients and contacts in specially-built camps and huts and disinfection of houses were carried out thoroughly without opposition in the first few cases imported into this district. The Labbais of Visharam, however, for the first time, refused to evacuate an infected house and to allow the inmates thereof to be segregated in a choultry outside the village. Mr. Batten and the Plague Commissioner tried their best to persuade them, but to no purpose. Home segregation was therefore allowed for the first time, and the leading members of the Labbai community had the houses disinfected under the supervision of a medical officer. The people of Wallajah and Sholinghur followed the example set at Visharam, and there was even a small riot at Sholinghur, the rioters being tried and convicted by the Head Assistant Magistrate. At about the same time the confidential order of Government regarding segregation and evacuation was received, and the necessary instructions were issued confidentially to Divisional Officers, Tahsildars and Deputy Tahsildars. In the cases that followed, evacuation of infected houses and segregation of patients and contacts in specially-built huts were resorted to only when there was not much opposition on the part of the people. Disinfection was, however, carried out in a thorough manner.

6. In spite of the refusal of the people to vacate infected houses and go into camps, the measures adopted against the imported cases under discussion seem to have been very successful; for, except in the case of Pallikonda and Marudambakkam, no fresh attacks occurred, and the infection appears to have been rooted out completely. In Marudambakkam two fresh attacks occurred, but these were among the contacts who were attending upon the patient. The two cases that occurred in Pallikonda were among people who, it was ascertained, had unlawful access to the infected houses. The disease did not, however, spread in either of these places.

7. The first indigenous case properly so called occurred in Kuppamu on the 30th November 1898. A brother of a police constable who was living in the police lines, Kuppamu, proceeded to Jalarpet by rail on the morning of the 21st November 1898 and returned to Kuppamu the same evening. At Jalarpet he was provided with a passport, and he was under the observation of the Hospital Assistant, Kuppamu, until the 30th November 1898. On the 30th he complained of slight fever, grew worse on the following day and died on the 2nd December 1898. The hospital assistant suspected the death to be due to plague and the case was treated as a plague case. Nothing more happened until the 2nd January, when the Deputy Tahsildar reported the occurrence of an indigenous case in Kuppamu on the 1st. The Collector and the Sub-Collector proceeded to Kuppamu and made the necessary enquiries. The infection in the case was traced to certain people from Devankundi in Mysore Province, who, after halting for a few days in the patient's house, proceeded to Kethandapatti in Salem district and died there of plague. Other cases of plague occurred in the same street in rapid succession and it was found that the victims in all such cases had caught the infection from the first house. Dead rats and squirrels were found in some of the houses in the same street and the whole town rapidly became infected. Almost simultaneously indigenous cases broke out in Vellore, Arcot, Ránipéttai and Wallajah. I will deal with each of the infected towns separately as I think that it will be convenient to do so.

8. *Kuppamu.*—The town of Kuppamu is divided into three parts, viz., Robinsonpet, Kothapet and Pathapet (old Kuppamu). Robinsonpet was the first to be affected. The zamindar of Kangundi, who lives in this part of the town, evacuated his house and proceeded to Kangundi, a village 8 miles from Kuppamu. His retinue consisting of about 20 families and some others followed his example, and there was a general tendency on the part of the inhabitants to emigrate. A notice was published in the District Gazette under the orders of the Plague Commissioner warning the inhabitants of the villages to which immigration was taking place of the danger they ran by taking in people from Kuppamu and suggesting to them the advisability of keeping such immigrants in isolated buildings or huts outside their villages for a period of ten days before admission. This notice did not, however, have the desired effect and the people thought that the notice in question gave them power to resist the entry of public servants on duty into their villages and began to resist them accordingly. I had therefore to publish another notice to the effect that the first notice did not apply

to public servants on duty and that any body resisting their entry will be prosecuted. During the exodus from Kuppamu, a cordon of police was placed round the town to take down the names of people going out and their places of destination. These were communicated to the Plague Inspectors and the local authorities who kept them under observation for ten days.

9. Mr. Scott Elliot of the 4th Madras Pioneers assumed charge of the plague operations at Kuppamu shortly after the outbreak commenced. The ambulance staff stationed at Palmanér was immediately sent to his assistance and a plague camp was erected without delay in a suitable spot. Dr. Page appointed as additional medical officer to this district, arrived in Kuppamu at the beginning of February. Mr. Scott Elliot organized a system of informal house-to-house visitation in Kuppamu. This system worked well and almost every case that occurred was brought to light. Coolies were difficult to procure for disinfecting houses and when procured demanded high wages. One native officer, five non-commissioned officers and forty-two men of the 14th Madras Infantry were therefore sent to Kuppamu for plague duty. Here, as in other places, a reasonable amount of compensation was paid promptly to the owners of houses for the loss sustained by them during the process of disinfection and this made them submit quietly to the plague measures.

10. From Robinsonpet the disease spread gradually to Kothapet and ultimately to Pathapet. The town being small and the people being comparatively law-abiding, Mr. Scott Elliot was able to induce nearly 50 per cent. of the cases to go into the camp. Disinfection was carried out in the manner prescribed in the regulations.

11. The only step taken by the people of Kuppamu to protect themselves was the complete evacuation of the town. Inoculation was not resorted to as freely as it should have been. The total number inoculated in Kuppamu is 450, but this includes also a number of people belonging to surrounding villages who were inoculated at Kuppamu. There were five attacks and two deaths among the inoculated. The evacuation of the town was complete by the beginning of April, small huts being provided in the fields for people who could not find accommodation for themselves. The disease died out almost immediately after the evacuation. All the houses were disinfected before the owners were allowed to re-occupy them.

12. The number of cases imported from Kuppamu to other villages was only five. The total number of attacks and deaths in Kuppamu was 106 and 78, respectively. Five per cent. of the attacks were pneumonic and the rest bubonic. Forty-six cases were treated in the plague camp. Of these 28 or 60·87 per cent. died. Among 60 people segregated and treated in their own homes, 50 or 83·33 per cent. died. Almost all the people attacked were Hindus and 50 per cent. of the total number attacked were coolies.

13. *Vellore.*—The first case of plague in Vellore was reported in the Saidapet ward on the 3rd January 1899. The source of infection was not traceable but it was probably due to the large number of people from Bangalore who had settled in the vicinity. It was, however, elicited during the course of enquiry into this case that dead rats were found in two houses in the adjoining street and that the owners evacuated them immediately. It also appeared from enquiries that there were some recent deaths from plague in the same street which were all returned falsely as deaths from other causes. Fresh cases followed in the same street within a few days, and the disease spread rapidly to other parts of the town. The Bakers' street and two streets adjoining it were the worst affected.

14. Immediately after the outbreak, a Special Plague Officer and an additional Medical Officer were appointed solely to attend on plague cases in the town. The preventive staff prescribed in G.O., No. 522 M., dated 13th March 1899, was entertained. A plague camp was erected near the town. A detachment of 100 sepoys with an European officer was got for disinfection purposes. Inspection stations were started on the roads leading from Vellore to Katpadi and from Vellore to Arcot and all passengers going out of Vellore town were examined at these stations. It was impracticable to establish stations at the other roads leading from Vellore. Observation circles were established round the town to a radius of 10 miles to prevent the spread of the disease. All railway stations at which passengers from Vellore could book were notified under Government sanction for the purpose of the passport rules.

The observation circles already existing within the town were found to be too extensive for five Inspectors to manage and an Assistant Plague Inspector was therefore appointed to each circle. A vigilance committee consisting of the leading members of the town was formed to assist the Special Plague Officer in carrying out the plague measures, but this committee like similar committees formed in Arcot and Wallajah rendered no help whatever to the Special Plague officers. Major Bannerman and two Government nurses, Misses Hawdon and Bleaney, were employed on inoculation work and 2,049 people out of a population of 44,925 were inoculated.

15. The prevention of the concealment of plague cases was the most difficult task in Vellore. People adopted every conceivable means to conceal cases and it was difficult to prevent the concealment.

16. The attitude of the people was by no means conciliatory especially at the beginning of the outbreak. They objected at first to the medical inspection of the sick and the dead but they became more amenable latterly. Camp segregation was unpopular at the beginning, but the kind and careful treatment accorded to the few persons segregated in the camps has made it more liked of late. The total number of persons attacked in Vellore was 184. Of these 167 or 90·76 per cent. died. Twenty-nine out of 184 persons attacked were segregated in the camp and 13 of them or 44·83 per cent. recovered. Of the persons segregated in their homes almost all died.

17. A large proportion of the population left the town. There was a talk at one time about building caste hospitals and camps but the matter never got beyond the talking stage. The Brahmins of the place subscribed about Rs. 300 among themselves and were prepared to erect their own hospital but for some reason or other they gave up the idea.

18. Disinfection was carried out by sepoys in the manner prescribed by the rules under the supervision of the Special Plague Officer and the additional Medical Officer. The Bakers' street and two other streets adjoining it, which were severely visited, were barricaded for about six weeks and every house in them thoroughly disinfected. The people also evacuated Fowl Parachari, a small infected suburb of Vellore and encamped on a hill with the result that no more cases occurred among them. The total number of houses infected in Vellore was 189 and in none of them did any fresh cases occur after their disinfection. 76·68 per cent. of the attacks in Vellore, were among Hindus; 14·49 per cent. among Muhammadans and the remainder among the several other classes. 22·90 per cent. of the attacks were pneumonic and 77·10 per cent. bubonic.

19. *Arcot.*—In the course of his enquiry in Vellore about the first indigenous case that occurred in that town, Mr. Batten heard accidentally that plague cases were occurring and being concealed in Arcot. Enquiries were made and on the 13th of January the first authentic case of indigenous plague was detected and reported. This was followed by other cases at short intervals, and by the end of January the disease had taken firm hold of the town. There was no previous history of infection in the first case reported. It was probably brought by people from Bangalore.

20. The Sub-Collector proceeded to Arcot, as soon as he heard of the first indigenous case and made the following arrangements. The town was divided into six circles and a Circle Inspector was appointed to each circle. A retired Police Inspector was appointed as the supervisor of all the circles. A vigilance committee was formed of the leading members of the several communities. A plague camp was erected at a suitable spot and a detachment of sepoys was obtained for carrying out disinfection. A Special Plague Officer and an additional Medical Officer were appointed to superintend the plague operations. The second ambulance staff stationed at Vellore was also sent out to Arcot for plague duty.

21. The Circle Inspectors went their rounds twice daily accompanied by three constables or peons reporting the cases found by them to the Supervisor after each round. They posted a constable or a peon over a house immediately they found an actual or a suspicious case in it and this guard remained until the medical officer arrived and pronounced his opinion on the case. The guard was withdrawn if the medical officer did not think it to be a plague case, and continued if it was. The disinfecting parties were sent to the infected houses on the next day and finished their

work on the same day. The batta due to segregated persons was paid in advance every morning. Cases occurred in all the parts of the town but Chandapet and Annampoliem situated in the heart of the town were the localities worst affected.

22. Camp segregation was never popular in Arcot, but Captain Pearse, the Special Plague Officer, introduced a system of segregating patients and their contacts in ready-made mat huts shaped like the top of a bullock cart or jutka. These huts were set up whenever required in the backyard of infected houses or in open spaces near them and the people were generally willing to occupy them for the required period.

23. The attitude of the people was generally indifferent. They did not resort to inoculation freely nor did they take any steps to prevent the spread of the disease. They emigrated to other places in large numbers. Some of the people in Topekana a suburb of Arcot, came forward with a proposal to erect their own hospital but the proposal was never carried out in spite of the encouragement of the Special Plague Officer. One individual named Sundra Mudaliar of Arcot rendered good service by disinfecting houses, erecting huts in the part of the town occupied by him and distributing native medicines.

24. The Special Plague Officer had at one time entertained the idea of disinfecting all the abandoned houses in the town, but he gave this up when he found that no plague cases had broken out in 40 out of 121 abandoned houses which were re-occupied before disinfection.

25. The total number of attacks and deaths in Arcot were 182 and 154, respectively. 70·96 per cent. of cases were bubonic. There was only one case of pneumonic plague. In the remaining cases no enlargement of glands was visible. 18·13 per cent. of the attacks were among Muhammadans and the rest among Hindus of all castes. Cultivators and coolies were the people most affected.

26. *Wallajah and Ránipéttai.*—It was not until some cases of plague had been concealed and a general exodus of the people had commenced that the existence of the disease in these two places was brought to the notice of the authorities. The first reported cases in Wallajah occurred on the 18th January 1899. Mr. Ashe was the *ex-officio* Chairman of the municipality, and he did his best to stamp out the disease. The municipality had only two observation circles before and these circles having been found to be too extensive, the town was divided into four circles and an Inspector appointed to each. A Divisional Inspector was appointed to supervise the work of all the Inspectors. The preventive staff required under G.O., No. 522 M., dated 13th March 1897, was entertained immediately. Coolies were available for carrying out disinfection work and no detachment of sepoys was therefore sent for. A Special Plague Officer and an additional Medical Officer were appointed to superintend the plague operations both in Wallajah and Ránipéttai. Observation circles were started round these towns in contiguity with those already established round Vellore. All railway stations between Jalarpet and Sholinghur were notified by Government for the purpose of passport rules. A vacant building on the outskirts of Wallajah town had already been chosen for the purpose of a plague camp and a fresh camp was erected in Ránipéttai.

27. The method employed for the detection of cases was similar to that employed in Arcot and Vellore. Camp segregation was unpopular here, as in other places, and only seven cases in Wallajah and two cases in Ránipéttai were segregated in camps. The rest were segregated in their own houses. Disinfection was carried out in the manner prescribed in the regulations by parties of coolies under the supervision of the plague officers. Reasonable compensation was paid to the owners of houses for the loss sustained by them in the process of disinfection. No fresh attacks have occurred in houses once disinfected.

28. There were, on the whole, 58 attacks and 41 deaths in Wallajah; and 94 attacks and 47 deaths in Ránipéttai. The disease was, it will be seen, of a comparatively mild type in Ránipéttai. The total number of houses infected in Wallajah was 58 and in Ránipéttai 68. Almost all the attacks reported in Wallajah and Ránipéttai were among Hindus and it is therefore suspected that there has been some concealment of cases among Muhammadans.

29. No steps were taken by the people themselves to check the spread of the disease. They were not, however, hostile towards plague measures. About 200 people were inoculated by Major Bannerman and Dr. Hanna.

30. Cases were imported from Vellore, Arcot, Ránipéttai and Wallajah to outlying villages but such cases never spread. No indigenous case was reported in any of the villages round Vellore. A few sporadic cases of indigenous plague occurred in villages round Arcot and Wallajah, but prompt steps were taken to stamp them out. A description of the measures taken to combat the disease in these cases is probably unnecessary.

31. The following statement gives the number of attacks and deaths which have occurred since the commencement of this year :—

Months.	Imported.		Indigenous.	
	Seizures.	Deaths.	Seizures.	Deaths.
January 1899	9	6	51	42
February ,, ...	24	20	185	139
March ,, ...	15	14	113	93
April ,, ...	3	3	48	28
May ,, ...	7	3	19	6

It will be seen from the above that the disease raged virulently in the month of February and gradually subsided in the succeeding months. At present there are plague cases only in Ránipéttai. A statement showing the towns and villages affected in each taluk and the number of attacks and deaths (imported and indigenous separately) which took place in each village is appended below :—

Taluks and Municipal Towns.	Imported.		Indigenous.	
	Seizures.	Deaths.	Seizures.	Deaths.
Chittoor Taluk.				
Chittoor	4	2	..	..
Jangalapalle	5	4	..	..
Veppalai	1	1	..	..
Virantangal	1	1	..	..
Graemspet	1	1	..	..
Velkur	1	1	..	..
Kalavagunta	1	1	..	..
Chandragiri Taluk.				
Chandragiri	1	1	..	..
Perur	1	1	..	..
Mangapuram	1	1	..	..
Palmanér Taluk.				
Patrapalli	1	1	..	..
Gudiyáttam Taluk.				
Tiruvallam	1	1	9	7
Rachampattu	1	1	..	..
Valathoor	1	1	..	..
Katpadi	1	1	..	..
Venkatapuram	1	1	..	..
Reddimanguppam	1	1	..	..
Latteri	4	4	..	.
Vadaviringipuram	2	2	..	.
Kangayanellore	1	1	..	..
Darapadavedu	1	..	..	..
Perambadi	1	1	..	..
Peranambat	2	1	..	..
Kilpatti	1	1	..	..
Vellore Taluk.				
Pallikonda	3	2	2	2
Sirukanchi	1	1	..	..
Tellur	2	2	..	..
Thorapadi	1	1	..	..
Virinjipuram	2	2	..	..
Kalanipakkam	1	1	..	..

Taluk and Municipal Towns.	Imported.		Indigenous.	
	Seizures.	Deaths.	Seizures.	Deaths.
Vellore Taluk—cont.				
Virupatchipuram	2	2		
Sadupperi	1	1	..	..
Odugathoor	1	..	..	..
Satyamangalam	1	1	..	..
Chitteri	1	1	..	..
Polur Taluk.				
Kalambur				
Chetput	4	4	..	..
Kannanore	1	1	..	..
	1	1	..	..
Wandiwash Taluk.				
Tenkarai				
Wandiwash	1	1	..	..
Melputhur	1	1	..	..
	1	..	..	..
Arcot Taluk.				
Tiruvathur				
Kalavai	1	1	..	..
Visharam	1	1	..	..
Kuttiyam	3	3	..	..
Kathivadi	1	..	..	..
Kurambadi	1	..	..	..
Mamandur	1	1	2	1
Muppaduvetti	1	1	..	..
Kilkuppam	..	..	1	1
Palli	1	1	..	..
Brahmadesam	1	..	..	..
Mangadu	..	..	1	1
Ayalam	2	2	1	1
Velur	..	..	1	1
Sattur	..	..	5	5
Arcot	1	1	..	..
	2	2	182	154
Wallajah Taluk.				
Arkonam				
Pulivalam	1	..	..	.
Sholinghur	3	3	..	..
Marudambakkam	2	1	..	..
Navalpur	1	1	2	2
Ammur	2	2	..	..
Kalathur	2	2	..	..
Nedumballi	1	1	..	..
Lalapettai	1	..	..	..
Punji	1	1	..	..
Kadapperi	1	..	20	16
Padiyambakkam	4	4	4	4
Mottur	..	..	9	7
Karai	..	..	2	2
Nilakantarayanpettai	1	1	..	..
Ránipéttai	..	..	1	1
	2	..	74	31
Arni Division.				
Kannamangalam				
Satyavizianagaram	1	1	..	.
Chevur	1	1	..	..
	1	1	..	..
Kuppamu Division.				
Attinattam				
Peddagollapalle	1	1	..	..
Gundusettipalle	1	..	..	..
Gudupalle	1	1	..	..
Gundlapalle	4	4	..	..
Kuppamu	1	1	..	..
	..	..	106	78
Total ..	110	92	422	314
Municipalities.				
Wallajah				
Vellore	8	7	58	41
Tirupáti	7	6	184	167
	1	1	3	3

32. I shall conclude this report with a few general remarks on segregation and disinfection based on past experience. As to segregation, I think it may fairly be

argued that home segregation has so far proved successful. At any rate plague for the present has been more or less completely suppressed in five large towns where it had taken firm root. Whether the subsidence of the disease is due to the preventive measures adopted or to climatic influences only, the fact remains that home segregation has not so far produced the disastrous results foretold by its opponents. Prompt and complete evacuation of the area infected is the surest remedy for plague that exists, but such evacuation is impossible in the case of the large towns lying in the Pálár valley owing to the want of open country round them suitable for encampments. Home segregation at its best is but an imperfect remedy, but it is the only method of segregation suited to the large towns of this district where people will not go of their own accord to Government plague camps and where complete evacuation of the infected area is a physical impossibility. As regards disinfection, I should be glad to see the unroofing of tiled houses discontinued. This is a matter which I have already discussed fully in a separate report to the Plague Commissioner.

33. I submit herewith the District Medical and Sanitary Officer's report called for in the proceedings under reference.

From C. T. COSTELLO, Esq., B.A., M.B., Acting District Medical and Sanitary Officer, North Arcot, to the Collector of North Arcot, dated Vellore, 29th May 1899, No. Ex. 1.

With reference to your letter No. 1842, dated 4th instant, I have the honour to furnish the following report of plague in the district.

2. As plague in an indigenous form broke out almost simultaneously in different parts of the district and only some months after imported cases had begun to be reported, it may be well for practical purposes to describe the disease first as it continued as imported and the preventive operations in relation to it and next the indigenous form since the onset till now.

3. When plague appeared in epidemic form in the Bombay Presidency and elsewhere in the north, Arkonam was the first railway inspection station opened in this district as a preventive measure to examine all passengers from such infected places, and arrivals from such places in the district were passported and placed under observation for ten days. One imported case from Bombay was detected and segregated at Arkonam at the end of 1897.

4. About the middle of August 1898, plague occurred in indigenous form in Bangalore and rapidly assumed epidemic virulence.

5. On 16th August 1898, a telegram to this office was sent by the Collector that a railway porter newly arrived from Bangalore died at Jangalapalle near Tiruvallam and also four of his children between the 14th and 16th August and that his wife had symptoms of plague. The Collector and the Civil Surgeon of Chittoor were on the spot immediately after information was received. On inquiry it was elicited that a fifth child had died at Tiruvallam and was buried in the river on their way to Jangalapalle. The hut which they occupied was burnt, as also all other articles suspected of infection. The surviving patient was isolated and contacts disinfected and segregated. The patient under treatment recovered, and she as well as the contacts were discharged after the due period. The preventive measures thus promptly adopted were successful as no other case occurred.

6. According to G.O., No. 841 P., dated 18th August 1898, Jalarpet was made an inspection station with a view to prevent the importation of infection from Bangalore, and according to G.O., No. 889 P., dated 24th August 1898, Pákala was made an inspection station to prevent importation by the Southern Mahratta Railway and South Indian Railway lines.

7. On the 30th of August the second imported case of attack and death occurred at Tiruvathur, where also the District Revenue and Medical officers personally attended and adopted the necessary measures.

8. Soon after Mysore was declared infected according to G.O., No. 1001 P., dated 3rd September 1898, frontier road inspection stations were organised on the Mysore frontier to prevent importation by road from Mysore into this district. Four such road inspection stations were opened, namely, (1) to the west of Kothur, where the Bangalore enters Punganúru; (2) to the west of Allikuppam in Punganúru; (3) to the east of Patrapalli, where roads from Kolar and Kuppamu meet; (4) at Guntasettipalli. At these stations segregation camps and hospitals were erected, equipped and manned under the immediate orders of the revenue authorities, and medical subordinates of the nearest dispensary or hospital ordered to take charge at once and continue till relieved by special plague medical subordinates. All arrivals from Mysore and other infected localities, particularly from Bangalore, were given passports either at road frontier stations or at their station of destination by rail in this district and were strictly watched for a full period of ten days.

9. Imported cases which were few and far between in August and September began to increase in number in different parts of the district, all being traceable to Bangalore or other parts of Mysore.

10. In every case no time was lost in promptly taking the necessary steps towards the isolation of the sick and the segregation of the contacts either in camp or in their own houses.

11. Disinfection of contacts and of all suspected articles, house, &c., by perchloride of mercury solution and, wherever feasible and practicable by fire, was done. Thatched houses were burnt, tiled houses untiled and exposed to sun-light and heat, and the infected flooring, wherever practicable, was treated by the kiln method and in other cases with perchloride of mercury solution. Information as to the occurrence of plague was transmitted by wire and the nearest medical subordinate was on the spot and in most cases conducted the operations under the immediate and personal orders of the Collector and Sub-Divisional Officer and the District Surgeon or the Assistant Surgeon.

12. According to G.O., No. 1001 P., dated 3rd September 1898, and Dis. No. 104 P. of 1898, an ambulance staff consisting of two European nurses, two hospital assistants, one sanitary inspector and other menial servants was formed and stationed at Palmanér so as to meet any demand on the Mysore frontier and also to proceed to any part of the district under the Collector's orders. The staff was to advise and assist the Revenue officials in suppressing the plague. Orders were issued from time to time by Government prohibiting pilgrimage to all the important shrines and festivals in different parts of the district.

13. Another ambulance staff was organised and stationed at Vellore to meet any demands in the plains.

14. On 28th October 1898 Major Bannerman, I.M.S., visited Vellore, and after lecturing on the advantages of inoculation against plague initiated inoculation and on that same day ninety were inoculated, the Collector and the Sub-Collector setting the example.

15. Till the end of December 1898 the methods thus employed worked very satisfactorily and except in a few isolated instances, *e.g.*, at Wallajah, Marudambakkam, Sholinghur and Pallikonda, contacts of almost all the imported cases escaped the infection and were after the due period discharged.

16. With regard to the isolation of the sick and segregation of contacts, no force was used to send them to camp. Most of them preferred segregation in their own houses.

17. Mussalmans invariably in every case objected to being removed and were therefore kept segregated in their own houses guarded by the police to prevent egress and ingress. In such cases the patient, whenever practicable, was kept in a separate room.

18. The treatment of the sick as to whether by Vythians, Hakims or by qualified medical men was left to the option of the patient or of his people, and every care and precaution was taken not to wound their caste feelings or religious susceptibilities. In the case of female patients a nurse was always employed to examine and, whenever required, personally to attend to them.

19. In all cases the contacts were disinfected with perchloride of mercury solution, segregated and watched for full ten days and again disinfected and discharged.

20. The corpse was thoroughly disinfected and wrapped with a sheet steeped in mercury solution and buried six feet deep or burnt, and those who took any part in the funeral, either relatives or coolies, were also disinfected and placed under observation for ten days. Regarding the treatment of infected houses and other articles a brief description is given in paragraph 11.

21. Till the end of December 1898 the number of imported cases was 55, of which 48 died, and indigenous cases 6, all fatal. These latter are most of them traceable to infection from other previously imported cases in the neighbourhood.

22. Up to date the total number of imported cases is 114 with 93 deaths.

23. *Indigenous Plague.*—The first case of indigenous plague in Kuppamu was reported on 2nd December 1898, and on the occurrence of the same the Collector, Sub-Collector and the District Surgeon proceeded immediately to make the necessary arrangement there. Special Plague officer, Lieut. Scott-Elliot, was stationed at Kuppamu to carry on plague operations there and the Assistant Surgeon directed to remain there, as a temporary measure, to advise on medical and sanitary matters.

24. On 4th January 1899 one half of the ambulance staff was despatched from Palmanér to Kuppamu and there placed under the immediate orders of the Special Plague officer.

25. Necessary arrangements were made for a plague camp to which patients and contacts were removed. Cases began gradually to increase in number and the disease spread from house to house and street to street. The town became panic-stricken, and the people in the vicinity evacuated their houses and fled to the neighbouring villages. Such evacuation was not objected to. The town was divided into three circles and placed under strict observation. The Hospital Assistant and Sanitary Inspectors were directed to go from house to house and street to street in their respective circles to examine and report on any suspicious cases.

26. Patients and contacts in the majority of cases went into camp and the rest were segregated and watched at home. Thorough disinfection of infected houses and other articles was done with mercury solution or fire or both, and all excreta disinfected, covered with sawdust and burnt with kerosine-oil.

27. When the town was in a state of panic, no coolies could be got to do disinfection work and even the menials of the ambulance staff threatened to strike. Matters were represented to the Collector and a detachment of 14th Regiment, Madras Infantry, was got for carrying on the work of dismantling infected houses and of disinfection, etc. The Assistant Surgeon inoculated all the privates and the Native officer of the detachment, and the people who had been averse to inoculation slowly came forward, and in the course of three weeks over 200 were inoculated. These were followed cheerfully by an equally large number later on. Dr. A. F. Page joined the staff at Kuppamu and assumed charge as Plague Medical officer. The town became deserted and the number of attacks gradually went down. All uninfected houses that had been evacuated were not allowed to be re-occupied without being previously disinfected. The number of indigenous cases in Kuppamu up to date is 97 with 79 deaths.

28. *Vellore.*—The first case of indigenous plague in Vellore was reported as having occurred in old Munsif's Court street, Saidapet, on the 5th January 1899. The second case occurred in the neighbourhood, and the District Surgeon, Collector and Sub-Collector were wired to by the Assistant Surgeon. They promptly arrived the same day and the disinfection of the houses and other infected articles as well as the contacts was immediately done and these latter were segregated in their own houses. Other cases followed in rapid succession in the same street and its vicinity. Rats were found dead in some houses and some of these were voluntarily vacated by the inmates.

29. Observation and preventive staffs were organized without delay. The town was divided into five circles each to be patrolled by a Circle Inspector, and all the five were placed under Divisional Inspectors.

30. According to G.O., No. 80 P., dated 11th January 1899, Vellore was declared plague-infected and arrangements made for providing passports to persons leaving Vellore by road or by rail, and later the infected area was declared to be comprised between Kalambur and Pákala on the South Indian Railway line and between Sholingur and Jalarpet on the Madras Railway Company line, so that one travelling from within these limits to any other place was required to take out a passport. Every case of plague or of suspected plague and the house and contacts, etc., were treated as per regulations. All deaths from suspicious causes were reported at once and Hospital Assistant T. D. Thomas of the municipal hospital examined the corpses, the hospital nurse doing such work in the case of women, and any corpse clandestinely disposed of was treated as one of plague.

31. The services of the District Surgeon and the Assistant Surgeon were frequently required elsewhere in the district and therefore Special Plague Medical officer Dr. W. B. Edwards and Special Plague officer Capt. A. Ffrench were appointed for the municipality of Vellore to conduct plague operations. A detachment of the 28th Regiment, Madras Infantry, under Lieutenant Sherrard was got down for the work of disinfection, etc., and soon after their arrival they were all inoculated.

32. The plague camp beyond the river Pálár built by the municipality proved to be of no utility on account of its distance from the town. Another was ordered to be put up on the fort glacis and placed under the charge of Dr. Edwards with a senior Hospital Assistant to help him. The examination of plague cases, genuine or suspected, in the town was done by Dr. Edwards and 3rd-class Hospital Assistant Saiyid 'Abd-ul Rahím, and in the case of women by Miss Bleaney (lady nurse), who always most readily and cheerfully co-operated, and by Mrs. Turner who also worked cheerfully.

33. While plague was gradually thus spreading, cholera had been at work in different parts of the town and claimed a large number of victims. Second-class Hospital Assistant Thomas, who was put in charge of cholera duty, did hard work and succeeded in stamping out the sister epidemic by his own exertions and that of his superior officers. Major Bannerman, I.M.S., returned to Vellore to do inoculation early in January last and during the course of a fortnight he inoculated over a thousand and popularized inoculation. This preventive measure was continued by Miss T. Hawdon (lady nurse) and the Assistant Surgeon. The total number inoculated till now is about 2,030.

34. The Chairman by beat of tom-tom announced the reward of 3 pies for each rat captured or killed and shown and then caused them to be destroyed by fire.

35. The plague that was confined to one street spread to other part of Saidapet and later to other parts of Vellore.

36. On 27th January 1899, road inspection stations were formed at the Pálár bridge on Vellore-Katpadi road and at Sutvachari on Vellore-Arcot road and sanitary inspectors and nurses were appointed to examine passengers by road from Vellore towards Katpadi and those leaving Vellore by the Arcot road as well as those entering into Vellore by the latter road from Arcot, Ránipéttai and Wallajah.

37. Isolation of patients, segregation of contacts and disinfection, etc., were carried on on the same lines as at Kuppamu above described, but most people in Vellore preferred home segregation to camp. Twenty-nine cases of plague were admitted into the plague-sheds, and of these 13 recovered and 16 died. The contacts in connection with these cases were segregated in camp and these numbered 187.

38. The apparatus used for disinfection with mercury solution was the Chinese pump, but it was found not to work well and was replaced by the one invented by Lieutenant-Colonel W. G. King, I.M.S.

39. The number of cases gradually began to go down since April and since then the disease has shown no tendency to recrudescense. The last case reported after an interval of three weeks was on the 26th instant, the total number up to date being 184 seizures and 168 deaths.

40. The results of treatment in the plague-sheds is highly encouraging, and this as well as the early disappearance of the disease so soon when it was feared it might assume severe epidemic proportions is to a great extent attributable to the exertion of Dr. W. B. Edwards and the rest of the plague staff.

41. *Wallajah, Arcot and Ránipéttai.*—These three towns being near each other may be treated under one heading. A few imported cases had begun to occur there from September 1898, and the first indigenous case was reported on 13th January 1899. The nearest medical subordinate under the directions of the Collector and District Surgeon promptly carried out the necessary preventive and sanitary measures. A camp was put up in Wallajah and later in Ránipéttai, and on 4th February 1899 two special Plague officers and two special Plague Medical officers—one of each for Wallajah and Ránipéttai and the other for Arcot—were appointed. A detachment of the 14th Regiment, Madras Infantry, were got down inoculated and utilized for the work of disinfection, etc. The detection of cases of isolation at home or in camp of the sick, the segregation of the contact and disinfection of persons, houses and other articles suspected to be infected, were carried out as per regulations and on the lines followed elsewhere in the district as described above. Here, also, the disease has been seen gradually to decrease in virulence since April last. Up to date there have been—

	Seizures.	Deaths.
In Arcot	185	157
In Ránipéttai	78	54
In Wallajah	58	41

42. Inoculation in these towns has not been as popular as may be desired.

43. *Tirupati.*—There were only three indigenous cases in this town between the 21st and 28th January 1899 and were attended to by the local medical subordinate and Revenue officials.

44. It may be seen from the above that the preventive measures promptly adopted as per regulations proved to be a considerable success in combating plague, and inoculation contributed its own share.

45. I must now conclude, and before I do so I feel I must express my hearty thanks to all the medical subordinates of the district who readily and willingly co-operated and acquitted themselves very well indeed, and of these I may especially mention the following names:—

(1) Civil Apothecary M. D. Gnanamani of Ránipéttai.
(2) Second-class Hospital Assistant T. D. Thomas of Vellore.
(3) Third-class „ Md. Jamál-ud-dín Sahib of Vellore.
(4) „ „ Saiyid 'Abd-ul Rahím.
(5) First-class „ S. C. Winslow of Wallajah.
(6) „ „ Davasigamani Mudaliar of Arcot.

The undersigned has been all along at head-quarters (Vellore) doing jail and office duties.

Lieutenant-Colonel J. Lancaster, I.M.S., had a very trying time of it and was always on the move in different parts of the district. His arduous work, hearty co-operation and winning manners always contributed much towards success. I feel great pleasure in particularly bringing to your notice the good work done by Assistant Surgeon P. N. Lakshmanan who shared almost equally with Lieutenant-Colonel J. Lancaster in plague work in the district. Wherever he was sent to, whether amidst a panic-stricken or obstinate people, he rose equal to the occasion, won their confidence and acquitted himself remarkably well, and always proved himself energetic and successful.

My best thanks are also due to the Collector (late and present), to the Sub-divisional officers, Revenue officials and to special plague officers and plague medical officers in the district for their invaluable aid and willing co-operation.

SALEM.

From R. B. CLEGG, Esq., I.C.S., Collector and District Magistrate, Salem, to the Secretary to Government, Local and Municipal Department (through the Sanitary Commissioner and the Surgeon-General), dated 20th July 1899, No. 1310-P.

I have the honour to submit the report regarding the measures taken to combat the outbreaks of plague in this district called for in Plague Commissioner's letter No. 4608 of the 1st May last.

2. *Passport system.*—This system as laid down in G.O., No. 466 P., dated 13th May 1898, was introduced in the district in June 1898. Special passport-issuing officers were appointed by the municipal councils of Salem, Tiruppattúr and Vániyambádi at the railway stations of Suramangalam, Tiruppattúr and Vániyambádi. After the inspection station was opened at Jalarpet, the Chief Medical officer was appointed passport-issuing officer and local authority of the place. The District Medical and Sanitary officer was the local authority for the town of Salem. Medical subordinates and station-house officers performed these duties at 22 and 77 towns and villages, respectively, village munsifs being the local authorities in other places. In the beginning a comparatively small number of passports was issued, but they increased enormously as the Bangalore district and subsequently the whole of the Mysore Province were declared infected. The passport work was supervised by the District Medical and Sanitary officer for a few weeks and then I transferred the work to my own office; 49,777 passengers were intimated up to the end of May last. Of these 34,309 either underwent observation or left the district before the expiry of the ten days' period, 1,340 persons have not been traced and in the remaining cases the passports have yet to be recovered or accounted for by Tahsildars and Chairmen of municipal councils. These mostly appertain to the earlier period when the regulations were not well known to persons who attended our shandies and returned to their villages in the Mysore territory in the evening. Persons who failed to take out passports or to undergo observation regularly were reported to me or the Divisional officers, and in the absence of reasonable explanation they were prosecuted. The number of prosecutions instituted up to the end of May was 191.

On the whole the system has worked satisfactorily and has enabled us to detect and deal promptly with the majority of the imported cases that have occurred.

3. *Jalarpet railway inspection station.*—This was opened on the 22nd August 1898 and the examination of trains was conducted by the District Medical and Sanitary officer for a week until the special Medical officer Dr. Beit arrived on the 28th idem. At the outset the inspection staff consisted of one doctor, one retired assistant surgeon, two inspectresses and two hospital assistants. The first case of plague was detained on the 3rd October 1898, and by the end of the month the number of plague cases in the camp rose to eleven seizures and seven deaths. A large number of passengers were also detained for observation, so that it became necessary to replace the assistant surgeon by a doctor and to increase the subordinate staff both in the camp and in the platform. Some further additions to the staff were made in January when plague having broken out at Vellore and other places in the North Arcot district, the examination of westward trains was started. The staff at work on the 30th June 1899 consisted of three doctors, six hospital assistants, five nurses, nine clerks, one store-keeper, one engine driver, one fireman and 23 servants. Of these one hospital assistant and one nurse with a staff of servants are exclusively attached to the hospital camp.

The camp is divided into three main parts, viz., (1) the disinfection camp, (2) the suspect camp, and (3) the plague hospital with its staff quarters. The last is situated at a distance from the other two which are near the railway station. The suspect camp is capable of accommodating 160 natives (male and female) and contains two separate sheds for European male and female suspects. There are separate observation sheds attached to it in which persons of suspicious sickness are segregated until plague symptoms become pronounced. The hospital camp contains accommodation for sixteen native patients (male and female) and two sheds for Europeans. Besides these, separate wards are built for Panchamas. Up to the end of June last the number of plague patients detained in the hospital was 77, of whom 45 died. The number of persons kept under observation excluding those who were disinfected and discharged amounted to 10,936.

4. The inspection station at Jalarpet was for a few weeks evaded by passengers from the Bangalore side who alighted at Pachur, a small station at a distance of 7 miles to the west of Jalarpet; they thence proceeded by road to Tiruppattúr or Vániyambádi and took train there. I made inquiries and went to Pachur in October. Finding a large number of passengers alighting there who were not *bonâ fide* travellers to villages near Pachur, I posted a special hospital assistant with two police

constables to strictly enforce the original Mufassal Regulations 18 and 19. The passengers from Bangalore then resorted to rebooking at the intermediate stations within the limits of the Kolar and North Arcot districts so as to make it appear that they were not coming from an infected area. As a result of inquiries the passport rules were applied to all the stations on the Bangalore line to the west of Jalarpet. This course effectually prevented evasions by rail.

5. *Road frontier stations and Observation circles, etc.*—Simultaneously with the establishment of the inspection station at Jalarpet, the district was placed under "observation." After making the necessary arrangements at Jalarpet in consultation with the Sub-Collector and after inspecting some of the lines of communication from the Mysore territory, frontier stations were opened on all the seven main routes at Zuzuvadi, Kothakondapalli, Komaranapalli, Gummalapuram, Kagganur, Berikai and Bagalur. The sites for the stations were chosen either by myself or the Sub-Collector. Pending the arrival of special plague assistants for whom the Surgeon-General was addressed, some of the outlying dispensaries were closed and the hospital assistants deputed to these stations, and six out of seven stations were opened before the close of August and the other station on the 11th September 1898. Portions of the Hosúr and Krishnagiri taluks adjoining the Mysore territory to a depth of twenty miles were divided into twelve circles of two rows, each circle being ten miles in diameter. They were placed in charge of sanitary inspectors obtained through Sanitary Commissioner. Four circles were formed into a group and a Supervisor was appointed to each group. The Supervisors were salt Sub-Inspectors. An ambulance staff was organized and kept in readiness at Hosúr. An additional medical officer was also posted at Hosúr to assist the District Medical and Sanitary Officer. The supervision of the working of the frontier stations was entrusted to the Sub-Collector, while the observation staff, the ambulance staff and the medical duties in frontier stations were placed under the orders of the additional medical officer subject to the supervision and control of the District Medical and Sanitary Officer.

6. The Municipal Councils of Salem, Tiruppattúr and Vániyambádi were also warned with reference to rule 5 of the rules sanctioned in G.O., No. 522 M., dated 13th March 1897, to appoint the necessary observation staff, to provide hospital and segregation camps and to prepare themselves against the epidemic.

7. The station house officers and village officers were instructed to prevent the entry into their villages of persons coming without passports and taught what they should do on the occurrence of a suspected or actual case of plague. The Divisional officers, Tahsildars and Deputy Tahsildars were directed to give particular attention to the supervision of the work.

8. *Destruction of rats, &c.*—In the municipalities of Salem, Tiruppattúr and Vániyambádi the grain bazaars were frequently inspected by the municipal officials and rats found in grain bags and godowns were killed and burnt. Elsewhere Tahsildars and Deputy Tahsildars did the same both at their head-quarter towns and in the villages visited by them in their tours and instructed people personally and through the village officers to frequently search for these rodents, to have them killed and burnt. The good sheds attached to railway stations were frequently inspected for this purpose by the district as well as railway officials.

9. In the beginning of December 1898 rewards were offered for the destruction of rats, bandicoots and mice at 3 pies per head in the unions of Denkanikotta, Hosúr and in the first row of observation circles adjoining the frontier, viz., the circles of Thali, Mattigiri, Bagalur and Berikai. The system was subsequently extended to the Krishnagiri union and to the remaining observation circles. The expenditure incurred under the head from Local Funds amounted to Rs. 41-4-3.

10. The ordinary sanitary precautions were more closely attended to especially in the villages of the observation circles. Both district officials and the plague staff during their rounds had villages cleaned up. Choultries and other public buildings where travellers from infected areas, especially the Mysore territory, used to halt were disinfected at regular intervals, the sweepings and rags or other waste matters left by travellers were burnt.

11. *Commencement of Plague.*—The first imported case of plague was discovered in this district at Hosúr on the 26th August 1898, *i.e.*, within less than a fortnight of

the outbreak at Bangalore. He was a weaver who had arrived two days previously from the Bangalore city. He had high fever and enlarged glands, and a younger brother of his had died of plague at Bangalore ten days previously. It was, therefore, undoubted plague. Myself and the District Medical and Sanitary Officer were at Hosúr at the time. The patient was isolated in a mantapam 1½ miles from the Hosúr town and a younger brother who subsequently developed plague was also sent to join him. A guard was placed at the mantapam to prevent them from having any communication with others; the contacts were segregated and their houses thoroughly disinfected under the supervision of the District Medical and Sanitay Officer. The next imported case was that of a man who was found on the road near Krishnagiri. On removal to the hospital he became unconscious, had a bubo in the left groin and died shortly afterwards. This occurred on the 12th September 1898. I deputed the Sub-Collector to the place at once to make careful enquiries and find out his contacts and to have them segregated and to disinfect the places where he remained. Subsequently two cases occurred at Medinakuppam and one at Vartanapalli both being villages not far from the place where the last preceding case was found. The huts where the patients were isolated were burnt and the contacts kept under observation. The necessary disinfection was carried out under the supervision of the special medical officer Dr. Thomas. I myself then proceeded to the villages in question, and learnt that people from Bangalore were returning to these villages from the Kuppam railway station in North Arcot and thence by a jungle footpath. The villagers were instructed to keep out all arrivals for ten days which they very willingly carried out. While at Krishnagiri I got a wire of a suspected plague death of a Muhammadan girl at Vániyambádi and that there was serious opposition to all measures. I hastened to the place and all that took place there has already been reported to Government—*vide* G.O., No. 1365 P., dated 25th October 1898.

12. Since then the number of imported cases gradually increased, the number of attacks in October and November 1898 being 25 and 35, respectively. A large portion of these occurred in villages in the Hosúr and Krishnagiri taluks and they were inspected and precautionary measures enforced either by the additional medical officer, the Sub-Collector or the special plague officer who was posted to Hosúr about the middle of September. Those detained at the frontier stations were attended to by the Hospital Assistants attached to the frontier stations and elsewhere by the hospital assistant of the Ambulance Staff or of the nearest dispensary, subject to the orders of the additional medical officer. The burial or burning of the dead and the disinfection of their goods and the places occupied by them were carried out by the ambulance sanitary inspector or the circle inspector under the supervision and orders of one or the other of the above three officers. These officers also attended to the segregation of all contacts.

13. In this connection I may state that our arrangements were greatly supplemented by the efforts of the people in the Hosúr taluk. In almost every village in that taluk the people appointed their own agency (paid out of subscriptions) to watch arrivals from other places. People from infected villages were kept isolated at a distance for 10 days. People of one village were not allowed to go to another even to purchase necessaries without permission and except under surveillance.

14. *Indigenous Plague.*—The people of Mattigiri were trading stealthily with Bangalore and they appear to have brought infection with their goods. Besides, there was constant communication between the Remount depot and Bangalore. The first case was that of a tailor at Mattigiri bazaar who was seized on the 29th November and died on the 30th. The contacts were segregated in the sheds temporarily erected by the Remount depot. The tiles of the infected house were entirely removed, the interior of the house was drenched with perchloride solution and the clothes and bedding of contacts were disinfected near their sheds, the remainder of their property being exposed to the sun. The second case was attacked on the 5th December. About a dozen houses including those in which these two cases occurred formed a separate block; these were untiled and disinfected; dead rats were found in the houses and in ditches with enlarged glands. There was one attack on the 8th, another on the 9th idem and two on the 10th. The disease established itself and rapidly spread so that on the 11th and 12th there were ten attacks and four deaths.

I proceeded to Mattigiri on the 11th December. The patients were segregated in their own houses and the contacts in the chattram. Arrangements were made with the Superintendent of the Remount depot and the sepoy lines were converted into a plague hospital. A site on a high ground was at the same time selected and sheds with bamboo mats constructed thereon for segregating contacts. As several deaths occurred among contacts in the chattram, the latter was vacated and the contacts were removed into the new sheds as soon as they were ready. People were advised to evacuate and they, with a few exceptions, readily did so. A number of tents were procured from Madras and lent to some. The rest erected speedily temporary sheds and field huts and removed from the village. Most of these huts were in the owners' fields and in scattered camps. About the middle of the month, Sepoypálaiyam Kudiraipálaiyam and Godipálaiyam, which are portions of the Remount depot, occupied by its employés, were affected. The Superintendent of the Remount depot directed such of the depot servants who had not been attacked to evacuate their houses; they were at first housed temporarily in a depot building and afterwards removed to temporary sheds or into tents put up for them by the depot. Ultimately every house was completely evacuated and the local police set to prevent persons re-entering their houses; but this was not effectively done. There were also cases in these sheds which having thus become infected were burnt and the contacts removed to the segregation camps. Plague cases within the depot limits were sent over to our hospital, but arrangements were made with the depot authorities that they should look after their own contacts. The Mattigiri circle was divided into three sub-circles and a sanitary inspector was appointed to each of them. The ordinary circle inspector was posted for duty in the infected village. The first ambulance was moved from Hosúr to Mattigiri and they were placed in charge of the plague hospital and the segregation camp subject to the immediate orders of Dr. Noble, the Additional Medical Officer. Mr. Hodding, Supervisor of the Denkanikota group, was placed on special duty at Mattigiri under Captain Ffrench, Special Plague officer, to attend to the untiling of houses, disposal of dead bodies, &c. Mr. Gilby, the Supervisor of the group and the sanitary inspectors were engaged in daily inspecting the sheds and tents into which the people had removed for several miles around. They promptly reported cases of sickness and segregated such cases and their contacts in separate sheds or removed them when convenient to the plague hospital and segregation camp at Mattigiri. There was great difficulty in arranging for the disposal of the dead. Nobody would touch the corpses, not even the near relatives. Special coolies were engaged on a pay of Rs. 8 a month and they were provided each with a pair of common clothing to work in, and the bodies were carried in a hand-cart placed at our disposal by the Depot Superintendent and buried. When the relations had no objection, the corpses were burnt. There were in all 121 cases at Mattigiri including the Remount villages, Kudiraipálaiyam, Godipálaiyam and Sepoypálaiyam, of which 89 proved fatal.

15. The evacuated houses were full of property and the owners had left locking them up. This was a source of difficulty. They were required to remove their things to the fields where they were exposed to the sun every day and the circle Sanitary inspector was required to see this done. Labour was not available for disinfection as people were afraid to go into the infected houses. With difficulty some coolies were got at 8 annas a day and they worked at disinfection under the ambulance sanitary inspector. The work went on very slowly. A detachment of 25 Sappers was at last procured from Bangalore under the command of a non-commissioned officer. The houses in which cases had actually occurred were disinfected, the floors dug up and burnt and then they were whitewashed. The other houses were drenched with perchloride of mercury. The roofs of houses were untiled, left exposed for two months and then they were retiled by the owners themselves.

16. The disease next broke out at Zuzuvadi on the 15th December, but being a small village and as the people evacuated their houses promptly there were only nine attacks and six deaths in that village.

17. Indigenous cases also occurred about the same time at Shulagiri. The infection to this village was probably carried by charcoal bags as the village trades in charcoal with Bangalore. Before the end of the month there were 40 seizures and

28 deaths. The weather being wet favoured the disease. The additional medical officer and the first ambulance staff were engaged at Mattigiri. The second ambulance staff which had previously been organized and kept in readiness at Salem was sent there at once and the District Medical and Sanitary Officer took charge of the operations there. A plague hospital shed and a contact camp were built by a party of Sappers deputed from Mattigiri. There was considerable difficulty in procuring supplies for the staff, the village having been evacuated. Supplies were arranged to be got from Hosur. There was the same difficulty here as at Mattigiri in regard to the disposal of the dead. Six toties were engaged at Salem and sent to Shulagiri immediately. Mr. Pell, Supervisor from the Krishnagiri group, was ordered to go round the various camps of the Shulagiri people daily as they scattered themselves in sheds all round the village on being ordered to evacuate. An extra additional medical officer was appointed. Cases continued to occur in the sheds until the people were persuaded to boil their clothes and bedding and to expose their goods to the sun. They here took out all their property with them into the fields. The disinfection of the village was carried out by the Sappers. At first the roofs of houses were entirely removed, but afterwards this was considered unnecessary and they were only removed in strips. At Shulagiri as elsewhere the thatches of all infected houses were burnt, those of uninfected houses being removed in strips to let in light and air. Bamboo framework was in all cases left standing. Whenever cowdung cakes were not available the floors of infected houses scraped off were burnt with straw and kerosine oil. Grain was emptied out of gunny bags and exposed to the sun while the bags themselves were saturated with perchloride, dried and re-washed under the supervision of the circle inspectors. After this the owners were allowed to re-fill the bags with grain. When property of any value was destroyed compensation was paid, but this was rare. Free permits for removing thatching grass from the reserved forests were granted to the people of Kothapalli, Jigur and Mukondahalli, the thatch of whose houses was destroyed in the course of disinfection. There are, however, very few thatched houses in the Hosúr taluk in the larger villages.

18. From Mattigiri, plague spread in January 1899 to Chinna Belagondapalli, Jigur, Sappatti, Edayanallur and Kothapalli. Berikai and Hosahalli in the Shulagiripálaiyam were also infected by the end of the month. At Berikai the people evacuated their houses very promptly and completely on the first suspicion of plague in their midst and this was effective in stamping out the disease rapidly. The Berikai circle was divided into two sub-circles, called north and south Berikai sub-circles, a sanitary inspector being appointed to each. The ordinary circle inspector was placed in charge of the village and the camps around. The gradual extension of the epidemic to many villages in the Hosúr taluk and the severity with which it prevailed at Anekal, Dombasandra, Sarjapur and other Mysore villages close to our borders rendered necessary stricter preventive measures. The guards at the frontier stations were increased and a post at Kembatt was established so that the frontier on the west may be regularly and systematically patrolled and arrivals without passports checked. Ghât inspection stations were established at Royakota and Kurubarapalli so that infection might not spread below the ghâts into the Krishnagiri taluk. A fourth Supervisor distance fo[illegible] appointed to the observation staff, the extent of each group being reduced to three to pur[illegible] observation circles so as to ensure better supervision on the part of Supervisors. The Bagalur circle was divided into two sub-circles, east and west, an additional sanitary inspector being posted to it. Groups Nos. I and II were placed in charge of Dr. Noble with the first ambulance corps and the supervision of the plague hospitals at Mattigiri and Hosúr was entrusted to him. Dr. Tebbs was appointed to the charge of the observation groups III and IV with the supervision of the hospitals at Shulagiri, Berikai and Krishnagiri. Seventy-five additional Sappers under the command of a European officer were sent for to complete the disinfection of all the villages.

19. Hosúr was the last important place to become infected. It is gratifying that although plague was severe close to Hosúr on all sides, the infection was kept off for a long while. The people recognized the advantage of evacuation and were making preparations for the purpose. They had no field huts, as in villages, to go to and it was difficult to procure hutting materials. Mats were purchased at Salem and sent to Hosúr and bamboos were also supplied. They were issued free of cost according to requirements of each family and to a value not exceeding Rs. 5 to indigent persons

and public servants drawing less than Rs. 10 per mensem. Those who were in receipt of pay of more than Rs. 10 were given one-half the cost from Provincial funds The annexed statement shows the details of the distribution and the cost of the materials. The total cost to Local and Provincial funds under this head amounted to Rs. 792 andRs. 69, respectively. The majority evacuated the town readily enough, but some families remained behind and some of those who went into sheds kept secretly visiting their houses. The disease was in consequence lingering in the town and sheds till evacuation was made compulsory and entry into the town without passes from the Special Plague Officer was made punishable and a cordon of police and prickly-pear hedges were placed round the town. This had the desired effect. In less than a fortnight the disease almost disappeared though probably the decline was also partly due to the approach of the hot weather. The camps were situated around the town and sufficiently convenient. The usual daily perambulation was made by the observation staff. The houses were disinfected in the same manner as at Mattigiri by the Sappers. The inmates of some of the houses which were merely drenched with perchloride of mercury subsequently developed plague in the sheds. These were marked for further disinfection. The Sappers were permitted to return to Bangalore on the 13th April. Nineteen coolies were then engaged for disinfection on condition of paying them wages at 4 annas per head per diem and batta 2 annas a day when taken out of Hosúr. The weavers of Hosúr, some of whom have sufferred a good deal from want of employment during the prevalence of plague, have taken to this work and the Special Plague Officer reports that they are a success. They have been employed on disinfection work also at Nagondapalli and Mukondahalli and other villages.

Statement showing the number of mats supplied to indigent persons, etc.

Mats supplied to						Number of mats sold.		Remarks.
Indigent persons.		Peons, etc., drawing below Rs. 10.		Officers drawing more than Rs. 10.				
Number.	Cost.	Number.	Cost.	Number.	Cost.	Number.	Cost.	
1	2	3	4	5	6	7	8	
	Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.	
1,086	604 1 8	346	188 8 0	267	137 7 0	569	302 11 8	

20. The annexed statement* shows in one view the number of cases imported and indigenous in various parts of the district and the period of their occurrence. Up to the end of June 468 indigenous cases with 360 deaths and 163 imported cases with 100 deaths occurred. Of these the majority (514 seizures and 384 deaths) occurred in the Hosúr taluk, the remaining cases being distributed between the Tiruppattúr, Krishnagiri and Salem taluks. Only one imported case occurred at Uttangarai. The remaining taluks were free. Including the imported cases as highest number was recorded at Hosúr followed by Mattigiri and Shulagiri, the attacks being between 125 and 100. At Berikai, Jeygoon and Chinna Belagondapalli the attacks numbered between 20 and 25. In other places they were not above 10.

* Not printed.

21. The subjoined statement shows the number of inoculations, the names of places and the officers who performed them. It did not find favour with the people except temporarily at Hosúr and Mattigiri where plague was raging or the outbreak was imminent. At my request a lecture on inoculation was delivered at Hosúr by Dr. Bannerman in December 1898 and at the close of the lecture and on the following day 191 persons including females were inoculated by him. Among those inoculated at Mattigiri, 29 persons were attacked with plague, of whom 16 died. The fact that inoculated persons died destroyed what little faith the people had in inoculation. Most of the cases, however, I believe, were cases inoculated when it was too late, but

this was unfortunately of course not understood. No case of plague has occurred among those inoculated at Hosúr, Mathagondapalli, Krishnagiri, or Salem. Inoculation was not pressed. In order to make it a success we require a sympathetic inoculator in whom the people have confidence.

Locality.	Total inoculations performed up to 30th June 1899.			Name of medical officer or subordinate who performed inoculations.
	Males.	Females.	Total.	
Salem town	85	31	116	Lieutenant-Colonel A. N. Rogers Harrison, I.M.S.
Mattigiri and Godipalaiyam	16	14	30	Do. do.
Do. do.	15	3	18	Dr. H. A. E. Noble, A.M.O.
Do. do.	27	18	45	Major Bannerman.
Do. do.	1,245	833	2,078	Captain Dodd, Surgeon of the Remount Depot.
Mathagondapalli	2	2	4	Dr. H. A. E. Noble.
Hosúr	141	50	191	Major Bannerman.
Do.	237	135	372	Civil Apothecary Gibbons.
Krishnagiri	22	17	39	Do. Fernandez.
Total ..	1,790	1,103	2,893	

22. Besides those at the frontier and ghât inspection stations and at Mattigiri, plague hospitals and segregation camps were also established at Shulagiri, Berikai, Hosúr, Krishnagiri and Súramangalam. At Shulagiri the Local Fund chattram was used for the purpose of hospital and accommodated eight cots. At Berikai a shed was erected. Both these were managed by the second ambulance staff. The hospital at Hosúr was built to accommodate two males and two females and was in charge of the first ambulance until they were removed to Mattigiri in December and then the management thereof was entrusted to the local civil apothecary and the hospital was enlarged for ten males and ten females. A health camp at a cost of Rs. 600 was built near Hosúr but it was not freely resorted to by the people. They have, as a rule, a strong objection to going to any sheds especially erected for them by Government, and much prefer their own. The Krishnagiri and Súramangalam sheds provided for four beds each. No case of plague was detained in the latter.

The number of patients treated at each of the hospitals and the mortality among them are shown in the subjoined statement:—

Temporary hospital.	Sex.		Class of patients treated.		Total patients treated.	Mortality.				Total deaths.
						Sex.		Class.		
	Males.	Females.	Hindus.	Muhammadans.		Males.	Females.	Hindus.	Muhammadans.	
Komaranapalli frontier inspection station ..	2	..	2	..	2	1	..	1	..	1
Berikai	4	1	5	..	5	3	..	3	..	3
Kothakondapalli frontier inspection station ..	2	1	2	1	3	1	..	1	..	1
Zuzuvadi frontier inspection station ..	7	6	8	5	13	4	4	4	4	8
Vániyambádi	2	..	..	2	2	1	..	..	1	1
Krishnagiri	2	..	1	1	2	1	..	1	..	1
Shulagiri	20	11	29	2	31	8	3	11	..	11
Mattigiri	12	23	30	5	35	2	8	10	..	10
Hosúr	25	18	40	3	43	13	11	23	1	24
Total ..	76	60	117	19	136	34	26	54	6	60

23. *Municipalities—Salem Municipality.*—The Council has appointed a military hospital assistant at the Súramangalam railway station to inspect arrivals and passport them. An observation staff consisting of nine circle inspectors and a certificated sanitary inspector has been appointed. The circle inspectors constantly move about their divisions, send all arrivals from infected areas to the local authority for observation and carefully watch the health of the inmates of the houses where they put up. There is a Eúrasian nurse who inspects the female travellers at their residences. A plague camp has been constructed at some distance from the town at a cost of Rupees 1,602. The hospital contains accommodation for four patients. There were only three imported cases in the town—all of which were fatal.

Tiruppattúr Municipality.—The system of observation of travellers arriving from infected areas was started in July 1898. After the Bangalore district was declared infected, a special passport-issuing officer was posted at the railway station and an observation staff consisting of a divisional inspector and a circle inspector was appointed. The provisions of Original Mufassal Regulation I were widely proclaimed, houses were whitewashed and all precautions taken. The number of arrivals increased considerably since January 1899 owing to the outbreak of plague in the North Arcot district. An additional passport-issuing officer was appointed at the station and the observation staff was also strengthened by two more circle inspectors, four toties and three peons. A segregation camp and a plague hospital were provided at a cost of Rs. 1,373. The necessary equipment and stores were kept ready. Eight imported cases occurred, of which six proved fatal. In all these cases the patients and contacts were segregated in their own houses as they were unwilling to go to the plague camp. A special hospital assistant was employed from March 1899 to the end of June 1899 on account of plague and cholera duty.

Vániyambádi Municipality.—The same precautionary measures as at Salem and Tiruppattúr were adopted here. There was a special passport-issuing officer at the railway station, as also an observation staff and a special hospital assistant. A plague hospital and a segregation shed were erected. There were eight imported cases and one indigenous case, of these six proved fatal.

24. The Salt, Abkári and Customs department deputed 30 peons for plague duty and a temporary police establishment consisting of one Police Inspector on Rs. 70, a first-grade head constable on Rs. 25 + 15, a second-grade head constable on Rs. 20, a fourth-grade head constable on Rs. 14 and 88 first-class constables was employed. A European head constable on Rs. 35 and also some constables when necessary were deputed from the district force. The Inspector, two native head constables, one European head constable and 45 constables are on duty at Jalarpet in connection with the inspection of passengers on the platform and in guarding the plague camp. A detachment of 60 sepoys from the 17th Madras Infantry was guarding the camp from the middle of October 1898 to 25th March 1899.

25. Among the staff on plague duty two ambulance toties, two police constables and a peon of the Vániyambádi Municipality contracted plague and died.

26. In March and April several cases were imported at Krishnagiri from Bowringpet and Oorigaum and as plague prevailed also at Kuppamu in the North Arcot district close to our frontier in the Krishnagiri taluk, a special guard consisting of ten peons under a Sanitary Inspector was appointed to patrol the tracks leading from the Mysore State and the North Arcot district on the Krishnagiri-Vepanapalli side to watch all arrivals and to passport them.

27. The re-occupation of Mattigiri, Shulagiri, Berikai, Osahalli, Jígur, Zuzuvadi, Poonapalli, Kothapalli and a few other minor villages was permitted in the beginning of April and of Hosúr in May. There has been fortunately no recrudescence in these villages since.

28. The direct charges from Provincial and Local funds on account of plague measures up to the end of June last amounted to Rs. 1,06,364 as under:—

	Rs.
Provincial	31,874
Local	74,490
Total ..	1,06,364

29. *Opposition to Plague Measures.*—The measures have, on the whole, been smoothly worked without serious opposition. In the Hosúr taluk the villagers have realized the necessity and advantage of evacuation. At the outset owing to all sorts of rumours and scares there was some opposition in Vániyambádi, but this was soon overcome as abovementioned. A Supervisor Mr. Salisbury and his wife were mobbed

in Kelamangalam, Hosúr taluk, as some malicious person had spread a rumour that he had put some red powder into and poisoned a well. Two Forest-officers, Messrs. Moss and Daly, were badly beaten being mistaken for inoculators in the Námakkal taluk. There was a riot in Pulampatti in the Tiruchengod taluk due to the idea that a vaccinator was intending to inoculate. Beyond these instances nothing of importance occurred and idle rumours have now almost died away.

30. I cannot close the report without mentioning the excellent services rendered by Captain Ffrench, Special Plague Officer, and Additional Medical Officers Drs. Noble and Tebbs. Captain Ffrench's services have been invaluable and he has worked with untiring energy. Among the subordinates Civil Apothecary Gibbons at Hosúr has had especially heavy work and the services of Hospital Assistants Swamidoss Nadar, Paul and Raman Nair deserve recognition. Supervisors Mr. Gilby and Mr. Pell of the Salt department have also done exceptionally good work.

31. A copy of the District Medical and Sanitary Officer's report is enclosed.

From the District Medical and Sanitary Officer, Salem, to the Collector of Salem, dated 23rd May 1899, No. 332-P.

From the Surgeon-General with the Government of Madras, dated 24th June 1899, No. T-8/312.

From the Surgeon-General with the Government of Madras, dated 5th August 1899, No. T-8/422.

From the Surgeon-General with the Government of Madras, dated 24th August 1899, No. T-8/472.

From Lieutenant-Colonel W. G. KING, C.I.E., I.M.S., Sanitary Commissioner for Madras, to the Secretary to Government, Local and Municipal Department, dated Camp, Ootacamund, 26th August 1899, No. 60-P—T.

With reference to Ref. on C. No. 4608, dated 31st May 1899, I have the honour to submit certain remarks on the reports herewith forwarded to Government. I have received no intimation as to the desired scope of these reports, and have not been supplied with a copy of the queries put by the Plague Commissioner to the officers concerned. I, therefore, can but confine myself to such matters as are brought to notice—apparently in reply to the queries that have been put. As the subject-matter treated is much the same throughout, I do not deal with events as they occurred district by district, but would attempt to secure lessons for future guidance from the experience gained by the reporting officers.

A.—Mode of importation of the disease to the Presidency.

2. In not a single instance has it been reported that plague has been introduced into the Presidency by means of infected material, except in the Salem district. Here suspicion, but not proof, fell upon gunny bags that had been used for conveyance of charcoal, and, in another instance, upon clothing that, it was suspected, had been imported by a tailor. In both, the source of infection was said to be the Mysore territory, which immediately adjoins the district of Salem. A case to which no allusion is made in the reports was also stated to have occurred in the Salem Central Jail in a woolworker, who had to treat material imported from Bangalore.

3. Experience points to the fact that ordinary merchandise is rarely placed under conditions which would enable vitality of the plague microbe to be retained for any length of time. That infection can be conveyed by personal clothing, is, however, indubitable. Possibly, the scanty nature of native clothing, and the fairly frequent washing and exposure to sun it undergoes, gives less risk in this respect than in the case of woollen materials—so largely worn in European countries. This fact is of importance, in that risks as to infection by clothing worn by travellers are in practice so small as to give greater value to preventive measures directed to the end of keeping the infected human being—as the great cause of spread of the disease—under surveillance. The policy, therefore, pursued of only demanding disinfection of the person

and clothing of the exceptionally filthy, and of taking no notice of ordinary merchandise beyond prohibiting importation of a few articles specially liable to be infected, and concentrating attention upon watching the health condition of those arriving from infected areas, has been justified in practice.

4. *The area affected.*—Looking at the total area affected in the Presidency, the query naturally arises why our borders should have been attacked and not the interior. So far, experience has pointed to the simple fact that the greater the passenger traffic from an infected locality the greater the chances of infection, and that the nearer the source of infection the greater the risk. During the period up to August 1898, no cases of plague had occurred in the Presidency beyond two in Madras City in 1897. These were in the persons of Madras inhabitants, who had been subjected to infection by proceeding to Poona. The reason for this freedom would seem to be the fact that ordinarily the amount of passenger traffic between Madras and Bombay Presidency is not large, and that it heavily diminished directly the existence of plague was known. Runaways from infected places in the Bombay Presidency rarely chose Madras for residence; hence, the conditions that existed were that, whilst passenger traffic was small, merchandise arrived freely from the infected areas, and, apparently, without evil result. It was not till areas having close *passenger* traffic with Mysore became infected that this Presidency fell a victim to indigenous plague. Mysore has considerable passenger traffic with Hubli, and this town being infected was therefore a serious factor for Mysore. Mysore, in turn, has much passenger traffic by rail and road with Madras. The people early fled from the infected City of Bangalore, in large numbers, to their own and British villages. Thus, Salem, North Arcot and Anantapur, along the borders of Mysore, were gradually infected between August and December, by the arrival of infected persons from the Mysore territory.

In the Anantapur district not only was this disease brought within its villages along its Mysore border (Hindupúr taluk) but into Guntakal, by conveyance of infection direct from Hubli. From this second centre formed at Guntakal, the disease spread to the Bellary and Kurnool districts, whilst a second focus was also formed in the Bellary district, in all probability by importation from Kopbal in the Nizam's dominions.

5. In short, intercommunication for purposes of trade and possibly much intermarriage of border families—inducing relations to flee to each others' houses in times of distress—suffices to explain the preference of the disease for the border districts. The interior of the Presidency apparently escaped not because there were climatic conditions which prevented its spread being favoured, but because human intercommunication with infected areas was very limited—for rural populations rarely care to flee far from their villages—and because such imported cases as did make their way to interior parts were, so far as is known, fully detected. That they were fully traced may not be the case, but, having regard to the large proportion detected and segregated in the border districts before the disease baffled the vigilance of the authorities, or the absurd opposition of the people prevented their success, it is a fair argument to assume that such cases as penetrated beyond the border districts were, without exception, segregated and thus rendered harmless.

B.—Precautionary Measures.

6. The prime method adopted was that of maintaining the persons from infected areas under a "system of observation," or, as it is sometimes called, "surveillance" for ten days after arrival. From 7th October 1896 to 18th January 1897, the method was voluntary in the case of District Boards and Municipalities; but was adopted universally—at least in the latter—having communication by rail with infected areas. These bodies posted sanitary inspectors or hospital assistants at railway stations in communication with Bombay, and from information gathered from passengers secured their domicilliary observation. The full inspection of passengers arriving by train from the Bombay Presidency was conducted at Adóni and Bezwada (from the 7th October 1896), as the stations nearest the frontier where, without appointing special medical staffs, this could be effected (G.O., No. 111 L., dated 19th January 1897). In the case of the Municipality of Madras, these arrangements were supplemented by

the entertainment of a special inspecting staff at Perambúr. By the 13th October 1896, with the consent of the Railway authorities, the names of passengers from infected areas were transmitted by the same train as that by which they travelled, in the case of the Madras Municipality, and, in others, the post was relied upon. By means of this rough non-compulsory method of surveillance, the Madras City was undoubtedly saved from infection as early as October 1897, as by its means cases imported from Poona were traced and segregated. But, by this time, the possibility of relying upon this system had been greatly strengthened, by the passing of the Epidemic Diseases Act, and issue of Regulations founded thereon, under G.O., No. 219A M., dated 15th February 1897. Under these, railway observation camps had been opened at Guntakal and Arkonam, and the makeshift arrangement at Adóni was abolished in favour of the former, whilst Bezwada was abolished in favour of Kondapalli.

7. Under G.O., No. 1985 M., dated 18th November 1896, special regulations under the District Municipalities Act (Act IV of 1884) had been issued for the guidance of municipalities and had been formally accepted by them, in respect to the staff they should entertain, and the action expected of them should invasion occur.

8. Regulations for protection of ports on the lines of the Local Government Board's (England) order were issued in G.O., No. 363, Marine, dated 22nd April 1897.

These regulations were found to agree practically with those subsequently advised by the Venice Convention.

9. Under no circumstances, throughout the above arrangements, was any such thing as wholesale stoppage of passenger traffic permitted. Persons were detained only if suffering from plague, or presenting suspicious symptoms, when unable to give satisfactory addresses, or when so filthy that disinfection of their clothing and persons was thought advisable.

10. With the advance of plague in the Nizam's dominions, however, the liability to attack of this Presidency became more evident. Government then issued further regulations under the Epidemic Diseases Act (G.O., No. 93 P., dated 26th February 1898) which now clothed the system of surveillance with the necessary legal recognition, and laid down the requisite organization and methods for its being correctly effected. In rural tracts, areas of 10 miles diameter were defined as "observation circles." In charge of each, there was appointed one certificated sanitary inspector and, as the supply of these became exhausted owing to the large demand, temporary sanitary inspectors were placed in charge. These latter men were of good educational standard, the majority having passed the Madras University Matriculation, or higher examinations. They were subjected to about a fortnight's training, in reference to the etiology of the disease. The sanitary measures necessary were practically demonstrated to them. The subsequent examination was fairly searching, as of 278 selected for training only 150 were regarded as competent. The certificated sanitary inspectors had passed the usual examination, after four months' training in theoretical and practical hygiene at the Medical College, Madras. Supervisors, each placed in charge of four observation circles, were either Europeans or Eurasians recruited chiefly from the Salt and Abkári department. Collectors were directed to place themselves in communication with the Sanitary Commissioner for the supply of these trained men directly their districts were pronounced by Government to be "imminently threatened." To meet this demand, a reserve of ten men was maintained under the Sanitary Commissioner. On the frontier, stations were opened guarding roads having much traffic. By G.O., No. 337 P., dated 16th April 1898, Guntakal railway observation station was abolished, in favour of one at Tungabhadra guarding the railway approach from the Bombay Presidency whence likelihood of invasion seemed most probable at that time. Pódanúr, Kondapalli and Hospet were similarly made railway observation stations. Subsequently, on Mysore being affected, Jalarpet railway observation station was established (August 1898). Thus, all the railway approaches to the Madras Presidency from infected areas beyond it were guarded by inspecting staffs. On plague establishing itself in the Ceded districts, Tadpatri was opened as a railway observation station in January 1899 (Plague Commissioner's Proceedings, No. 263/90, dated 27th January 1899).

11. As a result of these various regulations and the organization stated above, it became possible to ensure that arrivals by road, rail, or sea should be subjected to surveillance for a period of ten days *to whatever part of the Presidency they proceeded.* This was secured by the giving of a document under the Additional Regulations, requiring the persons to present themselves before certain local authorities appointed in municipalities and rural areas—a method familiarly known as the "passport system."

12. Increased vigilance as to the maintenance of sanitary conditions was attempted throughout the Presidency following various appeals from this office.

C.—Experience as to the utility of the precautionary measures adopted.

13. *Frontier Stations.*—Dr. Beach, Plague Medical Officer, Anantapur district, declares frontier road stations were of little utility owing to want of supervision, but gives no reason why they should not have been kept under effective supervision by the supervisors in whose divisions they happened to be. Major Robertson, I.M.S., of the same district, declares frontier road stations of no utility where the configuration of the country does not favour their being not readily evaded. The Collector of North Arcot considers that frontier road stations were evaded notwithstanding a patrol; but this patrol was composed simply of village servants. No facts or figures are given to support these opinions. The Collector of Salem had large opportunities of judging of the efficacy of road observation stations, as his district was threatened by numerous infected villages in the Mysore territory. Neither in his present report, nor in his report embodied in G.O., No. 878 P., dated 12th June 1899, does he oppose the use of these stations, though acknowledging the difficulties, under certain circumstances, attending them.

14. Unless it were possible to rely upon a very well-worked scheme of co-operation with His Highness the Nizam's and the Mysore Governments, it does not seem to me feasible to abolish frontier road stations. Where configuration does not lend itself to ease of detection, it ought always to be possible to supplement them, or to substitute for them a patrol system. These frontier road stations are usually awkwardly placed, and cannot be readily reached by officers for purpose of supervision. This seems their only fault, and it is one that can be remedied by tightening discipline of the supervisors responsible. Road observation stations must, of course, be useless institutions unless aided by "observation circles," as their great end is to secure the giving of passports on the first arrival of persons from infected areas, their actual surveillance being secured by the "observation circle staff."

15. In regard to complaints of behaviour of the staffs attached to frontier road inspection stations, it will be seen that these refer to hospital assistants—a matter with which the Surgeon-General will doubtless deal. Such complaints, however, to my mind emphasize the necessity for the policy which guided me in advising as to the pay and position of certificated and temporary sanitary inspectors, namely, that the pay should be sufficient to attract a well-educated and respectable class of men. The hospital assistant class is undoubtedly a poorly-paid agency.

Railway Observation Stations.—No opinions are expressed against these. Guntakal was instrumental in stopping 5, Hospet 3, and Jalarpet no less than 77 plague cases.

Observation Circles.—The following are quotations from reports as to the value of these:—

"On the whole, the system has worked satisfactorily and has enabled us to detect and deal promptly with the majority of the imported cases that have occurred" [*Collector of Salem*].

"The staff has worked well, the information being reliable and promptly delivered, and the necessary action to be taken in the isolated cases has been efficiently carried out" [*Lieutenant-Colonel Rogers-Harrison, I.M.S., District Sanitary Officer, Salem*].

"The passport system and inspection of all arrivals is as complete as possible. There is no difficulty in discovering the whereabouts of those infringing the Plague Regulations by absenting themselves from medical examination. This facilitates the

easy detection of plague cases and the immediate disinfection and isolation of the infected and contacts. This no doubt materially prevented the spread of the disease" [*Lieutenant-Colonel Pemberton, I.M.S., District Sanitary Officer, Bellary*].

"Bellary itself has been kept free though several imported cases occurred as they were promptly detected owing to the thorough way in which the passport system has worked" [*Dr. Illingworth, Additional Medical Officer, Bellary*].

16. The Collector of Salem alone states the number of cases of persons who were retained under surveillance under the passport system. He shows that, out of 49,777 cases, only 1,340 escaped observation or 2·7 per cent. From figures formerly gathered by me, I know that up to 16th December, 1898, in Bellary, cases had been observed with 12·6 per cent. of failures, and in North Arcot with 10·5 per cent. These results must be considered excellent, considering the freedom allowed to persons having passports. Failures were chiefly due to those possessing passports proceeding to independent territory.

17. It would have been interesting to have secured figures showing in how many instances the passport system was instrumental in securing the first information for local authorities of the importation of plague. None of the reporting officers enter into this point; but it may be assumed that practically all cases stated to have been imported were really discovered by this method, or by the "circle observation system" of which it is but a corollary. The Collector of Bellary shows that there were four cases of plague imported to the Municipality of Bellary and the same number to the Municipality of Adóni. In other localities in his district, there were 21 imported cases. But in only 9 out of 20 affected villages in this district did plague become indigenous. The Collector of Salem shows that 8 cases occurred in the Municipality of Vániyambádi and 9 in that of Tiruppattúr, with one indigenous case as a result (a contact). In all, 163 imported cases in the Salem district were traced by this system and promptly dealt with.

The following is an extract from my annual report for 1898, which gives a cursory statement of the facts bearing on this point up to the end of December of that year:—

"Following the heavy incidence of plague in the Mysore territory during the last five months of the year, plague was imported in 96 separate localities, in a total of eleven districts. In 95 localities, plague was imported 223 times. In 11 of these importation was repeated from four times to over thrice that number of times. Thus, in Madras twelve separate instances of importation were detected. Yet, the City of Madras remained free from plague, and in only twenty localities of five districts was it reported as indigenous up to the end of the year. It is fair to argue that the progress of plague, so long at least as it is confined to human beings, can be absolutely checked by a correctly-worked "surveillance system", backed up by isolation of the sick and the prompt application of sanitary measures. This is, of course, nothing but what might be expected. But it is possible to argue that we are not acquainted with how many instances of plague may have been imported, and yet no indigenous plague has followed. This argument is tenable; but, having regard to the certainty with which plague slowly but surely spreads where concealment has been effected, the chances are greatly in favour of the supposition that the system really effectively kept touch of all arrivals from infected areas. I refer to this subject, as the natural tendency is to point to the heavy expenditure necessary for the support of the staff required to work such a method, and, secondly, to show that of so many thousands of cases that were inspected, so few really turned out to be plague. But it seems to me that the chances would have been 100 to 1, that each case detected would, if it had been undiscovered, have led to indigenous plague in the locality concerned, and that, consequently, not only have the people in these places been spared an unnecessarily early visitation from the disease, but they have been spared the loss of lives and money that must follow its appearance, compared to which the expenditure necessary for the staff must be insignificant. It is apt to be felt, too, that perhaps this escape of localities was not so much due to the precautions taken as to some fortuitous circumstances, depending upon the inability of the plague microbe to accommodate itself to its environment. This factor undoubtedly does modify the chances of spread and, probably, the virulence of the microbe; but it obviously is very methodical and persevering in its efforts to overcome all difficulties, and it seems to me that, given time and season, there is no place in this Presidency that can be regarded as safe from the possibility of the plague importation and subsequent spread."

18. *The Staff of Observation Circles.*—Praise is usually forthcoming for the work effected by supervisors. But the District Medical and Sanitary Officer of Anantapur dismisses the subject with the remark that they were a "very mixed lot", although he finds room for praise that I know personally was well deserved for two (one being a certificated sanitary inspector). This officer (Major Robertson, I.M.S.) joins the hue and cry lately raised by Collectors against temporary sanitary inspectors, but carefully requires it to be understood that he considers the certificated sanitary inspectors efficient —a fact to which I invited the attention of Government in vain (G.O., No. 878 P., dated 12th June 1899). As to the assertion that "they could not speak the truth," I am not prepared to deal with so general a statement. It was hardly possible to attend to idiosyncrasies of this description in a fortnight's training! But, if the "lying" only occurred about distances from village to village, as solely suggested by Major Robertson, I think there was in men but recently imported into a district and unprovided with maps, room for misapprehension which might have been charitably taken into account. In the absence of specific instances, it seems to me Major Robertson's opinion may likewise on this point be due to misapprehension. That he is not removed from operation of this cause in arriving at his opinions, I may point out that there is no foundation whatsoever for his statement as to temporary sanitary inspectors, "that some could not speak English or write it." On my asking him for his instances, he quotes Bátcha Ṣáḥib as the only case he can remember, and referred me to M.R.Ry. Runga Rao, B.A., late plague supervisor, as his authority. This supervisor having been addressed by me, through the Collector of Cuddapah, has sent me the reply attached (No. 1), from which it will be seen that Major Robertson relied upon hearsay, and not upon personal acquaintance with the qualifications of the sanitary inspectors. His statement is completely refuted.

19. In regard to his assertion that his three Muhammadan inspectors were an "exceptionally bad lot," I would state that two of the three were exceptionally well connected, being relations of the Delhi family. A statement of the educational status of these is attached (No. 2). It will be seen that they were well fitted for the position they held. The third man—Saiyid Qádir Khán—which is the man Major Robertson probably really meant to refer to—passed his examination in plague matters before me creditably, and was, according to the supervisor, a really "useful" man in plague work, and, notwithstanding Major Robertson's statement, was sufficiently well versed in English to write his reports in useful, if not ornamental language. He is a schoolmaster teaching English, and this alone should afford *a priori* grounds as to his knowledge of the language. The obtaining of Muhammadans as sanitary inspectors for plague work was a desirable point in administration, and I considered myself fortunate in obtaining these men as temporary hands for service in the district of Anantapur—having regard to the unsatisfactory attitude of their co-religionists at Guntakal. Major Robertson's cutting generalization that "some could not speak English or write it" is, therefore, absolutely a misapprehension on his part.

20. To say the last word on this subject, I maintain that against *certificated* sanitary inspectors not a word has been said. On the opposite, I have heard nothing but praise, and, in some instances, very high praise, of them from those immediately in contact with them, and even from those who would supplant them by revenue inspectors ignorant of sanitation. Of one man, Dragwidge, who lost his life from plague contracted on duty, I was assured personally by the Collector of North Arcot that he was of the very greatest value, and that he greatly regretted his loss. As to *temporary* sanitary inspectors, they were doubtless not all that could be desired; still they were selected with care as to respectability, educational status, and *particularly as to caste*, with the object of securing no embarrassment on this point. In the next campaign against plague, it will remain for Collectors to show that, with revenue inspectors of frequently not so good an educational class as the men I supplied, and devoid of even so short a training as I gave them, they can secure as good results as they have done with the men they have attempted to displace. In the meantime, it is

noteworthy that the first specimen of a revenue inspector supplied as a supervisor in Anantapur does not seem to have impressed Major Robertson favourably as he held him "useless"!

D.—Preventive Measures.

21. Within certain limits, the nature of action taken necessarily differed with the amenability of the people and, possibly, somewhat with the individual peculiarities of the district officers responsible.

In only one instance was any attempt made at securing a cordon round an affected village. This was by Mr. Elwin, Collector of Bellary. The village happened to be surrounded with rocks and other obstructions that rendered the place not one typical for the kind of treatment. Notwithstanding the "pin-prick" allusion by the Collector of Anantapur to the fact that a man escaped from the cordon, the action at this village was one of the best features of the campaign against plague in this corner of the Presidency. To attempt to cordon village after village would be ridiculous, but I certainly think that the method is both justifiable and likely to be of great advantage *when applied to small villages at the first entrance of the disease into an hitherto unaffected area.* The promptitude with which the villagers of Chippagiri were prevented from infecting their neighbours contrasts strongly with conditions round Guntakal, where not only was no effort made on the first appearance of the disease to restrain the movements of contacts (owing, apparently, to misconception of its nature) but where, subsequently, full freedom was knowingly permitted to the population *to wander* to neighbouring villages without surveillance. It was from this focus that the disease spread to the villages of the Bellary and Kurnool districts. Indeed, no other result could have been expected. I trust I may not be mistaken as to the utility of cordons. I by no means favour their use, but think no good reason exists because it happens that this method has been strained in its application to an absurdity as a protection against spread of disease that, within the limits I have defined, it may not be advantageous. The escape from the cordon to which the Collector of Anantapur alludes was in the case of a member of a family possessed of "agricultural passes." The existence of "observation circles" outside the affected village, however, secured the early detection of the case at Uravakonda.

22. Unless it be at Chippagiri, no efforts appears to have been made to prevent persons from infected villages going to those adjoining for market supplies. This can best be seen to by arranging that supplies from healthy villages shall be sold at selected cleanly spots outside the infected village. Within infected areas also, it would seem but a desirable precaution, even in the case of healthy villages, to shift the usual market side to some little distance from the inhabited portion of the village.

23. Although the formation of "preventive circles" was sanctioned by Government (Plague Commissioner's Proceedings, No. 88, dated 7th October 1898), there was hesitation in employing them. On this point, there ought to exist a distinct understanding; an infected town or village should at once have thrown round it preventive circles. In the case of the Guntakal epidemic, the necessity for careful searching for cases round an infected village was so loosely interpreted that the outbreak occurred at Kotalla, close to Guntakal, without its being recognized at its origin. The village had been given in charge of no plague inspector.

24. In Bellary, full advantage was taken of the Regulation 6 allowing assistant sanitary inspectors in unions. Plague found Gooty and Uravakonda of the Anantapur district unprovided with them. This is a matter that requires attention in future. The Plague Regulations are framed on the understanding that towns of 10,000 inhabitants and upwards, not being municipalities, require inspection by a man stationed on the spot, charged with effecting the necessary sanitary and passport duties of a population of a size unmanageable by the ordinary village organization and observation circles.

25. As a result of not instituting the arrangement referred to in the following paragraph, the evacuation of most villages was accomplished without securing disinfection of the property of persons before proceeding to camp. Prevention of return to infected villages before completion of disinfection was also incompletely enforced. These are important points in the prevention of spread of infection. Their neglect seems largely to have minimized the influence of evacuation.

26. In only two places—Kuppamu and Hospet—was, according to the reports, any effort made to place persons leaving an infected village under surveillance, until on leaving the limits of a large area of country defined as "infected," they became involved in the "observation system" of an unaffected area, and were then required to accept passports. That is to say, a villager in an affected village might proceed to healthy villages without hindrance, and without being required to come under any system of surveillance. In Kuppamu, a police cordon was arranged for securing the names of those leaving the village. This, however, need by no means be regarded as an essential part of the system, as shown by the result of Hospet. The use of a cordon in aid of this method had doubtless become necessary at Kuppamu, because it was delayed to a late stage. Here, "house segregation" had been adopted, with the usual sequel of the disease gradually obtaining such a hold upon the village that the inhabitants fled in terror. In Hospet, in Bellary district, on the opposite, the system was introduced under my advice by the Collector at the commencement of the second outbreak or general epidemic. That its operation was effectual, I can testify from my having whilst in the town required the most careful watching by the municipality of the approaches to Bellary and from special enquiries made by the passport staff in the town. The necessity for obtaining a passport before leaving an infected area undoubtedly exercises a restraining effect upon the movements of the population notwithstanding the absence of police or troops, whilst, should emigration be decided upon by them, they are placed under surveillance that does not trammel their freedom. The Collector of Bellary specially notes the fact that the disease did not spread to the village near Hospet, and although the timely aiding of the people to proceed to camp in the neighbourhood of the town must have had much to do with it, I regard the enforcement of the passport system as having greatly aided the total result. I have already pointed out (paragraph 8 of my letter, No. 1401-S., dated 4th May 1899, embodied in G.O., No. 878 P., dated 12th June 1899) that the enforcement of this method is essential, and is but a logical corollary of the existing passport system. By omitting the necessity for undergoing observation in the apparently healthy—in Additional Regulation 34—this requirement would be sufficiently met.

27. The general resort of the population of a village to their fields for camping purposes is a desirable and cheap method, but there was far too much timidity as to interfering with the people when they had gone there, under the impression they might be frightened away. I particularly pressed this matter on notice both verbally and by letter (*vide* also Plague Commissioner's Proceedings, No. 321/20, dated 3rd February 1899). Opinions were all against me, and I gave particular room for criticism in the trivial suggestion that when camps are spread *over fields in crop*, a bamboo pole with a red rag attached—I do not wish to dignify it with the name of a flag—*plus* a black board to show the number of persons in the single camp concerned, might be usefully used to identify their whereabouts. One officer styled the suggestion a "sumptuary arrangement," another felt sure it would frighten the people! Yet, I still venture to say that a field of jowari is as good a place to miss finding a human being or a black buck as can be found in this country, and that an expenditure of 4 to 6 annas to identify a spot would be well spent. It seems to me a curious trait in official correspondence * that this trivial and almost irrelevant suggestion of a flag should have overshadowed the important question of sanitary observation of camps, which was that really at stake. I do not believe that with the most ordinary care such a result as frightening the people from their camps need be anticipated, *provided action were strictly limited to their sanitary care.* I consider that the staff should always be such as to secure complete sanitary inspection of these camps, and to take necessary action founded thereon. An approach to this system seems ultimately to have been adopted in the Bellary district.

* Plague Commissioner's Proceedings, No. 1130, dated 25th April 1899.

28. *Methods of Disinfection.*—There can, I think, be no doubt from the reports, and from my own experience, that no disiufectors are so efficient as sepoys, and wherever possible they certainly should be employed in preference to daily labourers.

29. In the early stages of the plague, the solution of the perchloride of mercury combined with hydrochloric acid advised in the Plague Regulations was not uniformly used. Later on attention was given to this matter. Uniformity in the use of disinfectants should be insisted upon. The matter of lime-washing referred to by Major Robertson has already been settled (Plague Commissioner's Proceedings, No. 370/40

dated 1st March 1899). The use of Lieutenant-Colonel Lawrie's method of floor burning was ordered by Government, without this office being consulted. Personally, I think its use has a sphere of utility, but that to burn floors indiscriminately is unnecessary and wasteful. As to modes of distributing the perchloride of mercury solution, the matter has been discussed in G.O., No. 852 P., dated 23rd June 1899. Major Robertson maintains the uselessness of Chinese pumps. Dr. Beach declares that if this be so, a prayerless form of Chinese pump has been used. There may be force in Dr. Beach's statements, but nothing can get rid of the fact that a great deal of physical energy is necessary for their use, and if men be required to labour hour after hour in squirting the solution upon walls with these pumps perfunctory work results. I think my "gravitation disinfector" (Plague Commissioner's Proceedings, No. 308/24, dated 1st February 1899) will sufficiently well meet requirements. Major Robertson favours the use of tin-watering cans. I think these objectionable, not only on account of the inimical action of the solution on the tin, but by bringing about a reduction of strength of the solution. Moreover, it seems to me an impossible feat to arrange that water from a can shall meet a wall at a height and at an angle at which disinfectants can be delivered, without much waste (G.O., No. 1262, dated 16th August 1899).

30. The question of dealing with roofs has lately been fully dealt with (G.O., No. 1005 P., dated 29th June 1899). I think the suggestion of Major Robertson that walls should be disinfected only 4 feet high should not be adopted. As a fact, contamination of the walls may not have occurred at all, but, so long as it is considered necessary to disinfect walls the method should be thorough and leave nothing to chance. Burning of roofs of houses was rarely employed, on the ground that it alarmed the population. Such alarm, however, I have constantly maintained, need not occur *when the owner is paid on the spot before the public* instead of his having to wait for weeks till the bill is passed, during which he has had time to dilate on the "zoolum" practised. It is undoubtedly a mode that requires discretion in use, and I think this has been duly observed.

31. *The behaviour of Village Officers.*—I think the reports show clearly that with certain exceptions it is impossible to trust to the village heads to give prompt information of attacks. I hold it as certain that any system which ignores the "observation circle" method, and trusts to village heads and revenue inspectors who have had local dealings with them and as a result have gained "influence," will end in a hopeless muddle. This is a statement that, with the present tendency of official opinion, may carry little weight; but I have not spent a good part of my life in ascertaining the history of epidemics without gauging how far revenue agency of the character stated, *without special supervision* to keep it up to the required standard, may be trusted to for prompt reports. It will be noted that Dr. Power, Plague Officer, Kurnool, considers such agency "obstructive." Without going so far as this, I believe that experience will reveal that no reports will be made till repeated deaths render concealment impossible, and that the natural good feeling which exists between village heads and the revenue inspectors will not facilitate the ascertaining previous facts when, under such circumstances, deaths are reported.

32. *Buildings.*—I think experience gathered by district officers shows that in *rural areas* no attempt should in future be made to build hospitals, on the type laid down in the Additional Regulations. It is better that an uniform pattern of small hut be used for *all* purposes—treatment of the sick, segregation of the healthy and accommodation for relations and of servants. The number of persons placed in such huts would alone vary with the requirements. It is of course understood that suitable relative positions would be provided. For hospital accommodation for towns, and for private caste hospital purposes, I think the pattern given in Plague Commissioner's Proceedings, No. 220A, dated 18th October 1898, should be adopted uniformly.

33. In certain instances, reluctance to enter Government hospitals may have been contributed to by the want of accommodation for relatives of patients although required by the regulations—a result of hurry in construction. In the case of Muhammadan populations, also, the absence of provision of a ghosha ward must have acted adversely. These objections would be got over by the separate hut system in rural areas; but, in towns, it should be looked upon as essential that in erecting hospital camps, they should be complete *in all respects* before the arrival of the epidemic. No

advertisement could be worse than the knowledge that in sheds kept ready in a town for plague cases, no separate accommodation has been provided for relatives, and that no arrangement exists for preserving "ghosha." Such structures having been seen and deliberately criticised before the arrival of plague, their unsuitability is recognized by the people, with the result that their being boycotted is predetermined.

34. *Observation Circles in Municipalities.*—The Collector of North Arcot draws attention to the too great size of observation circles in municipalities. The original intention was that these circles should not include more than from 7,000 to 10,000 inhabitants. The attempt, however, to reconcile this condition with municipal wards has doubtless not been of advantage, in that in certain municipalities the wards are really larger than these numbers would imply. I think it would suffice if it be held in mind that the staff laid down in G.O., No. 93 P., dated 26th February 1898, is merely the minimum necessary, and presupposes *the existence of a permanent sanitary staff* correctly proportional to requirements on the spot. As a part of the observation system preparatory to invasion, the latter condition should especially be demanded by Collectors of municipalities.

35. *Isolation of the Sick.*—With the exception of the Collector of North Arcot, all reporting officers agree that in early removal of the sick and evacuation of infected houses lies the best sanitary measure for prompt stamping out of the disease. To him it is evident that no detriment occurred to the population by permitting this erroneous method of indiscriminate "home segregation"—a method that I consider was conducted in the North Arcot district without the care desirable (*vide* my inspection notes on Walajapet, Ránipéttai and Vellore, dated 17th March 1899). He gives no facts to support his opinion. It is also necessary for me to add that in respect of what may be regarded as the complementary measures to the "home segregation" system for prevention of spread, the absence of any chronological statement showing in what order action was taken, in the arrangements detailed from paragraph 3 to paragraph 5 of his report, renders it impossible to correctly gauge their influence. Before it were possible to express such an opinion so opposed to general experience, it would be necessary to carefully compare results in respect to populations where evacuation and isolation had been correctly carried out, and the method he favours had been pursued, respectively. For example, from my own enquiries at Vellore, it would seem that the town affords no exception to the rule that locking up the healthy with the sick was fraught with danger to the latter. Experience on this point was sufficiently well gathered 200 years ago. This is the opinion formed by a physician who had gone through the Great Plague of London on the subject of "home segregation":—

"But if hereafter again a plague should break out (which God forbid) with submission to superiors, I should think it not improper to appoint proper accommodation out of the city for such as are yet untouched in infected families, and who should continue there for a certain time; the sick, in the meantime, to be removed to convenient apartments provided on purpose for them: for by this means, that practice so abhorrent to religion and humanity, even in the opinion of a Muhammadan of shutting up the sick and well together, would be avoided."

* * * * *

Also Defoe states, "as soon as any house is infected, all the sound people should be had out of it and not shut up therein to be murdered."

36. The method of introduction of plague in Vellore is assumed as shrouded in mystery; but it ought not to have been forgotten that "home segregation" of contacts and incomplete disinfection was adopted in the imported case of plague which was discovered, on the 25th October 1898, in the case of a sepoy's wife. It occurred in the part of Vellore town where indigenous plague was first subsequently ascertained (on the 3rd January 1899), namely, Saidapet. That effectual measures were not carried out in respect to this imported case in no way reflects upon the local administration. Every effort, except actual force, was used to secure correct segregation of contacts and disinfection of the house. But when confronted with the Collector's conviction that *indiscriminate*—I use this word advisedly—"home segregation" was not injurious, I am bound to point out that the chances are greatly that to ineffectual action, in the first case, must be ascribed the invasion of Vellore. It is true that no case was

officially reported as of plague until the 3rd January ; but the Collector in his reports states that no history of importation in this instance could be discovered, that is, the disease was already indigenous, whilst it was suspected that "recent deaths" had been due to plague. Equally true is it that the chances are that the continuance of this system permitted of the subsequent spread of the infection from house to house. To this fact the accompanying map seems to me to testify. It will be seen that escape of infection in the main street of Saidapet, where it established itself, is rare. This map was prepared by Captain Ffrench (Special Plague Officer) before the Baker's street epidemic, and therefore the incidence of this cannot be shown. It however followed the same course. Now, what occurred in the Baker's street epidemic was that, after the disease had been allowed by the hopelessly bad method of "home segregation" to get a complete hold of the place, it was evacuated *en bloc*. In the case of the Saidapet epidemic also the people ultimately fled from the area, in number sufficient to secure a decided thinning of the population. Can it be said, therefore, that the stamping out of this epidemic was effected, notwithstanding the use of "home segregation"? It is evident that it ceased as soon as home segregation was no longer practised. What occurred in Vellore was no exception to the rule that if, when the disease becomes indigenous in an area it be not evacuated by an official order, the time must come when the people will evacuate it voluntarily, after useless destruction of life and danger to trade and property has resulted.

37. *Method of spread of the disease.*—Except so far as the introduction of cases into a community by human beings is concerned, the evidence forthcoming is of not a very definite nature as to mode of spread. The inference that when the inhabitants took away with them to their camps in the fields their infected property, subsequent spread occurred is repeatedly affirmed, and is in all probability perfectly correct; but no attempt has been made to show that cases arose in families encamped beyond ten days without contact with fresh cases, showing that the full period of incubation had been passed. The Collector of Anantapur suggests importation by rats, but it will be seen from his letter, No. 1071, dated 19th June 1899 (attached No. 3), that, on my bringing to his notice certain facts that were within my own observation as to the incidence of plague in his district, he no longer presses this theory, nor does he support his theory that the greater the absence of sanitation the less the incidence of the disease. In this connection, I think it would be well if Government would call attention to the desirability of officers on plague duty, recording all facts of a nature that will bear investigation in the Collector's plague diary suggested by me (*vide* Plague Commissioner's Proceedings, No. 951, dated 12th April 1899). In this way, *reliable* data might be gathered.

38. *Ambulance Staff.*—Attention is called in certain of the reports to the uselessness of attempting to give medical attendance to the people, and the desirability of getting rid of the hospital section of that staff is recommended. The matter is one with which the Surgeon-General will doubtless deal, and I therefore shall not enlarge upon it. But it seems to me whilst one officer (Major Robertson) complains of *embarasse de riches*, in respect to having no less than twenty persons at his disposal for medical purposes, that he has not allowed himself to picture a state of affairs in which these are not present. Above all things, rapidity of action is essential in plague. It may occur that in a village attacked, not a soul will come forward to help in such material points as removing of filth, disinfection of clothing, removal of bodies and of the sick. Moreover, granted the people do not accept medical treatment, it cannot but be recognized that the presence of female toties is of great advantage in dealing with houses where females are attacked, and that where ghosha women are to be removed the presence of female ward attendants to accompany these would be of the greatest benefit. As to the presence of trained nurses, whatever their functions as to nursing may be, they must be invaluable in dealing with diagnosis of female plague cases. Moreover, it does not follow that although in one district medical attendance is refused it need be so in others. Thus, in Salem evidently the people really appreciated medical efforts. In Maddikera, Kurnool district, to my knowledge, it was gratefully accepted from Dr. Power by certain of the patients. Although I consider it a most important point of policy that medical treatment should not be thrust upon the people, it would seem to most persons callous not to at least make provision for it. That the additional Medical Officers primarily imported for treatment of plague

cases should stand aside and have little or no occupation, because the patients will not go to them for treatment, is quite another matter. I have maintained that the existing organization gives to the medical profession an erroneous place, and that hence their efforts are wasted—a matter which has however been duly considered by Government (G.O., No. 878 P., dated 12th June 1899). Under these circumstances, it would seem desirable that at least the first two ambulance staffs should be strictly in accordance with the regulations, and that, subsequently, the District Medical Officer, in consultation with the Collector, should reduce, if considered essential, that part of the staff intended solely for medical purposes. For this end, the ambulance staff should, in future, be divided into two sections that can be detached complete—the medical and sanitary.

39. *Inoculation.*—Inoculation would probably have been more widely accepted than the reports show, were it not that the people could not be made to understand that attacks of the disease occurring within ten days of the prophylactic operation were really due to the fact that incubation from previously-acquired infection had been proceeding—a condition that inoculation is, so far as yet ascertained—powerless against. Thus, matters usually progressed well enough in villages, till some cases of this description unluckily fell into the operator's hands. The people then either judged the operation incapable of affording them protection, or concluded that the sinister rumours that they had temporarily distrusted were, after all, correct. This was the experience in the Salem district, round Guntakal, Molagavalli and at Hospet. Whilst the masses were thus easily deterred from accepting the operation, the educated classes were open to conviction, until the publication of Lieutenant-Colonel Lawrie's evidence before the Plague Commission. I had received special invitations to inoculate numbers of influential native gentlemen during the Christmas holidays; but, after hearing this evidence, they concluded that a certain risk from the "putrescent fluid" did exist, and that it would be wiser to defer the operation till their towns were actually attacked. But, misinterpretation of the effects of inoculation is by no means confined to the "masses". It will be seen that I am ingenuously charged by the District Medical and Sanitary Officer of Bellary with having been instrumental in introducing plague into Hospet. He ascribes the outbreak to the "quality of the serum" used by me—an euphemism for stating that in M. Haffkine's anti-plague vaccine, with which solely the operation was performed, there existed living plague microbes. The facts of the case are that I arrived at Hospet at a time when I knew it was "imminently threatened" by invasion from Kopbal. No inoculations had previously been made, but nineteen operations were performed, several amongst leading men. Of these, one—a child ten years of age—was attacked by plague on the seventh day after the operation. Being a puny child for its age, it had received one-half the standard dose for its age. This however sufficed, as I judged it would, to cause it to have a normal fever reaction of three days' duration. Under the circumstances that reaction did take place was certainly fortunate, as an important lay-official did not scruple to criticise the insufficiency of my dosage—holding that I ought to have given $1\frac{1}{2}$ C.C. (or $\frac{1}{2}$ C.C. more than the maximum prescribed by M. Haffkine for the age of that strength of serum)—oblivious of the discretion essential as to size and consitutional condition of the individual; whilst another suggested to me that had I given the full dose the child would not have been attacked—forgetful of such a condition as incubation and of the hopelessness of attempting to check it. After the three days of inoculation fever reaction, there was a complete interval of freedom from fever, during which the child played about as usual; but it was attacked with plague on the seventh day. On the third day after the development of plague symptoms in the child, the mother was also attacked with genuine plague. Having regard to the usual period of incubation of plague, it is extremely unlikely, especially if the periods were reduced to hours, that the source of infection in this second case was from the child. In short, they must have been subjected to the same common source of infection, the attack of the mother being within the ten days of my operation on the child. The mother had not been inoculated by me. None of the eighteen others inoculated (several being from the same bottle) developed plague, nor any of the 60 inoculated by me shortly after in Bellary from the same consignment of serum. The father of the child was a stationmaster, and in the habit of receiving into his house various members of the Southern Mahratta Railway staff from Hubli, Dharwar, Gadag—all

infected places. The child was, to my personal knowledge, in the habit of playing in a shed with an earthen floor, where passengers from the affected localities must often have slept side by side with their baggage waiting for the next day's train, or before removal to the observation camp. Here was certainly room for infection. But the outbreak of *indigenous* plague, showing cases had been concealed previously, which occurred in the town—removed about 1½ miles from the station—within 28 days subsequent to the occurrence of these cases (which were carefully segregated) showed that probably no more extraordinary means of infection had existed than had prompted my original visit to the town, namely, plague in the Kopbal district of the Nizam's dominions within 16 miles, and whence coolies had arrived for work in the Hospet fields as was customary. I need hardly add that the occurrence of plague *within the period of incubation* from natural infection, subsequent to inoculation, is a common experience (*vide* paragraph 42).

40. Mattigiri may be regarded as a fair attempt to cut short a plague epidemic once started by means of inoculation. The moment the outbreak took place Lieutenant-Colonel Harrison commenced operations and performed 146 cases. I immediately also despatched there Major Bannerman, who added to them to the extent of 236 cases. Of the total of 2,893 cases inoculated, 29 were subsequently attacked and 16 died. The result of the effort, although started under favourable circumstances, was that inoculation was not held sufficiently long in favour to be of marked benefit, owing to the people not understanding the difference between complete and partial immunity gained.

41. The dates of inoculation and attack were as follows :—

No.	Date of inoculation.	Date of attack.	Date of death.	Duration of immunity.	
				Months.	Days.
1	14th December 1898	24th December 1898 ..	.... ..	..	10
2	14th ,, ,, ...	15th ,, ,, ..	18th December 1898 ..	..	1
3	15th ,, ,, ...	19th ,, ,, ..	19th ,, ,, ..	..	4
4	8th ,, ,, ...	20th ,, ,, ..	20th ,, ,, ..	..	12
5	19th ,, ,, ...	25th ,, ,, ..	29th ,, ,, ..	..	7
6	15th ,, ,, ...	28th ,, ,, ..	8th January 1899 ..	..	13
7	14th ,, ,, ...	6th January 1899 ..	8th ,, ,, ..	..	22
8	15th October ,, ...	6th ,, ,, ..	....	2	22
9	15th December ,, ...	3rd ,, ,, ..	5th January 1899 ..	..	19
10	19th December ,, ...	9th January ,, ..	....	..	21
11	17th ,, ,, ...	4th ,, ,, ..	....	..	18
12	17th ,, ,, ...	8th ,, ,, ..	....	..	22
13	12th ,, ,, ...	30th ,, ,, ..	....	1	19
14	17th ,, ,, ...	6th February ,, ..	13th February 1899 ..	1	20
15	15th ,, ,, ...	1st ,, ,, ..	....	1	17
16	12th ,, ,, ...	2nd ,, ,, ..	6th February 1899 ..	1	21
17	1st ,, ,, ...	2nd ,, ,, ..	....	2	1
18	8th ,, ,, ...	12th ,, ,, ..	....	2	5
19	17th ,, ,, ...	6th ,, ,, ..	10th February 1899 ..	1	20
20	13th ,, ,, ...	6th ,, ,, ..	10th ,, ,, ..	1	24
21	15th ,, ,, ...	8th ,, ,, ..	13th ,, ,, ..	1	24
22	14th ,, ,, ...	9th ,, ,, ..	....	1	26
23	19th ,, ,, ...	11th ,, ,, ..	....	1	23
24	21st ,, ,, ...	9th ,, ,, ..	....	1	19
25	14th ,, ,, ...	11th ,, ,, ..	....	1	28
26	Inoculated in Bangalore ..	14th ,, ,, ..	17th February 1899 ..	..	..
27	15th December 1898	10th ,, ,, ..	10th ,, ,, ..	1	26
28	19th ,, ,, ...	9th ,, ,, ..	9th ,, ,, ..	1	21
29	15th ,, ,, ...	8th ,, ,, ..	8th ,, ,, ..	1	24

Owing to the rush of work at Guntakal, it does not seem to have been possible for Major Robertson to secure full details of results amongst the inoculated. All that can be said is that, in the cases that came under his own notice, there were five deaths and three recoveries amongst the inoculated. Amongst the deaths, one was inoculated 21 days previously, another three, another seven, and another ten, and one at Hindúpur 2 months and 21 days. In the Mattigiri outbreak the proportion of deaths (55 per cent.) to total attacks in the inoculated shows that a valuable grade of protection against death had been acquired by the inoculated.

42. Although, for reasons stated, the advance of inoculation has not been so rapid in this Presidency as was hoped, I have no doubt that a reaction will yet occur in its favour, as soon as the educated classes are able to weigh more fully the *pros* and *cons*

of the operation than the newspaper reports of the evidence before the Plague Commission would allow them to do. I have always urged, and still believe, it would have been better policy on the part of the special advocates of inoculation in their attempts to popularize the operation, to have placed more stress upon its affording protection against death than against attack. This fact would soon have appealed forcibly to the uneducated, and proofs would have been soon forthcoming. The grade of protection against attack is a refinement of statistics that none but the educated can grasp. I also think that the employment of qualified female inoculators is desirable.

From Surgeon-General C. SIBTHORPE, C.B., F.R.C.P.I., Surgeon-General with the Government of Madras, to the Secretary to Government, Local and Municipal Department, dated Camp, Ootacamund, 19th September 1899, No. T. 8/573.

I have the honour to transmit the accompanying letter, No. 60-P—T., dated the 26th August 1899, from the Sanitary Commissioner, Madras, submitting, along with his remarks, the reports furnished by the Collectors concerned on the measures adopted to combat the outbreak of plague in this Presidency.

2. Lieutenant-Colonel King's review is most interesting and readable, and I agree in the main with his remarks.

3. As regards his paragraph 32, I concur with him that a uniform pattern of hut should be used for all purposes both in towns and rural areas.

4. His paragraph 38 is based on the result of experience in other parts of India. I quite agree with him that the ambulance staff, as proposed by him, is by no means excessive if any number of cases have to be dealt with. The employment of trained European or Eurasian nurses is most valuable. Although, in paragraph 7 of G.O., No. 878 P., dated 12th June 1899, Government has decided that trained native nurses should replace European and Eurasian nurses on the ambulance staff, except for the treatment of European patients, I know of no native women who can be called qualified nurses. There are native midwives, but they could not be obtained in any number and would not be trustworthy as they generally come from very low classes of natives. I also agree with him that the staff be separated into medical and sanitary.

5. I now beg to supplement the Sanitary Commissioner's report with my own remarks regarding the medical administration of the plague.

6. Owing to the advent of the plague in Bombay, Poona and other places in the Western Presidency, the Government, with commendable foresight and expedition, ordered, early in 1897, the inspection of all railway passengers at Arkonam, Guntakal, Kondapalli and Podanur (*vide* Government Orders quoted in the margin). Temporary regulations for combating the disease were issued with G.O., No. 219A M., dated 15th February 1897, and special care was established at Mangalore, southern ports of Malabar and Tuticorin (*vide* G.O., No. 181 M., dated 8th February 1897).

No. 181 M., dated 8th February 1897.
,, 261 M. ,, 22nd ,, ,,
,, 319 M. ,, 27th ,, ,,
,, 777 M. ,, 2nd April ,,

7. The staff at each of the stations of Arkonam, Guntakal and Kondapalli consisted of a commissioned medical officer, a few hospital assistants, according to the importance of the station, and a European or Eurasian nurse—the latter being intended for the examination of gosha female passengers so as not to wound the religious susceptibilities of those natives and Muhammadans who observe the gosha system. There were also temporary Civil or retired Military Assistant Surgeons posted to Arkonam and Tungabhadra to assist the medical officer, owing to the inspection work at those stations being very heavy. At Podanur, a civil apothecary and a hospital assistant were originally posted, and the former was subsequently replaced by a retired

Military Assistant Surgeon. Owing to paucity of officers, the District Medical and Sanitary Officer of Anantapur was allowed to change his head-quarters to Guntakal so as to be in charge of the inspection station and also of the district.

8. An additional inspection station was opened at Hospet in the latter part of 1897 (*vide* G.O., No. 2393A M., dated 1st November 1897) to prevent plague being brought into this Presidency from Hubli, and it was placed in charge of a commissioned medical officer with a retired Military Assistant Surgeon, a nurse and a few hospital assistants to assist him.

9. Medical subordinates were also employed on the frontier of the Ceded and other districts which adjoined the affected tracts for the inspection of those passengers who travelled by roads and did not make use of railways to avoid inspection.

10. To enable this department to provide medical men for these demands, Government, in Government Orders marginally-quoted, *sanctioned the employment by me of temporary Civil Assistant Surgeons, retired Military Assistant Surgeons and even uncovenanted medical officers on a liberal scale of pay. This sanction was largely availed of both in 1897 and in 1898 as will be seen from the list given in the margin.†

* No. 467, Public, dated 28th April 1897.
" 683 " " 1st June "
" 1494 " " 16th Nov. "

† *Uncovenanted Medical Officers.*

Mr. Taylor.
" Spittler.
" Conran.
" Dorabsett.
" Staunton.

Retired Senior Military Assistant Surgeons.

Trutwein.
Gillson.
Chalke.
Meneaud.
Everard.
McDermott.
Watts.
Todd.

Retired Military Assistant Surgeons.

Debnam.
Govind Singh.
Bowie.
Ryland.

Temporary Civil Assistant Surgeons.

Asirvadum.
Punyakoti Mudaliar.
Krishnasawmy Aiyar.
Subba Aiyar.
Gurdit Singh.
Vittal Row.
Pinto.
Ramanjulu Naidu.
Sundara Mudaliar.

Civil Apothecaries.

Parthasarathy.
Rodrigues.

‡ Lieut.-Colonel Pemberton.
Major Thompson.
" Sanjana.
" O'Hara.
" Robertson.
Captain Vickers.
" Wright.

Captain Donovan.
" Mitter.
" Gabbett.
" Macræ.
" Browne.
" Illington.

11. About the middle of 1897, when all possible arrangements were being made by us to meet demands for plague duty, there came a requisition for commissioned medical officers, who were required for field service on the frontier. Thirteen ‡ such officers had to be withdrawn from civil duty and placed at the disposal of the Military Department. This completely crippled our resources and necessitated the Home Government being requested to send out temporary European Doctors both for plague and general duties (*vide* G.O., No. 1481, Public, dated 12th November 1897). The first batch of five officers sent out for Madras were—

Dr. Dalal,
" Winter,
Dr. Jameson,
" Stevens, and
Dr. Knapp

(*vide* G.O., No. 94, Public, dated 17th January 1898), but, on arrival in Bombay in December 1897, they were sent to Poona for three weeks' plague duty. Subsequently only Drs. Dalal and Knapp reported themselves for duty in Madras but had again to be sent back at once to Bombay (*vide* G.Os., No. 174, Public, dated 1st February 1898, and No. 256, Public, dated 14th February 1898).

12. The next batch of Plague Doctors who were sent out from England for duty in this Presidency and whose names are given in the margin (*vide* G.O., No. 457, Public, dated 19th March 1898) arrived in Madras in March 1898 with the exception of Dr. Thomas, who was detained in Bombay. Of the remaining nine, Dr. Battiss died immediately after while a patient in the General Hospital and the rest were posted to plague and general duties.

Dr. Beit.
" Rendle.
" Lusk.
" Nightingale.
" Myler.
Dr. W. Thomas.
" Langley.
" Battiss.
" Illingworth.
" Charlesworth.

13. The plague having subsequently extended to the Ceded Districts and the Mysore Province, three more new inspection stations were opened in August 1898, viz., at Jalarpet, Pakala and Hindupúr; and Guntakal, which was abolished in April 1898 on the transfer of the inspection to Tungabhadra (*vide* G.O., No. 337 P., dated 10th April 1898), had also to be re-opened. Another inspection station was opened at Chingleput in October 1898 (*vide* G.O., No. 1246 P., dated 5th October 1898). To meet this additional strain on the department, it became necessary to import more Doctors from England (*vide* G.O., No. 1290, Public, dated 20th October 1898), and their names are given in the margin. The first eight arrived in Madras in October, Dr. Way on 1st November and the others in December 1898. Dr W. Thomas of the first batch, who was detained in Bombay, arrived in September 1898. Dr. Nightingale, who belonged to the first batch, was allowed to exchange with Dr. Power of Bombay, who joined at Kurnool on 8th November 1898. Three Doctors were employed as additional medical officers in each of the districts of Anantapur and North Arcot which were at one time threatened with a sharp attack of the disease and one additional medical officer in each of the districts of Bellary, Cuddapah, Kurnool and Salem. The rest were employed at plague-inspection stations and on general duties.

G.O., No. 841 P., dated 18th August 1898.
" " 889 P. " 24th " "
" " 892 P. " 24th " "

Dr. Woodward.
" Anderson.
" Noble.
" J. Thomas.
" Edwards.
" Worthington.
" Costello.
" Hunter.
" Way.
" Thomson.
Dr. McLean.
" Roberts.
" Murray.
" Lubeck.
" Virtue-Tebbs.
" Hanna.
" Beach.
" Low.
" Page.

14. Three more inspection stations were opened in January this year, viz., Tadpatri, Tiruvannámalai and Dhone—the first in charge of a retired Military Assistant Surgeon, the second under a temporary Civil Assistant Surgeon and Dhone under a hospital assistant. There was also a hospital assistant at each of the first two stations to assist the medical officer, also a nurse.

G.O., No. 11 P., dated 3rd January 1899.
Plague Commissioner's Proceedings, No. 112—9, dated 13th January 1899.
G.O., No. 127 P., dated 24th January 1899.

15. The demands for hospital assistants were most heavy and beyond the scope of this department to meet. They were required not only for railway plague inspection stations, but also for ambulance staff and frontier road stations, and the number of men employed on such duties in the Ceded Districts and especially in Bellary was very considerable. Private hospital assistants were unwilling to apply as they were afraid of plague duty and this considerably added to our difficulties. It therefore became necessary, in addition to a few retired hospital assistants who had been entertained, to close several dispensaries in districts where there was no plague and to utilize the hospital assistants thus withdrawn from them in plague-stricken districts. This course was adopted in consultation with the Plague Commissioner and with the consent of the various local bodies. Although about 40 hospital assistants were thus secured, they were not, however, sufficient to meet the demands in full and had to be supplemented by a supply of twelve military hospital assistants from the Military Department.

16. Most of our District Medical and Sanitary Officers and especially those of Anantapur, Cuddapah, Kurnool, Bellary, North Arcot and Salem had very hard and trying duties during the whole time that plague lingered in their districts.

17. *Plague in the City of Madras.*—(i) Four plague hospitals and four segregation camps were organised and opened by the Madras Municipality. Thirteen imported and two indigenous cases of plague occurred up to the end of the year 1898. Precautions against the spread of infection were strictly carried out.

(ii) In accordance with the rules published by the Venice Convention, 68 vessels, arrivals from Bombay and Calcutta were, up to the end of the preceding year, inspected when between two and three miles distant from the port, and all passengers were inspected on shore prior to embarkation. No plague cases were detected.

18. *Plague in the Presidency.*—In all the railway inspection stations opened up to the end of 1898, 1,792,603 passengers were examined. Of these, 9,633 were detained for observation. Up to date 443 imported and 2,279 indigenous cases of plague occurred. The district which was affected most was Anantapur (64 imported and 625 indigenous), then came Salem (156 and 522) which is not as yet free, North Arcot (116 and 436), Bellary (21 and 280) and Kurnool (4 and 170). The precautionary measures taken as to segregation and disinfection were on the whole satisfactory.

19. *Type-plan of Plague Hospitals.*—The plan embodied in G.O., No. 256 P., dated 23rd March 1898, was directed to be followed so far as the general disposition of the hospital, servants' quarters, latrines and the amount of the accommodation to be provided in each building were concerned, but the details of construction were left to be settled by the local authorities according to the material available in each district. Where sufficient land was available the spaces between different buildings were ordered to be increased.

20. *Anti-Plague Prophylactic.*—Early in September 1898 orders were issued in G.O., No. 999 P., dated 3rd September 1898, to start *voluntary* inoculation by M. Haffkine's anti-plague prophylactic both in the town of Madras and the Presidency where there are commissioned medical officers. Up to December 1898, 5,685 inoculations were performed in the city and 10,532 in the Presidency, making a total of 16,217.

21. *Equipment.*—The equipment laid down in page 109 of the Plague Regulations, as modified by the Plague Commissioner in his Proceedings, No. 785—49, dated 20th March 1899, was ordered to be maintained in all the plague-inspection stations.

22. *Medical Stores.*—The Medical Store Depot, Madras, not having been provided with an adequate stock of medicines and disinfectants to meet the demands of the various plague-infected areas in the Madras Presidency, the Storekeeper to Government anticipated the silent and steady advent of the plague and lost no opportunity in submitting indents on the Secretary of State for such of the drugs as were not available and had run short in the depot. These drugs were received in time and, in the interval, acids (hydrochloric and sulphuric), the stock of which was out, were also obtained locally from Messrs. Waldie & Co., Calcutta, as per G.Os., Mis. No. 1189 P., dated 27th September 1898, and Mis. No. 35 P., dated 6th January 1899, respectively. The cost of stores obtained from England including freight amounted to Rs. 45,573-7-6 while that of the stores obtained locally stood at Rs. 1,020-9-11. Besides these, articles of local manufacture were also obtained to suit necessity and purpose.

23. All the requisitions received from the local authorities were promptly attended to and regularly complied with without any cause for complaint or delay.

24. The following statement shows the number of indents received and disposed of by the Medical Store Depot during the last three years:—

1896-97	2
1897-98	9
1898-99	94
Total ..	105

25. The work of the depot in this connection has been on the whole highly satisfactory and entirely due to the admirable manner in which Lieutenant-Colonel H. St.C. Carruthers maintained order and discipline.

26. *Finance.*—The total outlay on account of plague from Provincial funds amounted to—

	Rs.	A.	P.
1896-97	1,162	10	11
1897-98	22,394	2	2
1898-99	2,40,434	5	0

while under Local funds the expenditure for the corresponding period remained as follows:—

	Rs.
1896-97	*Nil.*
1897-98	41,112
1898-99	Not known.

27. The details of expenditure debited to Provincial during the last three years is shown in the appended statement. It will be seen from that statement that the expenditure under "salaries of officers" has been unusually large during the year 1898-99 when compared with that of the previous one. The rise under this head is mainly due to the special medical officers having been obtained from England as per Government Orders noted in the margin, to the entertainment of retired Military Assistant Surgeons, uncovenanted medical officers and temporary Civil Assistant Surgeons from time to time, and to the enhanced rate of pay offered to some of the above officers as will be seen from G.O., No. 683, Public, dated 1st June 1897, and G.O., No. 64, Public, dated 17th January 1899.

No. 457, Public, dated 19th March 1898.
„ 1290 „ „ 20th October „

28. *Exchange Compensation Allowance.*—Some of the commissioned medical officers having been detailed for plague duty, they were allowed exchange compensation allowance in accordance with the rules of the service which accounts for the increase under this head.

29. *Temporary Establishment.*—The gradual increase under this head represents the cost of establishment, both superior and inferior, entertained from time to time when the number of passengers from plague-infected areas was considerable.

30. The grant of travelling allowance to officers and subordinates for joining their first appointments, as per G.O., No. 941, Financial, dated 16th November 1897, the deputation, local, tentage and house-rent allowances sanctioned in the orders of Government noted in the margin fully account for the marked increase under these items, while the charges under postage and telegrams are chiefly attributable to the frequent use of telegrams in reporting the cases of plague to the several authorities concerned and the increased correspondence involved in connection therewith.

G.O., No. 797 M., dated 5th April 1897.
„ „ 1153 P. „ 23rd Sept. 1898.
Plague Commissioner's Proceedings, No. 907, dated 13th December 1898.
Plague Commissioner's Proceedings, No. 766, dated 18th March 1899.
G.O., No. 7, Public, dated 3rd January 1899.
„ „ 618 „ „ 5th June „

31. The increase under other items, some of which are trivial and call for no comments, represent the actual charges incurred in connection with the construction of sheds and the purchase of materials required for the formation and maintenance of camps and institutions for plague purposes.

32. The decrease under other items shown in the statement is due to the new method of adjustment of the charges sanctioned in G.O., No. 615, Financial, dated 17th May 1899. This has to a small extent minimised the expenditure on the Provincial side.

33. The expenditure under Local funds embraces the cost of medical establishment, nurses, &c. I have not the figures and facts before me to dwell upon the subject in detail as it would be a matter of time and delay.

34. *General Remarks.*—I may add that on the whole the financial measures were sufficiently satisfactory.

ENCLOSURE.

STATEMENT showing the Expenditure in connection with the Bubonic Plague during the last three years.

—	1896-97.	1897-98.	1898-99.
	Rs. A. P.	Rs. A. P.	Rs. A. P.
Salaries of officers	..	15,685 15 10	1,51,296 14 4
Exchange compensation allowance	..	511 15 4	2,051 2 11
Apothecaries and hospital assistants	502 14 1	442 7 7	..
Other temporary establishments	5 2 4	475 6 7	4,350 1 4
Famine batta	..	..	7 9 11
Local allowance of officers	..	..	1,720 0 0
Travelling allowance of officers	..	1,285 3 0	11,248 9 1
,, ,, of establishments.	14 8 0	18 2 0	649 9 5
Tentage allowance of officers	..	..	216 10 6
Plague ,, of officers	..	1,060 0 0	3,509 4 7
,, ,, of hospital assistants, &c.	..	426 9 7	246 7 7
House-rent allowance	..	8 3 7	457 15 0
Hospital equipment	280 2 6	..	5,115 11 11
,, clothing and bedding	52 0 0	..	2 1 0
Petty works of construction and repairs.	298 0 0	1,577 11 2	..
Cost of maintenance of caste plague hospitals	..	..	617 1 0
Purchase of country and European articles	..	..	983 0 9
Purchase of boots	..	..	2 10 0
,, repair and carriage of tents	..	..	3,225 0 3
Peons' belts and badges	..	..	5 1 0
Subscriptions to newspapers	..	..	212 10 7
Cost of Europe stores including freight.	..	..	45,573 7 6
Liveries and clothing of servants	..	..	93 15 0
Rattan mats	..	..	116 6 0
Purchase and repair of furniture	..	..	16 8 0
,, of periodicals	..	..	1 10 6
Cost of stationery	..	0 9 9	27 14 0
,, of medicines	..	..	543 11 9
Cloth for records	..	..	14 0 3
Carriage of stationery and records	..	..	67 1 3
Petty carriage and cooly charges	..	..	58 15 8
Railway passage	..	278 13 0	..
Contribution to private hospitals	..	..	775 0 0
Inoculation charges	..	..	1,347 1 0
Dhoby charges	..	..	0 6 0
Packing ,,	..	..	5 8 0
Lighting ,,	..	..	25 7 6
Postage ,,	..	29 4 6	1,246 3 11
Telegraph charges	..	849 11 0	1,315 5 0
Office expenses	..	10 15 6	88 15 11
Miscellaneous	10 0 0	238 9 6	2,626 9 10
Other purposes	..	6 1 3	1,800 0 0
Total ..	1,162 10 11	22,905 11 2	2,41,661 12 3
Deduct—Amount erroneously adjusted ..	..	511 9 0	1,227 7 3
Net total ..	1,162 10 11	22,394 2 2	2,40,434 5 0

ORDER—No. 1569 P., dated 31st October 1899.

The papers read above relate to the recent outbreak of plague in the Madras Presidency.

2. *Imported cases.*—Up to the 30th September 1899, 453 cases were imported into 188 places in the Presidency. Of these, no fewer than 112 were stopped at railway and road inspection stations, Jalarpet station alone contributing 63, and the others were discovered under the "observation" system. The necessary precautionary measures were promptly taken, and the spread of the disease was as a rule successfully prevented. This was particularly the case in the City of Madras, where, notwithstanding the continuous influx of thousands of passengers from the plague-infected areas, there have been only 17 imported seizures and not a single indigenous case. Great credit is due to the vigilance of the municipal authorities. In the districts there were 436 imported cases as detailed below :—

Districts.	Number of Seizures.	Number of Deaths.	Percentage of mortality.
Anantapur	66	48	72·7
Bellary	29	26	89·6
Chingleput	13	10	76·9
Coimbatore	2	1	50
Cuddapah	1	1	100
Kurnool	5	5	100
Madura	1	..	..
Malabar	2	1	50
Nellore	2	2	100
The Nilgiris	2	1	50
North Arcot	132	111	84
Salem	174	105	60·3
South Canara	1	1	100
Trichinopoly	6	4	66·6
Total ..	436	316	72·4

3. *Indigenous plague.*—Plague in an indigenous form first appeared at Guntakal in the Anantapur district, in the beginning of August 1898, *i.e.*, at about the same time as it attacked Bangalore, both places being probably infected from the same source, viz., Hubli. From Guntakal, the disease spread to the other parts of the Anantapur district and to the districts of Bellary and Kurnool. The epidemic was then rapidly extending in Mysore and the districts of Salem and North Arcot, which were nearest to the infected portion of that province, were attacked early in December 1898. The plague was at its highest in the week ending 11th February 1899, when the number of attacks was 263 and the number of places infected 50. It gradually subsided with the approach of the hot weather, and ceased entirely in the week ending 8th July 1899. It re-appeared on the 11th July 1899 in the Salem district where, after lingering in a mild form for several weeks, it has shown a tendency to spread during the past few days. The other districts continue to remain free, but the recurrence of imported cases gives cause for anxiety. Charts illustrating the course of the plague are appended. The following table gives the total number of cases and infected places in each district and the percentage of mortality :—

Districts.	Number of infected places in the district.	Total population of infected places.	Number of Seizures up to 30th September 1899.	Number of Deaths up to 30th September 1899.	Percentage of Column 5 to column 4.	Percentage of Column 5 to column 3.
1	2	3	4	5	6	7
Anantapur	30	46,552	625	506	80·9	1·08
Bellary	10	29,589	282	241	85·4	·81
Kurnool	6	16,250	170	139	81·7	·85
North Arcot	19	98,813	680	527	77·5	·53
Salem	35	49,345	559	414	74·06	·83
Total ..	100	240,549	2,316	1,827	78·8	·75

4. *Plague measures.*—The measures prescribed for the suppression of plague and for the prevention of its importation are described in the Madras Plague Regulations and Rules, a revised edition of which has just been issued, and it is not necessary to refer to them in detail here. They seem to have been generally carried out intelligently and well in the affected districts. The chief measures for combating an outbreak of plague are—

(1) The entire evacuation of the infected locality at an early stage of the epidemic.

(2) The removal of the people of the infected locality to temporary shelter in the open air and the stoppage of all direct communication between them and their houses and the surrounding healthy villages until the disease has abated.

(3) The thorough disinfection of houses by means of sepoys or trained coolies under efficient supervision.

The reports read above show that the greatest success was obtained where these measures were carried out thoroughly as was the case, for example, at Hosúr, Berikai and Hospet, and the chief reliance must be placed on them in future outbreaks of

plague. It is presumed the irregularities in the working of the passport rules in the Anantapur district brought to notice by the District Medical and Sanitary Officer have been rectified by the Collector.

5. *Attitude of the people.*—At the commencement, there was a great deal of misunderstanding among the people about the plague policy of Government owing to the circulation of unfounded rumours regarding the plague operations in other provinces, and the local authorities experienced considerable obstruction in dealing with plague cases. At Guntakal the Muhammadans for some time refused to evacuate infected houses, and the Plague Commissioner had to make more than one personal effort to persuade them to yield. In the North Arcot district, there was a similar opposition. There were several petty disturbances in Salem, Trichinopoly and North Arcot. In some places the plague sheds were burnt down and in others Government officers were ill-treated. In the Hindúpur taluk of the Anantapur district, there was a serious riot in which the Tahsildar sustained severe injuries resulting in his death. Where considered advisable, prosecutions were instituted, and steps were taken to educate the people by personal explanation, by the circulation of vernacular circulars and otherwise. The result was a considerable change for the better as time went on and the people began to recognize the necessity of protecting themselves by avoidance of contact with persons from infected areas and to realise the value of evacuation, while still distrusting the Government camps. It may be hoped that should there be a second outbreak of plague in the coming cold weather, the obstruction offered to plague measures will be found to have considerably decreased. The Collector of Salem reports that the people there readily accommodate themselves to the measures taken by the local authorities.

6. *Troops.*—Sepoys were employed on plague duty in the City of Madras and in the districts of Bellary, Anantapur, North Arcot and Salem. At Chippagiri they were employed for cordoning the village, and at Jalarpet they guarded for some months the camp attached to the inspection station. With these two exceptions, the sepoys were wholly utilized for disinfection duty, and they are reported to have proved themselves very useful, and to have generally behaved well towards the villagers. The thanks of His Excellency the Governor in Council are due to the Lieutenant-General Commanding the Forces for the readiness and courtesy with which all requisitions for troops were complied with.

7. *Plague establishment.*—Special officers to assist the district authorities were appointed as necessity arose and were dispensed with when no longer required. In September 1898 a Plague Commissioner was appointed to supervise all plague operations in the Presidency. The appointment was abolished in May 1899 owing to the decline of plague.

8. *Expenditure.*—The following table gives the plague expenditure since April 1897:—

Districts.	1897-98.			1898-99.			1899-1900 up to 30th June 1899.		
	Provincial.	Local.	Municipal.	Provincial.	Local.	Municipal.	Provincial.	Local.	Municipal.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Madras City (*a*).	13,163	..	46,767	1,21,665	..	1,61,460	29,347	..	44,557
Anantapur (*b*) ..	8,229	11,991	..	46,442	55,694	1,138	14,734	17,420	89
Bellary (*b*) ..	2,132	9,095	752	95,201	1,27,809	9,859	13,614	41,177	1,551
Kurnool (*b*) ..	192	2,660	353	12,244	48,621	4,859	3,394	10,808	796
North Arcot (*b*).	4,391	10,105	723	38,899	25,084	8,753	25,266	16,096	3,556
Salem (*b*) ..	100	26	104	47,063	33,245	5,960	16,473	22,670	1,920
Kistna (*a*) ..	6,229	2,611	1,974	14,702	64	1,698	1,404	659	114
Cuddapah (*a*) ..	..	2	..	4,095	5,588	990	3,497	2,457	91
Chingleput (*a*) ..	96	856	965	1,100	1,569	2,723	1,619	378	495
South Arcot (*a*).	..	23	955	1,359	1,394	3,587	1,669	153	1,998
Coimbatore (*a*) ..	194	4,934	715	8,482	7,069	1,723	1,488	2,465	254
The Nilgiris (*a*).	707	..	80	437	9,632	12,080	324	1,862	1,448
Malabar (*a*) ..	1,377	2	2,575	2,760	4,124	3,784	933	2,471	825
South Canara (*a*).	187	2,012	3,380	4,485	2,103	2,311	154	1,627	358
Other districts (*c*).	2,404	644	10,318	6,080	4,853	32,622	1,416	821	3,706
Total ..	39,401	44,961	69,661	4,05,014	3,26,849	2,53,547	1,15,332	1,21,064	61,758

(*a*) Are places where special precautionary measures were taken on a large scale.
(*b*) Are districts where there was indigenous plague.
(*c*) Are places in which ordinary measures on a small scale were employed.

9. *Sanitary Commissioner's letter No. 60 P. T., dated 26th September* 1899.—As remarked by the Surgeon-General, the Sanitary Commissioner has submitted an interesting review of the plague operations. Some of the points therein mentioned have already been settled in G.O., No. 878 P., dated 12th June 1899, and other orders. The Government concurs in the remarks made by him in paragraphs 3, 14, 22, 23, 24, 25, 27, 29, 33 and 34 and approves of the recommendations contained in paragraps 32, 37 and 38. Orders will separately issue on the proposal to amend Additional Mufassal Regulation 34 (paragraph 26 of the letter) and to divide the ambulance staff into two sections (paragraph 38 of the letter). As regards native nurses, the Surgeon-General is requested to submit proposals for training a sufficient number of women of good class, when the necessity for their services arises.

10. In conclusion His Excellency the Governor in Council puts on record his appreciation of the excellent manner in which almost all the officers under Government who have had to deal with plague measures, have done their work. The freedom from plague which the greater part of the Presidency has hitherto enjoyed is, no doubt, in a great measure due to the energy and care shown by those officers who up to date have had the administration of the Plague Rules. Whether or not this Presidency will continue to remain comparatively free from plague is still doubtful, and the utmost vigilance continues to be necessary on the part of all concerned.

(True Extract.)

for *Ag. Secretary to Government.*

To all Collectors (A, B, D, F, G, K).
„ the Sanitary Commissioner.
„ the Surgeon-General.
„ the President, Municipal Commission, Madras.
„ the Deputy Adjutant-General, Madras Command.
„ the General Officers Commanding Districts.
„ the Resident in Mysore (with C.L.).
„ the Marine Department.
„ the Political Department.

Endorsement—No. 1569-A P., dated 31st October 1899.

Copy to the Government of India, Home Department.

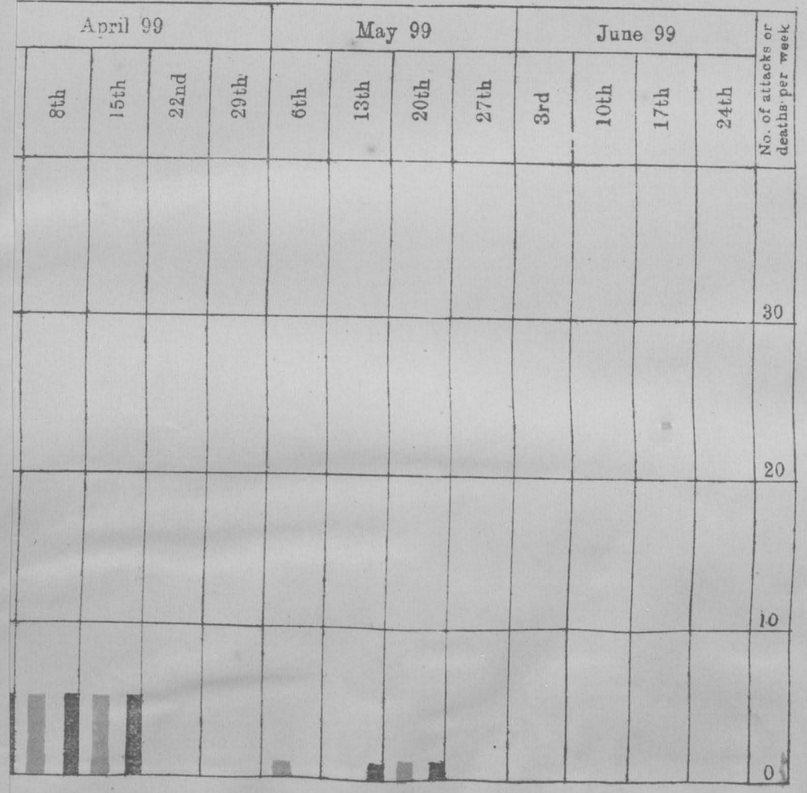
M. HAMMICK,
Ag. Secretary to Government.

xd. A. F. Eccleston.

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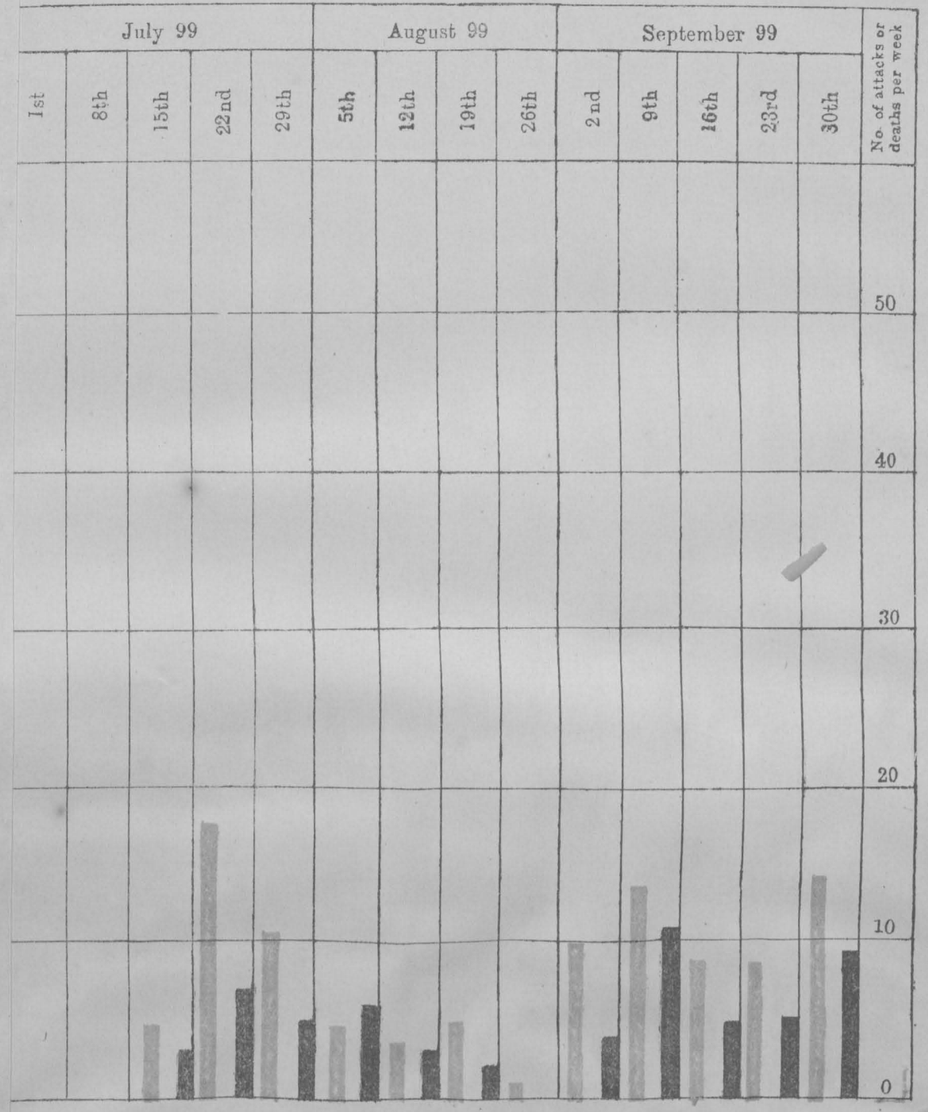
	May 99				June 99				Ju	
29th	6th	13th	20th	27th	3rd	10th	17th	24th	1st	8th

g the Municipal Towns)



Litho. Survey Office, Madras.
1899

ncluding the Municipal Towns)



Litho. Survey Office, Madras.
1899

Diagram showing the weekly plague seizures and deaths (indigenous) in the infected district of SALEM (including the Municipal Towns) since the Commencement of the outbreak.



NOTE

Red col. represents the No. of attacks

Black col. represents the No. of deaths

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Litho. Survey Office, Madras.
1899

ncluding the Municipal Towns)



Litho. Survey Office, Madras.
1899

Government {1899} of Madras.

LOCAL AND MUNICIPAL.

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Recd. } 1899. *Enclosures*

Regd. *Spare copies*

G.O., &c., Nos. 1569 & 1569A P., 31st October 1899.

OCTOBER.

Plague in the Madras Presidency.

Reviewing reports from the Collectors of infected districts and the Sanitary Commissioner on the recent outbreak of —.

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

Read—the following papers:—

From the Plague Commissioner, dated 1st May 1899, Ref. on Cur. No. 4608.

Abstract.—Requesting the Collectors of Anantapur, Bellary, Kurnool, North Arcot and Salem to forward on or before the 1st June 1899, a full narrative of the measures taken to combat the recent outbreaks of plague in their districts.

Memorandum from the Secretary to Government, Local and Municipal Department, dated 31st May 1899, Ref. on Cur. No. 4608.

Abstract.—Requesting the Collectors of Anantapur, Bellary, Kurnool, North Arcot and Salem to forward their plague reports to Government through the Sanitary Commissioner and the Surgeon-General.

ANANTAPUR.

From B. MACLEOD, Esq., M.A., Barrister-at-Law, Collector of Anantapur, to the Secretary to Government, Local and Municipal Department, dated 28th May 1899, No. A.

Abstract.—Reporting on the plague operations in the Anantapur district during 1898–99.

From B. MACLEOD, Esq., M.A., Barrister-at-Law, Collector of Anantapur, to the Secretary to Government, Local and Municipal Department, dated 1st June 1899, No. 985.

Abstract.—Forwarding a map of the Anantapur district and the reports of the medical officers employed on plague duty in the district.

From H. W. BEACH, Esq., Acting District Medical and Sanitary Officer, Anantapur, to the Collector of Anantapur, dated 31st May 1899, Dis. No. 133.

I have the honour to forward reports on the recent plague epidemic in this district from Major Robertson, I.M.S., late Acting District Medical and Sanitary Officer, and from Drs. Murray, Hunter and Roberts, Additional Medical Officers in charge of Plague Ambulance Columns Nos. I, II and III respectively.

2. When I took charge of the district the epidemic had entirely ceased in Gooty taluk and there have been only a few isolated cases in the Hindúpur taluk, which has remained free from notified cases of plague since 29th April 1899.

3. I have nothing to add to Major Robertson's report except with regard to the working of the passport system.

4. It has lately been brought to my notice that there have been such irregularities in the action of several of the passport-issuing officers as almost to entirely vitiate the value of the whole arrangement.

5. At the road frontier station, Penukonda (West), the hospital assistant in charge was found to be in the habit of leaving signed passports in the possession of an irresponsible clerk; at Penukonda (East) the hospital assistant used to sleep and take his meals in the town, although he was not supposed to leave the station at all, as all passports were to be issued by him personally; at Kodur the features of the country

were such as to render avoidance of inspection a most simple proceeding; at Tadpatri there were grave irregularities, still (I believe) under enquiry; at Gooty the platform sweetmeat seller wraps his wares in duplicate passport forms and over 250 filled in duplicate forms have been received from the same station suggesting something very wrong, but I am awaiting a possible explanation from the hospital assistant lately in charge.

6. The fact of the matter is that very few natives regard the passport system as of any value at all and several intelligent men have characterised it as a mere farce; both passport issuers and passport holders have an interest in keeping down the number of passports issued and we are at present entirely dependent on the common honesty and zeal of men who have proved in this district to be apathetic or dishonest or both.

7. As far as road frontier stations are concerned nothing but constant supervision will tend to check the vagaries of the men in charge, but I think that a useful check on passport issuers at railway stations might be obtained from the passenger traffic returns which could be supplied by ticket collectors or others who could hardly work in collusion with the passport issuers without being found out by the railway authorities.

8. At Anantapur passport issuing and examining was done by one and the same man—an arrangement obviously open to objection, as was proved by the fact that when the work was divided amongst two men, the number of passports went up out of all proportion to the increased traffic with plague-infected areas.

9. Major Robertson must have been unfortunate in the brand of Chinese pump which he obtained from Bombay, as I used them for six months in another Presidency and found them most useful and very easy to mend when they got out of order. As a matter of fact the pumps he got were not the original Chinese ones (with a prayer burnt in), but an imitation with the faulty valves of the original and the added vice of being very heavy. The metal valves should have been removed and marbles put in instead; the whole procedure can be carried out with elementary tools and results in a most useful pump.

10. I speak again from personal experience in saying that brass pumps when properly cleaned and oiled will last quite two months. Wetting a wall 4 feet high with a watering can, even with a rose on, is distinctly laborious work, and I consider a pump useful though not absolutely necessary.

Enclosures.

Report on the outbreak of Plague in the Anantapur District, 1898–99, made by Major Robert Robertson, I.M.S.

On the 6th August 1898 an anonymous letter was sent to the Collector from Guntakal Junction to the effect that Lala, a sweetmeat seller from Hubli, had brought the plague, and that the writer had seen in the house of Háfiz Khan, a railway contractor, two or three deaths occurring. On the 9th instant the Deputy Collector held an enquiry at Guntakal Junction along with the District Medical and Sanitary Officer. The enquiry shows that a sweetmeat seller named Hari Deo employed two servants Ram Lal and Behari Lal and a cooly Raghubeir Das. The employer with his servants lived in different rooms in the same block as far as I can understand, and the cooly at some distance. The cooly * seems to have been ailing for a few days with sore-eyes and then contracted fever and died after 5 or 6 days. The two servants † were simultaneously attacked with high fever and on the 3rd of August were placed under the treatment of the railway apothecary. These men all died within 5 days. (One of the servants had a small bubo due to a weight falling on his leg.) None of the deceased had been to Hubli, but the employer had been there and returned 1½ months previously. Fever had been prevalent for some time amongst the railway employés and this was put down to bad water. The District Medical and Sanitary Officer examined the iron reservoir

* 1st case.
† 2nd and 3rd cases.

and found a quantity of "greenish stuff" floating about and to this was attributed to a great extent the bad health of the employés. The source of the water at Nancherla, 4 miles distant, was also examined. The report concludes that the deaths are due to ordinary fever.

The next item of history is that the railway apothecary wired to the District Medical and Sanitary Officer at Anantapur on 13th that he should come and examine a case of fever.* Dr. Chalke arrived in the evening and met Captain Williams of Bellary who was passing through Guntakal—both examined the case (case 4) described as a Muhammadan mendicant and pronounced it plague. This man was found lying under a bread stall and after the diagnosis was established he was removed to a plague shed.

* 4th case.

A Komati woman † was also found on 14th to be suffering from plague, she was living near the sweetmeat sellers and she was conveyed to the plague sheds.

† 5th case.

On evening of 13th a Muhammadan, Shali Sahib, ‡ platform cooly living near the sweetmeat sellers, left his hut when he found he was suffering with fever and with his family lived in a vacant temple near Guntakal village; this family were taken charge of. It appears that Shali Sahib frequented the house of the Komati woman.

‡ 6th case.

The families who lived near the attacked persons were segregated and their houses burned down.

Muhammad Ismail and his mother § Ashabi brought in on 23rd. They lived in a house near No. 5.

§ 7th and 8th cases.

Krishnasamy ‖ arrived from Bangalore three days ago. Admitted 24th August. He lived in a brakesman's house in staff lines. The man's name, house, &c., was wired to Bangalore and plague found in his house there. This was undoubtedly an imported case.

‖ 9th case.

From this date there were no further cases until the 7th September when three ¶ more cases were found in two huts about two furlongs from the original focus, one of this family was a woman who sold hoppers and used to frequent the infected focus on business, but next door to her was a dhoby who, I suspect, received clothes from a guard at Hubli for washing in lieu of house-rent. This dhoby disappeared when plague broke out, but was afterwards captured.

¶ 10th, 11th and 12th cases.

Two ** more cases occurred on 10th—both were mail sorters. The above were all the cases in the railway quarters at the junction. It appears to me if these cases had been diagnosed by the railway apothecary who was undoubtedly very casual, considerable saving of life and money would have been effected. The whole spread of plague in the northern area of this district can be traced from this outbreak at the junction. It is also regrettable that Dr. Chalke did not suspect something wrong when three deaths occurred within five days and one case had in addition a bubo, as the Deputy Collector says. Dr. Chalke seems to have been puzzled and jumped to the water although he must have known that every one drank the same water at the junction. From the junction the disease slowly travelled to Timmancherla, a small village about one mile south alongside the Madras Railway. The disease here started in a house inhabited by the relations of the Komati people who were driven from the junction. The junction family came here for a few days and four of the family having taken ill, these fugitives again went off, one woman and child to Guntakal and another girl to Chobala These four people in Timmancherla died, but nothing was known of it for several days. Yet it appears that a family of poor people lived behind this Komati house and they came and assisted the old Komati woman and her three children when ill. A father and son of this family now died and on the 3rd son becoming ill I was informed. On arrival plague was diagnosed and the above facts were elicited with the addition that some sick people were taken away in carts at

** 13th and 14th cases.

nights. Two other houses in the vicinity of this Komati house were affected. These four houses were burnt down and the other houses in the block cleaned. Burning was the only cleansing that could be done to those houses. As the disease had been very virulent, a number of dead rats were found in each of these houses. The disease did not stop now but crossed over to another block so that fully 70 houses in two blocks were vacated.

This evacuation undoubtedly broke the back of the disease. About this time a child who had been taken ill and recovered somewhat in the jungle was brought back by the people into the village, she may have been in a few hours when the fact was brought to my notice, I had this entire family removed to camp. Notwithstanding this, three Komati families who lived alongside this particular house were attacked by plague. The disease now abated after a loss of about 26 lives and no further cases occurred in the village. The people evacuated lived in a field about one mile from the village in old tents supplied by the Government. These people after a time could hardly be persuaded to leave the tents and go back to the village; the same thing was observed at Guntakal.

The first intimation of plague at Guntakal was received on the 9th October. Four or five days previous to that I had informed the Tahsildar and kept a sanitary inspector on the look out that rats were dying in the village. The villagers denied that rats were dying. The first case was a boy Govindappa 15, I found him dead, his father said the boy had been ill for 36 hours. The father, a Komati, kept an open shop and his father died a week previous in the same shop. Two days afterwards, 11th October, four cases of plague were found in the village. Of these four, three were taken from a house immediately behind that of a Komati women who fled from Timmancherla and died at Guntakal. This infected house had been cleaned about the middle of September on the supposition that the woman had died of plague and then locked up—possibly those old people had assisted at the funeral ceremonies. From this date the disease spread more and more, the Hindu families all left but the Muhammadans refused to leave; then summons were issued and the whole village emptied. The temporary evacuation of a house for a few hours for disinfection was tried but failed—plague again started after a few days. In round numbers there were about 150 deaths in this village The Hindus went to their fields and erected huts, others got tents if their circumstances were such as to entitle them. Bamboo blocks of eight huts were erected for the poorer Mussalman families. The police quarters had also to be vacated owing to rats dying in them. There is no evidence to show that water had anything to do with the spread. About 500 inoculations were done in this village. The people erected caste camps on a small scale for themselves; a suspect and a plague block for Muhammadans and the same for Hindus. They were very kutcha and the people would not allow Government servants near them. The upshot was their sick died and the others would not go near the sheds but preferred dying in the fields.

Kottala.—On 21st November information was brought that plague had broken out at this hamlet. It appears a father with his two sons and one daughter lived together in a small house. The father was a stone-cutter and earned a livelihood working around the vicinity. He and one son and his daughter caught plague. On the father and son dying the remaining son ran away, the daughter was found dead on the 21st. The neighbours said that the father died about ten days previous and the son a few days before the daughter. The house, a small one, was burnt to the ground. About the 13th December an outbreak occurred (I was at Bangalore then), eleven attacks one day and twelve or so the following. There is no doubt but that rats were the carriers of the infection in this case, as the caste of the stone hewer and the ryots was such that the former would not be allowed to enter the houses of the latter. The burial of the daughter was performed by plague hospital servants and that of the father and son by Pariahs. This small hamlet lost about 33 souls.

Konakondla and Poliki.—Konakondla is situated about four miles from Guntakal. Plague started here about the beginning of January. It is presumed that fugitives from Guntakal village must have obtained a footing here. The possibility of an army of rats proceeding from Guntakal was broached, but there is no evidence to support this theory. Any way the disease again started in Komati houses and the people of

the village cleared out of their own accord. Dr. Murray with No. 1 ambulance column was stationed here—*vide* Dr. Murray's report attached. Poliki was about five miles west of Konakondla and this is a repetition of Konakondla. The disease spread here owing to the ineffectual segregation by the Reddi. The first cases were located together in a temple and I approved of the shelter on 24th December, but the Reddi allowed ingress and egress, the result was a sharp outbreak—63 attacks and 60 deaths.

Karúr, a village six miles from Konakondla. The disease was in all probability conveyed from Konakondla. Dr. Murray reported 29 cases with 17 deaths.

Gooty was attacked early in January. There were 20 attacks with fifteen deaths. Dr. Roberts was stationed here with an ambulance column. His report is attached.

Hindúpur is not referred to as Dr. Hunter treats of it.

The above are the main attacks in the district. Imported cases occurred at Uravakonda, Dharmavaram and Anantapur, but these were easily followed up.

(Intld) B.M.

Disinfection.

Disinfection was carried out according to the Plague Regulations up to the end of January. Prior to my assuming charge of the district, all the houses attacked were burnt down, excepting a railway brakeman's house, in the hope of stamping out the disease. After my assumption I recommended one house in Guntakal junction and the first four houses attacked in Timmancherla to be burnt down in the hopes of stamping out the disease; but as I found that this energetic mode of stamping out plague only succeeded in the burnt house and that other methods were equally efficacious and frightened the people less, I abandoned conflagrations except in a few cases where a small hut made of cholam stalks and grass roofs were concerned, as in these cases the ordinary methods of disinfection would be futile.

2. *Regarding opening up the roofs of dark infected houses.*—Openings were always made to the extent of four square feet. The roofs are usually made of branches of jungle wood with a palm leaf mat or a few inches of cholam stalks laid over this and then mud plastered on top. There is no hardship in opening up a roof of this nature. I frequently found that the house occupier would himself repair his roof without permission, so that I concluded there was no great strain on his pocket.

3. The kiln method was carried out in its entirety at Guntakal junction, Timmancherla, Guntakal village, Konakondla, Poliki and Karúr and in the Hindúpur taluk generally. This method of disinfection is very laborious and expensive and I question very much if as good results could not be obtained by a (1—500) perchloride solution with an excess of acid; it would certainly be cheaper, as perchloride is put on in any case to keep down the dust.

4. The walls for four feet, good clothes, household utensils, &c., were all disinfected with perchloride solution. I have not seen any bad effects on clothing from the use of this solution. Woollen goods of course will shrink with ordinary water.

5. The use of limewash I consider superfluous where perchloride has been applied and only neutralises any excess of perchloride that has been applied. Caustic lime is obtained with considerable difficulty and in many cases it is mixed with ordinary whitewashing chunam which, of course, detracts from its value. A cartload of caustic lime costs about six rupees and half of this nearly is unusable as silt. I have not the figures with me as to the cost of whitewashing Guntakal village, but I am sure it will turn out a very expensive item. Limewashing certainly makes a village look nice, clean and æsthetic, but in my opinion does little else except in chemically neutralising the effects of perchloride solution.

Carbolic acid solutions were not employed as there was no occasion for the use of this feeble disinfectant.

6. *The agency by which disinfection was carried out.*—Guntakal junction and Timmancherla were disinfected by hired labour—it was well done, but the work was very slow as the coolies could not be got to work steadily and frequently stayed away for a day's holiday, so that, an infected house might have to lie over for a day or two before disinfection; this was a serious delay. Undoubtedly the best agency is the

sepoys under a British officer. I regret to say from the inspection of work done in the Hindúpur taluk (out-lying villages) the work was bad, both the Head Assistant Collector and the Plague Commissioner agreed with me. The reason for this was bad supervision, a dozen of sepoys under a Havildar were sent to a village with the necessary implements and no one, except a sanitary inspector, supervised their work; this state of affairs was at once remedied by ordering Lieutenant Ames and the Deputy Collector Mr. Marshall from Guntakal to Hindúpur; Mr. Ames was then required to personally pass each house disinfected. Both Lieutenant Ames and his predecessor Lieutenant Peart did excellent work. I have also to thank both the Native officers attached to the Guntakal detachment, both of whom behaved excellently in trying to quiet the fears of the Guntakal villagers and dissuading them to oppose the Government measures. In closing this section I cannot do better than to denounce the Chinese pump. No one in the district could use them—sepoys, inspectors, &c.; the reason is the valves became blocked with sand, &c, and the teak or dealwood of which it is constructed cannot stand the climate or uses to which it is put. I have seen two sepoys trying to lift the piston in vain on account of the swollen condition of the wood. It is also a very expensive toy. At first it cost Rs. 10 each at Bellary and Madras, but later on I procured as many as I wanted at Bombay at Rs. 32–8–0 per dozen.

Brass garden pumps are likewise useless, the perchloride melts the solder in two days' time. Both Lieutenant Peart and Ames and the Native officers were in favour of the ordinary garden watering pot with a rose which they used freely. The cost is only 10 or 12 annas and somehow lasts, strange to say, over a month (I fear the Native solder must be good) and has the advantage of being procurable in almost any bazaar.

Plague Hospitals.

Three large suspect and plague hospitals, immobile, were built and equipped during the season—Guntakal, Hindúpur and Tadpatri. The remains (two sheds) of a pilgrim camp were still standing on my arrival in September, and this afforded some shelter for plague cases at this period. The camp now gives excellent accommodation for ten cases (Native) and two (European) with shelter for families, servants, &c.

The suspect camp has accommodated 150 pilgrims on occasion. There is furnished accommodation here also for four Europeans.

Two hospital assistants, one Apothecary and a nurse were in charge of the camp.

2. Hindúpur camp is on a smaller scale and different design. It will afford complete accommodation for ten Natives and two Europeans, whilst the suspect camp will accommodate over 100 Natives. This camp was in charge of an Assistant Surgeon, two hospital assistants and a nurse, &c. Both Guntakal and Hindúpúr camps were serviceable in treating plague cases.

3. Tadpatri camp only dates from February of this year, it is well equipped and in charge of an Assistant Surgeon and one hospital assistant. No plague has yet been treated here.

4. At Anantapur, the Municipality have erected sufficient accommodation for a few plague cases. One has already been treated there, no special hospital assistant has been detailed for these sheds.

5. The various Unions as Gooty, Tadpatri, Uravakonda, Dharmavaram, Penukonda and Bukkapatnam had a small supply of condemned tents allotted to them for plague uses, so that immediate segregation could be resorted to if necessary. In addition to this at these stations the Local Fund Medical officer had a good supply of disinfectants and medical comforts given to him for plague purposes only.

Railway Inspection Stations.

1. *Hindúpur* was the railway frontier inspection station. All passengers from Mysore territory were here examined. An Assistant Surgeon, nurse and several writers completed the staff. During the plague season there were really only two trains passing—10–30 P.M. Mail from Bangalore and a Local about 1 P.M. in the afternoon. A good look out on the down Mail to Bangalore was also kept up. Two or three cases from Bangalore were removed from the train suffering with plague and a considerable number of suspects were detrained.

2. *Guntakal Junction.*—The railway inspection staff examined all trains—Southern Mahratta Railway and Madras Railway—arriving, and passports were issued to those detraining from infected parts. Five cases in Bangalore were taken out of the train suffering from plague. The establishment here was an Assistant Surgeon, a nurse, hospital assistant and one peon. Quarters were provided for the staff close to the station.

3. *Tadpatri.*—An inspecting staff was stationed here in February for the examination of all passengers on the Mail, this examination did away with an examination at Guntakal for this train, the object of this movement was to have those travellers from Gooty town inspected. The staff was identical with that in charge of the Guntakal plague camp.

4. Besides these railway inspection stations there were examination of passengers detraining and the issue of passports to them. At Penukonda station an assistant sanitary inspector issued passports, at Dharmavaram a hospital assistant, this man also looked after the South Indian Railway passengers. At Anantapur a hospital assistant, at Gooty station a hospital assistant and at Tadpatri until the regular staff were appointed, a sanitary inspector issued passports, &c.

5. *Circle Inspectors.*—Hindúpur and Madakasíra taluks were each divided out into seven circles. Two supervisors watched the work of the sanitary inspectors in the Hindúpur taluk and only one supervisor for the Madakasíra taluk. The Kalyandrug-Mysore frontier was watched by three Inspectors and one supervisor.

The Gooty Taluk.—Three inspectors and a supervisor stationed round the neighbourhood of Gooty; these men did excellent work in patrolling.

Between Guntakal and Uravakonda there were four sanitary inspectors and round the neighbourhood of Uravakonda there were two others. These six inspectors were under one supervisor and did fairly good work on the whole. The diameter of each was between five and six miles and each inspector had in his possession a riding pony. These inspectors latterly were of a very poor class, many of them could not tell the truth, so that the distance travelled, &c., as noted in their diaries were frequently found to be false. Some could not speak English or write it, so that their diaries came to be written by others. Two men came to the district who could not speak Telugu. Muhammadan sanitary inspectors I could not trust, the three whom I had may have been an exceptionally bad lot.

The supervisors were on the whole a mixed lot. One was a certificated inspector, P. Kothandarama Row, he did very good work; his brother P. Runga Row, who started without sanitary education, came out most brilliantly; he had plague in almost all his circles, six in number, and came out of it all splendidly. This man came out of the Collector's office at Cuddapah.

At Hindúpur Mr. Brito, Salt Inspector, did excellent work, he saw no plague before coming to the district. Mr. * Gotting had had previous experience of plague at Bombay, he worked very satisfactorily.

* This is doubtful.
(Intld.) B.M.

The supervisor at Madakasíra was a † clerk in the Collector's office, he knew nothing.

† English Head Accountant.
(Intld.) H.W.B.

The supervisor at Kalyandrug was a Revenue Inspector ‡, he would have been of little use if plague had occurred in his charge. As a supervisor holds a very responsible position, I am of opinion no one should be given such a post unless he holds a sanitary certificate. As a rule I found the temporary sanitary inspectors are indifferent and overpaid body compared with the certificated men.

‡ Ag. Taluk Sheristadar, Dharmavaram.
(Intld.) H.W.B.

Ambulance Columns.

Three ambulance columns were equipped and employed most of the season.

The first column under Dr. Chalke proceeded to Uravakonda in September and remained there until it was obvious that plague was not to spread.

The second column was sent to Dharmavaram under Dr. Charlesworth on 6th October and remained there for about four weeks. No. 1 column was again brought into Guntakal village under Dr. Charlesworth in November and remained there until January 3, 1899, when it proceeded to Konakondla under Dr. Murray.

No. 2 ambulance column went to Hindúpur under Dr. Hunter's charge about the middle of December; the object of sending this column to Hindúpur, where a plague camp already existed, was to split it up into sections for various infected villages.

No. 3 column was sent to Gooty under Dr. Roberts early in January 1899. Each column was fully equipped except No. 3, as from our previous experience we anticipated no one would seek aid and this actually occurred. From my experience in Anantapur district I do not think those expensive columns are of much use from a hospital point of view. The people refuse to go near them. Dr. Murray tried hard at Konakondla and Poliki to win the people but in vain. Each of these columns mean an English plague doctor, a nurse, a hospital assistant and a compounder with a menial staff about twenty, all doing nothing. If those sick people are to be successfully won, it can only be by the local medical officer whom they have known for a long period.

I may add that a reserve Medical Officer Dr. Beach was kept in readiness at Anantapur in view of a possible outbreak at Tadpatri or elsewhere.

Road Frontier Stations.—Four road frontier stations were opened in the district, two amongst the Penukonda hills, one at Govindapuram amongst the hills and a fourth at Kodúr; this last was, in my opinion, useless as it did not command the road and any one could evade it. Whereas the others were situated on the only track—a road which winds in and out of the hills. These stations were equipped according to regulation. Accommodation for plague and suspect cases were provided at each.

Originally five, but the one at Hindúpur was soon abolished.
(Intld.) H.W.B.

Inoculation.—Roughly speaking, about 3,000 inoculations were performed in the Anantapur district from September to April. The majority of those inoculated were of the poorer classes. In very few instances could observations be made after inoculation. I personally am not aware of any deaths due to inoculation. I have not seen abscesses resulting from inoculation but have known them to occur. I consider abscesses due to a badly-cleaned arm or a dirty needle. From January inoculation practically ceased, this was undoubtedly due to the remarks of Lieutenant-Colonel Lawrie on Dr. Haffkine's serum. Children and men bear inoculation excellently, women indifferently and pregnant women badly. Of course it is to be understood that all inoculated persons are selected as being in good health.

Amongst the inoculated there have been five deaths and three recoveries. Amongst the deaths one was inoculated twenty-one days previous, another three, another seven, another ten, and one case at Hindupúr which Dr. Hunter will furnish details of—*vide* case No. 10 in list.

List of persons attacked is appended—

Number.	Name.	Age.	Date of inoculation.	Date of attack.	Date of death.	Remarks.
1	Streenivasa Row ..	24	11th Sept. 1898.	14th Sept. 1898.	January 1899.	....
2	Seenaya	25	1st Oct. ,,	21st Oct. ,,	....	Recovered.
3	W. Lutchmanan ..	45	7th ,, ,,	26th ,, ,,	28th Oct. 1898.	Large diffused axillary abscess.
4	Veerasamy	28	8th ,, ,,	17th ,, ,,	....	Recovered.
5	Nagamma	26	9th ,, ,,	24th ,, ,,	24th Oct. 1898.	This woman was found dead in her own house, a fortnight after her child had died of convulsions. I cannot certify her case as plague.
6	Tippanna	12	13th ,, ,,	23rd ,, ,,	23rd ,, ,,	Found dead.
7	Erappa	40	15th ,, ,,	19th ,, ,,	19th ,, ,,	Found dead. I could not certify this as plague although adjoining a plague-stricken house.
8	Rahim Bee	26	22nd ,, ,,	26th ,, ,,	....	Recovered.
9	Mahaboo Bee ..	5	22nd ,, ,,	27th ,, ,,	29th Oct. 1898.	..
10	Pakka Madava Row..	30	4th Nov. ,,	25th Jan. 1899.	1st Feb. 1899.	In same house one inoculated male, one uninoculated male and one uninoculated female escaped attack; one uninoculated female had plague and recovered.

In concluding my report I must bring to your notice the services of Mr. Marshall, Deputy Collector on plague duty. He has throughout done excellent work and worked with zeal both round Guntakal and at Hindúpur. The work has been very irksome sometimes for him, but he has never tired. I trust Government will take favourable notice of his services.

I also desire to bring to the Collector's notice the services of Dr. Murray, Mr. Vasudeva Row, B.A., Tahsildar of Gooty, Apothecary Parrie and Supervisors Mr. Brito, P. Kothandaram Row and P. Runga Row. These have all done good work.

I have withheld my remarks on Hindúpur as Dr. Hunter's report will deal more fully on that subject.

From W. H. MURRAY, Esq., M.B., C.M., Additional Medical Officer, Anantapur, to the District Medical and Sanitary Officer, Anantapur, dated 28th March 1899.

From J. HUNTER, Esq., M.B., C.M., Additional Medical Officer, Hindúpur, to the Collector of Anantapur, dated 19th May 1899, No. 1795.

From H. T. L. ROBERTS, Esq., Additional Medical Officer, Gooty, to the District Medical and Sanitary Officer, Anantapur, dated 31st March 1899.

BELLARY.

From E. A. ELWIN, Esq., Collector of Bellary, to the Secretary to Government, Local and Municipal Department (through the Sanitary Commissioner and the Surgeon-General), dated 14th and 19th June 1899, No. 250-P.

ABSTRACT.—Forwarding the report of the District Medical and Sanitary Officer and the following narratives relating to plague-infected places in the district:—

Chippagiri, Alúr taluk.—This village (population 1,884) is situated at a distance of 5 miles from Guntakal junction in the Anantapur district where plague had appeared about the middle of August. Suspicion of the existence of plague in the village was first aroused early in September 1898, at which time the Collector was, with reference to Additional Regulation 22, arranging for the formation of an observation circle consisting of this particular village and all villages situated within a radius of 6 miles of it. On 6th September 1898, two individuals were taken ill with fever. One of them, an adult male, died on the night of the 9th idem from what the apothecary of Alúr who treated the case and the District Medical and Sanitary Officer who examined the corpse the following morning were practically certain, was plague. The other individual, a female, died on 11th September 1898, but the District Medical and Sanitary Officer felt doubtful whether it was a case of plague.

2. As the plague was apparently indigenous and as Government on hearing of the occurrence, telegraphed to the Collector on 10th September 1898 to proceed to the spot with the additional medical officer and take all precautionary measures, arrangements were at once made for the formation of a new observation group consisting of four observation circles with Chippagiri as head-quarters, and for the despatch to the village for cordon duty of the company of sepoys of the Ninth Madras Infantry that had been placed at the Collector's disposal in the previous March and for duties connected with the treatment of the sick the ambulance staff that had for some time been assembled in readiness at Bellary.

3. On the advice of the District Medical and Sanitary Officer who examined on 10th September 1898, the first suspicious case of fever which proved fatal as above stated, the shed in which the patient died, the house in which he was living before the attack and the village gate-way to which he was removed were all burnt. The inmates of the adjoining house in which the second fever case of the 6th September which was not pronounced to be plague occurred and several others were temporarily segregated in their own houses pending the construction of segregation, etc., camps.

The Collector himself proceeded to the village on the morning of 12th September 1898 to personally supervise the plague-preventive measures and the sepoys arrived there on the next morning under the command of a British officer. A cordon was immediately placed round the village as the villagers seemed disposed to leave their homes for other villages and the pass system was introduced. No one was allowed either to leave or to enter the village unless provided with a general or a special pass, the issue of general passes being entrusted to the Tahsildar and that of special passes being reserved by the Collector to himself. The ambulance staff arrived on 14th September 189-.

4. On the arrival of the sepoys in the village, the home-segregated persons were removed for observation to a segregation shed which had been prepared in the meantime for the purpose. Temporary sheds for the accommodation of patients were put up, and a health camp consisting of several temporary sheds and some tents obtained from the Collector of Anantapur was formed. Guards were placed over all these camps. As a regular hospital a nicely-thatched building containing wards capable of holding ten persons was afterwards erected.

5. On the arrival of the ambulance staff a house-to-house inspection was begun with a view to ascertain whether there were any suspicious cases of fever. The inspection party which consisted of the revenue and medical officials and the Plague Inspector was always accompanied by two or three respectable inhabitants of the village in whose presence the inspection was conducted agreeably to the customs and wishes of the people. This measure of daily inspection, however, proved so unpopular with the people that it had to be given up and an informal sort of inspection by the Tahsildar substituted. As the officer in command of the detachment of sepoys reported on 16th September 1898 that his 100 men were insufficient for cordon duty, and as it was apprehended that the villagers would abscond unless properly controlled should fresh cases of plague occur, application was made to Government and sanction obtained for an extra force of 100 men. These men arrived in the village on 19th September 1898 and were at first employed on cordon duty along with the other men.

6. There was no fresh case of plague in the village for ten days after the first attack and the Collector therefore ordered the cordon and ambulance staffs to disperse and himself left for Tungabhadra on the night of 21st September 1898. The additional medical officer and the ambulance staff left for Bellary on the 22nd morning and the cordon staff was also about to set out on the same day when the Tahsildar and Plague Supervisor discovered in a hut, on the confines of the village, a case of plague that appeared to have been imported from Guntakal. The patient—a boy—and the other members of his family were immediately removed to the temporary plague sheds outside the village and the apothecary in charge of the Local Fund hospital at Alúr sent for. The latter agreed with the Tahsildar and the Supervisor that the boy was suffering from plague and treated him till his death which occurred on the 23rd night. Immediately on the discovery of this case, all necessary precautions were re-adopted and the additional medical officer and ambulance staff recalled. The Collector himself returned to the village from Tungabhadra on the 23rd morning. From this day forward there were a series of indigenous cases as noted on the margin, all of which proved fatal.

Date.	Number of seizures.
23rd September 1898.	3
24th „ „	1
26th „ „	1
29th „ „	1
1st October „	1

7. With a view to stamp out the disease in the village and prevent its spread to the adjoining villages, the village was declared to be an infected area under Additional Regulation No. 21 and a notification published in the District Gazette Extraordinary, dated 24th September 1898. The following measures were also promptly taken with the result that the disease did not spread to any appreciable extent, the total number of cases which occurred in the village being eight indigenous and one imported:—

(i) Removal of the patients to the plague hospital.
(ii) Segregation of the contacts.
(iii) Removal to the health camp of the inmates of the houses situated in the blocks adjoining those infected and the complete evacuation of the houses whether infected or situated in the adjoining blocks.

(iv) Disinfection of the above houses and their contents in the manner laid down in the regulations.

(v) *Inoculation.*—Forty-nine houses were in all evacuated and disinfected, the inmates thereof numbering 161 having been removed to the health camp. The disinfection was at first done by coolies specially engaged for the purpose, but this system did not work well and the business was subsequently undertaken and completed in a very satisfactory manner by a portion of the troops that was spared from cordon and guard duties. The mode of disinfection followed was that prescribed in G.O., No. 487 P., dated 17th May 1898, and all the houses were, after disinfection, white-washed. Subsequent to 15th September 1898, no houses were destroyed by fire, but all articles of trifling value condemned by medical officers as liable to retain infection were thus destroyed. To the owners of the property who were affected by this measure, compensation amounting to Rs. 519 in all was paid.

There was at first considerable difficulty experienced in inducing the villagers to submit themselves to the operation of inoculation, but their reluctance was gradually overcome by persuasion and owing to the good example set by the Tahsildar and sepoys. Five hundred and forty-one persons were in all inoculated.

8. The last plague case which broke out in the village proved fatal on 2nd October 1898 and after the lapse of 20 days from the last attack, it was considered that all danger of infection had passed away. The cordon was accordingly withdrawn and the ambulance staff permitted to return to Bellary on 21st October 1898.

9. There has up to date been no recrudescence of the disease in this village.

10. *Molagavalli, Alúr taluk.*—The next village where plague broke out was Molagavalli situated at a distance of 3 miles from the railway station of the same name on the Madras Railway line and of about 8 miles from Chippagiri with a population of 3,216. On 2nd November 1898, *i.e.*, 12 days after the withdrawal of the cordon and ambulance staff from the latter village, the Tahsildar of Alúr received a report from the Plague Inspector of the circle of the discovery at Molagavalli of a case of fever with glandular swellings under the arm-pit, and at once proceeded to the village with the Civil Apothecary, Alúr. The latter had the patient under his observation till the following morning and found that he was developing symptoms of plague. The Tahsildar had the patient removed to a temporary shed put up outside the village and the contacts, eight in number, segregated in another shed. The sheds were guarded by the police.

11. The patient was a Komati, by name Iswarayya. He had been to Gooty on business on the morning of 22nd October 1898 and returned to Molagavalli on the night of the following day *viâ* Guntakal. He was apparently in good health till 31st October 1898, when the fever already alluded to began. He is supposed to have contracted the infection when at Gooty or Guntakal.

12. On the receipt of information of the above case on 3rd November 1898, the Collector at once made arrangements for the despatch of the ambulance staff and himself started for the spot with the District Medical and Sanitary Officer on 4th November 1898. The District Medical and Sanitary Officer examined the patient the next morning and pronounced the case to be one of plague. Thereupon the disinfection of the man's house and the evacuation and disinfection of the neighbouring houses were ordered and put in hand under the personal superintendence of the Collector and the District Medical and Sanitary Officer. The disinfection was at first carried out by the ambulance staff assisted by a few coolies of the village specially engaged for the purpose.

13. On the afternoon of 5th November 1898, an indigenous plague case was detected in the house opposite to that of Komati Iswarayya above mentioned. The patient, a golla, male, aged 30 years, was removed to the camp outside the village the next morning, but died within an hour or two afterwards. The contacts were segregated.

14. The inmates of the houses in that portion of the village held to be infected were at first sent to a health camp but they were subsequently allowed to remove themselves to sheds in their own fields at a distance from the village where they were subjected to daily inspection.

15. There were no fresh attacks reported till 18th November 1898, when a toti woman attached to the ambulance staff developed plague and died the next day. She was the only uninoculated member of the ambulance staff and apparently caught the infection in the discharge of her duties which frequently brought her in contact with the first patient who eventually recovered. Between 19th November 1898 and 30th November 1898 there were three more indigenous cases outside, but near, the infected portion of the village, all of which proved fatal.

16. In the meantime many of the villagers had removed from the village to temporary sheds put up in their fields and it was found out towards the end of the month that there had been several suspicious fever cases which had not been reported to the authorities, the corpses in the fatal cases being disposed of by clandestine burial. Subsequent enquiries showed that whenever an inmate of any particular house was attacked with fever, the other inmates at once took him and as much of their property as possible and left the village at night for the fields; this could be done without much fear of immediate detection owing to the fact that house-to-house inspection could not be resorted to as the people threatened to run away to other places if they were worried in that way and that the vast black cotton plain in the midst of which the village is situated afforded any amount of hiding places. It was tolerably clear by 9th December 1898 that the village was infected in almost every corner and orders were accordingly issued to evacuate the whole place except a substantially built house occupied by the reddi whose whole family had been inoculated. Seven hundred and sixty-eight houses in all were evacuated and disinfected the inmates thereof numbering 3,210 having removed to the fields. A detachment of 100 sepoys under a British officer for disinfection work was obtained from Bellary on 12th December 1898, and with the help of a few coolies employed to do odd jobs, such as fetching water, completed the disinfection of the village by 30th January 1899. A Special Deputy Tahsildar to relieve the Tahsildar of some of his ordinary work was appointed about this time; his appointment lasted till the end of the official year.

17. The last attack of plague occurred in the fields on 30th January 1899, but the people were not allowed to re-occupy the village until 14th March 1899, when orders were issued permitting re-occupation of the houses, the villagers being directed to boil all their clothing and expose it to the sun before re-entry.

18. During the outbreak the Special Deputy Collector and the additional Medical Officer were generally encamped at the place and engaged in patrolling the camps and supervising the preventive measures. The Collector paid several visits to the village. Inoculation was not so popular as at Chippagiri, the total number inoculated being only 112; the chief reason for this was that at least five persons, who had no doubt incipient plague at the time of the operation, died within a few days after inoculation and their fate led others to regard inoculation with suspicion.

19. The total number of attacks reported was 129, 106 of which proved fatal, but it is believed that several persons were attacked and perished in the fields whose cases were never heard of.

20. *Peddahotur.*— * * *

* * * * *

29. *Hospet Union, Hospet Taluk.*—Hospet village is the head-quarters of the taluk of the same name and has a population of 12,878 and comprises with the adjoining villages of Chitwadigi (population 3,278) and Mudlapur (population 253), the Hospet Union.

30. *First outbreak.*—The disease first appeared in an indigenous form early in December 1898 at Mudlapur close to the Hospet railway station. The Sanitary Commissioner for Madras inoculated on 2nd December 1898 a girl of ten years' age, a member of the family of the railway stationmaster, who was apparently in good health at the time the operation was performed. On the second day after inoculation the child had mild re-actionary symptoms and apparently recovered in a day or two. On the seventh day after inoculation, *i.e.*, 8th December 1898, she was attacked, however, with high fever accompanied by convulsions and developing symptoms of plague two days later died on the night of 11th December 1898, when the Plague Commissioner and the Collector were on the spot. How the infection was communicated to the child it has never been ascertained.

31. The house in which the death occurred was thoroughly disinfected and the contacts of the deceased were after disinfection removed to the camp attached to the railway inspection station. Two of the contacts—the wife and a son of the stationmaster—developed symptoms of plague on 17th December 1898 while under observation, but eventually recovered.

32. *Second outbreak.*— As in the case of the first outbreak, nothing definite has been ascertained about the origin of this outbreak. It is probable, however, that the disease was introduced by persons of the Boya caste who after the fall of the Tungabhadra river at the end of November were in the habit of resorting in large numbers to the toddy shops situated at a distance of a few miles from Hospet in the infected Kopbal jaghir of the Hyderabad State.

33. On 7th January 1899 a Boya boy aged six years was brought to the Hospet hospital suffering from fever. On examination the civil apothecary found symptoms of plague, and immediately had the patient removed to the plague hospital attached to the railway inspection station and the contacts segregated. As there was nothing to show the case to be an imported one, suspicion that other cases were being concealed was aroused and accordingly on that evening the Tahsildar in company of the Civil Apothecary and the Inspector of Police made a house-to-house inspection in the Boya quarters and discovered three more cases of plague in different houses. The inspection was continued the next morning (8th January 1899) when another case was discovered. In the evening a Kuruba woman was brought to the hospital by a man who turned out to be her husband and left by him in the verandah; a few minutes later she was examined and found to have symptoms of plague. The patients in all the above cases were removed to the plague hospital and the contacts to the observation camp. It was by this time quite clear that there was indigenous plague in the village.

34. On hearing of the outbreak, the Collector at once arranged for the despatch of an ambulance staff and himself proceeded to the spot on 9th January 1899 with the additional Medical Officer. The Sanitary Commissioner also arrived there on the next day and gave personal instructions regarding evacuation and disinfection. In order to protect Bellary and other places, the Collector under Additional Regulation 21 notified the Hospet Union as an infected locality and introduced the pass system. The civil apothecary, who has considerable influence in the village, was relieved of his work at the hospital by one of the hospital assistants attached to the ambulance staff and put on the special duty of inspecting the houses in view to the discovery of any fresh cases that might occur. The people in the Boya quarters and others living near the infected houses were persuaded to evacuate their houses and remove themselves to the fields. Disinfection under the supervision of the Plague Supervisor of the local group was begun, coolies being specially employed for the purpose. In spite of these precautions the infection gradually spread to many parts of the village and at length reached the village of Chitwadigi, where the first attack occurred on 18th February 1899, and subsequently cases occurred in different parts of that village.

35. As the disease had evidently taken a firm hold on Hospet and Chitwadigi, it was considered necessary to adopt drastic measures for its eradication, and the evacuation of the whole of the houses, except a few detached ones that had in all probability not become infected, was resolved upon. There was at first a little opposition to the proposal, but through the exertions of the local officers, the reluctance of the people was overcome and the evacuation which was first begun at Hospet in the Boya quarters on 8th January 1899 was completed on 15th February 1899. In Chitwadigi the evacuation was commenced immediately after the first attack there and was completed about 23rd March 1899. The whole population of Chitwadigi (3,278) and of the Hospet town (12,898), with the exception of some 200 who lived in detached Petas outside the town, vacated their houses and settled themselves in temporary sheds built in the fields and scattered over an area of fifteen square miles round the two villages. Care was taken that the sheds were at least twenty yards apart from each other, so that should plague break out in any one of them there would be no great risk of the spread of contagion and infected materials might easily be destroyed by fire without endangering the safety of other habitations.

36. Simultaneously with the evacuation, the disinfection of houses was begun, special coolies, and not sepoys as in other parts of the district, being employed for the purpose. Excluding a special gang for urgent work and odd jobs, there were in all eighty coolies divided into eight gangs of ten each. Mr. Moore, one of the Assistant Collectors, was placed in charge of the disinfection operations, assisted by a Plague Supervisor who was relieved of his ordinary duties and specially posted to Hospet and Chitwadigi. In order to ensure constant supervision over the coolies, each gang was placed under the control of a maistri and over every two maistries was an assistant Plague Inspector. The detailed scheme for disinfection was approved by the Plague Commissioner in his Proceedings, No. 913, dated 5th March 1899. Three thousand one hundred and forty-seven houses in Hospet and 711 in Chitwadigi were in all disinfected, the work was begun early in March and completed on 17th May 1899. The total cost of the disinfection amounted to Rs. 3,800. The work of this kind that was being carried out during my visit to the place in January was not very thorough, and there had been several attacks between that period and the time when wholesale evacuation was decided upon. I, therefore, after the scheme referred to above received formal sanction, had the houses already disinfected in the earlier days of the outbreaks disinfected over again for safety's sake.

37. In addition to the measures detailed above and with a view to stamp out the disease and prevent its spread to the adjoining villages, the people in the camps were not allowed to return to the town without permission nor were they allowed to leave Hospet for other villages without obtaining special passes from the Stationary Sub-Magistrate, Hospet, who was authorized to issue them in consultation with the local medical officer. Instructions were also issued to the village officers of the Hospet taluk not to allow the Hospet people enter their villages unless they held passes issued by the Stationary Sub-Magistrate. The Hospet and Hansi observation circles were each sub-divided into two and each sub-division placed in charge of a Plague Inspector to ensure more systematic patrol of the villages and prompt detection of any suspicious cases that there might be. Four camp Superintendents were employed to watch the movements of the people in the camps and report on their health daily. The civil apothecary, who was on special duty from the beginning, was constantly going round the camps. The result of these measures was that the disease did not spread beyond the Hospet union.

38. During the Plague Commissioner's visit to Hospet on 22nd March 1899, the people in the camps complained to him of the hardship of the rule preventing their return to the town. The rich people wanted to guard their property; the weavers said they were at the end of their resources and could not weave in their camps; the cultivators wanted to take manure to the fields; and the merchants had to store jaggery in their homes. The Commissioner referred their complaint to the Collector with his remarks for disposal. The Collector granted the concessions sought for under certain limitations. As regards the complaint of the rich people, only inoculated persons were allowed to remain in the village after dark; they were compelled to sleep on the flat roofs of their houses and were disinfected in the mornings before their return to the camps. In the case of weavers it was considered desirable to keep them entirely out of the town and such of them as were unable to maintain themselves were paid half wages during the period of their detention in camps. (Plague Commissioner's Proceedings, No. 1084, dated 18th April 1899). The carting of manure was allowed under proper precautions and with reference to the system of passes. The merchants were allowed to store jaggery in houses that had been thoroughly disinfected, provided the cartmen and coolies obtain passes and did not remain in the town longer than was absolutely necessary.

39. In August last the leading inhabitants of Hospet applied for permission to erect separate sheds for the disinfection and segregation of the different castes of the observation camp attached to the Hospet railway inspection station. The application was granted in G.O., No. 827-P., dated 17th August 1898, and in the Plague Commissioner's Proceedings, No. 623, dated 4th March 1899, a contribution of Rs. 621 being the moiety of the cost of the private sheds constructed by the people of Hospet was sanctioned. The people of Chitwadigi raised among themselves subscriptions amounting to Rs. 1,000 and constructed their own plague hospital adopting the plan of sick

hospitals attached to the plague camp. Three patients and 21 contacts of Chitwadigi were removed to, and segregated in, the private camp. They were treated and observed here by the Civil Apothecary Mr. Stocking. The Hospet people also constructed a similar hospital, but none was treated or segregated therein. With the exceptions noted above all the plague patients were removed to the Government camp for treatment. The contacts of plague patients were for some time segregated in the observation camp attached to the railway inspection station, but as it was considered objectionable to detain them in the same camp along with those detained from the trains, separate sheds were constructed for the use of the Hospet contacts.

40. Inoculation was not at all popular during the second outbreak as the first indigenous attack of plague that proved fatal on 11th December 1898 was attributed by the people to the operation performed on the patient some days previously by the Sanitary Commissioner. The prejudice of the people was, however, ultimately removed to some extent and 993 people were in all inoculated. Of these, 43 were Muhammadans of Chitwadigi who were encouraged to submit to the operation by their Moulvi Saiyid Ala-ud-din Ṣáḥib; this gentleman also assisted the authorities by persuading his co-religionists to evacuate their houses and he has since had the title of Khan Ṣáḥib bestowed on him.

41. The number of indigenous attacks and deaths were as shown below :—

	Number of attacks.	Number of deaths.
Hospet	71	61
Chitwadigi	19	13
Mudlapur	3	1
Total ..	93	75

There have been no fresh attacks since 7th April 1899 in Hospet and since 8th April 1899 in Chitwadigi.

42. A Special Deputy Tahsildar was appointed to relieve the Tahsildar of a part of his ordinary duties.

43. The District Medical and Sanitary Officer, after inspecting the union on 16th May 1899, reported that the disinfection had been satisfactorily done and recommended that re-occupation of the houses might be permitted. On the same day, instructions were accordingly given permitting re-occupation, prior right of entrance being given to those inoculated.

44. *Chinnahotur and Marakattu, Alur taluk.*—From Peddahotur the plague spread to Chinnahotur and Marakattu, which are within a mile's distance. The Peddahotur ryots were resorting to the house of the Chinnahotur blacksmith. The smith's child, a girl of two years old, who had previously been suffering from fever, developed symptoms of plague on 3rd February 1899 and died on the same day. The body was buried with the usual precautions and the contacts were segregated in their own fields as they were unwilling to go to the segregation camp at Peddahotur. The house in which the case occurred and seven adjoining houses were evacuated and disinfected. By the adoption of timely measures, the spread of infection was arrested in this village.

45. In Marakattu, the plague assumed the choleraic form. Cholera had been prevalent in the village for some days prior to the outbreak of plague and the villagers were frequently resorting to Peddahotur on business. On 28th February 1899, two cases of cholera were discovered with buboes. The hospital assistant attached to the ambulance staff at Peddahotur examined the cases and declared them to be plague. One of the patients, an adult male, died on that date (28th February 1899), and the other, a Kuruba boy of 15 years, was removed to the Peddahotur plague camp and eventually recovered. On 5th March 1899, there were two more cases, one of which proved fatal on the same day. The other, which was treated as suspicious, survived.

After the outbreak of cholera in the village on 15th February 1899, the villagers on the advice of the Tahsildar left their houses and encamped in their fields. To stamp out the cholera and plague, all the houses in the village numbering 140 were

disinfected by sepoys sent from Peddahotur. The work was begun on 7th March 1899 and completed in a week. There were no further attacks subsequent to 5th March 1899 and orders were issued for the re-occupation of the village on 11th April 1899.

46. *Turuvagallu, Alúr taluk.*—This village is situated at the north-eastern corner of the taluk within a mile from Togalagallu and Doddagonda, two of the infected villages in the Pattikonda taluk of the Kurnool district. Dead rats were found in the house of a man of Uppara caste who had taken a lease of the tamarind trees at Togalagallu, and in three other adjoining houses.

47. The first case of plague occurred in the Uppara's house on 8th February 1899 and proved fatal. On the same day there was another in the adjoining house of a Pujari, which also proved fatal on 11th February 1899. The contacts were segregated in their fields and the villagers advised to vacate their houses which they did willingly. As the discovery of dead rats in large numbers in several houses in the infected ward and outside it showed that the infection was widespread in the village, it was considered desirable to disinfect all the evacuated houses. Accordingly a detachment of sepoys was sent from Peddahotur for the work. The sepoys began disinfection on 8th March 1899, and completed it on 11th March 1899, the number of houses desinfected being 140. With these measures, the further outbreak of the disease in the village was stopped.

48. *Alúr—Alúr taluk.*—Alúr is the head-quarters of the taluk of the same name and has a population of 2,766. It is situated at a distance of about 5 miles from Peddahotur and 8 miles from Molagavalli, both of which were infected with plague.

49. The agricultural labourers of Alúr used to go to the Molagavalli and Peddahotur fields for work. On 16th February 1899, a boya woman, aged 22 years, was found suffering from high fever at Alúr. The Tahsildar on enquiry ascertained that she had been resorting to the fields and mixing with the people of the two infected villages and had her kept under observation. The next day (17th February 1899) she developed symptoms of plague and was isolated in her husband's field outside the village as objection was taken to her being treated in the plague camp. The house in which the patient was living and one of the adjoining houses were disinfected, dead rats having been found in them. The contacts were also segregated in their own fields, their persons, clothing, bedding, etc., being disinfected under the supervision of the Civil Apothecary, Alúr, and the sanitary inspector before removal.

50. The boya patient eventually recovered, but her step-daughter, a girl of four years age, who had been in contact with her, was attacked with plague on 18th February 1899 and died two days later. From then onwards, a series of cases broke out as noted below :—

Date.	Number of attacks.	Number of deaths.
20th February 1899	2	2
22nd " "	5	2
23rd " "	2	3
24th " "	1	..
25th " "	1	1
26th " "	1	1
27th " "	..	1
6th March 1899	1	1
Total ..	13	11

51. As dead rats had been found in some of the infected and other houses, the evacuation of the portion of the town known as the peta was resolved upon and the residents were persuaded to remove themselves to the fields. The houses evacuated were disinfected by coolies employed for the purpose under the supervision of the local officers.

52. After 6th March 1899 there was no further attack till 4th April 1899. On that date when everything was ready for the re-occupation of the evacuated portion of the town, a case of high fever with a bubo in the groin was discovered in anothe

portion of the town known as the fort. The patient was a boya woman and it was suspected that she had been stealthily visiting the contacts of the patients whose death occurred on 22nd February 1899 and to whom she was related. She was removed to a field outside the village and has survived the attack. Another case occurred in the same portion of the town on 10th April 1899 and two more cases on 12th April 1899. These three proved fatal.

53. As there were thus four indigenous cases in the fort and as the place consists of narrow lanes and ill-ventilated houses, the District Medical and Sanitary Officer considered that the place should be thoroughly disinfected to prevent a recurrence of the disease.

On 13th April 1899 instructions were issued to the Tahsildar to have the fort thoroughly evacuated and the houses secured against entrance pending the arrival of a company of sepoys for disinfection duty. An application for the services of the sepoys having been submitted to and approved by Government, a company consisting of about 75 men under a British officer arrived at Alúr on 25th April 1899. It was subsequently agreed between the Collector and the District Medical and Sanitary Officer that every portion of the village, whether previously disinfected by coolies or not, ought to be disinfected by the sepoys in view to prevent any further outbreaks in this important centre, and orders were issued to take up work first in the fort and afterwards in the other quarters.

54. By the time the disinfection was begun by the sepoys the third portion of the village, viz., the chuckler hamlet, had not been infected. This hamlet is situated outside the fort and separated from it by a road. On the advice of the District Medical and Sanitary Officer, the hamlet was on 28th April 1899 ordered to be evacuated, but the people did not remove for a week subsequently, as they required time to put up sheds in the fields. In the meantime, there was heavy rain followed by high winds and before the evacution of the hamlet took place, the infection must have been carried into it from the fort. A chuckler girl, aged 12 years, had fever for two days after the removal of her family to the fields on 4th May 1899. On 6th May 1899, the Additional Medical Officer who examined her declared it to be a case of plague of abdominal type. She died the next day (7th May 1899) in her shed before she could be removed to the plague camp. The shed, etc., were burnt and the burial of the deceased was conducted in accordance with the rules. The contacts were disinfected and segregated.

This attack was followed by another on 15th May 1899 which also proved fatal; in this case the patient was a cooly employed to do odd jobs in connection with the disinfection by the sepoys who must have contracted the disease through walking about in the infected houses. After this attack the Tahsildar was reminded of the absolute necessity for seeing that all persons engaged in such work wear shoes and are disinfected every evening before returning to their homes. The village has now been free from plague for exactly a month. The disinfection will be completed in a day or two, when the villagers will, with the permission of the District Medical and Sanitary Officer, be allowed to re-occupy their houses.

There were in all 20 attacks and 16 deaths from 16th February 1899.

Officers specially commended for good work.

Chippagiri—

M.R.Ry. M. Sambasiva Rau Nayudu, Tahsildar of Alúr. This officer did excellent work under most trying circumstances.

Other villages in the Alúr taluk—

M.R.Ry. P. Venkobachari, Acting Tahsildar of Alúr.
Mr. J. T. Lever, Special Deputy Collector.

Molagavalli—

Molagavalli Sanna Reddi, Acting Headman of Molagavalli.

Hospet Union—

M.R.Ry. P. Rama Rau, Rao Bahadur, Acting Tahsildar of Hospet.
'Abd-ul-karím Sáhib, Inspector of Police.
Mr. E. Stocking, Civil Apothecary.
Bharatappa, Reddi of Hospet.

(Signed) E. A. ELWIN,
Acting Collector.

From the District Medical and Sanitary Officer, Bellary, dated 26th May 1899, No. 1135-P.

KURNOOL.

From MUHAMMAD RAZÁ KHÁN, Esq., I.C.S., Collector of Kurnool (on leave), to the Secretary to Government, Local and Municipal Department (through the Sanitary Commissioner and the Surgeon-General), dated St. Thomé, Madras, 18th June 1899, No. L-1.

Abstract.—Reporting on the outbreak of plague in his district.

From the District Medical and Sanitary Officer, Kurnool, to the Collector of Kurnool, dated 18th May 1899.

NORTH ARCOT.

From R. H. CAMPBELL, Esq., Ag. Collector and District Magistrate, North Arcot, to the Secretary to Government, Local and Municipal Department, dated Chittoor, 3rd June 1899, Ref. No. 1842-P. of 1899.

With reference to the Plague Commissioner's Reference on C. No. 4608, dated 1st May 1899, I have the honour to submit the following narrative of the measures taken to combat the recent outbreaks of plague in this district.

I understand that the expression "recent outbreaks" includes not only indigenous cases which occurred since the commencement of this year, but also imported cases which occurred during 1898.

2. Until plague broke out in Bangalore at the beginning of August 1898, this district was considered to be practically safe from infection as the chances of the disease spreading into this district from Bombay and Hyderabad were very remote. When, however, a few cases of plague had occurred in Bangalore, a porter employed under the Madras Railway Company, who had lost two of his children from the disease, left Bangalore on the night of the 12th August 1898 and arrived at a village in this district called Jangalapalle near Tiruvallam Railway station on the morning of the 13th idem. He was accompanied by his wife and four children, and all of them had contracted the disease before they left Bangalore. The porter and his four children died shortly after their arrival, and the wife alone survived. These were the first cases which occurred in this district, excepting of course the one case detained in the plague camp, Arkonam, in October 1897. The late Collector Mr. Batten himself proceeded to the village and supervised the work of disinfection, which was carried out thoroughly without any opposition being met with. As the plague increased in virulence at Bangalore, a general exodus of the population commenced, and many of the refugees came to this district with the inevitable result that imported cases of plague began to occur in a number of towns and villages of this district. The immigrants from Bangalore settled mainly in the towns of Vellore, Arcot, and Wallajah and in villages lying in the vicinity of the South-West line of the Madras Railway. This is evidenced by the fact that, while almost all imported and indigenous cases occurred in the tracts referred to above, the northern portion of the district was almost free from the disease. The number of plague cases imported in October 1898 was considerably

larger than that imported in the other months, and it is therefore probable that the bulk of the immigration took place in October. The following table shows the number of imported cases which occurred during each of the months in last year:—

Month.	Imported.		Indigenous.	
	Seizures.	Deaths.	Seizures.	Deaths.
August 1898	7	6	..	..
September ,, ...	1	1	..	..
October ,, ...	25	24	2	1
November ,, ...	11	10	3	3
December ,, ...	8	5	1	2

All these cases were imported by rail either from Bangalore or from other places in the Mysore province.

3. After the occurrence of the first few imported cases, the following general measures were adopted to prevent the spread of the disease from the Mysore province:—

(*a*) Railway inspection stations were established at Pakala and Jalarpet in order to prevent the importation of plague by rail.

(*b*) Four road frontier inspection stations were established on the chief roads leading from the Mysore province into this district in order to prevent importation by road.

(*c*) Seven observation circles were started along the Mysore frontier and were placed under the charge of trained Sanitary Inspectors.

(*d*) The railway stations of Patchur, Mulanur, Kuppamu, Gudupalle and Bisanatham on the Bangalore section of the Madras Railway were declared infected in order to prevent persons from the Mysore province booking at those stations and escaping observation.

(*e*) A hospital assistant was deputed to examine all passengers alighting at Kuppam railway station and was empowered by the Collector under Regulation 29 of the Original Mufassal Plague Regulations to detain all suspicious persons in huts specially provided for the purpose. This was found to be necessary in order to prevent suspicious persons breaking their journey at Kuppamu and proceeding to their places of destination by road.

(*f*) The Chairmen of all the Municipalities in the district were requested to entertain the observation staff prescribed in G.O., No. 522 M., dated 13th March 1897.

(*g*) Two ambulance staffs were formed with complete equipments and stationed at Palmanér and Vellore.

(*h*) A staff corps officer was put on the special duty of supervising all the plague arrangements on the Mysore frontier, and the District Medical and Sanitary Officer was relieved of all his ordinary duties so that he might devote his whole time to plague work.

(*i*) The attendance of pilgrims at all important fairs and festivals at which a large number of persons from infected areas were expected was prohibited with the sanction of Government.

(*j*) In order to popularize inoculation and its effects, Mr. Batten induced Major Bannerman, I.M.S., to deliver four lectures at Tirupati, Wallajah, Vellore and Chittoor. The good effect of these lectures was, however, counteracted by the publication and circulation of vernacular translations of Dr. Lawrie's evidence before the Plague Commission.

4. The railway inspection station at Pakala and the four road frontier inspection stations did not justify the expenditure incurred on them. The latter could easily be evaded owing to the many cart-tracks and paths crossing the frontier in spite of a frontier patrol by plague inspectors and supervisors organized by Mr. Batten.

5. The special measures prescribed in the regulations for stamping out the infection in individual cases, such as evacuation of infected houses, segregation of patients and contacts in specially-built camps and huts and disinfection of houses were carried out thoroughly without opposition in the first few cases imported into this district. The Labbais of Visharam, however, for the first time, refused to evacuate an infected house and to allow the inmates thereof to be segregated in a choultry outside the village. Mr. Batten and the Plague Commissioner tried their best to persuade them, but to no purpose. Home segregation was therefore allowed for the first time, and the leading members of the Labbai community had the houses disinfected under the supervision of a medical officer. The people of Wallajah and Sholinghur followed the example set at Visharam, and there was even a small riot at Sholinghur, the rioters being tried and convicted by the Head Assistant Magistrate. At about the same time the confidential order of Government regarding segregation and evacuation was received, and the necessary instructions were issued confidentially to Divisional Officers, Tahsildars and Deputy Tahsildars. In the cases that followed, evacuation of infected houses and segregation of patients and contacts in specially-built huts were resorted to only when there was not much opposition on the part of the people. Disinfection was, however, carried out in a thorough manner.

6. In spite of the refusal of the people to vacate infected houses and go into camps, the measures adopted against the imported cases under discussion seem to have been very successful; for, except in the case of Pallikonda and Marudambakkam, no fresh attacks occurred, and the infection appears to have been rooted out completely. In Marudambakkam two fresh attacks occurred, but these were among the contacts who were attending upon the patient. The two cases that occurred in Pallikonda were among people who, it was ascertained, had unlawful access to the infected houses. The disease did not, however, spread in either of these places.

7. The first indigenous case properly so called occurred in Kuppamu on the 30th November 1898. A brother of a police constable who was living in the police lines, Kuppamu, proceeded to Jalarpet by rail on the morning of the 21st November 1898 and returned to Kuppamu the same evening. At Jalarpet he was provided with a passport, and he was under the observation of the Hospital Assistant, Kuppamu, until the 30th November 1898. On the 30th he complained of slight fever, grew worse on the following day and died on the 2nd December 1898. The hospital assistant suspected the death to be due to plague and the case was treated as a plague case. Nothing more happened until the 2nd January, when the Deputy Tahsildar reported the occurrence of an indigenous case in Kuppamu on the 1st. The Collector and the Sub-Collector proceeded to Kuppamu and made the necessary enquiries. The infection in the case was traced to certain people from Devankundi in Mysore Province, who, after halting for a few days in the patient's house, proceeded to Kethandapatti in Salem district and died there of plague. Other cases of plague occurred in the same street in rapid succession and it was found that the victims in all such cases had caught the infection from the first house. Dead rats and squirrels were found in some of the houses in the same street and the whole town rapidly became infected. Almost simultaneously indigenous cases broke out in Vellore, Arcot, Ránipéttai and Wallajah. I will deal with each of the infected towns separately as I think that it will be convenient to do so.

8. *Kuppamu.*—The town of Kuppamu is divided into three parts, viz., Robinsonpet, Kothapet and Pathapet (old Kuppamu). Robinsonpet was the first to be affected. The zamindar of Kangundi, who lives in this part of the town, evacuated his house and proceeded to Kangundi, a village 8 miles from Kuppamu. His retinue consisting of about 20 families and some others followed his example, and there was a general tendency on the part of the inhabitants to emigrate. A notice was published in the District Gazette under the orders of the Plague Commissioner warning the inhabitants of the villages to which immigration was taking place of the danger they ran by taking in people from Kuppamu and suggesting to them the advisability of keeping such immigrants in isolated buildings or huts outside their villages for a period of ten days before admission. This notice did not, however, have the desired effect and the people thought that the notice in question gave them power to resist the entry of public servants on duty into their villages and began to resist them accordingly. I had therefore to publish another notice to the effect that the first notice did not apply

to public servants on duty and that any body resisting their entry will be prosecuted. During the exodus from Kuppamu, a cordon of police was placed round the town to take down the names of people going out and their places of destination. These were communicated to the Plague Inspectors and the local authorities who kept them under observation for ten days.

9. Mr. Scott Elliot of the 4th Madras Pioneers assumed charge of the plague operations at Kuppamu shortly after the outbreak commenced. The ambulance staff stationed at Palmanér was immediately sent to his assistance and a plague camp was erected without delay in a suitable spot. Dr. Page appointed as additional medical officer to this district, arrived in Kuppamu at the beginning of February. Mr. Scott Elliot organized a system of informal house-to-house visitation in Kuppamu. This system worked well and almost every case that occurred was brought to light. Coolies were difficult to procure for disinfecting houses and when procured demanded high wages. One native officer, five non-commissioned officers and forty-two men of the 14th Madras Infantry were therefore sent to Kuppamu for plague duty. Here, as in other places, a reasonable amount of compensation was paid promptly to the owners of houses for the loss sustained by them during the process of disinfection and this made them submit quietly to the plague measures.

10. From Robinsonpet the disease spread gradually to Kothapet and ultimately to Pathapet. The town being small and the people being comparatively law-abiding, Mr. Scott Elliot was able to induce nearly 50 per cent. of the cases to go into the camp. Disinfection was carried out in the manner prescribed in the regulations.

11. The only step taken by the people of Kuppamu to protect themselves was the complete evacuation of the town. Inoculation was not resorted to as freely as it should have been. The total number inoculated in Kuppamu is 450, but this includes also a number of people belonging to surrounding villages who were inoculated at Kuppamu. There were five attacks and two deaths among the inoculated. The evacuation of the town was complete by the beginning of April, small huts being provided in the fields for people who could not find accommodation for themselves. The disease died out almost immediately after the evacuation. All the houses were disinfected before the owners were allowed to re-occupy them.

12. The number of cases imported from Kuppamu to other villages was only five. The total number of attacks and deaths in Kuppamu was 106 and 78, respectively. Five per cent. of the attacks were pneumonic and the rest bubonic. Forty-six cases were treated in the plague camp. Of these 28 or 60·87 per cent. died. Among 60 people segregated and treated in their own homes, 50 or 83·33 per cent. died. Almost all the people attacked were Hindus and 50 per cent. of the total number attacked were coolies.

13. *Vellore.*—The first case of plague in Vellore was reported in the Saidapet ward on the 3rd January 1899. The source of infection was not traceable but it was probably due to the large number of people from Bangalore who had settled in the vicinity. It was, however, elicited during the course of enquiry into this case that dead rats were found in two houses in the adjoining street and that the owners evacuated them immediately. It also appeared from enquiries that there were some recent deaths from plague in the same street which were all returned falsely as deaths from other causes. Fresh cases followed in the same street within a few days, and the disease spread rapidly to other parts of the town. The Bakers' street and two streets adjoining it were the worst affected.

14. Immediately after the outbreak, a Special Plague Officer and an additional Medical Officer were appointed solely to attend on plague cases in the town. The preventive staff prescribed in G.O., No. 522 M., dated 13th March 1899, was entertained. A plague camp was erected near the town. A detachment of 100 sepoys with an European officer was got for disinfection purposes. Inspection stations were started on the roads leading from Vellore to Katpadi and from Vellore to Arcot and all passengers going out of Vellore town were examined at these stations. It was impracticable to establish stations at the other roads leading from Vellore. Observation circles were established round the town to a radius of 10 miles to prevent the spread of the disease. All railway stations at which passengers from Vellore could book were notified under Government sanction for the purpose of the passport rules.

The observation circles already existing within the town were found to be too extensive for five Inspectors to manage and an Assistant Plague Inspector was therefore appointed to each circle. A vigilance committee consisting of the leading members of the town was formed to assist the Special Plague Officer in carrying out the plague measures, but this committee like similar committees formed in Arcot and Wallajah rendered no help whatever to the Special Plague officers. Major Bannerman and two Government nurses, Misses Hawdon and Bleaney, were employed on inoculation work and 2,049 people out of a population of 44,925 were inoculated.

15. The prevention of the concealment of plague cases was the most difficult task in Vellore. People adopted every conceivable means to conceal cases and it was difficult to prevent the concealment.

16. The attitude of the people was by no means conciliatory especially at the beginning of the outbreak. They objected at first to the medical inspection of the sick and the dead but they became more amenable latterly. Camp segregation was unpopular at the beginning, but the kind and careful treatment accorded to the few persons segregated in the camps has made it more liked of late. The total number of persons attacked in Vellore was 184. Of these 167 or 90·76 per cent. died. Twenty-nine out of 184 persons attacked were segregated in the camp and 13 of them or 44·83 per cent. recovered. Of the persons segregated in their homes almost all died.

17. A large proportion of the population left the town. There was a talk at one time about building caste hospitals and camps but the matter never got beyond the talking stage. The Brahmins of the place subscribed about Rs. 300 among themselves and were prepared to erect their own hospital but for some reason or other they gave up the idea.

18. Disinfection was carried out by sepoys in the manner prescribed by the rules under the supervision of the Special Plague Officer and the additional Medical Officer. The Bakers' street and two other streets adjoining it, which were severely visited, were barricaded for about six weeks and every house in them thoroughly disinfected. The people also evacuated Fowl Parachari, a small infected suburb of Vellore and encamped on a hill with the result that no more cases occurred among them. The total number of houses infected in Vellore was 189 and in none of them did any fresh cases occur after their disinfection. 76·68 per cent. of the attacks in Vellore, were among Hindus; 14·49 per cent. among Muhammadans and the remainder among the several other classes. 22·90 per cent. of the attacks were pneumonic and 77·10 per cent. bubonic.

19. *Arcot.*—In the course of his enquiry in Vellore about the first indigenous case that occurred in that town, Mr. Batten heard accidentally that plague cases were occurring and being concealed in Arcot. Enquiries were made and on the 13th of January the first authentic case of indigenous plague was detected and reported. This was followed by other cases at short intervals, and by the end of January the disease had taken firm hold of the town. There was no previous history of infection in the first case reported. It was probably brought by people from Bangalore.

20. The Sub-Collector proceeded to Arcot, as soon as he heard of the first indigenous case and made the following arrangements. The town was divided into six circles and a Circle Inspector was appointed to each circle. A retired Police Inspector was appointed as the supervisor of all the circles. A vigilance committee was formed of the leading members of the several communities. A plague camp was erected at a suitable spot and a detachment of sepoys was obtained for carrying out disinfection. A Special Plague Officer and an additional Medical Officer were appointed to superintend the plague operations. The second ambulance staff stationed at Vellore was also sent out to Arcot for plague duty.

21. The Circle Inspectors went their rounds twice daily accompanied by three constables or peons reporting the cases found by them to the Supervisor after each round. They posted a constable or a peon over a house immediately they found an actual or a suspicious case in it and this guard remained until the medical officer arrived and pronounced his opinion on the case. The guard was withdrawn if the medical officer did not think it to be a plague case, and continued if it was. The disinfecting parties were sent to the infected houses on the next day and finished their

work on the same day. The batta due to segregated persons was paid in advance every morning. Cases occurred in all the parts of the town but Chandapet and Annampoliem situated in the heart of the town were the localities worst affected.

22. Camp segregation was never popular in Arcot, but Captain Pearse, the Special Plague Officer, introduced a system of segregating patients and their contacts in ready-made mat huts shaped like the top of a bullock cart or jutka. These huts were set up whenever required in the backyard of infected houses or in open spaces near them and the people were generally willing to occupy them for the required period.

23. The attitude of the people was generally indifferent. They did not resort to inoculation freely nor did they take any steps to prevent the spread of the disease. They emigrated to other places in large numbers. Some of the people in Topekana, a suburb of Arcot, came forward with a proposal to erect their own hospital but the proposal was never carried out in spite of the encouragement of the Special Plague Officer. One individual named Sundra Mudaliar of Arcot rendered good service by disinfecting houses, erecting huts in the part of the town occupied by him and distributing native medicines.

24. The Special Plague Officer had at one time entertained the idea of disinfecting all the abandoned houses in the town, but he gave this up when he found that no plague cases had broken out in 40 out of 121 abandoned houses which were re-occupied before disinfection.

25. The total number of attacks and deaths in Arcot were 182 and 154, respectively. 70·96 per cent. of cases were bubonic. There was only one case of pneumonic plague. In the remaining cases no enlargement of glands was visible. 18·13 per cent. of the attacks were among Muhammadans and the rest among Hindus of all castes. Cultivators and coolies were the people most affected.

26. *Wallajah and Ránipéttai.*—It was not until some cases of plague had been concealed and a general exodus of the people had commenced that the existence of the disease in these two places was brought to the notice of the authorities. The first reported cases in Wallajah occurred on the 18th January 1899. Mr. Ashe was the *ex-officio* Chairman of the municipality, and he did his best to stamp out the disease. The municipality had only two observation circles before and these circles having been found to be too extensive, the town was divided into four circles and an Inspector appointed to each. A Divisional Inspector was appointed to supervise the work of all the Inspectors. The preventive staff required under G.O., No. 522 M., dated 13th March 1897, was entertained immediately. Coolies were available for carrying out disinfection work and no detachment of sepoys was therefore sent for. A Special Plague Officer and an additional Medical Officer were appointed to superintend the plague operations both in Wallajah and Ránipéttai. Observation circles were started round these towns in contiguity with those already established round Vellore. All railway stations between Jalarpet and Sholinghur were notified by Government for the purpose of passport rules. A vacant building on the outskirts of Wallajah town had already been chosen for the purpose of a plague camp and a fresh camp was erected in Ránipéttai.

27. The method employed for the detection of cases was similar to that employed in Arcot and Vellore. Camp segregation was unpopular here, as in other places, and only seven cases in Wallajah and two cases in Ránipéttai were segregated in camps. The rest were segregated in their own houses. Disinfection was carried out in the manner prescribed in the regulations by parties of coolies under the supervision of the plague officers. Reasonable compensation was paid to the owners of houses for the loss sustained by them in the process of disinfection. No fresh attacks have occurred in houses once disinfected.

28. There were, on the whole, 58 attacks and 41 deaths in Wallajah; and 94 attacks and 47 deaths in Ránipéttai. The disease was, it will be seen, of a comparatively mild type in Ránipéttai. The total number of houses infected in Wallajah was 58 and in Ránipéttai 68. Almost all the attacks reported in Wallajah and Ránipéttai were among Hindus and it is therefore suspected that there has been some concealment of cases among Muhammadans.

29. No steps were taken by the people themselves to check the spread of the disease. They were not, however, hostile towards plague measures. About 200 people were inoculated by Major Bannerman and Dr. Hanna.

30. Cases were imported from Vellore, Arcot, Ránipéttai and Wallajah to outlying villages but such cases never spread. No indigenous case was reported in any of the villages round Vellore. A few sporadic cases of indigenous plague occurred in villages round Arcot and Wallajah, but prompt steps were taken to stamp them out. A description of the measures taken to combat the disease in these cases is probably unnecessary.

31. The following statement gives the number of attacks and deaths which have occurred since the commencement of this year :—

Months.	Imported.		Indigenous.	
	Seizures.	Deaths.	Seizures.	Deaths.
January 1899	9	6	51	42
February ,, ...	24	20	185	139
March ,, ...	15	14	113	93
April ,, ...	3	3	48	28
May ,, ...	7	3	19	6

It will be seen from the above that the disease raged virulently in the month of February and gradually subsided in the succeeding months. At present there are plague cases only in Ránipéttai. A statement showing the towns and villages affected in each taluk and the number of attacks and deaths (imported and indigenous separately) which took place in each village is appended below :—

Taluks and Municipal Towns.	Imported.		Indigenous.	
	Seizures.	Deaths.	Seizures.	Deaths.
Chittoor Taluk.				
Chittoor	4	2	..	..
Jangalapalle	5	4	..	..
Veppalai	1	1	..	..
Virantangal	1	1	..	..
Graemspet	1	1	..	..
Velkur	1	1	..	..
Kalavagunta	1	1	..	..
Chandragiri Taluk.				
Chandragiri	1	1	..	..
Perur	1	1	..	..
Mangapuram	1	1	..	..
Palmanér Taluk.				
Patrapalli	1	1	..	..
Gudiyáttam Taluk.				
Tiruvallam	1	1	9	7
Rachampattu	1	1	..	..
Valathoor	1	1	..	..
Katpadi	1	1	..	..
Venkatapuram	1	1	..	..
Reddimanguppam	1	1	..	..
Latteri	4	4	..	..
Vadaviringipuram	2	2	..	..
Kangayaneliore	1	1	..	..
Darapadavedu	1	..	..	..
Perambadi	1	1	..	..
Peranambat	2	1	..	..
Kilpatti	1	1	..	..
Vellore Taluk.				
Pallikonda	3	2	2	2
Sirukanchi	1	1	..	..
Tellur	2	2	..	..
Thorapadi	1	1	..	..
Virinjipuram	2	2	..	..
Kalanipakkam	1	1	..	..

8. Soon after Mysore was declared infected according to G.O., No. 1001 P., dated 3rd September 1898, frontier road inspection stations were organised on the Mysore frontier to prevent importation by road from Mysore into this district. Four such road inspection stations were opened, namely, (1) to the west of Kothur, where the Bangalore enters Punganúru; (2) to the west of Allikuppam in Punganúru; (3) to the east of Patrapalli, where roads from Kolar and Kuppamu meet; (4) at Guntasettipalli. At these stations segregation camps and hospitals were erected, equipped and manned under the immediate orders of the revenue authorities, and medical subordinates of the nearest dispensary or hospital ordered to take charge at once and continue till relieved by special plague medical subordinates. All arrivals from Mysore and other infected localities, particularly from Bangalore, were given passports either at road frontier stations or at their station of destination by rail in this district and were strictly watched for a full period of ten days.

9. Imported cases which were few and far between in August and September began to increase in number in different parts of the district, all being traceable to Bangalore or other parts of Mysore.

10. In every case no time was lost in promptly taking the necessary steps towards the isolation of the sick and the segregation of the contacts either in camp or in their own houses.

11. Disinfection of contacts and of all suspected articles, house, &c., by perchloride of mercury solution and, wherever feasible and practicable by fire, was done. Thatched houses were burnt, tiled houses untiled and exposed to sun-light and heat, and the infected flooring, wherever practicable, was treated by the kiln method and in other cases with perchloride of mercury solution. Information as to the occurrence of plague was transmitted by wire and the nearest medical subordinate was on the spot and in most cases conducted the operations under the immediate and personal orders of the Collector and Sub-Divisional Officer and the District Surgeon or the Assistant Surgeon.

12. According to G.O., No. 1001 P., dated 3rd September 1898, and Dis. No. 104 P. of 1898, an ambulance staff consisting of two European nurses, two hospital assistants, one sanitary inspector and other menial servants was formed and stationed at Palmanér so as to meet any demand on the Mysore frontier and also to proceed to any part of the district under the Collector's orders. The staff was to advise and assist the Revenue officials in suppressing the plague. Orders were issued from time to time by Government prohibiting pilgrimage to all the important shrines and festivals in different parts of the district.

13. Another ambulance staff was organised and stationed at Vellore to meet any demands in the plains.

14. On 28th October 1898 Major Bannerman, I.M.S., visited Vellore, and after lecturing on the advantages of inoculation against plague initiated inoculation and on that same day ninety were inoculated, the Collector and the Sub-Collector setting the example.

15. Till the end of December 1898 the methods thus employed worked very satisfactorily and except in a few isolated instances, *e.g.*, at Wallajah, Marudambakkam, Sholinghur and Pallikonda, contacts of almost all the imported cases escaped the infection and were after the due period discharged.

16. With regard to the isolation of the sick and segregation of contacts, no force was used to send them to camp. Most of them preferred segregation in their own houses.

17. Mussalmans invariably in every case objected to being removed and were therefore kept segregated in their own houses guarded by the police to prevent egress and ingress. In such cases the patient, whenever practicable, was kept in a separate room.

18. The treatment of the sick as to whether by Vythians, Hakims or by qualified medical men was left to the option of the patient or of his people, and every care and precaution was taken not to wound their caste feelings or religious susceptibilities. In the case of female patients a nurse was always employed to examine and, whenever required, personally to attend to them.

19. In all cases the contacts were disinfected with perchloride of mercury solution, segregated and watched for full ten days and again disinfected and discharged.

20. The corpse was thoroughly disinfected and wrapped with a sheet steeped in mercury solution and buried six feet deep or burnt, and those who took any part in the funeral, either relatives or coolies, were also disinfected and placed under observation for ten days. Regarding the treatment of infected houses and other articles a brief description is given in paragraph 11.

21. Till the end of December 1898 the number of imported cases was 55, of which 48 died, and indigenous cases 6, all fatal. These latter are most of them traceable to infection from other previously imported cases in the neighbourhood.

22. Up to date the total number of imported cases is 114 with 93 deaths.

23. *Indigenous Plague.*—The first case of indigenous plague in Kuppamu was reported on 2nd December 1898, and on the occurrence of the same the Collector, Sub-Collector and the District Surgeon proceeded immediately to make the necessary arrangement there. Special Plague officer, Lieut. Scott-Elliot, was stationed at Kuppamu to carry on plague operations there and the Assistant Surgeon directed to remain there, as a temporary measure, to advise on medical and sanitary matters.

24. On 4th January 1899 one half of the ambulance staff was despatched from Palmanér to Kuppamu and there placed under the immediate orders of the Special Plague officer.

25. Necessary arrangements were made for a plague camp to which patients and contacts were removed. Cases began gradually to increase in number and the disease spread from house to house and street to street. The town became panic-stricken, and the people in the vicinity evacuated their houses and fled to the neighbouring villages. Such evacuation was not objected to. The town was divided into three circles and placed under strict observation. The Hospital Assistant and Sanitary Inspectors were directed to go from house to house and street to street in their respective circles to examine and report on any suspicious cases.

26. Patients and contacts in the majority of cases went into camp and the rest were segregated and watched at home. Thorough disinfection of infected houses and other articles was done with mercury solution or fire or both, and all excreta disinfected, covered with sawdust and burnt with kerosine-oil.

27. When the town was in a state of panic, no coolies could be got to do disinfection work and even the menials of the ambulance staff threatened to strike. Matters were represented to the Collector and a detachment of 14th Regiment, Madras Infantry, was got for carrying on the work of dismantling infected houses and of disinfection, etc. The Assistant Surgeon inoculated all the privates and the Native officer of the detachment, and the people who had been averse to inoculation slowly came forward, and in the course of three weeks over 200 were inoculated. These were followed cheerfully by an equally large number later on. Dr. A. F. Page joined the staff at Kuppamu and assumed charge as Plague Medical officer. The town became deserted and the number of attacks gradually went down. All uninfected houses that had been evacuated were not allowed to be re-occupied without being previously disinfected. The number of indigenous cases in Kuppamu up to date is 97 with 79 deaths.

28. *Vellore.*—The first case of indigenous plague in Vellore was reported as having occurred in old Munsif's Court street, Saidapet, on the 5th January 1899. The second case occurred in the neighbourhood, and the District Surgeon, Collector and Sub-Collector were wired to by the Assistant Surgeon. They promptly arrived the same day and the disinfection of the houses and other infected articles as well as the contacts was immediately done and these latter were segregated in their own houses. Other cases followed in rapid succession in the same street and its vicinity. Rats were found dead in some houses and some of these were voluntarily vacated by the inmates.

29. Observation and preventive staffs were organized without delay. The town was divided into five circles each to be patrolled by a Circle Inspector, and all the five were placed under Divisional Inspectors.

30. According to G.O., No. 80 P., dated 11th January 1899, Vellore was declared plague-infected and arrangements made for providing passports to persons leaving Vellore by road or by rail, and later the infected area was declared to be comprised between Kalambur and Pákala on the South Indian Railway line and between Sholingur and Jalarpet on the Madras Railway Company line, so that one travelling from within these limits to any other place was required to take out a passport. Every case of plague or of suspected plague and the house and contacts, etc., were treated as per regulations. All deaths from suspicious causes were reported at once and Hospital Assistant T. D. Thomas of the municipal hospital examined the corpses, the hospital nurse doing such work in the case of women, and any corpse clandestinely disposed of was treated as one of plague.

31. The services of the District Surgeon and the Assistant Surgeon were frequently required elsewhere in the district and therefore Special Plague Medical officer Dr. W. B. Edwards and Special Plague officer Capt. A. Ffrench were appointed for the municipality of Vellore to conduct plague operations. A detachment of the 28th Regiment, Madras Infantry, under Lieutenant Sherrard was got down for the work of disinfection, etc., and soon after their arrival they were all inoculated.

32. The plague camp beyond the river Pálár built by the municipality proved to be of no utility on account of its distance from the town. Another was ordered to be put up on the fort glacis and placed under the charge of Dr. Edwards with a senior Hospital Assistant to help him. The examination of plague cases, genuine or suspected, in the town was done by Dr. Edwards and 3rd-class Hospital Assistant Saiyid 'Abd-ul Rahím, and in the case of women by Miss Bleaney (lady nurse), who always most readily and cheerfully co-operated, and by Mrs. Turner who also worked cheerfully.

33. While plague was gradually thus spreading, cholera had been at work in different parts of the town and claimed a large number of victims. Second-class Hospital Assistant Thomas, who was put in charge of cholera duty, did hard work and succeeded in stamping out the sister epidemic by his own exertions and that of his superior officers. Major Bannerman, I.M.S., returned to Vellore to do inoculation early in January last and during the course of a fortnight he inoculated over a thousand and popularized inoculation. This preventive measure was continued by Miss T. Hawdon (lady nurse) and the Assistant Surgeon. The total number inoculated till now is about 2,030.

34. The Chairman by beat of tom-tom announced the reward of 3 pies for each rat captured or killed and shown and then caused them to be destroyed by fire.

35. The plague that was confined to one street spread to other part of Saidapet and later to other parts of Vellore.

36. On 27th January 1899, road inspection stations were formed at the Pálár bridge on Vellore-Katpadi road and at Sutvachari on Vellore-Arcot road and sanitary inspectors and nurses were appointed to examine passengers by road from Vellore towards Katpadi and those leaving Vellore by the Arcot road as well as those entering into Vellore by the latter road from Arcot, Ránipéttai and Wallajah.

37. Isolation of patients, segregation of contacts and disinfection, etc., were carried on on the same lines as at Kuppamu above described, but most people in Vellore preferred home segregation to camp. Twenty-nine cases of plague were admitted into the plague-sheds, and of these 13 recovered and 16 died. The contacts in connection with these cases were segregated in camp and these numbered 187.

38. The apparatus used for disinfection with mercury solution was the Chinese pump, but it was found not to work well and was replaced by the one invented by Lieutenant-Colonel W. G. King, I.M.S.

39. The number of cases gradually began to go down since April and since then the disease has shown no tendency to recrudescense. The last case reported after an interval of three weeks was on the 26th instant, the total number up to date being 184 seizures and 168 deaths.

40. The results of treatment in the plague-sheds is highly encouraging, and this as well as the early disappearance of the disease so soon when it was feared it might assume severe epidemic proportions is to a great extent attributable to the exertion of Dr. W. B. Edwards and the rest of the plague staff.

41. *Wallajah, Arcot and Ránipéttai.*—These three towns being near each other may be treated under one heading. A few imported cases had begun to occur there from September 1898, and the first indigenous case was reported on 13th January 1899. The nearest medical subordinate under the directions of the Collector and District Surgeon promptly carried out the necessary preventive and sanitary measures. A camp was put up in Wallajah and later in Ránipéttai, and on 4th February 1899 two special Plague officers and two special Plague Medical officers—one of each for Wallajah and Ránipéttai and the other for Arcot—were appointed. A detachment of the 14th Regiment, Madras Infantry, were got down inoculated and utilized for the work of disinfection, etc. The detection of cases of isolation at home or in camp of the sick, the segregation of the contact and disinfection of persons, houses and other articles suspected to be infected, were carried out as per regulations and on the lines followed elsewhere in the district as described above. Here, also, the disease has been seen gradually to decrease in virulence since April last. Up to date there have been—

	Seizures.	Deaths.
In Arcot	185	157
In Ránipéttai	78	54
In Wallajah	58	41

42. Inoculation in these towns has not been as popular as may be desired.

43. *Tirupati.*—There were only three indigenous cases in this town between the 21st and 28th January 1899 and were attended to by the local medical subordinate and Revenue officials.

44. It may be seen from the above that the preventive measures promptly adopted as per regulations proved to be a considerable success in combating plague, and inoculation contributed its own share.

45. I must now conclude, and before I do so I feel I must express my hearty thanks to all the medical subordinates of the district who readily and willingly co-operated and acquitted themselves very well indeed, and of these I may especially mention the following names:—

(1) Civil Apothecary M. D. Gnanamani of Ránipéttai.
(2) Second-class Hospital Assistant T. D. Thomas of Vellore.
(3) Third-class „ Md. Jamál-ud-dín Sahib of Vellore.
(4) „ „ Saiyid 'Abd-ul Rahím.
(5) First-class „ S. C. Winslow of Wallajah.
(6) „ „ Davasigamani Mudaliar of Arcot.

The undersigned has been all along at head-quarters (Vellore) doing jail and office duties.

Lieutenant-Colonel J. Lancaster, I.M.S., had a very trying time of it and was always on the move in different parts of the district. His arduous work, hearty co-operation and winning manners always contributed much towards success. I feel great pleasure in particularly bringing to your notice the good work done by Assistant Surgeon P. N. Lakshmanan who shared almost equally with Lieutenant-Colonel J. Lancaster in plague work in the district. Wherever he was sent to, whether amidst a panic-stricken or obstinate people, he rose equal to the occasion, won their confidence and acquitted himself remarkably well, and always proved himself energetic and successful.

My best thanks are also due to the Collector (late and present), to the Sub-divisional officers, Revenue officials and to special plague officers and plague medical officers in the district for their invaluable aid and willing co-operation.

SALEM.

From R. B. CLEGG, Esq., I.C.S., Collector and District Magistrate, Salem, to the Secretary to Government, Local and Municipal Department (through the Sanitary Commissioner and the Surgeon-General), dated 20th July 1899, No. 1310-P.

I have the honour to submit the report regarding the measures taken to combat the outbreaks of plague in this district called for in Plague Commissioner's letter No. 4608 of the 1st May last.

2. *Passport system.*—This system as laid down in G.O., No. 466 P., dated 13th May 1898, was introduced in the district in June 1898. Special passport-issuing officers were appointed by the municipal councils of Salem, Tiruppattúr and Vániyambádi at the railway stations of Suramangalam, Tiruppattúr and Vániyambádi. After the inspection station was opened at Jalarpet, the Chief Medical officer was appointed passport-issuing officer and local authority of the place. The District Medical and Sanitary officer was the local authority for the town of Salem. Medical subordinates and station-house officers performed these duties at 22 and 77 towns and villages, respectively, village munsifs being the local authorities in other places. In the beginning a comparatively small number of passports was issued, but they increased enormously as the Bangalore district and subsequently the whole of the Mysore Province were declared infected. The passport work was supervised by the District Medical and Sanitary officer for a few weeks and then I transferred the work to my own office; 49,777 passengers were intimated up to the end of May last. Of these 34,309 either underwent observation or left the district before the expiry of the ten days' period, 1,340 persons have not been traced and in the remaining cases the passports have yet to be recovered or accounted for by Tahsildars and Chairmen of municipal councils. These mostly appertain to the earlier period when the regulations were not well known to persons who attended our shandies and returned to their villages in the Mysore territory in the evening. Persons who failed to take out passports or to undergo observation regularly were reported to me or the Divisional officers, and in the absence of reasonable explanation they were prosecuted. The number of prosecutions instituted up to the end of May was 191.

On the whole the system has worked satisfactorily and has enabled us to detect and deal promptly with the majority of the imported cases that have occurred.

3. *Jalarpet railway inspection station.*—This was opened on the 22nd August 1898 and the examination of trains was conducted by the District Medical and Sanitary officer for a week until the special Medical officer Dr. Beit arrived on the 28th idem. At the outset the inspection staff consisted of one doctor, one retired assistant surgeon, two inspectresses and two hospital assistants. The first case of plague was detained on the 3rd October 1898, and by the end of the month the number of plague cases in the camp rose to eleven seizures and seven deaths. A large number of passengers were also detained for observation, so that it became necessary to replace the assistant surgeon by a doctor and to increase the subordinate staff both in the camp and in the platform. Some further additions to the staff were made in January when plague having broken out at Vellore and other places in the North Arcot district, the examination of westward trains was started. The staff at work on the 30th June 1899 consisted of three doctors, six hospital assistants, five nurses, nine clerks, one store-keeper, one engine driver, one fireman and 23 servants. Of these one hospital assistant and one nurse with a staff of servants are exclusively attached to the hospital camp.

The camp is divided into three main parts, viz., (1) the disinfection camp, (2) the suspect camp, and (3) the plague hospital with its staff quarters. The last is situated at a distance from the other two which are near the railway station. The suspect camp is capable of accommodating 160 natives (male and female) and contains two separate sheds for European male and female suspects. There are separate observation sheds attached to it in which persons of suspicious sickness are segregated until plague symptoms become pronounced. The hospital camp contains accommodation for sixteen native patients (male and female) and two sheds for Europeans. Besides these, separate wards are built for Panchamas. Up to the end of June last the number of plague patients detained in the hospital was 77, of whom 45 died. The number of persons kept under observation excluding those who were disinfected and discharged amounted to 10,936.

4. The inspection station at Jalarpet was for a few weeks evaded by passengers from the Bangalore side who alighted at Pachur, a small station at a distance of 7 miles to the west of Jalarpet; they thence proceeded by road to Tiruppattúr or Vániyambádi and took train there. I made inquiries and went to Pachur in October. Finding a large number of passengers alighting there who were not *bonâ fide* travellers to villages near Pachur, I posted a special hospital assistant with two police constables to strictly enforce the original Mufassal Regulations 18 and 19. The passengers from Bangalore then resorted to rebooking at the intermediate stations within the limits of the Kolar and North Arcot districts so as to make it appear that they were not coming from an infected area. As a result of inquiries the passport rules were applied to all the stations on the Bangalore line to the west of Jalarpet. This course effectually prevented evasions by rail.

5. *Road frontier stations and Observation circles, etc.*—Simultaneously with the establishment of the inspection station at Jalarpet, the district was placed under "observation." After making the necessary arrangements at Jalarpet in consultation with the Sub-Collector and after inspecting some of the lines of communication from the Mysore territory, frontier stations were opened on all the seven main routes at Zuzuvadi, Kothakondapalli, Komaranapalli, Gummalapuram, Kagganur, Berikai and Bagalur. The sites for the stations were chosen either by myself or the Sub-Collector. Pending the arrival of special plague assistants for whom the Surgeon-General was addressed, some of the outlying dispensaries were closed and the hospital assistants deputed to these stations, and six out of seven stations were opened before the close of August and the other station on the 11th September 1898. Portions of the Hosúr and Krishnagiri taluks adjoining the Mysore territory to a depth of twenty miles were divided into twelve circles of two rows, each circle being ten miles in diameter. They were placed in charge of sanitary inspectors obtained through Sanitary Commissioner. Four circles were formed into a group and a Supervisor was appointed to each group. The Supervisors were salt Sub-Inspectors. An ambulance staff was organized and kept in readiness at Hosúr. An additional medical officer was also posted at Hosúr to assist the District Medical and Sanitary Officer. The supervision of the working of the frontier stations was entrusted to the Sub-Collector, while the observation staff, the ambulance staff and the medical duties in frontier stations were placed under the orders of the additional medical officer subject to the supervision and control of the District Medical and Sanitary Officer.

6. The Municipal Councils of Salem, Tiruppattúr and Vániyambádi were also warned with reference to rule 5 of the rules sanctioned in G.O., No. 522 M, dated 13th March 1897, to appoint the necessary observation staff, to provide hospital and segregation camps and to prepare themselves against the epidemic.

7. The station house officers and village officers were instructed to prevent the entry into their villages of persons coming without passports and taught what they should do on the occurrence of a suspected or actual case of plague. The Divisional officers, Tahsildars and Deputy Tahsildars were directed to give particular attention to the supervision of the work.

8. *Destruction of rats, &c.*—In the municipalities of Salem, Tiruppattúr and Vániyambádi the grain bazaars were frequently inspected by the municipal officials and rats found in grain bags and godowns were killed and burnt. Elsewhere Tahsildars and Deputy Tahsildars did the same both at their head-quarter towns and in the villages visited by them in their tours and instructed people personally and through the village officers to frequently search for these rodents, to have them killed and burnt. The good sheds attached to railway stations were frequently inspected for this purpose by the district as well as railway officials.

9. In the beginning of December 1898 rewards were offered for the destruction of rats, bandicoots and mice at 3 pies per head in the unions of Denkanikotta, Hosúr and in the first row of observation circles adjoining the frontier, viz., the circles of Thali, Mattigiri, Bagalur and Berikai. The system was subsequently extended to the Krishnagiri union and to the remaining observation circles. The expenditure incurred under the head from Local Funds amounted to Rs. 41-4-3.

10. The ordinary sanitary precautions were more closely attended to especially in the villages of the observation circles. Both district officials and the plague staff during their rounds had villages cleaned up. Choultries and other public buildings where travellers from infected areas, especially the Mysore territory, used to halt were disinfected at regular intervals, the sweepings and rags or other waste matters left by travellers were burnt.

11. *Commencement of Plague.*—The first imported case of plague was discovered in this district at Hosúr on the 26th August 1898, *i.e.*, within less than a fortnight of

the outbreak at Bangalore. He was a weaver who had arrived two days previously from the Bangalore city. He had high fever and enlarged glands, and a younger brother of his had died of plague at Bangalore ten days previously. It was, therefore, undoubted plague. Myself and the District Medical and Sanitary Officer were at Hosúr at the time. The patient was isolated in a mantapam 1½ miles from the Hosúr town and a younger brother who subsequently developed plague was also sent to join him. A guard was placed at the mantapam to prevent them from having any communication with others; the contacts were segregated and their houses thoroughly disinfected under the supervision of the District Medical and Sanitay Officer. The next imported case was that of a man who was found on the road near Krishnagiri. On removal to the hospital he became unconscious, had a bubo in the left groin and died shortly afterwards. This occurred on the 12th September 1898. I deputed the Sub-Collector to the place at once to make careful enquiries and find out his contacts and to have them segregated and to disinfect the places where he remained. Subsequently two cases occurred at Medinakuppam and one at Vartanapalli both being villages not far from the place where the last preceding case was found. The huts where the patients were isolated were burnt and the contacts kept under observation. The necessary disinfection was carried out under the supervision of the special medical officer Dr. Thomas. I myself then proceeded to the villages in question, and learnt that people from Bangalore were returning to these villages from the Kuppam railway station in North Arcot and thence by a jungle footpath. The villagers were instructed to keep out all arrivals for ten days which they very willingly carried out. While at Krishnagiri I got a wire of a suspected plague death of a Muhammadan girl at Vániyambádi and that there was serious opposition to all measures. I hastened to the place and all that took place there has already been reported to Government—*vide* G.O., No. 1365 P., dated 25th October 1898.

12. Since then the number of imported cases gradually increased, the number of attacks in October and November 1898 being 25 and 35, respectively. A large portion of these occurred in villages in the Hosúr and Krishnagiri taluks and they were inspected and precautionary measures enforced either by the additional medical officer, the Sub-Collector or the special plague officer who was posted to Hosúr about the middle of September. Those detained at the frontier stations were attended to by the Hospital Assistants attached to the frontier stations and elsewhere by the hospital assistant of the Ambulance Staff or of the nearest dispensary, subject to the orders of the additional medical officer. The burial or burning of the dead and the disinfection of their goods and the places occupied by them were carried out by the ambulance sanitary inspector or the circle inspector under the supervision and orders of one or the other of the above three officers. These officers also attended to the segregation of all contacts.

13. In this connection I may state that our arrangements were greatly supplemented by the efforts of the people in the Hosúr taluk. In almost every village in that taluk the people appointed their own agency (paid out of subscriptions) to watch arrivals from other places. People from infected villages were kept isolated at a distance for 10 days. People of one village were not allowed to go to another even to purchase necessaries without permission and except under surveillance.

14. *Indigenous Plague.*—The people of Mattigiri were trading stealthily with Bangalore and they appear to have brought infection with their goods. Besides, there was constant communication between the Remount depot and Bangalore. The first case was that of a tailor at Mattigiri bazaar who was seized on the 29th November and died on the 30th. The contacts were segregated in the sheds temporarily erected by the Remount depot. The tiles of the infected house were entirely removed, the interior of the house was drenched with perchloride solution and the clothes and bedding of contacts were disinfected near their sheds, the remainder of their property being exposed to the sun. The second case was attacked on the 5th December. About a dozen houses including those in which these two cases occurred formed a separate block; these were untiled and disinfected; dead rats were found in the houses and in ditches with enlarged glands. There was one attack on the 8th, another on the 9th idem and two on the 10th. The disease established itself and rapidly spread so that on the 11th and 12th there were ten attacks and four deaths.

I proceeded to Mattigiri on the 11th December. The patients were segregated in their own houses and the contacts in the chattram. Arrangements were made with the Superintendent of the Remount depot and the sepoy lines were converted into a plague hospital. A site on a high ground was at the same time selected and sheds with bamboo mats constructed thereon for segregating contacts. As several deaths occurred among contacts in the chattram, the latter was vacated and the contacts were removed into the new sheds as soon as they were ready. People were advised to evacuate and they, with a few exceptions, readily did so. A number of tents were procured from Madras and lent to some. The rest erected speedily temporary sheds and field huts and removed from the village. Most of these huts were in the owners' fields and in scattered camps. About the middle of the month, Sepoypálaiyam Kudiraipálaiyam and Godipálaiyam, which are portions of the Remount depot, occupied by its employés, were affected. The Superintendent of the Remount depot directed such of the depot servants who had not been attacked to evacuate their houses; they were at first housed temporarily in a depot building and afterwards removed to temporary sheds or into tents put up for them by the depot Ultimately every house was completely evacuated and the local police set to prevent persons re-entering their houses, but this was not effectively done. There were also cases in these sheds which having thus become infected were burnt and the contacts removed to the segregation camps. Plague cases within the depot limits were sent over to our hospital, but arrangements were made with the depot authorities that they should look after their own contacts. The Mattigiri circle was divided into three sub-circles and a sanitary inspector was appointed to each of them. The ordinary circle inspector was posted for duty in the infected village. The first ambulance was moved from Hosúr to Mattigiri and they were placed in charge of the plague hospital and the segregation camp subject to the immediate orders of Dr. Noble, the Additional Medical Officer. Mr. Hodding, Supervisor of the Denkanikota group, was placed on special duty at Mattigiri under Captain Ffrench, Special Plague officer, to attend to the untiling of houses, disposal of dead bodies, &c. Mr. Gilby, the Supervisor of the group and the sanitary inspectors were engaged in daily inspecting the sheds and tents into which the people had removed for several miles around. They promptly reported cases of sickness and segregated such cases and their contacts in separate sheds or removed them when convenient to the plague hospital and segregation camp at Mattigiri. There was great difficulty in arranging for the disposal of the dead. Nobody would touch the corpses, not even the near relatives. Special coolies were engaged on a pay of Rs. 8 a month and they were provided each with a pair of common clothing to work in, and the bodies were carried in a hand-cart placed at our disposal by the Depot Superintendent and buried. When the relations had no objection, the corpses were burnt. There were in all 121 cases at Mattigiri including the Remount villages, Kudiraipálaiyam, Godipálaiyam and Sepoypálaiyam, of which 89 proved fatal.

15 The evacuated houses were full of property and the owners had left locking them up. This was a source of difficulty. They were required to remove their things to the fields where they were exposed to the sun every day and the circle Sanitary inspector was required to see this done. Labour was not available for disinfection as people were afraid to go into the infected houses. With difficulty some coolies were got at 8 annas a day and they worked at disinfection under the ambulance sanitary inspector. The work went on very slowly. A detachment of 25 Sappers was at last procured from Bangalore under the command of a non-commissioned officer. The houses in which cases had actually occurred were disinfected, the floors dug up and burnt and then they were whitewashed. The other houses were drenched with perchloride of mercury. The roofs of houses were untiled, left exposed for two months and then they were retiled by the owners themselves.

16. The disease next broke out at Zuzuvadi on the 15th December, but being a small village and as the people evacuated their houses promptly there were only nine attacks and six deaths in that village.

17 Indigenous cases also occurred about the same time at Shulagiri. The infection to this village was probably carried by charcoal bags as the village trades in charcoal with Bangalore. Before the end of the month there were 40 seizures and

28 deaths. The weather being wet favoured the disease. The additional medical officer and the first ambulance staff were engaged at Mattigiri. The second ambulance staff which had previously been organized and kept in readiness at Salem was sent there at once and the District Medical and Sanitary Officer took charge of the operations there. A plague hospital shed and a contact camp were built by a party of Sappers deputed from Mattigiri. There was considerable difficulty in procuring supplies for the staff, the village having been evacuated. Supplies were arranged to be got from Hosur. There was the same difficulty here as at Mattigiri in regard to the disposal of the dead. Six toties were engaged at Salem and sent to Shulagiri immediately. Mr. Pell, Supervisor from the Krishnagiri group, was ordered to go round the various camps of the Shulagiri people daily as they scattered themselves in sheds all round the village on being ordered to evacuate. An extra additional medical officer was appointed. Cases continued to occur in the sheds until the people were persuaded to boil their clothes and bedding and to expose their goods to the sun. They here took out all their property with them into the fields. The disinfection of the village was carried out by the Sappers. At first the roofs of houses were entirely removed, but afterwards this was considered unnecessary and they were only removed in strips. At Shulagiri as elsewhere the thatches of all infected houses were burnt, those of uninfected houses being removed in strips to let in light and air. Bamboo framework was in all cases left standing. Whenever cowdung cakes were not available the floors of infected houses scraped off were burnt with straw and kerosine oil. Grain was emptied out of gunny bags and exposed to the sun while the bags themselves were saturated with perchloride, dried and re-washed under the supervision of the circle inspectors. After this the owners were allowed to re-fill the bags with grain. When property of any value was destroyed compensation was paid, but this was rare. Free permits for removing thatching grass from the reserved forests were granted to the people of Kothapalli, Jigur and Mukondahalli, the thatch of whose houses was destroyed in the course of disinfection. There are, however, very few thatched houses in the Hosúr taluk in the larger villages.

18. From Mattigiri, plague spread in January 1899 to Chinna Belagondapalli, Jigur, Sappatti, Edayanallur and Kothapalli. Berikai and Hosahalli in the Shulagiripálaiyam were also infected by the end of the month. At Berikai the people evacuated their houses very promptly and completely on the first suspicion of plague in their midst and this was effective in stamping out the disease rapidly. The Berikai circle was divided into two sub-circles, called north and south Berikai sub-circles, a sanitary inspector being appointed to each. The ordinary circle inspector was placed in charge of the village and the camps around. The gradual extension of the epidemic to many villages in the Hosúr taluk and the severity with which it prevailed at Anekal, Dombasandra, Sarjapur and other Mysore villages close to our borders rendered necessary stricter preventive measures. The guards at the frontier stations were increased and a post at Kembatt was established so that the frontier on the west may be regularly and systematically patrolled and arrivals without passports checked. Ghât inspection stations were established at Royakota and Kurubarapalli so that infection might not spread below the ghâts into the Krishnagiri taluk. A fourth Supervisor was appointed to the observation staff, the extent of each group being reduced to three observation circles so as to ensure better supervision on the part of Supervisors. The Bagalur circle was divided into two sub-circles, east and west, an additional sanitary inspector being posted to it. Groups Nos. I and II were placed in charge of Dr. Noble with the first ambulance corps and the supervision of the plague hospitals at Mattigiri and Hosúr was entrusted to him. Dr. Tebbs was appointed to the charge of the observation groups III and IV with the supervision of the hospitals at Shulagiri, Berikai and Krishnagiri. Seventy-five additional Sappers under the command of a European officer were sent for to complete the disinfection of all the villages.

19. Hosúr was the last important place to become infected. It is gratifying that although plague was severe close to Hosúr on all sides, the infection was kept off for a long while. The people recognized the advantage of evacuation and were making preparations for the purpose. They had no field huts, as in villages, to go to and it was difficult to procure hutting materials. Mats were purchased at Salem and sent to Hosúr and bamboos were also supplied. They were issued free of cost according to requirements of each family and to a value not exceeding Rs. 5 to indigent persons

and public servants drawing less than Rs. 10 per mensem. Those who were in receipt of pay of more than Rs. 10 were given one-half the cost from Provincial funds The annexed statement shows the details of the distribution and the cost of the materials. The total cost to Local and Provincial funds under this head amounted to Rs. 792 andRs. 69, respectively. The majority evacuated the town readily enough, but some families remained behind and some of those who went into sheds kept secretly visiting their houses. The disease was in consequence lingering in the town and sheds till evacuation was made compulsory and entry into the town without passes from the Special Plague Officer was made punishable and a cordon of police and prickly-pear hedges were placed round the town. This had the desired effect. In less than a fortnight the disease almost disappeared though probably the decline was also partly due to the approach of the hot weather. The camps were situated around the town and sufficiently convenient. The usual daily perambulation was made by the observation staff. The houses were disinfected in the same manner as at Mattigiri by the Sappers. The inmates of some of the houses which were merely drenched with perchloride of mercury subsequently developed plague in the sheds. These were marked for further disinfection. The Sappers were permitted to return to Bangalore on the 13th April. Nineteen coolies were then engaged for disinfection on condition of paying them wages at 4 annas per head per diem and batta 2 annas a day when taken out of Hosúr. The weavers of Hosúr, some of whom have sufferred a good deal from want of employment during the prevalence of plague, have taken to this work and the Special Plague Officer reports that they are a success. They have been employed on disinfection work also at Nagondapalli and Mukondahalli and other villages.

Statement showing the number of mats supplied to indigent persons, etc.

Mats supplied to						Number of mats sold.		Remarks.
Indigent persons.		Peons, etc., drawing below Rs. 10.		Officers drawing more than Rs. 10.				
Number.	Cost.	Number.	Cost.	Number.	Cost.	Number.	Cost.	
1	2	3	4	5	6	7	8	
	Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.	
1,086	604 1 8	346	188 8 0	267	137 7 0	569	302 11 8	

20. The annexed statement* shows in one view the number of cases imported and indigenous in various parts of the district and the period of their occurrence. Up to the end of June 468 indigenous cases with 360 deaths and 163 imported cases with 100 deaths occurred. Of these the majority (514 seizures and 384 deaths) occurred in the Hosúr taluk, the remaining cases being distributed between the Tiruppattúr, Krishnagiri and Salem taluks. Only one imported case occurred at Uttangarai. The remaining taluks were free. Including the imported cases the highest number was recorded at Hosúr followed by Mattigiri and Shulagiri, the attacks being between 125 and 100. At Berikai, Jeygoon and Chinna Belagondapalli the attacks numbered between 20 and 25. In other places they were not above 10.

* Not printed.

21. The subjoined statement shows the number of inoculations, the names of places and the officers who performed them. It did not find favour with the people except temporarily at Hosúr and Mattigiri where plague was raging or the outbreak was imminent. At my request a lecture on inoculation was delivered at Hosúr by Dr. Bannerman in December 1898 and at the close of the lecture and on the following day 191 persons including females were inoculated by him. Among those inoculated at Mattigiri, 29 persons were attacked with plague, of whom 16 died. The fact that inoculated persons died destroyed what little faith the people had in inoculation. Most of the cases, however, I believe, were cases inoculated when it was too late, but

this was unfortunately of course not understood. No case of plague has occurred among those inoculated at Hosúr, Mathagondapalli, Krishnagiri, or Salem. Inoculation was not pressed. In order to make it a success we require a sympathetic inoculator in whom the people have confidence.

Locality.	Total inoculations performed up to 30th June 1899. Males.	Females	Total.	Name of medical officer or subordinate who performed inoculations.
Salem town	85	31	116	Lieutenant-Colonel A. N. Rogers Harrison, I.M.S.
Mattigiri and Godipalaiyam	16	14	30	Do. do.
Do. do.	15	3	18	Dr. H. A. E. Noble, A.M.O.
Do. do.	27	18	45	Major Bannerman.
Do. do.	1,245	833	2,078	Captain Dodd, Surgeon of the Remount Depot.
Mathagondapalli	2	2	4	Dr. H. A. E. Noble.
Hosúr	141	50	191	Major Bannerman.
Do.	237	135	372	Civil Apothecary Gibbons.
Krishnagiri	22	17	39	Do. Fernandez.
Total ..	1,790	1,103	2,893	

22. Besides those at the frontier and ghât inspection stations and at Mattigiri, plague hospitals and segregation camps were also established at Shulagiri, Berikai, Hosúr, Krishnagiri and Súramangalam. At Shulagiri the Local Fund chattram was used for the purpose of hospital and accommodated eight cots. At Berikai a shed was erected. Both these were managed by the second ambulance staff. The hospital at Hosúr was built to accommodate two males and two females and was in charge of the first ambulance until they were removed to Mattigiri in December and then the management thereof was entrusted to the local civil apothecary and the hospital was enlarged for ten males and ten females. A health camp at a cost of Rs. 600 was built near Hosúr but it was not freely resorted to by the people. They have, as a rule, a strong objection to going to any sheds especially erected for them by Government, and much prefer their own. The Krishnagiri and Súramangalam sheds provided for four beds each. No case of plague was detained in the latter.

The number of patients treated at each of the hospitals and the mortality among them are shown in the subjoined statement:—

Temporary hospital.	Sex. Males.	Females.	Class of patients treated. Hindus.	Muhammadans.	Total patients treated.	Mortality. Sex. Males.	Females.	Class. Hindus.	Muhammadans.	Total deaths.
Komaranapalli frontier inspection station ..	2	..	2	..	2	1	..	1	..	1
Berikai	4	1	5	..	5	3	..	3	..	3
Kothakondapalli frontier inspection station ..	2	1	2	1	3	1	..	1	..	1
Zuzuvadi frontier inspection station	7	6	8	5	13	4	4	4	4	8
Vániyambádi	2	..	..	2	2	1	..	..	1	1
Krishnagiri	2	..	1	1	2	1	..	1	..	1
Shulagiri	20	11	29	2	31	8	3	11	..	11
Mattigiri	12	23	30	5	35	2	8	10	..	10
Hosúr	25	18	40	3	43	13	11	23	1	24
Total ..	76	60	117	19	136	34	26	54	6	60

23. *Municipalities—Salem Municipality.*—The Council has appointed a military hospital assistant at the Súramangalam railway station to inspect arrivals and passport them. An observation staff consisting of nine circle inspectors and a certificated sanitary inspector has been appointed. The circle inspectors constantly move about their divisions, send all arrivals from infected areas to the local authority for observation and carefully watch the health of the inmates of the houses where they put up. There is a Eurasian nurse who inspects the female travellers at their residences. A

plague camp has been constructed at some distance from the town at a cost of Rupees 1,602. The hospital contains accommodation for four patients. There were only three imported cases in the town—all of which were fatal.

Tiruppattúr Municipality.—The system of observation of travellers arriving from infected areas was started in July 1898. After the Bangalore district was declared infected, a special passport-issuing officer was posted at the railway station and an observation staff consisting of a divisional inspector and a circle inspector was appointed. The provisions of Original Mufassal Regulation I were widely proclaimed, houses were whitewashed and all precautions taken. The number of arrivals increased considerably since January 1899 owing to the outbreak of plague in the North Arcot district. An additional passport-issuing officer was appointed at the station and the observation staff was also strengthened by two more circle inspectors, four toties and three peons. A segregation camp and a plague hospital were provided at a cost of Rs. 1,373. The necessary equipment and stores were kept ready. Eight imported cases occurred, of which six proved fatal. In all these cases the patients and contacts were segregated in their own houses as they were unwilling to go to the plague camp. A special hospital assistant was employed from March 1899 to the end of June 1899 on account of plague and cholera duty.

Vániyambádi Municipality.—The same precautionary measures as at Salem and Tiruppattúr were adopted here. There was a special passport-issuing officer at the railway station, as also an observation staff and a special hospital assistant. A plague hospital and a segregation shed were erected. There were eight imported cases and one indigenous case, of these six proved fatal.

24. The Salt, Abkári and Customs department deputed 30 peons for plague duty and a temporary police establishment consisting of one Police Inspector on Rs. 70, a first-grade head constable on Rs. 25 + 15, a second-grade head constable on Rs. 20, a fourth-grade head constable on Rs. 14 and 88 first-class constables was employed. A European head constable on Rs. 35 and also some constables when necessary were deputed from the district force. The Inspector, two native head constables, one European head constable and 45 constables are on duty at Jalarpet in connection with the inspection of passengers on the platform and in guarding the plague camp. A detachment of 60 sepoys from the 17th Madras Infantry was guarding the camp from the middle of October 1898 to 25th March 1899.

25. Among the staff on plague duty two ambulance toties, two police constables and a peon of the Vániyambádi Municipality contracted plague and died.

26. In March and April several cases were imported at Krishnagiri from Bowringpet and Oorigaum and as plague prevailed also at Kuppamu in the North Arcot district close to our frontier in the Krishnagiri taluk, a special guard consisting of ten peons under a Sanitary Inspector was appointed to patrol the tracks leading from the Mysore State and the North Arcot district on the Krishnagiri-Vepanapalli side to watch all arrivals and to passport them.

27. The re-occupation of Mattigiri, Shulagiri, Berikai, Osahalli, Jígur, Zuzuvadi, Poonapalli, Kothapalli and a few other minor villages was permitted in the beginning of April and of Hosúr in May. There has been fortunately no recrudescence in these villages since.

28. The direct charges from Provincial and Local funds on account of plague measures up to the end of June last amounted to Rs. 1,06,364 as under:—

	Rs.
Provincial	31,874
Local	74,490
Total ..	1,06,364

29. *Opposition to Plague Measures.*—The measures have, on the whole, been smoothly worked without serious opposition. In the Hosúr taluk the villagers have realized the necessity and advantage of evacuation. At the outset owing to all sorts of rumours and scares there was some opposition in Vániyambádi, but this was soon overcome as abovementioned. A Supervisor Mr. Salisbury and his wife were mobbed

in Kelamangalam, Hosúr taluk, as some malicious person had spread a rumour that he had put some red powder into and poisoned a well. Two Forest-officers, Messrs. Moss and Daly, were badly beaten being mistaken for inoculators in the Námakkal taluk. There was a riot in Pulampatti in the Tiruchengod taluk due to the idea that a vaccinator was intending to inoculate. Beyond these instances nothing of importance occurred and idle rumours have now almost died away.

30. I cannot close the report without mentioning the excellent services rendered by Captain Ffrench, Special Plague Officer, and Additional Medical Officers Drs. Noble and Tebbs. Captain Ffrench's services have been invaluable and he has worked with untiring energy. Among the subordinates Civil Apothecary Gibbons at Hosúr has had especially heavy work and the services of Hospital Assistants Swamidoss Nadar, Paul and Raman Nair deserve recognition. Supervisors Mr. Gilby and Mr. Pell of the Salt department have also done exceptionally good work.

31. A copy of the District Medical and Sanitary Officer's report is enclosed.

From the District Medical and Sanitary Officer, Salem, to the Collector of Salem, dated 23rd May 1899, No. 332-P.

From the Surgeon-General with the Government of Madras, dated 24th June 1899, No. T-8/312.

From the Surgeon-General with the Government of Madras, dated 5th August 1899, No. T-8/422.

From the Surgeon-General with the Government of Madras, dated 24th August 1899, No. T-8/472.

From Lieutenant-Colonel W. G. KING, C.I.E., I.M.S., Sanitary Commissioner for Madras, to the Secretary to Government, Local and Municipal Department, dated Camp, Ootacamund, 26th August 1899, No. 60-P—T.

With reference to Ref. on C. No. 4608, dated 31st May 1899, I have the honour to submit certain remarks on the reports herewith forwarded to Government. I have received no intimation as to the desired scope of these reports and have not been supplied with a copy of the queries put by the Plague Commissioner to the officers concerned. I therefore can but confine myself to such matters as are brought to notice – apparently in reply to the queries that have been put. As the subject-matter treated is much the same throughout, I do not deal with events as they occurred district by district, but would attempt to secure lessons for future guidance from the experience gained by the reporting officers.

A.—Mode of importation of the disease to the Presidency.

2. In not a single instance has it been reported that plague has been introduced into the Presidency by means of infected material except in the Salem district. Here suspicion, but not proof, fell upon gunny bags that had been used for conveyance of charcoal, and, in another instance, upon clothing that, it was suspected, had been imported by a tailor. In both, the source of infection was said to be the Mysore territory, which immediately adjoins the district of Salem. A case to which no allusion is made in the reports was also stated to have occurred in the Salem Central Jail in a woolworker who had to treat material imported from Bangalore.

3. Experience points to the fact that ordinary merchandise is rarely placed under conditions which would enable vitality of the plague microbe to be retained for any length of time. That infection can be conveyed by personal clothing is, however, indubitable. Possibly the scanty nature of native clothing and the fairly frequent washing and exposure to sun it undergoes gives less risk in this respect than in the case of woollen materials so largely worn in European countries. This fact is of importance, in that risks as to infection by clothing worn by travellers are in practice so small as to give greater value to preventive measures directed to the end of keeping the infected human being—as the great cause of spread of the disease—under surveillance. The policy therefore pursued of only demanding disinfection of the person

and clothing of the exceptionally filthy and of taking no notice of ordinary merchandise beyond prohibiting importation of a few articles specially liable to be infected, and concentrating attention upon watching the health condition of those arriving from infected areas, has been justified in practice.

4. *The area affected.*—Looking at the total area affected in the Presidency, the query naturally arises why our borders should have been attacked and not the interior. So far, experience has pointed to the simple fact that the greater the passenger traffic from an infected locality the greater the chances of infection, and that the nearer the source of infection the greater the risk. During the period up to August 1898, no cases of plague had occurred in the Presidency beyond two in Madras City in 1897. These were in the persons of Madras inhabitants who had been subjected to infection by proceeding to Poona. The reason for this freedom would seem to be the fact that ordinarily the amount of passenger traffic between Madras and Bombay Presidency is not large and that it heavily diminished directly the existence of plague was known. Runaways from infected places in the Bombay Presidency rarely chose Madras for residence; hence the conditions that existed were that, whilst passenger traffic was small, merchandise arrived freely from the infected areas and apparently without evil result. It was not till areas having close *passenger* traffic with Mysore became infected that this Presidency fell a victim to indigenous plague. Mysore has considerable passenger traffic with Hubli, and this town being infected was therefore a serious factor for Mysore. Mysore in turn has much passenger traffic by rail and road with Madras. The people early fled from the infected City of Bangalore in large numbers to their own and British villages. Thus Salem, North Arcot and Anantapur along the borders of Mysore were gradually infected between August and December by the arrival of infected persons from the Mysore territory.

In the Anantapur district not only was this disease brought within its villages along its Mysore border (Hindupúr taluk) but into Guntakal by conveyance of infection direct from Hubli. From this second centre formed at Guntakal the disease spread to the Bellary and Kurnool districts, whilst a second focus was also formed in the Bellary district, in all probability by importation from Kopbal in the Nizam's dominions.

5. In short, intercommunication for purposes of trade and possibly much intermarriage of border families—inducing relations to flee to each other's houses in times of distress—suffices to explain the preference of the disease for the border districts. The interior of the Presidency apparently escaped not because there were climatic conditions which prevented its spread being favoured, but because human intercommunication with infected areas was very limited—for rural populations rarely care to flee far from their villages—and because such imported cases as did make their way to interior parts were so far as is known fully detected. That they were fully traced may not be the case, but having regard to the large proportion detected and segregated in the border districts before the disease baffled the vigilance of the authorities or the absurd opposition of the people prevented their success, it is a fair argument to assume that such cases as penetrated beyond the border districts were, without exception, segregated and thus rendered harmless.

B.—Precautionary Measures.

6. The prime method adopted was that of maintaining the persons from infected areas under a "system of observation," or, as it is sometimes called, "surveillance" for ten days after arrival. From 7th October 1896 to 18th January 1897 the method was voluntary in the case of District Boards and Municipalities; but was adopted universally at least in the latter having communication by rail with infected areas. These bodies posted sanitary inspectors or hospital assistants at railway stations in communication with Bombay, and from information gathered from passengers secured their domicilliary observation. The full inspection of passengers arriving by train from the Bombay Presidency was conducted at Adóni and Bezwada (from the 7th October 1896), as the stations nearest the frontier where, without appointing special medical staffs, this could be effected (G.O., No. 111 L., dated 19th January 1897). In the case of the Municipality of Madras, these arrangements were supplemented by

the entertainment of a special inspecting staff at Perambúr. By the 13th October 1896, with the consent of the Railway authorities, the names of passengers from infected areas were transmitted by the same train as that by which they travelled in the case of the Madras Municipality and in others the post was relied upon. By means of this rough non-compulsory method of surveillance the Madras City was undoubtedly saved from infection as early as October 1897, as by its means cases imported from Poona were traced and segregated. But, by this time, the possibility of relying upon this system had been greatly strengthened by the passing of the Epidemic Diseases Act and issue of regulations founded thereon under G.O., No. 219A M., dated 15th February 1897. Under these, railway observation camps had been opened at Guntakal and Arkonam, and the makeshift arrangement at Adóni was abolished in favour of the former, whilst Bezwada was abolished in favour of Kondapalli.

7. Under G.O., No. 1985 M., dated 18th November 1896, special regulations under the District Municipalities Act (Act IV of 1884) had been issued for the guidance of municipalities and had been formally accepted by them, in respect to the staff they should entertain and the action expected of them should invasion occur.

8. Regulations for protection of ports on the lines of the Local Government Board's (England) order were issued in G.O., No. 363, Marine, dated 22nd April 1897.

These regulations were found to agree practically with those subsequently advised by the Venice Convention.

9. Under no circumstances throughout the above arrangements was any such thing as wholesale stoppage of passenger traffic permitted. Persons were detained only if suffering from plague or presenting suspicious symptoms, when unable to give satisfactory addresses, or when so filthy that disinfection of their clothing and persons was thought advisable.

10. With the advance of plague in the Nizam's dominions, however, the liability to attack of this Presidency became more evident. Government then issued further regulations under the Epidemic Diseases Act (G.O., No. 93 P., dated 26th February 1898) which now clothed the system of surveillance with the necessary legal recognition, and laid down the requisite organization and methods for its being correctly effected. In rural tracts areas of 10 miles diameter were defined as "observation circles." In charge of each, there was appointed one certificated sanitary inspector and, as the supply of these became exhausted owing to the large demand, temporary sanitary inspectors were placed in charge. These latter men were of good educational standard, the majority having passed the Madras University Matriculation or higher examinations. They were subjected to about a fortnight's training in reference to the etiology of the disease. The sanitary measures necessary were practically demonstrated to them. The subsequent examination was fairly searching, as of 278 selected for training only 150 were regarded as competent. The certificated sanitary inspectors had passed the usual examination after four months' training in theoretical and practical hygiene at the Medical College, Madras. Supervisors, each placed in charge of four observation circles, were either Europeans or Eurasians recruited chiefly from the Salt and Abkári department. Collectors were directed to place themselves in communication with the Sanitary Commissioner for the supply of these trained men directly their districts were pronounced by Government to be "imminently threatened." To meet this demand a reserve of ten men was maintained under the Sanitary Commissioner. On the frontier, stations were opened guarding roads having much traffic. By G.O., No. 337 P., dated 16th April 1898, Guntakal railway observation station was abolished, in favour of one at Tungabhadra guarding the railway approach from the Bombay Presidency whence likelihood of invasion seemed most probable at that time. Pódanúr, Kondapalli and Hospet were similarly made railway observation stations. Subsequently, on Mysore being affected, Jalarpet railway observation station was established (August 1898). Thus all the railway approaches to the Madras Presidency from infected areas beyond it were guarded by inspecting staffs. On plague establishing itself in the Ceded districts, Tadpatri was opened as a railway observation station in January 1899 (Plague Commissioner's Proceedings, No. 263/90, dated 27th January 1899).

11. As a result of these various regulations and the organization stated above it became possible to ensure that arrivals by road, rail, or sea should be subjected to surveillance for a period of ten days *to whatever part of the Presidency they proceeded.* This was secured by the giving of a document under the additional regulations, requiring the persons to present themselves before certain local authorities appointed in municipalities and rural areas—a method familiarly known as the "passport system."

12. Increased vigilance as to the maintenance of sanitary conditions was attempted throughout the Presidency following various appeals from this office.

C.—Experience as to the utility of the precautionary measures adopted.

13. *Frontier Stations.*—Dr. Beach, Plague Medical Officer, Anantapur district, declares frontier road stations were of little utility owing to want of supervision, but gives no reason why they should not have been kept under effective supervision by the supervisors in whose divisions they happened to be. Major Robertson, I.M.S., of the same district, declares frontier road stations of no utility where the configuration of the country does not favour their being not readily evaded. The Collector of North Arcot considers that frontier road stations were evaded notwithstanding a patrol; but this patrol was composed simply of village servants. No facts or figures are given to support these opinions. The Collector of Salem had large opportunities of judging of the efficacy of road observation stations as his district was threatened by numerous infected villages in the Mysore territory. Neither in his present report, nor in his report embodied in G.O., No. 878 P., dated 12th June 1899, does he oppose the use of these stations, though acknowledging the difficulties, under certain circumstances, attending them.

14. Unless it were possible to rely upon a very well-worked scheme of co-operation with His Highness the Nizam's and the Mysore Governments, it does not seem to me feasible to abolish frontier road stations. Where configuration does not lend itself to ease of detection, it ought always to be possible to supplement them, or to substitute for them a patrol system. These frontier road stations are usually awkwardly placed and cannot be readily reached by officers for purpose of supervision. This seems their only fault, and it is one that can be remedied by tightening discipline of the supervisors responsible. Road observation stations must, of course, be useless institutions unless aided by "observation circles," as their great end is to secure the giving of passports on the first arrival of persons from infected areas, their actual surveillance being secured by the "observation circle staff."

15. In regard to complaints of behaviour of the staffs attached to frontier road inspection stations, it will be seen that these refer to hospital assistants—a matter with which the Surgeon-General will doubtless deal. Such complaints, however, to my mind emphasize the necessity for the policy which guided me in advising as to the pay and position of certificated and temporary sanitary inspectors, namely, that the pay should be sufficient to attract a well-educated and respectable class of men. The hospital assistant class is undoubtedly a poorly-paid agency.

Railway Observation Stations.—No opinions are expressed against these. Guntakal was instrumental in stopping 5, Hospet 3, and Jalarpet no less than 77 plague cases.

Observation Circles.—The following are quotations from reports as to the value of these:—

"On the whole, the system has worked satisfactorily and has enabled us to detect and deal promptly with the majority of the imported cases that have occurred" [*Collector of Salem*].

"The staff has worked well, the information being reliable and promptly delivered, and the necessary action to be taken in the isolated cases has been efficiently carried out" [*Lieutenant-Colonel Rogers-Harrison, I.M.S., District Sanitary Officer, Salem*].

"The passport system and inspection of all arrivals is as complete as possible. There is no difficulty in discovering the whereabouts of those infringing the Plague Regulations by absenting themselves from medical examination. This facilitates the

easy detection of plague cases and the immediate disinfection and isolation of the infected and contacts. This no doubt materially prevented the spread of the disease" [*Lieutenant-Colonel Pemberton, I.M.S., District Sanitary Officer, Bellary*].

"Bellary itself has been kept free though several imported cases occurred as they were promptly detected owing to the thorough way in which the passport system has worked" [*Dr. Illingworth, Additional Medical Officer, Bellary*].

16. The Collector of Salem alone states the number of cases of persons who were retained under surveillance under the passport system. He shows that, out of 49,777 cases, only 1,340 escaped observation or 2·7 per cent. From figures formerly gathered by me, I know that up to 16th December 1898 in Bellary cases had been observed with 12·6 per cent. of failures and North Arcot with 10·5 per cent. These results must be considered excellent, considering the freedom allowed to persons having passports. Failures were chiefly due to those possessing passports proceeding to independent territory.

17. It would have been interesting to have secured figures showing in how many instances the passport system was instrumental in securing the first information for local authorities of the importation of plague. None of the reporting officers enter into this point; but it may be assumed that practically all cases stated to have been imported were really discovered by this method, or by the "circle observation system" of which it is but a corollary. The Collector of Bellary shows that there were four cases of plague imported to the Municipality of Bellary and the same number to the Municipality of Adóni. In other localities in his district there were 21 imported cases. But in only 9 out of 20 affected villages in this district did plague become indigenous. The Collector of Salem shows that 8 cases occurred in the Municipality of Vániyambádi and 9 in that of Tiruppattúr, with one indigenous case as a result (a contact). In all, 163 imported cases in the Salem district were traced by this system and promptly dealt with.

The following is an extract from my annual report for 1898, which gives a cursory statement of the facts bearing on this point up to the end of December of that year:—

"Following the heavy incidence of plague in the Mysore territory during the last five months of the year, plague was imported in 96 separate localities, in a total of eleven districts. In 95 localities plague was imported 223 times. In 11 of these importation was repeated from four times to over thrice that number of times. Thus, in Madras twelve separate instances of importation were detected. Yet, the City of Madras remained free from plague, and in only twenty localities of five districts was it reported as indigenous up to the end of the year. It is fair to argue that the progress of plague, so long at least as it is confined to human beings, can be absolutely checked by a correctly-worked "surveillance system", backed up by isolation of the sick and the prompt application of sanitary measures. This is, of course, nothing but what might be expected. But it is possible to argue that we are not acquainted with how many instances of plague may have been imported and yet no indigenous plague has followed. This argument is tenable; but having regard to the certainty with which plague slowly but surely spreads where concealment has been effected, the chances are greatly in favour of the supposition that the system really effectively kept touch of all arrivals from infected areas. I refer to this subject, as the natural tendency is to point to the heavy expenditure necessary for the support of the staff required to work such a method, and, secondly, to show that of so many thousands of cases that were inspected, so few really turned out to be plague. But it seems to me that the chances would have been 100 to 1, that each case detected would, if it had been undiscovered, have led to indigenous plague in the locality concerned, and that, consequently, not only have the people in these places been spared an unnecessarily early visitation from the disease, but they have been spared the loss of lives and money that must follow its appearance, compared to which the expenditure necessary for the staff must be insignificant. It is apt to be felt, too, that perhaps this escape of localities was not so much due to the precautions taken as to some fortuitous circumstances, depending upon the inability of the plague microbe to accommodate itself to its environment. This factor undoubtedly does modify the chances of spread and,

probably, the virulence of the microbe; but it obviously is very methodical and persevering in its efforts to overcome all difficulties, and it seems to me that, given time and season, there is no place in this Presidency that can be regarded as safe from the possibility of the plague importation and subsequent spread."

18. *The Staff of Observation Circles.*—Praise is usually forthcoming for the work effected by supervisors. But the District Medical and Sanitary Officer of Anantapur dismisses the subject with the remark that they were a "very mixed lot", although he finds room for praise that I know personally was well deserved for two (one being a certificated sanitary inspector). This officer (Major Robertson, I.M.S.) joins the hue and cry lately raised by Collectors against temporary sanitary inspectors but carefully requires it to be understood that he considers the certificated sanitary inspectors efficient —a fact to which I invited the attention of Government in vain (G.O., No. 878 P., dated 12th June 1899). As to the assertion that "they could not speak the truth," I am not prepared to deal with so general a statement. It was hardly possible to attend to idiosyncrasies of this description in a fortnight's training! But, if the "lying" only occurred about distances from village to village, as solely suggested by Major Robertson, I think there was in men but recently imported into a district and unprovided with maps, room for misapprehension which might have been charitably taken into account. In the absence of specific instances, it seems to me Major Robertson's opinion may likewise on this point be due to misapprehension. That he is not removed from operation of this cause in arriving at his opinions, I may point out that there is no foundation whatsoever for his statement as to temporary sanitary inspectors, "that some could not speak English or write it." On my asking him for his instances, he quotes Bátcha Ṣáḥib as the only case he can remember, and referred me to M.R.Ry. Runga Rao, B.A., late plague supervisor, as his authority. This supervisor having been addressed by me, through the Collector of Cuddapah, has sent me the reply attached (No. 1), from which it will be seen that Major Robertson relied upon hearsay, and not upon personal acquaintance with the qualifications of the sanitary inspectors. His statement is completely refuted.

19. In regard to his assertion that his three Muhammadan inspectors were an "exceptionally bad lot," I would state that two of the three were exceptionally well connected, being relations of the Delhi family. A statement of the educational status of these is attached (No. 2). It will be seen that they were well fitted for the position they held. The third man—Saiyid Qádir Khán—which is the man Major Robertson probably really meant to refer to—passed his examination in plague matters before me creditably, and was, according to the supervisor, a really "useful" man in plague work, and, notwithstanding Major Robertson's statement, was sufficiently well versed in English to write his reports in useful if not ornamental language. He is a schoolmaster teaching English, and this alone should afford *a priori* grounds as to his knowledge of the language. The obtaining of Muhammadans as sanitary inspectors for plague work was a desirable point in administration, and I considered myself fortunate in obtaining these men as temporary hands for service in the district of Anantapur—having regard to the unsatisfactory attitude of their co-religionists at Guntakal. Major Robertson's cutting generalization that "some could not speak English or write it" is, therefore, absolutely a misapprehension on his part.

20. To say the last word on this subject, I maintain that against *certificated* sanitary inspectors not a word has been said. On the opposite, I have heard nothing but praise, and, in some instances, very high praise, of them from those immediately in contact with them, and even from those who would supplant them by revenue inspectors ignorant of sanitation. Of one man, Dragwidge, who lost his life from plague contracted on duty, I was assured personally by the Collector of North Arcot that he was of the very greatest value, and that he greatly regretted his loss. As to *temporary* sanitary inspectors, they were doubtless not all that could be desired; still they were selected with care as to respectability, educational status, and *particularly as to caste*, with the object of securing no embarrassment on this point. In the next campaign against plague, it will remain for Collectors to show that, with revenue inspectors of frequently not so good an educational class as the men I supplied, and devoid of even so short a training as I gave them, they can secure as good results as they have done with the men they have attempted to displace. In the meantime it is

noteworthy that the first specimen of a revenue inspector supplied as a supervisor in Anantapur does not seem to have impressed Major Robertson favourably as he held him "useless"!

D.—Preventive Measures.

21. Within certain limits the nature of action taken necessarily differed with the amenability of the people and, possibly, somewhat with the individual peculiarities of the district officers responsible.

In only one instance was any attempt made at securing a cordon round an affected village. This was by Mr. Elwin, Collector of Bellary. The village happened to be surrounded with rocks and other obstructions that rendered the place not one typical for the kind of treatment. Notwithstanding the "pin-prick" allusion by the Collector of Anantapur to the fact that a man escaped from the cordon, the action at this village was one of the best features of the campaign against plague in this corner of the Presidency. To attempt to cordon village after village would be ridiculous, but I certainly think that the method is both justifiable and likely to be of great advantage *when applied to small villages at the first entrance of the disease into an hitherto unaffected area*. The promptitude with which the villagers of Chippagiri were prevented from infecting their neighbours contrasts strongly with conditions round Guntakal, where not only was no effort made on the first appearance of the disease to restrain the movements of contacts (owing, apparently, to misconception of its nature) but where, subsequently, full freedom was knowingly permitted to the population *to wander* to neighbouring villages without surveillance. It was from this focus that the disease spread to the villages of the Bellary and Kurnool districts. Indeed, no other result could have been expected. I trust I may not be mistaken as to the utility of cordons. I by no means favour their use, but think no good reason exists because it happens that this method has been strained in its application to an absurdity as a protection against spread of disease that, within the limits I have defined, it may not be advantageous. The escape from the cordon to which the Collector of Anantapur alludes was in the case of members of a family possessed of "agricultural passes." The existence of "observation circles" outside the affected village, however, secured the early detection of the case at Uravakonda.

22. Unless it be at Chippagiri, no efforts appears to have been made to prevent persons from infected villages going to those adjoining for market supplies. This can best be seen to by arranging that supplies from healthy villages shall be sold at selected cleanly spots outside the infected village. Within infected areas also, it would seem but a desirable precaution, even in the case of healthy villages, to shift the usual market side to some little distance from the inhabited portion of the village.

23. Although the formation of "preventive circles" was sanctioned by Government (Plague Commissioner's Proceedings, No. 88, dated 7th October 1898), there was hesitation in employing them. On this point, there ought to exist a distinct understanding; an infected town or village should at once have thrown round it preventive circles. In the case of the Guntakal epidemic the necessity for careful searching for cases round an infected village was so loosely interpreted that the outbreak occurred at Kotalla close to Guntakal without its being recognized at its origin. The village had been given in charge of no plague inspector.

24. In Bellary full advantage was taken of the Regulation 6 allowing assistant sanitary inspectors in unions. Plague found Gooty and Uravakonda of the Anantapur district unprovided with them. This is a matter that requires attention in future. The Plague Regulations are framed on the understanding that towns of 10,000 inhabitants and upwards, not being municipalities, require inspection by a man stationed on the spot, charged with effecting the necessary sanitary and passport duties of a population of a size unmanageable by the ordinary village organization and observation circles.

25. As a result of not instituting the arrangement referred to in the following paragraph, the evacuation of most villages was accomplished without securing disinfection of the property of persons before proceeding to camp. Prevention of return to infected villages before completion of disinfection was also incompletely enforced. These are important points in the prevention of spread of infection. Their neglect seem largely to have minimized the influence of evacuation.

26. In only two places—Kuppamu and Hospet—was, according to the reports, any effort made to place persons leaving an infected village under surveillance, until on leaving the limits of a large area of country defined as "infected," they became involved in the "observation system" of an unaffected area, and were then required to accept passports. That is to say, a villager in an affected village might proceed to healthy villages without hindrance, and without being required to come under any system of surveillance. In Kuppamu, a police cordon was arranged for securing the names of those leaving the village. This, however, need by no means be regarded as an essential part of the system, as shown by the result of Hospet. The use of a cordon in aid of this method had doubtless become necessary at Kuppamu, because it was delayed to a late stage. Here "house segregation" had been adopted, with the usual sequel of the disease gradually obtaining such a hold upon the village that the inhabitants fled in terror. In Hospet, in Bellary district, on the opposite, the system was introduced under my advice by the Collector at the commencement of the second outbreak or general epidemic. That its operation was effectual, I can testify from my having whilst in the town required the most careful watching of the approaches to Bellary by the municipality and from special enquiries made by the passport staff in the town. The necessity for obtaining a passport before leaving an infected area undoubtedly exercises a restraining effect upon the movements of the population notwithstanding the absence of police or troops, whilst, should emigration be decided upon by them, they are placed under surveillance that does not trammel their freedom. The Collector of Bellary specially notes the fact that the disease did not spread to the village near Hospet, and although the timely aiding of the people to proceed to camp in the neighbourhood of the town must have had much to do with it, I regard the enforcement of the passport system as having greatly aided the total result. I have already pointed out (paragraph 8 of my letter, No. 1401-S., dated 4th May 1899, embodied in G.O., No. 878 P., dated 12th June 1899) that the enforcement of this method is essential, and is but a logical corollary of the existing passport system. By omitting the necessity for undergoing observation in the apparently healthy—in Additional Regulation 34—this requirement would be sufficiently met.

27. The general resort of the population of a village to their fields for camping purposes is a desirable and cheap method, but there was far too much timidity as to interfering with the people when they had gone there, under the impression they might be frightened away. I particularly pressed this matter on notice both verbally and by letter (*vide* also Plague Commissioner's Proceedings, No. 321/20, dated 3rd February 1899). Opinions were all against me, and I gave particular room for criticism in the trivial suggestion that when camps are spread *over fields in crop*, a bamboo pole with a red rag attached—I do not wish to dignify it with the name of a flag—*plus* a black board to show the number of persons in the single camp concerned, might be usefully used to identify their whereabouts. One officer styled the suggestion a "sumptuary arrangement," another felt sure it would frighten the people! Yet, I still venture to say that a field of jowari is as good a place to miss finding a human being or a black buck as can be found in this country, and that an expenditure of 4 to 6 annas to identify a spot would be well spent. It seems to me a curious trait in official correspondence * that this trivial and almost irrelevant suggestion of a flag should have overshadowed the important question of sanitary observation of camps which was that really at stake. I do not believe that with the most ordinary care such a result as frightening the people from their camps need be anticipated, *provided action were strictly limited to their sanitary care*. I consider that the staff should always be such as to secure complete sanitary inspection of these camps and to take necessary action founded thereon. An approach to this system seems ultimately to have been adopted in the Bellary district.

* Plague Commissioner's Proceedings, No. 1130, dated 25th April 1899.

28. *Methods of Disinfection.*—There can, I think, be no doubt from the reports, and from my own experience, that no disinfectors are so efficient as sepoys, and wherever possible they certainly should be employed in preference to daily labourers.

29. In the early stages of the plague, the solution of the mercury combined with hydrochloric acid advised in the Plague Regulations was not uniformly used. Later on attention was given to this matter. Uniformity in the use of disinfectants should be insisted upon. The matter of lime-washing referred to by Major Robertson has

already been settled (Plague Commissioner's Proceedings, No. 370/40, dated 1st March 1899). The use of Lieutenant-Colonel Lawrie's method of floor burning was ordered by Government, without this office being consulted. Personally, I think its use has a sphere of utility, but that to burn floors indiscriminately is unnecessary and wasteful. As to modes of distributing the perchloride of mercury solution, the matter has been discussed in G.O., No. 852 P., dated 23rd June 1899. Major Robertson maintains the uselessness of Chinese pumps. Dr. Beach declares that if this be so, a prayerless form of Chinese pump has been used. There may be force in Dr. Beach's statements, but nothing can get rid of the fact that a great deal of physical energy is necessary for their use, and if men be required to labour hour after hour in squirting the solution upon walls with these pumps perfunctory work results. I think my "gravitation disinfector" (Plague Commissioner's Proceedings, No. 308/24, dated 1st February 1899) will sufficiently well meet requirement. Major Robertson favours the use of tin-watering cans. I think these objectionable, not only on account of the inimical action of the solution on the tin, but by bringing about a reduction of strength of the solution. Moreover, it seems to me an impossible feat to arrange that water from a can shall meet a wall at a height and at an angle at which disinfectants can be delivered without much waste (G.O., No. 1262, dated 16th August 1899).

30. The question of dealing with roofs has lately been fully dealt with (G.O., No. 1005 P., dated 29th June 1899). I think the suggestion of Major Robertson that walls should be disinfected only 4 feet high should not be adopted. As a fact contamination of the walls may not have occurred at all, but so long as it is considered necessary to disinfect walls the method should be thorough and leave nothing to chance. Burning of roofs of houses was rarely employed on the ground that it alarmed the population. Such alarm, however, I have constantly maintained, need not occur *when the owner is paid on the spot before the public* instead of his having to wait for weeks till the bill is passed, during which he has had time to dilate on the "zoolum" practised. It is undoubtedly a mode that requires discretion in use, and I think this has been duly observed.

31. *The behaviour of Village Officers.*—I think the reports show clearly that it is impossible to trust to the village heads to give prompt information of attacks with certain exceptions. I hold it as certain that any system which ignores the "observation circle" method, and trusts to village heads and revenue inspectors who have had local dealings with them and as a result have gained "influence," will end in a hopeless muddle. This is a statement that, with the present tendency of official opinion, may carry little weight; but I have not spent a good part of my life in ascertaining the history of epidemics without gauging how far revenue agency of the character stated, *without special supervision* to keep it up to the required standard, may be trusted to for prompt reports. It will be noted that Dr. Power, Plague Officer, Kurnool, considers such agency "obstructive." Without going so far as this, I believe that experience will reveal that no reports will be made till repeated deaths render concealment impossible, and that the natural good feeling which exists between village heads and the revenue inspectors will not facilitate the ascertaining previous facts when, under such circumstances, deaths are reported.

32. *Buildings.*—I think experience gathered by district officers showed that in *rural areas* no attempt should in future be made to build hospitals on the type laid down in the additional regulations. It is better that an uniform pattern of small hut be used for *all* purposes—treatment of the sick, segregation of the healthy and accommodation for relations and of servants. The number of persons placed in such huts would alone vary with the requirements. It is of course understood that suitable relative positions would be provided. For hospital accommodation for towns, and for private caste hospital purposes, I think the pattern given in Plague Commissioner's Proceedings, No. 220A, dated 18th October 1898, should be adopted uniformly.

33. In certain instances reluctance to enter Government hospitals may have been contributed to by the want of accommodation for relatives of patients although required by the regulations—a result of hurry in construction. In the case of Muhammadan populations, also, the absence of provision of a ghosha ward must have acted adversely. These objections would be got over by the separate hut system in rural areas; but in towns it should be looked upon as essential that in erecting hospital camps before the arrival of the epidemic they should be complete *in all respects*. No

advertisement could be worse than the knowledge that in sheds kept ready in a town for plague cases, no separate accommodation has been provided for relatives, and that no arrangement exists for preserving "ghosha." Such structures having been seen and deliberately criticised before the arrival of plague, their unsuitability is recognized by the people, with the result that their being boycotted is predetermined.

34. *Observation Circles in Municipalities.*—The Collector of North Arcot draws attention to the too great size of observation circles in municipalities. The original intention was that these circles should not include more than from 7,000 to 10,000 inhabitants. The attempt, however, to reconcile this condition with municipal wards has doubtless not been of advantage, in that in certain municipalities the wards are really larger than these numbers would imply. I think it would suffice if it be held in mind that the staff laid down in G.O., No. 93 P., dated 26th February 1898, is merely the minimum necessary, and presupposes *the existence of a permanent sanitary staff* correctly proportional to requirements on the spot. As a part of the observation system preparatory to invasion, the latter condition should especially be demanded by Collectors of municipalities.

35. *Isolation of the Sick.*—With the exception of the Collector of North Arcot, all reporting officers agree that in early removal of the sick and evacuation of infected houses lies the best sanitary measure for prompt stamping out of the disease. To him it is evident that no detriment occurred to the population by permitting this erroneous method of indiscriminate "home segregation"—a method that I consider was conducted in the North Arcot district without the care desirable (*vide* my inspection notes on Walajapet, Ránipéttai and Vellore, dated 17th March 1899). He gives no facts to support his opinion. It is also necessary for me to add that in respect of what may be regarded as the complementary measures to the "home segregation" system for prevention of spread, the absence of any chronological statement showing in what order action was taken, in the arrangements detailed from paragraph 3 to paragraph 5 of his report, renders it impossible to correctly gauge their influence. Before it were possible to express such an opinion so opposed to general experience, it would be necessary to carefully compare results in respect to populations where evacuation and isolation had been correctly carried out, and the method he favours had been pursued, respectively. For example, from my own enquiries at Vellore, it would seem that the town affords no exception to the rule that locking up the healthy with the sick was fraught with danger to the latter. Experience on this point was sufficiently well gathered 200 years ago. This is the opinion formed by a physician who had gone through the Great Plague of London on the subject of "home segregation":—

"But if hereafter again a plague should break out (which God forbid) with submission to superiors, I should think it not improper to appoint proper accommodation out of the city for such as are yet untouched in infected families, and who should continue there for a certain time; the sick, in the meantime, to be removed to convenient apartments provided on purpose for them: for by this means, that practice so abhorrent to religion and humanity, even in the opinion of a Muhammadan of shutting up the sick and well together, would be avoided."

* * * * *

Also Defoe states, "as soon as any house is infected, all the sound people should be had out of it and not shut up therein to be murdered."

36. The method of introduction of plague in Vellore is assumed as shrouded in mystery; but it ought not to have been forgotten that "home segregation" of contacts and incomplete disinfection was adopted in the imported case of plague which was discovered, on the 25th October 1898, in the case of a sepoy's wife. It occurred in the part of Vellore town where indigenous plague was first subsequently ascertained (on the 3rd January 1899), namely, Saidapet. That effectual measures were not carried out in respect to this imported case in no way reflects upon the local administration. Every effort, except actual force, was used to secure correct segregation of contacts and disinfection of the house. But when confronted with the Collector's conviction that *indiscriminate*—I use this word advisedly—"home segregation" was not injurious, I am bound to point out that the chances are greatly that to the ineffectual action, in the first case, must be ascribed the invasion of Vellore. It is true that no case was

officially reported as of plague until the 3rd January ; but the Collector in his reports states that no history of importation in this instance could be discovered, that is, the disease was already indigenous, whilst it was suspected that "recent deaths" had been due to plague. Equally true is it that the chances are that the continuance of this system permitted of the subsequent spread of the infection from house to house. To this fact the accompanying map seems to me to testify. It will be seen that escape of infection in the main street of Saidapet, where it established itself, is rare. This map was prepared by Captain Ffrench (Special Plague Officer) before the Baker's street epidemic, and therefore this cannot be shown. It however followed the same course. Now, what occurred in the Baker's street epidemic was that, after the disease had been allowed by the hopelessly bad method of "home segregation" to get a complete hold of the place, it was evacuated *en bloc*. In the case of the Saidapet epidemic also the people ultimately fled from the area in number sufficient to secure a decided thinning of the population. Can it be said, therefore, that the stamping out of this epidemic was effected, notwithstanding the use of "home segregation"? It is evident that it ceased as soon as home segregation was no longer practised. What occurred in Vellore was no exception to the rule that if, when the disease becomes indigenous in an area it be not evacuated by an official order, the time must come when the people will evacuate it voluntarily, after useless destruction of life and danger to trade and property has resulted.

37. *Method of spread of the disease.*—Except so far as the introduction of cases into a community by human beings is concerned, the evidence forthcoming is of not a very definite nature as to mode of spread. The inference that when the inhabitants took away with them to their camps in the fields their infected property, subsequent spread occurred is repeatedly affirmed and is in all probability perfectly correct; but no attempt has been made to show that cases arose in families encamped beyond ten days without contact with fresh cases, showing that the full period of incubation had been passed. The Collector of Anantapur suggests importation by rats, but it will be seen from his letter, No. 1071, dated 19th June 1899 (attached No. 3), that, on my bringing to his notice certain facts that were within my own observation as to the incidence of plague in his district, he no longer presses this theory, nor does he support his theory that the greater the absence of sanitation the less the incidence of the disease. In this connection I think it would be well if Government would call attention to the desirability of officers on plague duty, recording all facts of a nature that will bear investigation in the Collector's plague diary suggested by me (*vide* Plague Commissioner's Proceedings, No. 951, dated 12th April 1899). In this way *reliable* data might be gathered.

38. *Ambulance Staff.*—Attention is called in certain of the reports to the uselessness of attempting to give medical attendance to the people, and the desirability of getting rid of the hospital section of that staff is recommended. The matter is one with which the Surgeon-General will doubtless deal, and I therefore shall not enlarge upon it. But it seems to me whilst one officer (Major Robertson) complains of *embarasse de riches*, in respect to having no less than twenty persons at his disposal for medical purposes, that he has not allowed himself to picture a state of affairs in which these are not present. Above all things, rapidity of action is essential in plague. It may occur that in a village attacked, not a soul will come forward to help in such material points as removing of filth, disinfection of clothing, removal of bodies and of the sick. Moreover, granted the people do not accept medical treatment, it cannot but be recognized that the presence of female toties is of great advantage in dealing with houses where females are attacked, and that where ghosha women are to be removed the presence of female ward attendants to accompany those would be of the greatest benefit. As to the presence of trained nurses, whatever their functions as to nursing may be, they must be invaluable in dealing with diagnosis of female plague cases. Moreover, it does not follow that although in one district medical attendance is refused it need be so in others. Thus, in Salem evidently the people really appreciated medical efforts. In Maddikera, Kurnool district, to my knowledge, it was gratefully accepted from Dr. Power by certain of the patients. Although I consider it a most important point of policy that medical treatment should not be thrust upon the people, it would seem to most persons callous not to at least make provision for it. That the additional Medical Officers primarily imported for treatment of plague

cases should stand aside and have little or no occupation, because the patients will not go to them for treatment, is quite another matter. I have maintained that the existing organization gives to the medical profession an erroneous place, and that hence their efforts are wasted—a matter which has however been duly considered by Government (G.O., No. 878 P., dated 12th June 1899). Under these circumstances, it would seem desirable that at least the first two ambulance staffs should be strictly in accordance with the regulations, and that, subsequently, the District Medical Officer, in consultation with the Collector, should reduce, if considered essential, that part of the staff intended solely for medical purposes. For this end the ambulance staff should in future be divided into two sections that can be detached complete—the medical and sanitary.

39. *Inoculation.*—Inoculation would probably have been more widely accepted than the reports show, were it not that the people could not be made to understand that attacks of the disease occurring within ten days of the prophylactic operation were really due to the fact that incubation from previously-acquired infection had been proceeding—a condition that inoculation is, so far as yet ascertained,—powerless against. Thus, matters usually progressed well enough in villages, till some cases of this description unluckily fell into the operator's hands. The people then either judged the operation incapable of affording them protection, or concluded that the similar rumours that they had temporarily distrusted were, after all, correct. This was the experience in the Salem district round Guntakal, Molagavalli and at Hospet. Whilst the masses were thus easily deterred from accepting the operation, the educated classes were open to conviction until the publication of Lieutenant-Colonel Lawrie's evidence before the Plague Commission. I had received special invitations to inoculate numbers of influential native gentlemen during the Christmas holidays; but, after hearing this evidence, they concluded that a certain risk from the "putrescent fluid" did exist, and that it would be wiser to defer the operation till their towns were actually attacked. But misinterpretation of the effects of inoculation is by no means confined to the "masses". It will be seen that I am ingenuously charged by the District Medical and Sanitary Officer of Bellary with having been instrumental in introducing plague into Hospet. He ascribes the outbreak to the "quality of the serum" used by me—an euphemism for stating that in M. Haffkine's anti-plague vaccine, with which solely the operation was performed, there existed living plague microbes. The facts of the case are that I arrived at Hospet at a time when I knew it was "imminently threatened" by invasion from Kopbal. No inoculations had previously been made, but nineteen operations were performed, several amongst leading men. Of these, one—a child ten years of age—was attacked by plague on the seventh day after the operation. Being a puny child for its age, it had received one-half the standard dose for its age. This however sufficed, as I judged it would, to cause it to have a normal fever re-action of three days' duration. Under the circumstances that re-action did take place was certainly fortunate, as an important lay-official did not scruple to criticise the insufficiency of my dosage—holding that I ought to have given $1\frac{1}{2}$ C.C. (or $\frac{1}{2}$ C.C. more than the maximum prescribed by M. Haffkine for the age of that strength of serum)—oblivious of the discretion essential as to size and consitutional condition of the individual; whilst another suggested to me that had I given the full dose the child would not have been attacked—forgetful of such a condition as incubation and of the hopelessness of attempting to check it. After the three days of inoculation fever re-action, there was a complete interval of freedom from fever, during which the child played about as usual but was attacked with plague on the seventh day. On the third day after the development of plague symptoms in the child, the mother was also attacked with genuine plague. Having regard to the usual period of incubation of plague, it is extremely unlikely, especially if the periods were reduced to hours, that the source of infection in this second case was from the child. In short, they must have been subjected to the same common source of infection, the attack of the mother being within the ten days of my operation on the child. The mother had not been inoculated by me. None of the eighteen others inoculated (several being from the same bottle) developed plague, nor any of the 60 inoculated by me shortly after in Bellary from the same consignment of serum. The father of the child was a stationmaster, and in the habit of receiving into his house various members of the Southern Mahratta Railway staff from Hubli, Dharwar, Gadag—all

infected places. The child was, to my personal knowledge, in the habit of playing in a shed with an earthen floor, where passengers from the affected localities must often have slept side by side with their baggage waiting for the next day's train or before removal to the observation camp. Here was certainly room for infection. But the outbreak of *indigenous* plague, showing cases had been concealed previously which occurred in the town—removed about 1½ miles from the station—within 28 days subsequent to the occurrence of these cases (which were carefully segregated) showed that probably no more extraordinary means of infection had existed than had prompted my original visit to the town, namely, plague in the Kopbal district of the Nizam's dominions within 16 miles, and whence coolies had arrived for work in the Hospet fields as was customary. I need hardly add that the occurrence of plague *within the period of incubation* from natural infection, subsequent to inoculation, is a common experience (*vide* paragraph 42).

40. Mattigiri may be regarded as a fair attempt to cut short a plague epidemic once started by means of inoculation. The moment the outbreak took place Lieutenant-Colonel Harrison commenced operations and performed 146 cases. I immediately also despatched there Major Bannerman, who added to them to the extent of 236 cases. Of the total of 2,893 cases inoculated, 29 were subsequently attacked and 16 died. The result of the effort, although started under favourable circumstances, was that inoculation was not held sufficiently long in favour owing to the people not understanding the difference between complete and partial immunity gained.

41. The dates of inoculation and attack were as follows :—

No.	Date of inoculation.	Date of attack.	Date of death.	Duration of immunity.	
				Months	Days.
1	14th December 1898	24th December 1898 ..	.... ..	..	10
2	14th ,, ,, ...	15th ,, ,, ..	18th December 1898 ..	..	1
3	15th ,, ,, ...	19th ,, ,, ..	19th ,, ,, ..	..	4
4	8th ,, ,, ...	20th ,, ,, ..	20th ,, ,, ..	..	12
5	19th ,, ,, ...	26th ,, ,, ..	29th ,, ,, ..	..	7
6	15th ,, ,, ...	28th ,, ,, ..	8th January 1899 ..	..	13
7	14th ,, ,, ...	6th January 1899 ..	8th ,, ,, ..	..	22
8	15th October ,, ...	6th ,, ,, ..	....	2	22
9	15th December ,, ...	3rd ,, ,, ..	5th January 1899 ..	..	19
10	19th December ,, ...	9th January ,, ..	....	..	21
11	17th ,, ,, ...	4th ,, ,, ..	....	..	18
12	17th ,, ,, ...	8th ,, ,, ..	....	..	22
13	12th ,, ,, ...	30th ,, ,, ..	....	1	19
14	17th ,, ,, ...	6th February ,, ..	13th February 1899 ..	1	20
15	15th ,, ,, ...	1st ,, ,, ..	....	1	17
16	12th ,, ,, ...	2nd ,, ,, ..	6th February 1899 ..	1	21
17	1st ,, ,, ...	2nd ,, ,, ..	....	2	1
18	8th ,, ,, ...	12th ,, ,, ..	....	2	5
19	17th ,, ,, ...	6th ,, ,, ..	10th February 1899 ..	1	20
20	13th ,, ,, ...	6th ,, ,, ..	10th ,, ,, ..	1	24
21	15th ,, ,, ...	8th ,, ,, ..	13th ,, ,, ..	1	24
22	14th ,, ,, ...	9th ,, ,, ..	....	1	26
23	19th ,, ,, ...	11th ,, ,, ..	....	1	23
24	21st ,, ,, ...	9th ,, ,, ..	....	1	19
25	14th ,, ,, ...	11th ,, ,, ..	....	1	28
26	Inoculated in Bangalore ..	14th ,, ,, ..	17th February 1899 ..	..	..
27	15th December 1898	10th ,, ,, ..	10th ,, ,, ..	1	26
28	19th ,, ,, ...	9th ,, ,, ..	9th ,, ,, ..	1	21
29	15th ,, ,, ...	8th ,, ,, ..	8th ,, ,, ..	1	24

Owing to the rush of work at Guntakal, it does not seem to have been possible for Major Robertson to secure full details of results amongst the inoculated. All that can be said is that, in the cases that came under his own notice, there were five deaths and three recoveries amongst the inoculated. Amongst the deaths, one was inoculated 21 days previous, another three, another seven, and another ten, and one at Hindúpur 2 months and 21 days. In the Mattigiri outbreak the proportion of deaths (55 per cent.) to total attacks in the inoculated shows that a valuable grade of protection against death had been acquired by the inoculated.

42. Although, for reasons stated, the advance of inoculation has not been so rapid in this Presidency as was hoped, I have no doubt that a re-action will yet occur in its favour as soon as the educated classes are able to weigh more fully the *pros* and *cons*

of the operation than the newspaper reports of the evidence before the Plague Commission would allow them to do. I have always urged, and still believe, it would have been better policy on the part of the special advocates of inoculation in their attempts to popularize the operation, to have placed more stress upon its affording protection against death than against attack. This fact would soon have appealed forcibly to the uneducated, and proofs would have been soon forthcoming. The grade of protection against attack is a refinement of statistics that none but the educated can grasp. I also think that the employment of qualified female inoculators is desirable.

From Surgeon-General C. SIBTHORPE, C.B., F.R.C.P.I., Surgeon-General with the Government of Madras, to the Secretary to Government, Local and Municipal Department, dated Camp, Ootacamund, 19th September 1899, No. T. 8/573.

I have the honour to transmit the accompanying letter, No. 60-P—T., dated the 26th August 1899, from the Sanitary Commissioner, Madras, submitting, along with his remarks, the reports furnished by the Collectors concerned on the measures adopted to combat the outbreak of plague in this Presidency.

2. Lieutenant-Colonel King's review is most interesting and readable, and I agree in the main with his remarks.

3. As regards his paragraph 32, I concur with him that a uniform pattern of hut should be used for all purposes both in towns and rural areas.

4. His paragraph 38 is based on the result of experience in other parts of India. I quite agree with him that the ambulance staff, as proposed by him, is by no means excessive if any number of cases have to be dealt with. The employment of trained European or Eurasian nurses is most valuable. Although, in paragraph 7 of G.O., No. 878 P., dated 12th June 1899, Government has decided that trained native nurses should replace European and Eurasian nurses on the ambulance staff, except for the treatment of European patients, I know of no native women who can be called qualified nurses. There are native midwives, but they could not be obtained in any number and would not be trustworthy as they generally come from very low classes of natives. I also agree with him that the staff be separated into medical and sanitary.

5. I now beg to supplement the Sanitary Commissioner's report with my own remarks regarding the medical administration of the plague.

6. Owing to the advent of the plague in Bombay, Poona and other places in the Western Presidency, the Government, with commendable foresight and expedition, ordered, early in 1897, the inspection of all railway passengers at Arkonam, Guntakal, Kondapalli and Podanur (*vide* Government Orders quoted in the margin). Temporary regulations for combating the disease were issued with G.O., No. 219A M., dated 15th February 1897, and special care was established at Mangalore, southern ports of Malabar and Tuticorin (*vide* G.O., No. 181 M., dated 8th February 1897).

No. 181 M., dated 8th February 1897.
„ 261 M. „ 22nd „ „
„ 319 M. „ 27th „ „
„ 777 M. „ 2nd April „

7. The staff at each of the stations of Arkonam, Guntakal and Kondapalli consisted of a commissioned medical officer, a few hospital assistants, according to the importance of the station, and a European or Eurasian nurse—the latter being intended for the examination of gosha female passengers so as not to wound the religious susceptibilities of those natives and Muhammadans who observe the gosha system. There were also temporary Civil or retired Military Assistant Surgeons posted to Arkonam and Tungabhadra to assist the medical officer owing to the inspection work at those stations being very heavy. At Podanur, a civil apothecary and a hospital assistant were originally posted, and the former was subsequently replaced by a retired

Military Assistant Surgeon. Owing to paucity of officers, the District Medical and Sanitary Officer of Anantapur was allowed to change his head-quarters to Guntakal so as to be in charge of the inspection station and also of the district.

8. An additional inspection station was opened at Hospet in the latter part of 1897 (*vide* G.O., No. 2393A M, dated 1st November 1897) to prevent plague being brought into this Presidency from Hubli, and it was placed in charge of a commissioned medical officer with a retired Military Assistant Surgeon, a nurse and a few hospital assistants to assist him.

9. Medical subordinates were also employed on the frontier of the Ceded and other districts which adjoined the affected tracts for the inspection of those passengers who travelled by roads and did not make use of railways to avoid inspection.

10. To enable this department to provide medical men for these demands, Government, in Government Orders marginally-quoted, *sanctioned the employment by me of temporary Civil Assistant Surgeons, retired Military Assistant Surgeons and even uncovenanted medical officers on a liberal scale of pay. This sanction was largely availed of both in 1897 and in 1898 as will be seen from the list given in the margin.†

* No. 467, Public, dated 28th April 1897.
„ 683 „ „ 1st June „
„ 1494 „ „ 16th Nov. „

† *Uncovenanted Medical Officers.*

Mr. Taylor.
„ Spittler.
„ Conran.
„ Dorabsett.
„ Staunton.

Retired Senior Military Assistant Surgeons.

Trutwein.
Gillson.
Chalke.
Meneaud.
Everard.
McDermott.
Watts.
Todd.

Retired Military Assistant Surgeons.

Debnam.
Govind Singh.
Bowie.
Ryland.

Temporary Civil Assistant Surgeons.

Asirvadum.
Punyakoti Mudaliar.
Krishnasawmy Aiyar.
Subba Aiyar.
Gurdit Singh.
Vittal Row.
Pinto.
Ramanjulu Naidu.
Sundara Mudaliar.

Civil Apothecaries.

Parthasarathy.
Rodrigues.

‡ Lieut.-Colonel Pemberton.
Major Thompson.
„ Sanjana.
„ O'Hara.
„ Robertson.
Captain Vickers.
„ Wright.

Captain Donovan.
„ Mitter.
„ Gabbett.
„ Macrae.
„ Browne.
„ Illington.

11. About the middle of 1897, when all possible arrangements were being made by us to meet demands for plague duty, there came a requisition for commissioned medical officers, who were required for field service on the frontier. Thirteen ‡ such officers had to be withdrawn from civil duty and placed at the disposal of the Military Department. This completely crippled our resources and necessitated the Home Government being requested to send out temporary European Doctors both for plague and general duties (*vide* G.O., No. 1481, Public, dated 12th November 1897). The first batch of five officers sent out for Madras were—

Dr. Dalal,	Dr. Jameson,
„ Winter,	„ Stevens, and

Dr. Knapp

(*vide* G.O., No. 94, Public, dated 17th January 1898), but, on arrival in Bombay in December 1897, they were sent to Poona for three weeks' plague duty. Subsequently only Drs. Dalal and Knapp reported themselves for duty in Madras but had again to be sent back at once to Bombay (*vide* G.Os., No. 174, Public, dated 1st February 1898, and No. 256, Public, dated 14th February 1898).

12. The next batch of Plague Doctors who were sent out from England for duty in this Presidency and whose names are given in the margin (*vide* G.O., No. 457, Public, dated 19th March 1898) arrived in Madras in March 1898 with the exception of Dr. Thomas, who was detained in Bombay. Of the remaining nine, Dr. Battiss died immediately after while a patient in the General Hospital and the rest were posted to plague and general duties.

Dr. Beit.	Dr. W. Thomas.
„ Rendle.	„ Langley.
„ Lusk.	„ Battiss.
„ Nightingale.	„ Illingworth.
„ Myler.	„ Charlesworth.

13. The plague having subsequently extended to the Ceded Districts and the Mysore Province, three more new inspection stations were opened in August 1898, viz., at Jalarpet, Pakala and Hindupúr; and Guntakal, which was abolished in April 1898 on the transfer of the inspection to Tungabhadra (*vide* G.O., No. 337 P., dated 16th April 1898), had also to be re-opened. Another inspection station was opened at Chingleput in October 1898 (*vide* G.O., No. 1246 P., dated 5th October 1898). To meet this additional strain on the department, it became necessary to import more Doctors from England (*vide* G.O., No. 1290, Public, dated 20th October 1898), and their names are given in the margin. The first eight arrived in Madras in October, Dr. Way on 1st November and the others in December 1898. Dr W. Thomas of the first batch, who was detained in Bombay, arrived in September 1898. Dr. Nightingale, who belonged to the first batch, was allowed to exchange with Dr. Power of Bombay, who joined at Kurnool on 8th November 1898. Three Doctors were employed as additional medical officers in each of the districts of Anantapur and North Arcot which were at one time threatened with a sharp attack of the disease and one additional medical officer in each of the districts of Bellary, Cuddapah, Kurnool and Salem. The rest were employed at plague-inspection stations and on general duties.

G.O., No. 841 P., dated 18th August 1898.
„ „ 889 P. „ 24th „ „
„ „ 892 P. „ 24th „ „

Dr. Woodward.	Dr. McLean.
„ Anderson.	„ Roberts.
„ Noble.	„ Murray.
„ J. Thomas.	„ Lubeck.
„ Edwards.	„ Virtue-Tebbs.
„ Worthington.	„ Hanna.
„ Costello.	„ Beach.
„ Hunter.	„ Low.
„ Way.	„ Page.
„ Thomson.	

14. Three more inspection stations were opened in January this year, viz., Tadpatri, Tiruvannámalai and Dhone—the first in charge of a retired Military Assistant Surgeon, the second under a temporary Civil Assistant Surgeon and Dhone under a hospital assistant. There was also a hospital assistant at each of the first two stations to assist the medical officer, also a nurse.

G.O., No. 11 P., dated 3rd January 1899.
Plague Commissioner's Proceedings, No. 112—9, dated 13th January 1899.
G.O., No. 127 P., dated 24th January 1899.

15. The demands for hospital assistants were most heavy and beyond the scope of this department to meet. They were required not only for railway plague inspection stations, but also for ambulance staff and frontier road stations, and the number of men employed on such duties in the Ceded Districts and especially in Bellary was very considerable. Private hospital assistants were unwilling to apply as they were afraid of plague duty and this considerably added to our difficulties. It therefore became necessary, in addition to a few retired hospital assistants who had been entertained, to close several dispensaries in districts where there was no plague and to utilize the hospital assistants thus withdrawn from them in plague-stricken districts. This course was adopted in consultation with the Plague Commissioner and with the consent of the various local bodies. Although about 40 hospital assistants were thus secured, they were not, however, sufficient to meet the demands in full and had to be supplemented by a supply of twelve military hospital assistants from the Military Department.

16. Most of our District Medical and Sanitary Officers and especially those of Anantapur, Cuddapah, Kurnool, Bellary, North Arcot and Salem had very hard and trying duties during the whole time that plague lingered in their districts.

17. *Plague in the City of Madras.*—(i) Four plague hospitals and four segregation camps were organised and opened by the Madras Municipality. Thirteen imported and two indigenous cases of plague occurred up to the end of the year 1898. Precautions against the spread of infection were strictly carried out.

(ii) In accordance with the rules published by the Venice Convention, 68 vessels, arrivals from Bombay and Calcutta were, up to the end of the preceding year, inspected when between two and three miles distant from the port, and all passengers were inspected on shore prior to embarkation. No plague cases were detected.

18. *Plague in the Presidency.*—In all the railway inspection stations opened up to the end of 1898, 1,792,603 passengers were examined. Of these, 9,633 were detained for observation. Up to date 443 imported and 2,279 indigenous cases of plague occurred. The district which was affected most was Anantapur (64 imported and 625 indigenous), then came Salem (156 and 522) which is not as yet free, North Arcot (116 and 436), Bellary (21 and 280) and Kurnool (4 and 170). The precautionary measures taken as to segregation and disinfection were on the whole satisfactory.

19. *Type-plan of Plague Hospitals.*—The plan embodied in G.O., No. 256 P., dated 23rd March 1898, was directed to be followed so far as the general disposition of the hospital, servants' quarters, latrines and the amount of the accommodation to be provided in each building were concerned, but the details of construction were left to be settled by the local authorities according to the material available in each district. Where sufficient land was available the spaces between different buildings were ordered to be increased.

20. *Anti-Plague Prophylactic.*—Early in September 1898 orders were issued in G.O., No. 999 P., dated 3rd September 1898, to start *voluntary* inoculation by M. Haffkine's anti-plague prophylactic both in the town of Madras and the Presidency where there are commissioned medical officers. Up to December 1898, 5,685 inoculations were performed in the city and 10,532 in the Presidency, making a total of 16,217.

21. *Equipment.*—The equipment laid down in page 109 of the Plague Regulations, as modified by the Plague Commissioner in his Proceedings, No. 785—49, dated 20th March 1899, was ordered to be maintained in all the plague-inspection stations.

22. *Medical Stores.*—The Medical Store Depot, Madras, not having been provided with an adequate stock of medicines and disinfectants to meet the demands of the various plague-infected areas in the Madras Presidency, the Storekeeper to Government anticipated the silent and steady advent of the plague and lost no opportunity in submitting indents on the Secretary of State for such of the drugs as were not available and had run short in the depot. These drugs were received in time and, in the interval, acids (hydrochloric and sulphuric), the stock of which was out, were also obtained locally from Messrs. Waldie & Co., Calcutta, as per G.Os., Mis. No. 1189 P., dated 27th September 1898, and Mis. No. 35 P., dated 6th January 1899, respectively. The cost of stores obtained from England including freight amounted to Rs. 45,573–7–6 while that of the stores obtained locally stood at Rs. 1,020–9–11. Besides these, articles of local manufacture were also obtained to suit necessity and purpose.

23. All the requisitions received from the local authorities were promptly attended to and regularly complied with without any cause for complaint or delay.

24. The following statement shows the number of indents received and disposed of by the Medical Store Depot during the last three years:—

1896–97	2
1897–98	9
1898–99	94
Total ..	105

25. The work of the depot in this connection has been on the whole highly satisfactory and entirely due to the admirable manner in which Lieutenant-Colonel H. St.C. Carruthers maintained order and discipline.

26. *Finance.*—The total outlay on account of plague from Provincial funds amounted to—

	Rs.	A.	P.
1896–97	1,162	10	11
1897–98	22,394	2	2
1898–99	2,40,434	5	0

while under Local funds the expenditure for the corresponding period remained as follows:—

	Rs.
1896–97	*Nil.*
1897–98	41,112
1898–99	Not known.

27. The details of expenditure debited to Provincial during the last three years is shown in the appended statement. It will be seen from that statement that the expenditure under "salaries of officers" has been unusually large during the year 1898–99 when compared with that of the previous one. The rise under this head is mainly due to the special medical officers having been obtained from England as per Government Orders noted in the margin, to the entertainment of retired Military Assistant Surgeons, uncovenanted medical officers and temporary Civil Assistant Surgeons from time to time, and to the enhanced rate of pay offered to some of the above officers as will be seen from G.O., No. 683, Public, dated 1st June 1897, and G.O., No. 64, Public, dated 17th January 1899.

No. 457, Public, dated 19th March 1898.
„ 1290 „ „ 20th October „

28. *Exchange Compensation Allowance.*—Some of the commissioned medical officers having been detailed for plague duty, they were allowed exchange compensation allowance in accordance with the rules of the service which accounts for the increase under this head.

29. *Temporary Establishment.*—The gradual increase under this head represents the cost of establishment, both superior and inferior, entertained from time to time when the number of passengers from plague-infected areas was considerable.

30. The grant of travelling allowance to officers and subordinates for joining their first appointments, as per G.O., No. 941, Financial, dated 16th November 1897, the deputation, local, tentage and house-rent allowances sanctioned in the orders of Government noted in the margin fully account for the marked increase under these items, while the charges under postage and telegrams are chiefly attributable to the frequent use of telegrams in reporting the cases of plague to the several authorities concerned and the increased correspondence involved in connection therewith.

G.O., No. 797 M., dated 5th April 1897.
„ „ 1153 P. „ 23rd Sept. 1898.
Plague Commissioner's Proceedings, No. 907, dated 13th December 1898.
Plague Commissioner's Proceedings, No. 706, dated 18th March 1899.
G.O., No. 7, Public, dated 3rd January 1899.
„ „ 618 „ „ 5th June „

31. The increase under other items, some of which are trivial and call for no comments, represent the actual charges incurred in connection with the construction of sheds and the purchase of materials required for the formation and maintenance of camps and institutions for plague purposes.

32. The decrease under other items shown in the statement is due to the new method of adjustment of the charges sanctioned in G.O., No. 615, Financial, dated 17th May 1899. This has to a small extent minimised the expenditure on the Provincial side.

33. The expenditure under Local funds embraces the cost of medical establishment, nurses, &c. I have not the figures and facts before me to dwell upon the subject in detail as it would be a matter of time and delay.

34. *General Remarks.*—I may add that on the whole the financial measures were sufficiently satisfactory.

ENCLOSURE.

STATEMENT showing the Expenditure in connection with the Bubonic Plague during the last three years.

—	1896-97.	1897-98.	1898-99.
	Rs. A. P.	Rs. A. P.	Rs. A. P.
Salaries of officers	..	15,685 15 10	1,51,296 14 4
Exchange compensation allowance ..	..	511 15 4	2,051 2 11
Apothecaries and hospital assistants ..	502 14 1	442 7 7	..
Other temporary establishments ..	5 2 4	475 6 7	4,350 1 4
Famine batta	..	..	7 9 11
Local allowance of officers	..	..	1,720 0 0
Travelling allowance of officers ..	..	1,285 3 0	11,248 9 1
,, ,, of establishments	14 8 0	18 2 0	649 9 5
Tentage allowance of officers	..	..	216 10 6
Plague ,, of officers	..	1,060 0 0	3,509 4 7
,, ,, of hospital assistants, &c.	..	426 9 7	246 7 7
House-rent allowance	..	8 3 7	457 15 0
Hospital equipment	280 2 6	..	5,115 11 11
,, clothing and bedding	52 0 0	..	2 1 0
Petty works of construction and repairs.	298 0 0	1,577 11 2	..
Cost of maintenance of caste plague hospitals	..	..	617 1 0
Purchase of country and European articles	..	..	983 0 9
Purchase of boots	..	..	2 10 0
,, repair and carriage of tents ..	..	..	3,225 0 3
Peons' belts and badges	..	..	5 1 0
Subscriptions to newspapers	..	..	212 10 7
Cost of Europe stores including freight.	..	..	45,573 7 6
Liveries and clothing of servants ..	..	..	93 15 0
Rattan mats	..	..	116 6 0
Purchase and repair of furniture ..	..	..	16 8 0
,, of periodicals	..	..	1 10 6
Cost of stationery	..	0 9 9	27 14 0
,, of medicines	..	..	543 11 9
Cloth for records	..	..	14 0 3
Carriage of stationery and records ..	..	..	67 1 3
Petty carriage and cooly charges ..	..	..	58 15 8
Railway passage	..	278 13 0	..
Contribution to private hospitals ..	..	..	775 0 0
Inoculation charges	..	..	1,347 1 0
Dhoby charges	..	..	0 6 0
Packing ,, ...	..	..	5 8 0
Lighting ,, ...	..	..	25 7 6
Postage ,, ...	..	29 4 6	1,246 3 11
Telegraph charges	..	849 11 0	1,315 5 0
Office expenses	..	10 15 6	88 15 11
Miscellaneous	10 0 0	238 9 6	2,626 9 10
Other purposes	..	6 1 3	1,800 0 0
Total ..	1,062 10 11	22,905 11 2	2,41,661 12 3
Deduct—Amount erroneously adjusted received ..	..	511 9 0	1,227 7 3
	162 10 11	22,394 2 2	2,40,434 5 0

ularly complied with

following statement shows

dical Store Depot d

ORDER—No. 1879 P., dated October 1899.

Note—Only the more important of the reports submitted have been printed. Mr. B. Macleod's was certainly not worth printing.

(Intld.) M.H.

The papers read above relate to the recent outbreak of plague in the Madras Presidency.

2. *Imported cases.*—Up to the 30th September 1899, 453 cases were imported into 188 places in the Presidency. Of these, no fewer than 112 were stopped at railway and road inspection stations, Jalarpet station alone contributing 63, and the others were discovered under the "observation" system. The necessary precautionary measures were promptly taken, and the spread of the disease was as a rule successfully prevented. This was particularly the case in the City of Madras, where,

notwithstanding the continuous influx of thousands of passengers from the plague-infected areas, there have been only 17 imported seizures and not a single indigenous case. Great credit is due to the vigilance of the municipal authorities. In the districts there were 436 imported cases as detailed below :—

Districts.	Number of		Percentage of mortality.
	Seizures.	Deaths.	
Anantapur	66	48	72·7
Bellary	29	26	89·6
Chingleput	13	10	76·9
Coimbatore	2	1	50
Cuddapah	1	1	100
Kurnool	5	5	100
Madura	1	..	..
Malabar	2	1	50
Nellore	2	2	100
The Nilgiris	2	1	50
North Arcot	132	111	84
Salem	174	105	60·3
South Canara	1	1	100
Trichinopôly	6	4	66·6
Total ..	436	316	72·4

3. *Indigenous plague.*—Plague in an indigenous form first appeared at Guntakal in the Anantapur district, in the beginning of August 1898, *i.e.*, at about the same time as it attacked Bangalore, both places being probably infected from the same source, viz., Hubli. From Guntakal, the disease spread to the other parts of the Anantapur district and to the districts of Bellary and Kurnool. The epidemic was then rapidly extending in Mysore and the districts of Salem and North Arcot, which were nearest to the infected portion of that province, were attacked early in December 1898. The plague was at its highest in the week ending 11th February 1899, when the number of attacks was 263 and the number of places infected 50. It gradually subsided with the approach of the hot weather, and ceased entirely in the week ending 8th July 1899. It re-appeared on the 11th July 1899 in the Salem district where, after lingering in a mild form for several weeks, it has shown a tendency to spread during the past few days. The other districts continue to remain free, but the recurrence of imported cases gives cause for anxiety. Charts illustrating the course of the plague are appended. The following table gives the total number of cases and infected places in each district and the percentage of mortality :—

Districts.	Number of infected places in the district.	Total population of infected places.	Number of		Percentage of	
			Seizures up to 30th September 1899.	Deaths up to 30th September 1899.	Column 5 to column 4.	Column 5 to column 3.
1	2	3	4	5	6	7
Anantapur	30	46,552	625	506	— 80·9	— 1·08
Bellary	10	29,589	282	241	— 85·4	— ·81
Kurnool	6	16,250	170	139	— 81·7	— ·85
North Arcot	19	98,813	680	527	— 77·5	— ·53
Salem	35	49,345	559	414	74·06	·83
Total ..	100	240,549	2,316	1,827	78·8	·75

4. *Plague measures.*—The measures prescribed for the suppression of plague and for the prevention of its importation are described in the Madras Plague Regulations and Rules, a revised edition of which has just been issued, and it is not necessary to

refer to them in detail here. They seem to have been generally carried out intelligently and well in the affected districts. The chief measures for combating an outbreak of plague are—

(1) The entire evacuation of the infected locality at an early stage of the epidemic.

(2) The removal of the people of the infected locality to temporary shelter in the open air and the stoppage of all direct communication between them and their houses and the surrounding healthy villages until the disease has abated.

(3) The thorough disinfection of houses by means of sepoys or trained coolies under efficient supervision.

The reports read above show that the greatest success was obtained when these measures were carried out thoroughly as was the case, for example, at Hosúr, Berikai and Hospet, and the chief reliance must be placed on them in future outbreaks of plague. It is presumed the irregularities in the working of the passport rules in the Anantapur district brought to notice by the District Medical and Sanitary Officer have been rectified by the Collector.

5. *Attitude of the people.*—At the commencement, there was a great deal of misunderstanding among the people about the plague policy of Government owing to the circulation of unfounded rumours regarding the plague operations in other provinces, and the local authorities experienced considerable obstruction in dealing with plague cases. At Guntakal the Muhammadans for some time refused to evacuate infected houses, and the Plague Commissioner had to make more than one personal effort to persuade them to yield. In the North Arcot district, there was a similar opposition. There were several petty disturbances in Salem, Trichinopoly and North Arcot. In some places the plague sheds were burnt down and in others Government officers were ill-treated. In the Hindúpur taluk of the Anantapur district, there was a serious riot in which the Tahsildar sustained severe injuries resulting in his death. Where considered advisable, prosecutions were instituted, and steps were taken to educate the people by personal explanation, by the circulation of vernacular circulars and otherwise. The result was a considerable change for the better as time went on and the people began to recognize the necessity of protecting themselves by avoidance of contact with persons from infected areas and to realise the value of evacuation, while still distrusting the Government camps. It may be hoped that should there be a second outbreak of plague in the coming cold weather, the obstructions offered to plague measures will be found to have considerably decreased. The Collector of Salem reports that the people there readily accommodate themselves to the measures taken by the local authorities.

6. *Troops.*—Sepoys were employed on plague duty in the City of Madras and in the districts of Bellary, Anantapur, North Arcot and Salem. At Chippagiri they were employed for cordoning the village, and at Jalarpet they guarded for some months the camp attached to the inspection station. With these two exceptions, the sepoys were wholly utilized for disinfection duty, and they are reported to have proved themselves very useful, and to have generally behaved well towards the villagers. The thanks of His Excellency the Governor in Council are due to the Lieutenant-General Commanding the Forces for the readiness and courtesy with which all requisitions for troops were complied with.

Note—Except in Salem.

(Intld.) M.H.

7. *Plague establishment.*—Special officers to assist the district authorities were appointed as necessity arose and were dispensed with when no longer required. In September 1898 a Plague Commissioner was appointed to supervise all plague operations in the Presidency. The appointment was abolished in May 1899 owing to the decline of plague.

8. *Expenditure.*—The following table gives the plague expenditure since April 1897:—

Districts.	1897-98.			1898-99.			1899-1900 up to 30th June 1899.		
	Provincial.	Local.	Municipal.	Provincial.	Local.	Municipal.	Provincial.	Local.	Municipal.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Madras City (*a*).	13,163	..	46,767	1,21,665	..	1,61,460	29,347	..	44,557
Anantapur (*b*) ..	8,229	11,991	..	46,442	55,694	1,138	14,734	17,420	89
Bellary (*b*) ..	2,132	9,095	752	95,201	1,27,809	9,859	13,614	41,177	1,551
Kurnool (*b*) ..	192	2,660	353	12,244	48,621	4,859	3,394	10,808	796
North Arcot (*b*).	4,391	10,105	723	38,899	25,084	8,753	25,266	16,096	3,556
Salem (*b*) ..	100	26	104	47,063	33,245	5,960	16,473	22,670	1,920
Kistna (*a*) ..	6,229	2,611	1,974	14,702	64	1,698	1,404	659	114
Cuddapah (*a*) ..	..	2	..	4,095	5,588	990	3,497	2,457	91
Chingleput (*a*) ..	96	856	965	1,100	1,569	2,723	1,619	378	495
South Arcot (*a*).	..	23	955	1,359	1,394	3,587	1,669	153	1,998
Coimbatore (*a*) ..	194	4,934	715	8,482	7,069	1,723	1,488	2,465	254
The Nilgiris (*a*).	707	..	80	437	9,632	12,080	324	1,862	1,448
Malabar (*a*) ..	1,377	2	2,575	2,760	4,124	3,784	933	2,471	825
South Canara (*a*).	187	2,012	3,380	4,485	2,103	2,311	154	1,627	358
Other districts (*c*).	2,404	644	10,318	6,080	4,852	32,622	1,416	821	3,706
Total ..	39,401	44,961	69,661	4,05,014	3,26,849	2,53,547	1,15,332	1,21,064	61,758

(*a*) Are places where special precautionary measures were taken on a large scale.
(*b*) Are districts where there was indigenous plague.
(*c*) Are places in which ordinary measures on a small scale were employed.

9. *Sanitary Commissioner's letter No.* 60 *P. T., dated* 26*th September* 1899.—As remarked by the Surgeon-General, the Sanitary Commissioner has submitted an interesting review of the plague operations. Some of the points therein mentioned have already been settled in G.O., No. 878 P., dated 12th June 1899, and other orders. The Government concurs in the remarks made by him in paragraphs 3, 14, 22, 23, 24, 25, 27, 29, 33 and 34 and approves of the recommendations contained in paragraphs 32, 37 and 38. Orders will separately issue on the proposal to amend Additional Mufassal Regulation 34 (paragraph 26 of the letter) and to divide the ambulance staff into two sections (paragraph 38 of the letter). As regards native nurses, the Surgeon General is requested to submit proposals for training a sufficient number of women of good class, when the necessity for their services arises.

Note—It seems very doubtful whether what Dr. King says about climatic effect on plague in paragraph 5 is correct.

(Intld.) M.H.

10. In conclusion His Excellency the Governor in Council puts on record his appreciation of the excellent manner in which almost all the officers under Government who have had to deal with plague measures, have done their work. The freedom from plague which the greater part of the Presidency has hitherto enjoyed is, no doubt, in a great measure due to the energy and care shown by those officers who up to date have had the administration of the Plague Rules. Whether or not

Note—It seems unnecessary to name officers separately.

(Intld.) M.H.

this Presidency will continue to remain comparatively free from plague is still doubtful, and the utmost vigilance continues to be necessary on the part of all concerned.

(True Extract.)

Ag. Secretary to Government.

To all Collectors (A, B, F, K).
„ the Sanitary Commissioner.
„ the Surgeon-General.
„ the President, Municipal Commission, Madras.
„ the Deputy Adjutant-General, Madras Command.
„ the General Officers Commanding Districts.
„ the Resident in Mysore (with C. L.).
„ the Marine Department.
„ the Political Department.

Endorsement—No. 1569 A P., dated 31st October 1899.

Copy to the Government of India, Home Department.

M. HAMMICK,
Ag. Secretary to Government.

Ed. A. F. Eccleston.

Government {1899} of Madras.

LOCAL AND MUNICIPAL.

Proof

Recd. } 1899. *Enclosures*
Regd. } *Spare copies*

G.O., &c., Nos. 1569 A, 1569 A, P., 31st October 1899.

OCTOBER.

Plague in the Madras Presidency.

Reviewing reports from the Collectors of infected districts and the Sanitary Commissioner on the recent outbreak of —.

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

Read—the follcwing papers :—

From the Plague Commissioner, dated 1st May 1899, Ref. on Cur. No. 4608.

Abstract.—Requesting the Collectors of Anantapur, Bellary, Kurnool, North Arcot and Salem to forward on or before the 1st June 1899, a full narrative of the measures taken to combat the recent outbreaks of plague in their districts.

Memorandum from the Secretary to Government, Local and Municipal Department, dated 31st May 1899, Ref. on Cur. No. 4608.

Abstract.—Requesting the Collectors of Anantapur, Bellary, Kurnool, North Arcot and Salem to forward their plague reports to Government through the Sanitary Commissioner and the Surgeon-General.

ANANTAPUR.

From B. MACLEOD, Esq., M.A., Barrister-at-Law, Collector of Anantapur, to the Secretary to Government, Local and Municipal Department, dated 28th May 1899, No. A.

Abstract.—Reporting on the plague operations in the Anantapur district during 1898–99.

From B. MACLEOD, Esq., M.A., Barrister-at-Law, Collector of Anantapur, to the Secretary to Government, Local and Municipal Department, dated 1st June 1899, No. 985.

Abstract.—Forwarding a map of the Anantapur district and the reports of the medical officers employed on plague duty in the district.

From H. W. BEACH, Esq., Acting District Medical and Sanitary Officer, Anantapur, to the Collector of Anantapur, dated 31st May 1899, Dis. No. 133.

I have the honour to forward reports on the recent plague epidemic in this district from Major Robertson, I.M.S., late Acting District Medical and Sanitary Officer, and from Drs. Murray, Hunter and Roberts, Additional Medical Officers in charge of Plague Ambulance Columns Nos. I, II and III respectively.

2. When I took charge of the district the epidemic had entirely ceased in Gooty taluk and there have been only a few isolated cases in the Hindúpur taluk, which has remained free from notified cases of plague since 29th April 1899.

3. I have nothing to add to Major Robertson's report except with regard to the working of the passport system.

4. It has lately been brought to my notice that there have been such irregularities in the action of several of the passport-issuing officers as almost to entirely vitiate the value of the whole arrangement.

5. At the road frontier station, Penukonda (West), the hospital assistant in charge was found to be in the habit of leaving signed passports in the possession of an irresponsible clerk ; at Penukonda (East) the hospital assistant used to sleep and take his meals in the town, although he was not supposed to leave the station at all, as all passports were to be issued by him personally ; at Kodur the features of the country

were such as to render avoidance of inspection a most simple proceeding ; at Tadpatri there were grave irregularities, still (I believe) under enquiry ; at Gooty the platform sweetmeat seller wraps his wares in duplicate passport forms and over 250 filled in duplicate forms have been received from the same station suggesting something very wrong, but I am awaiting a possible explanation from the hospital assistant lately in charge.

6. The fact of the matter is that very few natives regard the passport system as of any value at all and several intelligent men have characterised it as a mere farce ; both passport issuers and passport holders have an interest in keeping down the number of passports issued and we are at present entirely dependent on the common honesty and zeal of men who have proved in this district to be apathetic or dishonest or both.

7. As far as road frontier stations are concerned nothing but constant supervision will tend to check the vagaries of the men in charge, but I think that a useful check on passport issuers at railway stations might be obtained from the passenger traffic returns which could be supplied by ticket collectors or others who could hardly work in collusion with the passport issuers without being found out by the railway authorities.

8. At Anantapur passport issuing and examining was done by one and the same man—an arrangement obviously open to objection, as was proved by the fact that when the work was divided amongst two men, the number of passports went up out of all proportion to the increased traffic with plague-infected areas.

9. Major Robertson must have been unfortunate in the brand of Chinese pump which he obtained from Bombay, as I used them for six months in another Presidency and found them most useful and very easy to mend when they got out of order. As a matter of fact the pumps he got were not the original Chinese ones (with a prayer burnt in), but an imitation with the faulty valves of the original and the added vice of being very heavy. The metal valves should have been removed and marbles put in instead ; the whole procedure can be carried out with elementary tools and results in a most useful pump.

10. I speak again from personal experience in saying that brass pumps when properly cleaned and oiled will last quite two months. Wetting a wall 4 feet high with a watering can, even with a rose on, is distinctly laborious work, and I consider a pump useful though not absolutely necessary.

Enclosures.

Report on the outbreak of Plague in the Anantapur District, 1898–99, made by Major Robert Robertson, I.M.S.

On the 6th August 1898 an anonymous letter was sent to the Collector from Guntakal Junction to the effect that Lala, a sweetmeat seller from Hubli, had brought the plague, and that the writer had seen in the house of Háfiz Khan, a railway contractor, two or three deaths occurring. On the 9th instant the Deputy Collector held an enquiry at Guntakal Junction along with the District Medical and Sanitary Officer. The enquiry shows that a sweetmeat seller named Hari Deo employed two servants Ram Lal and Behari Lal and a cooly Raghubeir Das. The employer with his servants lived in different rooms in the same block as far as I can understand, and the cooly at some distance. The cooly * seems to have been ailing for a few days with sore-eyes and then contracted fever and died after 5 or 6 days. The two servants † were simultaneously attacked with high fever and on the 3rd of August were placed under the treatment of the railway apothecary. These men all died within 5 days. (One of the servants had a small bubo due to a weight falling on his leg.) None of the deceased had been to Hubli, but the employer had been there and returned 1½ months previously. Fever had been prevalent for some time amongst the railway employés and this was put down to bad water. The District Medical and Sanitary Officer examined the iron reservoir

* 1st case.
† 2nd and 3rd cases.

and found a quantity of "greenish stuff" floating about and to this was attributed to a great extent the bad health of the employés. The source of the water at Nancherla, 4 miles distant, was also examined. The report concludes that the deaths are due to ordinary fever.

The next item of history is that the railway apothecary wired to the District Medical and Sanitary Officer at Anantapur on 13th that he should come and examine a case of fever.* Dr. Chalke arrived in the evening and met Captain Williams of Bellary who was passing through Guntakal—both examined the case (case 4) described as a Muhammadan mendicant and pronounced it plague. This man was found lying under a bread stall and after the diagnosis was established he was removed to a plague shed.

* 4th case.

A Komati woman † was also found on 14th to be suffering from plague, she was living near the sweetmeat sellers and she was conveyed to the plague sheds.

† 5th case.

On evening of 13th a Muhammadan, Shali Sahib, ‡ platform cooly living near the sweetmeat sellers, left his hut when he found he was suffering with fever and with his family lived in a vacant temple near Guntakal village; this family were taken charge of. It appears that Shali Sahib frequented the house of the Komati woman.

‡ 6th case.

The families who lived near the attacked persons were segregated and their houses burned down.

Muhammad Ismail and his mother § Ashabi brought in on 23rd. They lived in a house near No. 5.

§ 7th and 8th cases.

Krishnasamy || arrived from Bangalore three days ago. Admitted 24th August. He lived in a brakesman's house in staff lines. The man's name, house, &c., was wired to Bangalore and plague found in his house there. This was undoubtedly an imported case.

|| 9th case.

From this date there were no further cases until the 7th September when three ¶ more cases were found in two huts about two furlongs from the original focus, one of this family was a woman who sold hoppers and used to frequent the infected focus on business, but next door to her was a dhoby who, I suspect, received clothes from a guard at Hubli for washing in lieu of house-rent. This dhoby disappeared when plague broke out, but was afterwards captured.

¶ 10th, 11th and 12th cases.

Two ** more cases occurred on 16th—both were mail sorters. The above were all the cases in the railway quarters at the junction. It appears to me if these cases had been diagnosed by the railway apothecary who was undoubtedly very casual, considerable saving of life and money would have been effected. The whole spread of plague in the northern area of this district can be traced from this outbreak at the junction. It is also regrettable that Dr. Chalke did not suspect something wrong when three deaths occurred within five days and one case had in addition a bubo, as the Deputy Collector says. Dr. Chalke seems to have been puzzled and jumped to the water although he must have known that every one drank the same water at the junction. From the junction the disease slowly travelled to Timmancherla, a small village about one mile south alongside the Madras Railway. The disease here started in a house inhabited by the relations of the Komati people who were driven from the junction. The junction family came here for a few days and four of the family having taken ill, these fugitives again went off, one woman and child to Guntakal and another girl to Chobala These four people in Timmancherla died, but nothing was known of it for several days. Yet it appears that a family of poor people lived behind this Komati house and they came and assisted the old Komati woman and her three children when ill. A father and son of this family now died and on the 3rd son becoming ill I was informed. On arrival plague was diagnosed and the above facts were elicited with the addition that some sick people were taken away in carts at

** 13th and 14th cases.

nights. Two other houses in the vicinity of this Komati house were affected. These four houses were burnt down and the other houses in the block cleaned. Burning was the only cleansing that could be done to those houses. As the disease had been very virulent, a number of dead rats were found in each of these houses. The disease did not stop now but crossed over to another block so that fully 70 houses in two blocks were vacated.

This evacuation undoubtedly broke the back of the disease. About this time a child who had been taken ill and recovered somewhat in the jungle was brought back by the people into the village, she may have been in a few hours when the fact was brought to my notice, I had this entire family removed to camp. Notwithstanding this, three Komati families who lived alongside this particular house were attacked by plague. The disease now abated after a loss of about 26 lives and no further cases occurred in the village. The people evacuated lived in a field about one mile from the village in old tents supplied by the Government. These people after a time could hardly be persuaded to leave the tents and go back to the village; the same thing was observed at Guntakal.

The first intimation of plague at Guntakal was received on the 9th October. Four or five days previous to that I had informed the Tahsildar and kept a sanitary inspector on the look out that rats were dying in the village. The villagers denied that rats were dying. The first case was a boy Govindappa 15, I found him dead, his father said the boy had been ill for 36 hours. The father, a Komati, kept an open shop and his father died a week previous in the same shop. Two days afterwards, 11th October, four cases of plague were found in the village. Of these four, three were taken from a house immediately behind that of a Komati women who fled from Timmancherla and died at Guntakal. This infected house had been cleaned about the middle of September on the supposition that the woman had died of plague and then locked up—possibly those old people had assisted at the funeral ceremonies. From this date the disease spread more and more, the Hindu families all left but the Muhammadans refused to leave; then summons were issued and the whole village emptied. The temporary evacuation of a house for a few hours for disinfection was tried but failed—plague again started after a few days. In round numbers there were about 150 deaths in this village The Hindus went to their fields and erected huts, others got tents if their circumstances were such as to entitle them. Bamboo blocks of eight huts were erected for the poorer Mussalman families. The police quarters had also to be vacated owing to rats dying in them. There is no evidence to show that water had anything to do with the spread. About 500 inoculations were done in this village. The people erected caste camps on a small scale for themselves; a suspect and a plague block for Muhammadans and the same for Hindus. They were very kutcha and the people would not allow Government servants near them. The upshot was their sick died and the others would not go near the sheds but preferred dying in the fields.

Kottala.—On 21st November information was brought that plague had broken out at this hamlet. It appears a father with his two sons and one daughter lived together in a small house. The father was a stone-cutter and earned a livelihood working around the vicinity. He and one son and his daughter caught plague. On the father and son dying the remaining son ran away, the daughter was found dead on the 21st. The neighbours said that the father died about ten days previous and the son a few days before the daughter. The house, a small one, was burnt to the ground. About the 13th December an outbreak occurred (I was at Bangalore then), eleven attacks one day and twelve or so the following. There is no doubt but that rats were the carriers of the infection in this case, as the caste of the stone hewer and the ryots was such that the former would not be allowed to enter the houses of the latter. The burial of the daughter was performed by plague hospital servants and that of the father and son by Pariahs. This small hamlet lost about 33 souls.

Konakondla and Poliki.—Konakondla is situated about four miles from Guntakal. Plague started here about the beginning of January. It is presumed that fugitives from Guntakal village must have obtained a footing here. The possibility of an army of rats proceeding from Guntakal was broached, but there is no evidence to support this theory. Any way the disease again started in Komati houses and the people of

the village cleared out of their own accord. Dr. Murray with No. 1 ambulance column was stationed here—*vide* Dr. Murray's report attached. Poliki was about five miles west of Konakondla and this is a repetition of Konakondla. The disease spread here owing to the ineffectual segregation by the Reddi. The first cases were located together in a temple and I approved of the shelter on 24th December, but the Reddi allowed ingress and egress, the result was a sharp outbreak—63 attacks and 60 deaths.

Karúr, a village six miles from Konakondla. The disease was in all probability conveyed from Konakondla. Dr. Murray reported 29 cases with 17 deaths.

Gooty was attacked early in January. There were 20 attacks with fifteen deaths. Dr. Roberts was stationed here with an ambulance column. His report is attached.

Hindúpur is not referred to as Dr. Hunter treats of it.

(Intld) B.M.

The above are the main attacks in the district. Imported cases occurred at Uravakonda, Dharmavaram and Anantapur, but these were easily followed up.

Disinfection.

Disinfection was carried out according to the Plague Regulations up to the end of January. Prior to my assuming charge of the district, all the houses attacked were burnt down, excepting a railway brakeman's house, in the hope of stamping out the disease. After my assumption I recommended one house in Guntakal junction and the first four houses attacked in Timmancherla to be burnt down in the hopes of stamping out the disease; but as I found that this energetic mode of stamping out plague only succeeded in the burnt house and that other methods were equally efficacious and frightened the people less, I abandoned conflagrations except in a few cases where a small hut made of cholam stalks and grass roofs were concerned, as in these cases the ordinary methods of disinfection would be futile.

2. *Regarding opening up the roofs of dark infected houses.*—Openings were always made to the extent of four square feet. The roofs are usually made of branches of jungle wood with a palm leaf mat or a few inches of cholam stalks laid over this and then mud plastered on top. There is no hardship in opening up a roof of this nature. I frequently found that the house occupier would himself repair his roof without permission, so that I concluded there was no great strain on his pocket.

3. The kiln method was carried out in its entirety at Guntakal junction, Timmancherla, Guntakal village, Konakondla, Poliki and Karúr and in the Hindúpur taluk generally. This method of disinfection is very laborious and expensive and I question very much if as good results could not be obtained by a (1—500) perchloride solution with an excess of acid; it would certainly be cheaper, as perchloride is put on in any case to keep down the dust.

4. The walls for four feet, good clothes, household utensils, &c., were all disinfected with perchloride solution. I have not seen any bad effects on clothing from the use of this solution. Woollen goods of course will shrink with ordinary water.

5. The use of limewash I consider superfluous where perchloride has been applied and only neutralises any excess of perchloride that has been applied. Caustic lime is obtained with considerable difficulty and in many cases it is mixed with ordinary whitewashing chunam which, of course, detracts from its value. A cartload of caustic lime costs about six rupees and half of this nearly is unusable as silt. I have not the figures with me as to the cost of whitewashing Guntakal village, but I am sure it will turn out a very expensive item. Limewashing certainly makes a village look nice, clean and æsthetic, but in my opinion does little else except in chemically neutralising the effects of perchloride solution.

Carbolic acid solutions were not employed as there was no occasion for the use of this feeble disinfectant.

6. *The agency by which disinfection was carried out.*—Guntakal junction and Timmancherla were disinfected by hired labour—it was well done, but the work was very slow as the coolies could not be got to work steadily and frequently stayed away for a day's holiday, so that, an infected house might have to lie over for a day or two before disinfection; this was a serious delay. Undoubtedly the best agency is the

sepoys under a British officer. I regret to say from the inspection of work done in the Hindúpur taluk (out-lying villages) the work was bad, both the Head Assistant Collector and the Plague Commissioner agreed with me. The reason for this was bad supervision, a dozen of sepoys under a Havildar were sent to a village with the necessary implements and no one, except a sanitary inspector, supervised their work; this state of affairs was at once remedied by ordering Lieutenant Ames and the Deputy Collector Mr. Marshall from Guntakal to Hindúpur; Mr. Ames was then required to personally pass each house disinfected. Both Lieutenant Ames and his predecessor Lieutenant Peart did excellent work. I have also to thank both the Native officers attached to the Guntakal detachment, both of whom behaved excellently in trying to quiet the fears of the Guntakal villagers and dissuading them to oppose the Government measures. In closing this section I cannot do better than to denounce the Chinese pump. No one in the district could use them—sepoys, inspectors, &c.; the reason is the valves became blocked with sand, &c, and the teak or dealwood of which it is constructed cannot stand the climate or uses to which it is put. I have seen two sepoys trying to lift the piston in vain on account of the swollen condition of the wood. It is also a very expensive toy. At first it cost Rs. 10 each at Bellary and Madras, but later on I procured as many as I wanted at Bombay at Rs. 32–8–0 per dozen.

Brass garden pumps are likewise useless, the perchloride melts the solder in two days' time. Both Lieutenant Peart and Ames and the Native officers were in favour of the ordinary garden watering pot with a rose which they used freely. The cost is only 10 or 12 annas and somehow lasts, strange to say, over a month (I fear the Native solder must be good) and has the advantage of being procurable in almost any bazaar.

Plague Hospitals.

Three large suspect and plague hospitals, immobile, were built and equipped during the season—Guntakal, Hindúpur and Tadpatri The remains (two sheds) of a pilgrim camp were still standing on my arrival in September, and this afforded some shelter for plague cases at this period. The camp now gives excellent accommodation for ten cases (Native) and two (European) with shelter for families, servants, &c.

The suspect camp has accommodated 150 pilgrims on occasion. There is furnished accommodation here also for four Europeans.

Two hospital assistants, one Apothecary and a nurse were in charge of the camp.

2. Hindúpur camp is on a smaller scale and different design. It will afford complete accommodation for ten Natives and two Europeans, whilst the suspect camp will accommodate over 100 Natives. This camp was in charge of an Assistant Surgeon, two hospital assistants and a nurse, &c. Both Guntakal and Hindúpúr camps were serviceable in treating plague cases.

3. Tadpatri camp only dates from February of this year, it is well equipped and in charge of an Assistant Surgeon and one hospital assistant. No plague has yet been treated here.

4. At Anantapur, the Municipality have erected sufficient accommodation for a few plague cases. One has already been treated there, no special hospital assistant has been detailed for these sheds.

5. The various Unions as Gooty, Tadpatri, Uravakonda, Dharmavaram, Penukonda and Bukkapatnam had a small supply of condemned tents allotted to them for plague uses, so that immediate segregation could be resorted to if necessary. In addition to this at these stations the Local Fund Medical officer had a good supply of disinfectants and medical comforts given to him for plague purposes only.

Railway Inspection Stations.

1. *Hindúpur* was the railway frontier inspection station. All passengers from Mysore territory were here examined. An Assistant Surgeon, nurse and several writers completed the staff. During the plague season there were really only two trains passing—10–30 P.M. Mail from Bangalore and a Local about 1 P.M. in the afternoon. A good look out on the down Mail to Bangalore was also kept up. Two or three cases from Bangalore were removed from the train suffering with plague and a considerable number of suspects were detrained.

2. *Guntakal Junction.*—The railway inspection staff examined all trains—Southern Mahratta Railway and Madras Railway—arriving, and passports were issued to those detraining from infected parts. Five cases in Bangalore were taken out of the train suffering from plague. The establishment here was an Assistant Surgeon, a nurse, hospital assistant and one peon. Quarters were provided for the staff close to the station.

3. *Tadpatri.*—An inspecting staff was stationed here in February for the examination of all passengers on the Mail, this examination did away with an examination at Guntakal for this train, the object of this movement was to have those travellers from Gooty town inspected. The staff was identical with that in charge of the Guntakal plague camp.

4. Besides these railway inspection stations there were examination of passengers detraining and the issue of passports to them. At Penukonda station an assistant sanitary inspector issued passports, at Dharmavaram a hospital assistant, this man also looked after the South Indian Railway passengers. At Anantapur a hospital assistant, at Gooty station a hospital assistant and at Tadpatri until the regular staff were appointed, a sanitary inspector issued passports, &c.

5. *Circle Inspectors.*—Hindúpur and Madakasíra taluks were each divided out into seven circles. Two supervisors watched the work of the sanitary inspectors in the Hindúpur taluk and only one supervisor for the Madakasíra taluk. The Kalyandrug-Mysore frontier was watched by three Inspectors and one supervisor.

The Gooty Taluk.—Three inspectors and a supervisor stationed round the neighbourhood of Gooty; these men did excellent work in patrolling.

Between Guntakal and Uravakonda there were four sanitary inspectors and round the neighbourhood of Uravakonda there were two others. These six inspectors were under one supervisor and did fairly good work on the whole. The diameter of each was between five and six miles and each inspector had in his possession a riding pony. These inspectors latterly were of a very poor class, many of them could not tell the truth, so that the distance travelled, &c., as noted in their diaries were frequently found to be false. Some could not speak English or write it, so that their diaries came to be written by others. Two men came to the district who could not speak Telugu. Muhammadan sanitary inspectors I could not trust, the three whom I had may have been an exceptionally bad lot.

The supervisors were on the whole a mixed lot. One was a certificated inspector, P. Kothandarama Row, he did very good work; his brother P. Runga Row, who started without sanitary education, came out most brilliantly; he had plague in almost all his circles, six in number, and came out of it all splendidly. This man came out of the Collector's office at Cuddapah.

At Hindúpur Mr. Brito, Salt Inspector, did excellent work, he saw no plague before coming to the district. Mr. *Gotting had had previous experience of plague at Bombay, he worked very satisfactorily.

* This is doubtful.
(Intld.) B.M.

The supervisor at Madakasíra was a †clerk in the Collector's office, he knew nothing.

† English Head Accountant.
(Intld.) H.W.B.

The supervisor at Kalyandrug was a Revenue Inspector ‡, he would have been of little use if plague had occurred in his charge. As a supervisor holds a very responsible position, I am of opinion no one should be given such a post unless he holds a sanitary certificate. As a rule I found the temporary sanitary inspectors are indifferent and overpaid body compared with the certificated men.

‡ Ag. Taluk Sheristadar, Dharmavaram.
(Intld.) H.W.B.

Ambulance Columns.

Three ambulance columns were equipped and employed most of the season.

The first column under Dr. Chalke proceeded to Uravakonda in September and remained there until it was obvious that plague was not to spread.

The second column was sent to Dharmavaram under Dr. Charlesworth on 6th October and remained there for about four weeks. No. 1 column was again brought into Guntakal village under Dr. Charlesworth in November and remained there until January 3, 1899, when it proceeded to Konakondla under Dr. Murray.

No. 2 ambulance column went to Hindúpur under Dr. Hunter's charge about the middle of December; the object of sending this column to Hindúpur, where a plague camp already existed, was to split it up into sections for various infected villages.

No. 3 column was sent to Gooty under Dr. Roberts early in January 1899. Each column was fully equipped except No. 3, as from our previous experience we anticipated no one would seek aid and this actually occurred. From my experience in Anantapur district I do not think those expensive columns are of much use from a hospital point of view. The people refuse to go near them. Dr. Murray tried hard at Konakondla and Poliki to win the people but in vain. Each of these columns mean an English plague doctor, a nurse, a hospital assistant and a compounder with a menial staff about twenty, all doing nothing. If those sick people are to be successfully won, it can only be by the local medical officer whom they have known for a long period.

I may add that a reserve Medical Officer Dr. Beach was kept in readiness at Anantapur in view of a possible outbreak at Tadpatri or elsewhere.

Road Frontier Stations.—Four road frontier stations were opened in the district, two amongst the Penukonda hills, one at Govindapuram amongst the hills and a fourth at Kodúr; this last was, in my opinion, useless as it did not command the road and any one could evade it. Whereas the others were situated on the only track —a road which winds in and out of the hills. These stations were equipped according to regulation. Accommodation for plague and suspect cases were provided at each.

Originally five, but the one at Hindúpur was soon abolished.
(Intld.) H.W.B.

Inoculation.—Roughly speaking, about 3,000 inoculations were performed in the Anantapur district from September to April. The majority of those inoculated were of the poorer classes. In very few instances could observations be made after inoculation. I personally am not aware of any deaths due to inoculation. I have not seen abscesses resulting from inoculation but have known them to occur. I consider abscesses due to a badly-cleaned arm or a dirty needle. From January inoculation practically ceased, this was undoubtedly due to the remarks of Lieutenant-Colonel Lawrie on Dr. Haffkine's serum. Children and men bear inoculation excellently, women indifferently and pregnant women badly. Of course it is to be understood that all inoculated persons are selected as being in good health.

Amongst the inoculated there have been five deaths and three recoveries. Amongst the deaths one was inoculated twenty-one days previous, another three, another seven, another ten, and one case at Hindupúr which Dr. Hunter will furnish details of—*vide* case No. 10 in list.

List of persons attacked is appended—

Number.	Name.	Age.	Date of inoculation.	Date of attack.	Date of death.	Remarks.
1	Streenivasa Row ..	24	11th Sept. 1898.	14th Sept. 1898.	January 1899.	....
2	Seenaya	25	1st Oct. ,,	21st Oct. ,,	....	Recovered.
3	W. Lutchmanan ..	45	7th ,, ,,	26th ,, ,,	28th Oct. 1898.	Large diffused axillary abscess.
4	Veerasamy	28	8th ,, ,,	17th ,, ,,	....	Recovered.
5	Nagamma	26	9th ,, ,,	24th ,, ,,	24th Oct. 1898.	This woman was found dead in her own house, a fortnight after her child had died of convulsions. I cannot certify her case as plague.
6	Tippanna	12	13th ,, ,,	23rd ,, ,,	23rd ,, ,,	Found dead.
7	Erappa	40	15th ,, ,,	19th ,, ,,	19th ,, ,,	Found dead. I could not certify this as plague although adjoining a plague-stricken house.
8	Rahim Bee	26	22nd ,, ,,	26th ,, ,,	....	Recovered.
9	Mahaboo Bee ..	5	22nd ,, ,,	27th ,, ,,	29th Oct. 1898.	..
10	Pakka Madava Row..	30	4th Nov. ,,	25th Jan. 1899.	1st Feb. 1899.	In same house one inoculated male, one uninoculated male and one uninoculated female escaped attack; one uninoculated female had plague and recovered.

In concluding my report I must bring to your notice the services of Mr. Marshall, Deputy Collector on plague duty. He has throughout done excellent work and worked with zeal both round Guntakal and at Hindúpur. The work has been very irksome sometimes for him, but he has never tired. I trust Government will take favourable notice of his services.

I also desire to bring to the Collector's notice the services of Dr. Murray, Mr. Vasudeva Row, B.A., Tahsildar of Gooty, Apothecary Parrie and Supervisors Mr. Brito, P. Kothandaram Row and P. Runga Row. These have all done good work.

I have withheld my remarks on Hindúpur as Dr. Hunter's report will deal more fully on that subject.

From W. H. MURRAY, Esq., M.B., C.M., Additional Medical Officer, Anantapur, to the District Medical and Sanitary Officer, Anantapur, dated 28th March 1899.

From J. HUNTER, Esq., M.B., C.M., Additional Medical Officer, Hindúpur, to the Collector of Anantapur, dated 19th May 1899, No. 1795.

From H. T. L. ROBERTS, Esq., Additional Medical Officer, Gooty, to the District Medical and Sanitary Officer, Anantapur, dated 31st March 1899.

BELLARY.

From E. A. ELWIN, Esq., Collector of Bellary, to the Secretary to Government, Local and Municipal Department (through the Sanitary Commissioner and the Surgeon-General), dated 14th and 19th June 1899, No. 250-P.

ABSTRACT.—Forwarding the report of the District Medical and Sanitary Officer and the following narratives relating to plague-infected places in the district:—

Chippagiri, Alúr taluk.—This village (population 1,884) is situated at a distance of 5 miles from Guntakal junction in the Anantapur district where plague had appeared about the middle of August. Suspicion of the existence of plague in the village was first aroused early in September 1898, at which time the Collector was, with reference to Additional Regulation 22, arranging for the formation of an observation circle consisting of this particular village and all villages situated within a radius of 6 miles of it. On 6th September 1898, two individuals were taken ill with fever. One of them, an adult male, died on the night of the 9th idem from what the apothecary of Alúr who treated the case and the District Medical and Sanitary Officer who examined the corpse the following morning were practically certain, was plague. The other individual, a female, died on 11th September 1898, but the District Medical and Sanitary Officer felt doubtful whether it was a case of plague.

2. As the plague was apparently indigenous and as Government on hearing of the occurrence, telegraphed to the Collector on 10th September 1898 to proceed to the spot with the additional medical officer and take all precautionary measures, arrangements were at once made for the formation of a new observation group consisting of four observation circles with Chippagiri as head-quarters, and for the despatch to the village for cordon duty of the company of sepoys of the Ninth Madras Infantry that had been placed at the Collector's disposal in the previous March and for duties connected with the treatment of the sick the ambulance staff that had for some time been assembled in readiness at Bellary.

3. On the advice of the District Medical and Sanitary Officer who examined on 10th September 1898, the first suspicious case of fever which proved fatal as above stated, the shed in which the patient died, the house in which he was living before the attack and the village gate-way to which he was removed were all burnt. The inmates of the adjoining house in which the second fever case of the 6th September which was not pronounced to be plague occurred and several others were temporarily segregated in their own houses pending the construction of segregation, etc., camps.

The Collector himself proceeded to the village on the morning of 12th September 1898 to personally supervise the plague-preventive measures and the sepoys arrived there on the next morning under the command of a British officer. A cordon was immediately placed round the village as the villagers seemed disposed to leave their homes for other villages and the pass system was introduced. No one was allowed either to leave or to enter the village unless provided with a general or a special pass, the issue of general passes being entrusted to the Tahsildar and that of special passes being reserved by the Collector to himself. The ambulance staff arrived on 14th September 1898.

4. On the arrival of the sepoys in the village, the house-segregated persons were removed for observation to a segregation shed which had been prepared in the meantime for the purpose. Temporary sheds for the accommodation of patients were put up, and a health camp consisting of several temporary sheds and some tents obtained from the Collector of Anantapur was formed. Guards were placed over all these camps. As a regular hospital a nicely-thatched building containing wards capable of holding ten persons was afterwards erected.

5. On the arrival of the ambulance staff a house-to-house inspection was begun with a view to ascertain whether there were any suspicious cases of fever. The inspection party which consisted of the revenue and medical officials and the Plague Inspector was always accompanied by two or three respectable inhabitants of the village in whose presence the inspection was conducted agreeably to the customs and wishes of the people. This measure of daily inspection, however, proved so unpopular with the people that it had to be given up and an informal sort of inspection by the Tahsildar substituted. As the officer in command of the detachment of sepoys reported on 16th September 1898 that his 100 men were insufficient for cordon duty, and as it was apprehended that the villagers would abscond unless properly controlled should fresh cases of plague occur, application was made to Government and sanction obtained for an extra force of 100 men. These men arrived in the village on 19th September 1898 and were at first employed on cordon duty along with the other men.

6. There was no fresh case of plague in the village for ten days after the first attack and the Collector therefore ordered the cordon and ambulance staffs to disperse and himself left for Tungabhadra on the night of 21st September 1898. The additional medical officer and the ambulance staff left for Bellary on the 22nd morning and the cordon staff was also about to set out on the same day when the Tahsildar and Plague Supervisor discovered in a hut, on the confines of the village, a case of plague that appeared to have been imported from Guntakal. The patient—a boy—and the other members of his family were immediately removed to the temporary plague sheds outside the village and the apothecary in charge of the Local Fund hospital at Alúr sent for. The latter agreed with the Tahsildar and the Supervisor that the boy was suffering from plague and treated him till his death which occurred on the 23rd night. Immediately on the discovery of this case, all necessary precautions were re-adopted and the additional medical officer and ambulance staff recalled. The Collector himself returned to the village from Tungabhadra on the 23rd morning. From this day forward there were a series of indigenous cases as noted on the margin, all of which proved fatal.

Date.	Number of seizures.
23rd September 1898.	3
24th „ „	1
26th „ „	1
29th „ „	1
1st October „	1

7. With a view to stamp out the disease in the village and prevent its spread to the adjoining villages, the village was declared to be an infected area under Additional Regulation No. 21 and a notification published in the District Gazette Extraordinary, dated 24th September 1898. The following measures were also promptly taken with the result that the disease did not spread to any appreciable extent, the total number of cases which occurred in the village being eight indigenous and one imported:—

(i) Removal of the patients to the plague hospital.
(ii) Segregation of the contacts.
(iii) Removal to the health camp of the inmates of the houses situated in the blocks adjoining those infected and the complete evacuation of the houses whether infected or situated in the adjoining blocks.

(iv) Disinfection of the above houses and their contents in the manner laid down in the regulations.

(v) *Inoculation.*—Forty-nine houses were in all evacuated and disinfected, the inmates thereof numbering 161 having been removed to the health camp. The disinfection was at first done by coolies specially engaged for the purpose, but this system did not work well and the business was subsequently undertaken and completed in a very satisfactory manner by a portion of the troops that was spared from cordon and guard duties. The mode of disinfection followed was that prescribed in G.O., No. 487 P., dated 17th May 1898, and all the houses were, after disinfection, white-washed. Subsequent to 15th September 1898, no houses were destroyed by fire, but all articles of trifling value condemned by medical officers as liable to retain infection were thus destroyed. To the owners of the property who were affected by this measure, compensation amounting to Rs. 519 in all was paid.

There was at first considerable difficulty experienced in inducing the villagers to submit themselves to the operation of inoculation, but their reluctance was gradually overcome by persuasion and owing to the good example set by the Tahsildar and sepoys. Five hundred and forty-one persons were in all inoculated.

8. The last plague case which broke out in the village proved fatal on 2nd October 1898 and after the lapse of 20 days from the last attack, it was considered that all danger of infection had passed away. The cordon was accordingly withdrawn and the ambulance staff permitted to return to Bellary on 21st October 1898.

9. There has up to date been no recrudescence of the disease in this village.

10. *Molagavalli, Alúr taluk.*—The next village where plague broke out was Molagavalli situated at a distance of 3 miles from the railway station of the same name on the Madras Railway line and of about 8 miles from Chippagiri with a population of 3,216. On 2nd November 1898, *i.e.*, 12 days after the withdrawal of the cordon and ambulance staff from the latter village, the Tahsildar of Alúr received a report from the Plague Inspector of the circle of the discovery at Molagavalli of a case of fever with glandular swellings under the arm-pit, and at once proceeded to the village with the Civil Apothecary, Alúr. The latter had the patient under his observation till the following morning and found that he was developing symptoms of plague. The Tahsildar had the patient removed to a temporary shed put up outside the village and the contacts, eight in number, segregated in another shed. The sheds were guarded by the police.

11. The patient was a Komati, by name Iswarayya. He had been to Gooty on business on the morning of 22nd October 1898 and returned to Molagavalli on the night of the following day *viâ* Guntakal. He was apparently in good health till 31st October 1898, when the fever already alluded to began. He is supposed to have contracted the infection when at Gooty or Guntakal.

12. On the receipt of information of the above case on 3rd November 1898, the Collector at once made arrangements for the despatch of the ambulance staff and himself started for the spot with the District Medical and Sanitary Officer on 4th November 1898. The District Medical and Sanitary Officer examined the patient the next morning and pronounced the case to be one of plague. Thereupon the disinfection of the man's house and the evacuation and disinfection of the neighbouring houses were ordered and put in hand under the personal superintendence of the Collector and the District Medical and Sanitary Officer. The disinfection was at first carried out by the ambulance staff assisted by a few coolies of the village specially engaged for the purpose.

13. On the afternoon of 5th November 1898, an indigenous plague case was detected in the house opposite to that of Komati Iswarayya above mentioned. The patient, a golla, male, aged 30 years, was removed to the camp outside the village the next morning, but died within an hour or two afterwards. The contacts were segregated.

14. The inmates of the houses in that portion of the village held to be infected were at first sent to a health camp but they were subsequently allowed to remove themselves to sheds in their own fields at a distance from the village where they were subjected to daily inspection.

15. There were no fresh attacks reported till 18th November 1898, when a toti woman attached to the ambulance staff developed plague and died the next day. She was the only uninoculated member of the ambulance staff and apparently caught the infection in the discharge of her duties which frequently brought her in contact with the first patient who eventually recovered. Between 19th November 1898 and 30th November 1898 there were three more indigenous cases outside, but near, the infected portion of the village, all of which proved fatal.

16. In the meantime many of the villagers had removed from the village to temporary sheds put up in their fields and it was found out towards the end of the month that there had been several suspicious fever cases which had not been reported to the authorities, the corpses in the fatal cases being disposed of by clandestine burial. Subsequent enquiries showed that whenever an inmate of any particular house was attacked with fever, the other inmates at once took him and as much of their property as possible and left the village at night for the fields; this could be done without much fear of immediate detection owing to the fact that house-to-house inspection could not be resorted to as the people threatened to run away to other places if they were worried in that way and that the vast black cotton plain in the midst of which the village is situated afforded any amount of hiding places. It was tolerably clear by 9th December 1898 that the village was infected in almost every corner and orders were accordingly issued to evacuate the whole place except a substantially built house occupied by the reddi whose whole family had been inoculated. Seven hundred and sixty-eight houses in all were evacuated and disinfected the inmates thereof numbering 3,210 having removed to the fields. A detachment of 100 sepoys under a British officer for disinfection work was obtained from Bellary on 12th December 1898, and with the help of a few coolies employed to do odd jobs, such as fetching water, completed the disinfection of the village by 30th January 1899. A Special Deputy Tahsildar to relieve the Tahsildar of some of his ordinary work was appointed about this time; his appointment lasted till the end of the official year.

17. The last attack of plague occurred in the fields on 30th January 1899, but the people were not allowed to re-occupy the village until 14th March 1899, when orders were issued permitting re-occupation of the houses, the villagers being directed to boil all their clothing and expose it to the sun before re-entry.

18. During the outbreak the Special Deputy Collector and the additional Medical Officer were generally encamped at the place and engaged in patrolling the camps and supervising the preventive measures. The Collector paid several visits to the village. Inoculation was not so popular as at Chippagiri, the total number inoculated being only 112; the chief reason for this was that at least five persons, who had no doubt incipient plague at the time of the operation, died within a few days after inoculation and their fate led others to regard inoculation with suspicion.

19. The total number of attacks reported was 129, 106 of which proved fatal, but it is believed that several persons were attacked and perished in the fields whose cases were never heard of.

20. *Peddahotur.*— * * *

* * * * *

29. *Hospet Union, Hospet Taluk.*—Hospet village is the head-quarters of the taluk of the same name and has a population of 12,878 and comprises with the adjoining villages of Chitwadigi (population 3,278) and Mudlapur (population 253), the Hospet Union.

30. *First outbreak.*—The disease first appeared in an indigenous form early in December 1898 at Mudlapur close to the Hospet railway station. The Sanitary Commissioner for Madras inoculated on 2nd December 1898 a girl of ten years' age, a member of the family of the railway stationmaster, who was apparently in good health at the time the operation was performed. On the second day after inoculation the child had mild re-actionary symptoms and apparently recovered in a day or two. On the seventh day after inoculation, *i.e.*, 8th December 1898, she was attacked, however, with high fever accompanied by convulsions and developing symptoms of plague two days later died on the night of 11th December 1898, when the Plague Commissioner and the Collector were on the spot. How the infection was communicated to the child it has never been ascertained.

31. The house in which the death occurred was thoroughly disinfected and the contacts of the deceased were after disinfection removed to the camp attached to the railway inspection station. Two of the contacts—the wife and a son of the stationmaster—developed symptoms of plague on 17th December 1898 while under observation, but eventually recovered.

32. *Second outbreak.*— As in the case of the first outbreak, nothing definite has been ascertained about the origin of this outbreak. It is probable, however, that the disease was introduced by persons of the Boya caste who after the fall of the Tungabhadra river at the end of November were in the habit of resorting in large numbers to the toddy shops situated at a distance of a few miles from Hospet in the infected Kopbal jaghir of the Hyderabad State.

33. On 7th January 1899 a Boya boy aged six years was brought to the Hospet hospital suffering from fever. On examination the civil apothecary found symptoms of plague, and immediately had the patient removed to the plague hospital attached to the railway inspection station and the contacts segregated. As there was nothing to show the case to be an imported one, suspicion that other cases were being concealed was aroused and accordingly on that evening the Tahsildar in company of the Civil Apothecary and the Inspector of Police made a house-to-house inspection in the Boya quarters and discovered three more cases of plague in different houses. The inspection was continued the next morning (8th January 1899) when another case was discovered. In the evening a Kuruba woman was brought to the hospital by a man who turned out to be her husband and left by him in the verandah; a few minutes later she was examined and found to have symptoms of plague. The patients in all the above cases were removed to the plague hospital and the contacts to the observation camp. It was by this time quite clear that there was indigenous plague in the village.

34. On hearing of the outbreak, the Collector at once arranged for the despatch of an ambulance staff and himself proceeded to the spot on 9th January 1899 with the additional Medical Officer. The Sanitary Commissioner also arrived there on the next day and gave personal instructions regarding evacuation and disinfection. In order to protect Bellary and other places, the Collector under Additional Regulation 21 notified the Hospet Union as an infected locality and introduced the pass system. The civil apothecary, who has considerable influence in the village, was relieved of his work at the hospital by one of the hospital assistants attached to the ambulance staff and put on the special duty of inspecting the houses in view to the discovery of any fresh cases that might occur. The people in the Boya quarters and others living near the infected houses were persuaded to evacuate their houses and remove themselves to the fields. Disinfection under the supervision of the Plague Supervisor of the local group was begun, coolies being specially employed for the purpose. In spite of these precautions the infection gradually spread to many parts of the village and at length reached the village of Chitwadigi, where the first attack occurred on 18th February 1899, and subsequently cases occurred in different parts of that village.

35. As the disease had evidently taken a firm hold on Hospet and Chitwadigi, it was considered necessary to adopt drastic measures for its eradication, and the evacuation of the whole of the houses, except a few detached ones that had in all probability not become infected, was resolved upon. There was at first a little opposition to the proposal, but through the exertions of the local officers, the reluctance of the people was overcome and the evacuation which was first begun at Hospet in the Boya quarters on 8th January 1899 was completed on 15th February 1899. In Chitwadigi the evacuation was commenced immediately after the first attack there and was completed about 23rd March 1899. The whole population of Chitwadigi (3,278) and of the Hospet town (12,898), with the exception of some 200 who lived in detached Petas outside the town, vacated their houses and settled themselves in temporary sheds built in the fields and scattered over an area of fifteen square miles round the two villages. Care was taken that the sheds were at least twenty yards apart from each other, so that should plague break out in any one of them there would be no great risk of the spread of contagion and infected materials might easily be destroyed by fire without endangering the safety of other habitations.

36. Simultaneously with the evacuation, the disinfection of houses was begun, special coolies, and not sepoys as in other parts of the district, being employed for the purpose. Excluding a special gang for urgent work and odd jobs, there were in all eighty coolies divided into eight gangs of ten each. Mr. Moore, one of the Assistant Collectors, was placed in charge of the disinfection operations, assisted by a Plague Supervisor who was relieved of his ordinary duties and specially posted to Hospet and Chitwadigi. In order to ensure constant supervision over the coolies, each gang was placed under the control of a maistri and over every two maistries was an assistant Plague Inspector. The detailed scheme for disinfection was approved by the Plague Commissioner in his Proceedings, No. 913, dated 5th March 1899. Three thousand one hundred and forty-seven houses in Hospet and 711 in Chitwadigi were in all disinfected, the work was begun early in March and completed on 17th May 1899. The total cost of the disinfection amounted to Rs. 3,800. The work of this kind that was being carried out during my visit to the place in January was not very thorough, and there had been several attacks between that period and the time when wholesale evacuation was decided upon. I, therefore, after the scheme referred to above received formal sanction, had the houses already disinfected in the earlier days of the outbreaks disinfected over again for safety's sake.

37. In addition to the measures detailed above and with a view to stamp out the disease and prevent its spread to the adjoining villages, the people in the camps were not allowed to return to the town without permission nor were they allowed to leave Hospet for other villages without obtaining special passes from the Stationary Sub-Magistrate, Hospet, who was authorized to issue them in consultation with the local medical officer. Instructions were also issued to the village officers of the Hospet taluk not to allow the Hospet people enter their villages unless they held passes issued by the Stationary Sub-Magistrate. The Hospet and Hansi observation circles were each sub-divided into two and each sub-division placed in charge of a Plague Inspector to ensure more systematic patrol of the villages and prompt detection of any suspicious cases that there might be. Four camp Superintendents were employed to watch the movements of the people in the camps and report on their health daily. The civil apothecary, who was on special duty from the beginning, was constantly going round the camps. The result of these measures was that the disease did not spread beyond the Hospet union.

38. During the Plague Commissioner's visit to Hospet on 22nd March 1899, the people in the camps complained to him of the hardship of the rule preventing their return to the town. The rich people wanted to guard their property; the weavers said they were at the end of their resources and could not weave in their camps; the cultivators wanted to take manure to the fields; and the merchants had to store jaggery in their homes. The Commissioner referred their complaint to the Collector with his remarks for disposal. The Collector granted the concessions sought for under certain limitations. As regards the complaint of the rich people, only inoculated persons were allowed to remain in the village after dark; they were compelled to sleep on the flat roofs of their houses and were disinfected in the mornings before their return to the camps. In the case of weavers it was considered desirable to keep them entirely out of the town and such of them as were unable to maintain themselves were paid half wages during the period of their detention in camps. (Plague Commissioner's Proceedings, No. 1084, dated 18th April 1899). The carting of manure was allowed under proper precautions and with reference to the system of passes. The merchants were allowed to store jaggery in houses that had been thoroughly disinfected, provided the cartmen and coolies obtain passes and did not remain in the town longer than was absolutely necessary.

39. In August last the leading inhabitants of Hospet applied for permission to erect separate sheds for the disinfection and segregation of the different castes of the observation camp attached to the Hospet railway inspection station. The application was granted in G.O., No. 827-P., dated 17th August 1898, and in the Plague Commissioner's Proceedings, No. 623, dated 4th March 1899, a contribution of Rs. 621 being the moiety of the cost of the private sheds constructed by the people of Hospet was sanctioned. The people of Chitwadigi raised among themselves subscriptions amounting to Rs. 1,000 and constructed their own plague hospital adopting the plan of sick

hospitals attached to the plague camp. Three patients and 21 contacts of Chitwadigi were removed to, and segregated in, the private camp. They were treated and observed here by the Civil Apothecary Mr. Stocking. The Hospet people also constructed a similar hospital, but none was treated or segregated therein. With the exceptions noted above all the plague patients were removed to the Government camp for treatment. The contacts of plague patients were for some time segregated in the observation camp attached to the railway inspection station, but as it was considered objectionable to detain them in the same camp along with those detained from the trains, separate sheds were constructed for the use of the Hospet contacts.

40. Inoculation was not at all popular during the second outbreak as the first indigenous attack of plague that proved fatal on 11th December 1898 was attributed by the people to the operation performed on the patient some days previously by the Sanitary Commissioner. The prejudice of the people was, however, ultimately removed to some extent and 993 people were in all inoculated. Of these, 43 were Muhammadans of Chitwadigi who were encouraged to submit to the operation by their Moulvi Saiyid Ala-ud-din Ṣáḥib; this gentleman also assisted the authorities by persuading his co-religionists to evacuate their houses and he has since had the title of Khan Ṣáḥib bestowed on him.

41. The number of indigenous attacks and deaths were as shown below :—

	Number of attacks.	Number of deaths.
Hospet	71	61
Chitwadigi	19	13
Mudlapur	3	1
Total ..	93	75

There have been no fresh attacks since 7th April 1899 in Hospet and since 8th April 1899 in Chitwadigi.

42. A Special Deputy Tahsildar was appointed to relieve the Tahsildar of a part of his ordinary duties.

43. The District Medical and Sanitary Officer, after inspecting the union on 16th May 1899, reported that the disinfection had been satisfactorily done and recommended that re-occupation of the houses might be permitted. On the same day, instructions were accordingly given permitting re-occupation, prior right of entrance being given to those inoculated.

44. *Chinnahotur and Marakattu, Alur taluk.*—From Peddahotur the plague spread to Chinnahotur and Marakattu, which are within a mile's distance. The Peddahotur ryots were resorting to the house of the Chinnahotur blacksmith. The smith's child, a girl of two years old, who had previously been suffering from fever, developed symptoms of plague on 3rd February 1899 and died on the same day. The body was buried with the usual precautions and the contacts were segregated in their own fields as they were unwilling to go to the segregation camp at Peddahotur. The house in which the case occurred and seven adjoining houses were evacuated and disinfected. By the adoption of timely measures, the spread of infection was arrested in this village.

45. In Marakattu, the plague assumed the choleraic form. Cholera had been prevalent in the village for some days prior to the outbreak of plague and the villagers were frequently resorting to Peddahotur on business. On 28th February 1899, two cases of cholera were discovered with buboes. The hospital assistant attached to the ambulance staff at Peddahotur examined the cases and declared them to be plague. One of the patients, an adult male, died on that date (28th February 1899), and the other, a Kuruba boy of 15 years, was removed to the Peddahotur plague camp and eventually recovered. On 5th March 1899, there were two more cases, one of which proved fatal on the same day. The other, which was treated as suspicious, survived.

After the outbreak of cholera in the village on 15th February 1899, the villagers on the advice of the Tahsildar left their houses and encamped in their fields. To stamp out the cholera and plague, all the houses in the village numbering 140 were

disinfected by sepoys sent from Peddahotur. The work was begun on 7th March 1899 and completed in a week. There were no further attacks subsequent to 5th March 1899 and orders were issued for the re-occupation of the village on 11th April 1899.

46. *Turuvagallu, Alúr taluk.*—This village is situated at the north-eastern corner of the taluk within a mile from Togalagallu and Doddagonda, two of the infected villages in the Pattikonda taluk of the Kurnool district. Dead rats were found in the house of a man of Uppara caste who had taken a lease of the tamarind trees at Togalagallu, and in three other adjoining houses.

47. The first case of plague occurred in the Uppara's house on 8th February 1899 and proved fatal. On the same day there was another in the adjoining house of a Pujari, which also proved fatal on 11th February 1899. The contacts were segregated in their fields and the villagers advised to vacate their houses which they did willingly. As the discovery of dead rats in large numbers in several houses in the infected ward and outside it showed that the infection was widespread in the village, it was considered desirable to disinfect all the evacuated houses. Accordingly a detachment of sepoys was sent from Peddahotur for the work. The sepoys began disinfection on 8th March 1899, and completed it on 11th March 1899, the number of houses desinfected being 140. With these measures, the further outbreak of the disease in the village was stopped.

48. *Alúr—Alúr taluk.*—Alúr is the head-quarters of the taluk of the same name and has a population of 2,766. It is situated at a distance of about 5 miles from Peddahotur and 8 miles from Molagavalli, both of which were infected with plague.

49. The agricultural labourers of Alúr used to go to the Molagavalli and Peddahotur fields for work. On 16th February 1899, a boya woman, aged 22 years, was found suffering from high fever at Alúr. The Tahsildar on enquiry ascertained that she had been resorting to the fields and mixing with the people of the two infected villages and had her kept under observation. The next day (17th February 1899) she developed symptoms of plague and was isolated in her husband's field outside the village as objection was taken to her being treated in the plague camp. The house in which the patient was living and one of the adjoining houses were disinfected, dead rats having been found in them. The contacts were also segregated in their own fields, their persons, clothing, bedding, etc., being disinfected under the supervision of the Civil Apothecary, Alúr, and the sanitary inspector before removal.

50. The boya patient eventually recovered, but her step-daughter, a girl of four years age, who had been in contact with her, was attacked with plague on 18th February 1899 and died two days later. From then onwards, a series of cases broke out as noted below :—

Date.	Number of attacks.	Number of deaths.
20th February 1899	2	2
22nd „ „	5	2
23rd „ „	2	3
24th „ „	1	..
25th „ „	1	1
26th „ „	1	1
27th „ „	..	1
6th March 1899	1	1
Total ..	13	11

51. As dead rats had been found in some of the infected and other houses, the evacuation of the portion of the town known as the peta was resolved upon and the residents were persuaded to remove themselves to the fields. The houses evacuated were disinfected by coolies employed for the purpose under the supervision of the local officers.

52. After 6th March 1899 there was no further attack till 4th April 1899. On that date when everything was ready for the re-occupation of the evacuated portion of the town, a case of high fever with a bubo in the groin was discovered in anothe

portion of the town known as the fort. The patient was a boya woman and it was suspected that she had been stealthily visiting the contacts of the patients whose death occurred on 22nd February 1899 and to whom she was related. She was removed to a field outside the village and has survived the attack. Another case occurred in the same portion of the town on 10th April 1899 and two more cases on 12th April 1899. These three proved fatal.

53. As there were thus four indigenous cases in the fort and as the place consists of narrow lanes and ill-ventilated houses, the District Medical and Sanitary Officer considered that the place should be thoroughly disinfected to prevent a recurrence of the disease.

On 13th April 1899 instructions were issued to the Tahsildar to have the fort thoroughly evacuated and the houses secured against entrance pending the arrival of a company of sepoys for disinfection duty. An application for the services of the sepoys having been submitted to and approved by Government, a company consisting of about 75 men under a British officer arrived at Alúr on 25th April 1899. It was subsequently agreed between the Collector and the District Medical and Sanitary Officer that every portion of the village, whether previously disinfected by coolies or not, ought to be disinfected by the sepoys in view to prevent any further outbreaks in this important centre, and orders were issued to take up work first in the fort and afterwards in the other quarters.

54. By the time the disinfection was begun by the sepoys the third portion of the village, viz., the chuckler hamlet, had not been infected. This hamlet is situated outside the fort and separated from it by a road. On the advice of the District Medical and Sanitary Officer, the hamlet was on 28th April 1899 ordered to be evacuated, but the people did not remove for a week subsequently, as they required time to put up sheds in the fields. In the meantime, there was heavy rain followed by high winds and before the evacution of the hamlet took place, the infection must have been carried into it from the fort. A chuckler girl, aged 12 years, had fever for two days after the removal of her family to the fields on 4th May 1899. On 6th May 1899, the Additional Medical Officer who examined her declared it to be a case of plague of abdominal type. She died the next day (7th May 1899) in her shed before she could be removed to the plague camp. The shed, etc, were burnt and the burial of the deceased was conducted in accordance with the rules. The contacts were disinfected and segregated.

This attack was followed by another on 15th May 1899 which also proved fatal; in this case the patient was a cooly employed to do odd jobs in connection with the disinfection by the sepoys who must have contracted the disease through walking about in the infected houses. After this attack the Tahsildar was reminded of the absolute necessity for seeing that all persons engaged in such work wear shoes and are disinfected every evening before returning to their homes. The village has now been free from plague for exactly a month. The disinfection will be completed in a day or two, when the villagers will, with the permission of the District Medical and Sanitary Officer, be allowed to re-occupy their houses.

There were in all 20 attacks and 16 deaths from 16th February 1899.

Officers specially commended for good work.

Chippagiri—

M.R.Ry. M. Sambasiva Rau Nayudu, Tahsildar of Alúr. This officer did excellent work under most trying circumstances.

Other villages in the Alúr taluk—

M.R.Ry. P. Venkobachari, Acting Tahsildar of Alúr.
Mr. J. T. Lever, Special Deputy Collector.

Molagavalli—

Molagavalli Sanna Reddi, Acting Headman of Molagavalli.

Hospet Union—

M.R.Ry. P. Rama Rau, Rao Bahadur, Acting Tahsildar of Hospet.
'Abd-ul-karím Sáhib, Inspector of Police.
Mr. E. Stocking, Civil Apothecary.
Bharatappa, Reddi of Hospet.

(Signed) E. A. ELWIN,
Acting Collector.

From the District Medical and Sanitary Officer, Bellary, dated 26th May 1899, No. 1135-P.

KURNOOL.

From MUHAMMAD RAẒÁ KHÁN, Esq., I.C.S., Collector of Kurnool (on leave), to the Secretary to Government, Local and Municipal Department (through the Sanitary Commissioner and the Surgeon-General), dated St. Thomé, Madras, 18th June 1899, No. L-1.

Abstract.—Reporting on the outbreak of plague in his district.

From the District Medical and Sanitary Officer, Kurnool, to the Collector of Kurnool, dated 18th May 1899.

NORTH ARCOT.

From R. H. CAMPBELL, Esq., Ag. Collector and District Magistrate, North Arcot, to the Secretary to Government, Local and Municipal Department, dated Chittoor, 3rd June 1899, Ref. No. 1842-P. of 1899.

With reference to the Plague Commissioner's Reference on C. No. 4608, dated 1st May 1899, I have the honour to submit the following narrative of the measures taken to combat the recent outbreaks of plague in this district.

I understand that the expression "recent outbreaks" includes not only indigenous cases which occurred since the commencement of this year, but also imported cases which occurred during 1898.

2. Until plague broke out in Bangalore at the beginning of August 1898, this district was considered to be practically safe from infection as the chances of the disease spreading into this district from Bombay and Hyderabad were very remote. When, however, a few cases of plague had occurred in Bangalore, a porter employed under the Madras Railway Company, who had lost two of his children from the disease, left Bangalore on the night of the 12th August 1898 and arrived at a village in this district called Jangalapalle near Tiruvallam Railway station on the morning of the 13th idem. He was accompanied by his wife and four children, and all of them had contracted the disease before they left Bangalore. The porter and his four children died shortly after their arrival, and the wife alone survived. These were the first cases which occurred in this district, excepting of course the one case detained in the plague camp, Arkonam, in October 1897. The late Collector Mr. Batten himself proceeded to the village and supervised the work of disinfection, which was carried out thoroughly without any opposition being met with. As the plague increased in virulence at Bangalore, a general exodus of the population commenced, and many of the refugees came to this district with the inevitable result that imported cases of plague began to occur in a number of towns and villages of this district. The immigrants from Bangalore settled mainly in the towns of Vellore, Arcot, and Wallajah and in villages lying in the vicinity of the South-West line of the Madras Railway. This is evidenced by the fact that, while almost all imported and indigenous cases occurred in the tracts referred to above, the northern portion of the district was almost free from the disease. The number of plague cases imported in October 1898 was considerably

larger than that imported in the other months, and it is therefore probable that the bulk of the immigration took place in October. The following table shows the number of imported cases which occurred during each of the months in last year :—

Month.	Imported.		Indigenous.	
	Seizures.	Deaths.	Seizures.	Deaths.
August 1898	7	6	..	..
September ,, ...	1	1	..	..
October ,, ...	25	24	2	1
November ,, ...	11	10	3	3
December ,, ...	8	5	1	2

All these cases were imported by rail either from Bangalore or from other places in the Mysore province.

3. After the occurrence of the first few imported cases, the following general measures were adopted to prevent the spread of the disease from the Mysore province :—

(*a*) Railway inspection stations were established at Pakala and Jalarpet in order to prevent the importation of plague by rail.

(*b*) Four road frontier inspection stations were established on the chief roads leading from the Mysore province into this district in order to prevent importation by road.

(*c*) Seven observation circles were started along the Mysore frontier and were placed under the charge of trained Sanitary Inspectors.

(*d*) The railway stations of Patchur, Mulanur, Kuppamu, Gudupalle and Bisanatham on the Bangalore section of the Madras Railway were declared infected in order to prevent persons from the Mysore province booking at those stations and escaping observation.

(*e*) A hospital assistant was deputed to examine all passengers alighting at Kuppam railway station and was empowered by the Collector under Regulation 29 of the Original Mufassal Plague Regulations to detain all suspicious persons in huts specially provided for the purpose. This was found to be necessary in order to prevent suspicious persons breaking their journey at Kuppamu and proceeding to their places of destination by road.

(*f*) The Chairmen of all the Municipalities in the district were requested to entertain the observation staff prescribed in G.O., No. 522 M., dated 13th March 1897.

(*g*) Two ambulance staffs were formed with complete equipments and stationed at Palmanér and Vellore.

(*h*) A staff corps officer was put on the special duty of supervising all the plague arrangements on the Mysore frontier, and the District Medical and Sanitary Officer was relieved of all his ordinary duties so that he might devote his whole time to plague work.

(*i*) The attendance of pilgrims at all important fairs and festivals at which a large number of persons from infected areas were expected was prohibited with the sanction of Government.

(*j*) In order to popularize inoculation and its effects, Mr. Batten induced Major Bannerman, I.M.S., to deliver four lectures at Tirupati, Wallajah, Vellore and Chittoor. The good effect of these lectures was, however, counteracted by the publication and circulation of vernacular translations of Dr. Lawrie's evidence before the Plague Commission.

4. The railway inspection station at Pakala and the four road frontier inspection stations did not justify the expenditure incurred on them. The latter could easily be evaded owing to the many cart-tracks and paths crossing the frontier in spite of a frontier patrol by plague inspectors and supervisors organized by Mr. Batten.

5. The special measures prescribed in the regulations for stamping out the infection in individual cases, such as evacuation of infected houses, segregation of patients and contacts in specially-built camps and huts and disinfection of houses were carried out thoroughly without opposition in the first few cases imported into this district. The Labbais of Visharam, however, for the first time, refused to evacuate an infected house and to allow the inmates thereof to be segregated in a choultry outside the village. Mr. Batten and the Plague Commissioner tried their best to persuade them, but to no purpose. Home segregation was therefore allowed for the first time, and the leading members of the Labbai community had the houses disinfected under the supervision of a medical officer. The people of Wallajah and Sholinghur followed the example set at Visharam, and there was even a small riot at Sholinghur, the rioters being tried and convicted by the Head Assistant Magistrate. At about the same time the confidential order of Government regarding segregation and evacuation was received, and the necessary instructions were issued confidentially to Divisional Officers, Tahsildars and Deputy Tahsildars. In the cases that followed, evacuation of infected houses and segregation of patients and contacts in specially-built huts were resorted to only when there was not much opposition on the part of the people. Disinfection was, however, carried out in a thorough manner.

6. In spite of the refusal of the people to vacate infected houses and go into camps, the measures adopted against the imported cases under discussion seem to have been very successful ; for, except in the case of Pallikonda and Marudambakkam, no fresh attacks occurred, and the infection appears to have been rooted out completely. In Marudambakkam two fresh attacks occurred, but these were among the contacts who were attending upon the patient. The two cases that occurred in Pallikonda were among people who, it was ascertained, had unlawful access to the infected houses. The disease did not, however, spread in either of these places.

7. The first indigenous case properly so called occurred in Kuppamu on the 30th November 1898. A brother of a police constable who was living in the police lines, Kuppamu, proceeded to Jalarpet by rail on the morning of the 21st November 1898 and returned to Kuppamu the same evening. At Jalarpet he was provided with a passport, and he was under the observation of the Hospital Assistant, Kuppamu, until the 30th November 1898. On the 30th he complained of slight fever, grew worse on the following day and died on the 2nd December 1898. The hospital assistant suspected the death to be due to plague and the case was treated as a plague case. Nothing more happened until the 2nd January, when the Deputy Tahsildar reported the occurrence of an indigenous case in Kuppamu on the 1st. The Collector and the Sub-Collector proceeded to Kuppamu and made the necessary enquiries. The infection in the case was traced to certain people from Devankundi in Mysore Province, who, after halting for a few days in the patient's house, proceeded to Kethandapatti in Salem district and died there of plague. Other cases of plague occurred in the same street in rapid succession and it was found that the victims in all such cases had caught the infection from the first house. Dead rats and squirrels were found in some of the houses in the same street and the whole town rapidly became infected. Almost simultaneously indigenous cases broke out in Vellore, Arcot, Ránipéttai and Wallajah. I will deal with each of the infected towns separately as I think that it will be convenient to do so.

8. *Kuppamu.*—The town of Kuppamu is divided into three parts, viz., Robinsonpet, Kothapet and Pathapet (old Kuppamu). Robinsonpet was the first to be affected. The zamindar of Kangundi, who lives in this part of the town, evacuated his house and proceeded to Kangundi, a village 8 miles from Kuppamu. His retinue consisting of about 20 families and some others followed his example, and there was a general tendency on the part of the inhabitants to emigrate. A notice was published in the District Gazette under the orders of the Plague Commissioner warning the inhabitants of the villages to which immigration was taking place of the danger they ran by taking in people from Kuppamu and suggesting to them the advisability of keeping such immigrants in isolated buildings or huts outside their villages for a period of ten days before admission. This notice did not, however, have the desired effect and the people thought that the notice in question gave them power to resist the entry of public servants on duty into their villages and began to resist them accordingly. I had therefore to publish another notice to the effect that the first notice did not apply

to public servants on duty and that any body resisting their entry will be prosecuted. During the exodus from Kuppamu, a cordon of police was placed round the town to take down the names of people going out and their places of destination. These were communicated to the Plague Inspectors and the local authorities who kept them under observation for ten days.

9. Mr. Scott Elliot of the 4th Madras Pioneers assumed charge of the plague operations at Kuppamu shortly after the outbreak commenced. The ambulance staff stationed at Palmanér was immediately sent to his assistance and a plague camp was erected without delay in a suitable spot. Dr. Page appointed as additional medical officer to this district, arrived in Kuppamu at the beginning of February. Mr. Scott Elliot organized a system of informal house-to-house visitation in Kuppamu. This system worked well and almost every case that occurred was brought to light. Coolies were difficult to procure for disinfecting houses and when procured demanded high wages. One native officer, five non-commissioned officers and forty-two men of the 14th Madras Infantry were therefore sent to Kuppamu for plague duty. Here, as in other places, a reasonable amount of compensation was paid promptly to the owners of houses for the loss sustained by them during the process of disinfection and this made them submit quietly to the plague measures.

10. From Robinsonpet the disease spread gradually to Kothapet and ultimately to Pathapet. The town being small and the people being comparatively law-abiding, Mr. Scott Elliot was able to induce nearly 50 per cent. of the cases to go into the camp. Disinfection was carried out in the manner prescribed in the regulations.

11. The only step taken by the people of Kuppamu to protect themselves was the complete evacuation of the town. Inoculation was not resorted to as freely as it should have been. The total number inoculated in Kuppamu is 450, but this includes also a number of people belonging to surrounding villages who were inoculated at Kuppamu. There were five attacks and two deaths among the inoculated. The evacuation of the town was complete by the beginning of April, small huts being provided in the fields for people who could not find accommodation for themselves. The disease died out almost immediately after the evacuation. All the houses were disinfected before the owners were allowed to re-occupy them.

12. The number of cases imported from Kuppamu to other villages was only five. The total number of attacks and deaths in Kuppamu was 106 and 78, respectively. Five per cent. of the attacks were pneumonic and the rest bubonic. Forty-six cases were treated in the plague camp. Of these 28 or 60·87 per cent. died. Among 60 people segregated and treated in their own homes, 50 or 83·33 per cent. died. Almost all the people attacked were Hindus and 50 per cent. of the total number attacked were coolies.

13. *Vellore.*—The first case of plague in Vellore was reported in the Saidapet ward on the 3rd January 1899. The source of infection was not traceable but it was probably due to the large number of people from Bangalore who had settled in the vicinity. It was, however, elicited during the course of enquiry into this case that dead rats were found in two houses in the adjoining street and that the owners evacuated them immediately. It also appeared from enquiries that there were some recent deaths from plague in the same street which were all returned falsely as deaths from other causes. Fresh cases followed in the same street within a few days, and the disease spread rapidly to other parts of the town. The Bakers' street and two streets adjoining it were the worst affected.

14. Immediately after the outbreak, a Special Plague Officer and an additional Medical Officer were appointed solely to attend on plague cases in the town. The preventive staff prescribed in G.O., No. 522 M., dated 13th March 1899, was entertained. A plague camp was erected near the town. A detachment of 100 sepoys with an European officer was got for disinfection purposes. Inspection stations were started on the roads leading from Vellore to Katpadi and from Vellore to Arcot and all passengers going out of Vellore town were examined at these stations. It was impracticable to establish stations at the other roads leading from Vellore. Observation circles were established round the town to a radius of 10 miles to prevent the spread of the disease. All railway stations at which passengers from Vellore could book were notified under Government sanction for the purpose of the passport rules.

The observation circles already existing within the town were found to be too extensive for five Inspectors to manage and an Assistant Plague Inspector was therefore appointed to each circle. A vigilance committee consisting of the leading members of the town was formed to assist the Special Plague Officer in carrying out the plague measures, but this committee like similar committees formed in Arcot and Wallajah rendered no help whatever to the Special Plague officers. Major Bannerman and two Government nurses, Misses Hawdon and Bleaney, were employed on inoculation work and 2,049 people out of a population of 44,925 were inoculated.

15. The prevention of the concealment of plague cases was the most difficult task in Vellore. People adopted every conceivable means to conceal cases and it was difficult to prevent the concealment.

16. The attitude of the people was by no means conciliatory especially at the beginning of the outbreak. They objected at first to the medical inspection of the sick and the dead but they became more amenable latterly. Camp segregation was unpopular at the beginning, but the kind and careful treatment accorded to the few persons segregated in the camps has made it more liked of late. The total number of persons attacked in Vellore was 184. Of these 167 or 90·76 per cent. died. Twenty-nine out of 184 persons attacked were segregated in the camp and 13 of them or 44·83 per cent. recovered. Of the persons segregated in their homes almost all died.

17. A large proportion of the population left the town. There was a talk at one time about building caste hospitals and camps but the matter never got beyond the talking stage. The Brahmins of the place subscribed about Rs. 300 among themselves and were prepared to erect their own hospital but for some reason or other they gave up the idea.

18. Disinfection was carried out by sepoys in the manner prescribed by the rules under the supervision of the Special Plague Officer and the additional Medical Officer. The Bakers' street and two other streets adjoining it, which were severely visited, were barricaded for about six weeks and every house in them thoroughly disinfected. The people also evacuated Fowl Parachari, a small infected suburb of Vellore and encamped on a hill with the result that no more cases occurred among them. The total number of houses infected in Vellore was 189 and in none of them did any fresh cases occur after their disinfection. 76·68 per cent. of the attacks in Vellore, were among Hindus; 14·49 per cent. among Muhammadans and the remainder among the several other classes. 22·90 per cent. of the attacks were pneumonic and 77·10 per cent. bubonic.

19. *Arcot.*—In the course of his enquiry in Vellore about the first indigenous case that occurred in that town, Mr. Batten heard accidentally that plague cases were occurring and being concealed in Arcot. Enquiries were made and on the 13th of January the first authentic case of indigenous plague was detected and reported. This was followed by other cases at short intervals, and by the end of January the disease had taken firm hold of the town. There was no previous history of infection in the first case reported. It was probably brought by people from Bangalore.

20. The Sub-Collector proceeded to Arcot, as soon as he heard of the first indigenous case and made the following arrangements. The town was divided into six circles and a Circle Inspector was appointed to each circle. A retired Police Inspector was appointed as the supervisor of all the circles. A vigilance committee was formed of the leading members of the several communities. A plague camp was erected at a suitable spot and a detachment of sepoys was obtained for carrying out disinfection. A Special Plague Officer and an additional Medical Officer were appointed to superintend the plague operations. The second ambulance staff stationed at Vellore was also sent out to Arcot for plague duty.

21. The Circle Inspectors went their rounds twice daily accompanied by three constables or peons reporting the cases found by them to the Supervisor after each round. They posted a constable or a peon over a house immediately they found an actual or a suspicious case in it and this guard remained until the medical officer arrived and pronounced his opinion on the case. The guard was withdrawn if the medical officer did not think it to be a plague case, and continued if it was. The disinfecting parties were sent to the infected houses on the next day and finished their

work on the same day. The batta due to segregated persons was paid in advance every morning. Cases occurred in all the parts of the town but Chandapet and Annampoliem situated in the heart of the town were the localities worst affected.

22. Camp segregation was never popular in Arcot, but Captain Pearse, the Special Plague Officer, introduced a system of segregating patients and their contacts in ready-made mat huts shaped like the top of a bullock cart or jutka. These huts were set up whenever required in the backyard of infected houses or in open spaces near them and the people were generally willing to occupy them for the required period.

23. The attitude of the people was generally indifferent. They did not resort to inoculation freely nor did they take any steps to prevent the spread of the disease. They emigrated to other places in large numbers. Some of the people in Topekana, a suburb of Arcot, came forward with a proposal to erect their own hospital but the proposal was never carried out in spite of the encouragement of the Special Plague Officer. One individual named Sundra Mudaliar of Arcot rendered good service by disinfecting houses, erecting huts in the part of the town occupied by him and distributing native medicines.

24. The Special Plague Officer had at one time entertained the idea of disinfecting all the abandoned houses in the town, but he gave this up when he found that no plague cases had broken out in 40 out of 121 abandoned houses which were re-occupied before disinfection.

25. The total number of attacks and deaths in Arcot were 182 and 154, respectively. 70·96 per cent. of cases were bubonic. There was only one case of pneumonic plague. In the remaining cases no enlargement of glands was visible. 18·13 per cent. of the attacks were among Muhammadans and the rest among Hindus of all castes. Cultivators and coolies were the people most affected.

26. *Wallajah and Ránipéttai.*—It was not until some cases of plague had been concealed and a general exodus of the people had commenced that the existence of the disease in these two places was brought to the notice of the authorities. The first reported cases in Wallajah occurred on the 18th January 1899. Mr. Ashe was the *ex-officio* Chairman of the municipality, and he did his best to stamp out the disease. The municipality had only two observation circles before and these circles having been found to be too extensive, the town was divided into four circles and an Inspector appointed to each. A Divisional Inspector was appointed to supervise the work of all the Inspectors. The preventive staff required under G.O., No. 522 M., dated 13th March 1897, was entertained immediately. Coolies were available for carrying out disinfection work and no detachment of sepoys was therefore sent for. A Special Plague Officer and an additional Medical Officer were appointed to superintend the plague operations both in Wallajah and Ránipéttai. Observation circles were started round these towns in contiguity with those already established round Vellore. All railway stations between Jalarpet and Sholinghur were notified by Government for the purpose of passport rules. A vacant building on the outskirts of Wallajah town had already been chosen for the purpose of a plague camp and a fresh camp was erected in Ránipéttai.

27. The method employed for the detection of cases was similar to that employed in Arcot and Vellore. Camp segregation was unpopular here, as in other places, and only seven cases in Wallajah and two cases in Ránipéttai were segregated in camps. The rest were segregated in their own houses. Disinfection was carried out in the manner prescribed in the regulations by parties of coolies under the supervision of the plague officers. Reasonable compensation was paid to the owners of houses for the loss sustained by them in the process of disinfection. No fresh attacks have occurred in houses once disinfected.

28. There were, on the whole, 58 attacks and 41 deaths in Wallajah; and 94 attacks and 47 deaths in Ránipéttai. The disease was, it will be seen, of a comparatively mild type in Ránipéttai. The total number of houses infected in Wallajah was 58 and in Ránipéttai 68. Almost all the attacks reported in Wallajah and Ránipéttai were among Hindus and it is therefore suspected that there has been some concealment of cases among Muhammadans.

29. No steps were taken by the people themselves to check the spread of the disease. They were not, however, hostile towards plague measures. About 200 people were inoculated by Major Bannerman and Dr. Hanna.

30. Cases were imported from Vellore, Arcot, Ránipéttai and Wallajah to outlying villages but such cases never spread. No indigenous case was reported in any of the villages round Vellore. A few sporadic cases of indigenous plague occurred in villages round Arcot and Wallajah, but prompt steps were taken to stamp them out. A description of the measures taken to combat the disease in these cases is probably unnecessary.

31. The following statement gives the number of attacks and deaths which have occurred since the commencement of this year :—

Months.	Imported.		Indigenous.	
	Seizures.	Deaths.	Seizures.	Deaths.
January 1899	9	6	51	42
February ,, ...	24	20	185	139
March ,, ...	15	14	113	93
April ,, ...	3	3	48	28
May ,, ...	7	3	19	6

It will be seen from the above that the disease raged virulently in the month of February and gradually subsided in the succeeding months. At present there are plague cases only in Ránipéttai. A statement showing the towns and villages affected in each taluk and the number of attacks and deaths (imported and indigenous separately) which took place in each village is appended below :—

Taluks and Municipal Towns.	Imported.		Indigenous.	
	Seizures.	Deaths.	Seizures.	Deaths.
Chittoor Taluk.				
Chittoor	4	2	..	..
Jangalapalle	5	4	..	..
Veppalai	1	1	..	..
Virantangal	1	1	..	..
Graemspet	1	1	..	..
Velkur	1	1	..	..
Kalavagunta	1	1	..	..
Chandragiri Taluk.				
Chandragiri	1	1	..	..
Perur	1	1	..	..
Mangapuram	1	1	..	..
Palmanér Taluk.				
Patrapalli	1	1	..	..
Gudiyáttam Taluk.				
Tiruvallam	1	1	9	7
Rachampattu	1	1	..	..
Valathoor	1	1	..	..
Katpadi	1	1	..	..
Venkatapuram	1	1	..	..
Reddimanguppam	1	1	..	..
Latteri	4	4	..	..
Vadaviringipuram	2	2	..	..
Kangayaneliore	1	1	..	..
Darapadavedu	1	..	..	..
Perambadi	1	1	..	..
Peranambat	2	1	..	..
Kilpatti	1	1	..	..
Vellore Taluk.				
Pallikonda	3	2	2	2
Sirukanchi	1	1	..	..
Tellur	2	2	..	..
Thorapadi	1	1	..	..
Virinjipuram	2	2	..	..
Kalanipakkam	1	1	..	..

Taluk and Municipal Towns.	Imported.		Indigenous.	
	Seizures.	Deaths.	Seizures.	Deaths.
Vellore Taluk—cont.				
Virupatchipuram	2	2	..	..
Sadupperi	1	1	..	..
Odugathoor	1	..	..	..
Satyamangalam	1	1	..	..
Chitteri	1	..	..	..
Polur Taluk.				
Kalambur	4	4	..	..
Chetput	1	1	..	..
Kannanore	1	1	..	..
Wandiwash Taluk.				
Tenkarai	1	1	..	..
Wandiwash	1	1	..	..
Melpathur	1	..	..	..
Arcot Taluk.				
Tiruvathur	1	1	..	..
Kalavai	1	1	..	..
Visharam	3	3	..	..
Kuttiyam	1	..	..	..
Kathivadi	1	..	..	..
Kurambadi	1	1	..	..
Mamandur	1	1	2	1
Muppaduvetti	..	..	..	..
Kilkuppam	1	1	1	1
Palli	1	..	..	..
Brahmadesam	1	..	..	..
Mangadu	..	..	1	1
Ayalam	2	2	1	1
Velur	..	..	1	1
Sattur	..	..	5	5
Arcot	1	1	..	..
Wallajah Taluk.	2	2	182	154
Arkonam	1	..	..	..
Pulivalam	3	3	..	..
Sholinghur	2	1	..	..
Marudambakkam	1	1	..	..
Navalpur	2	2	2	2
Ammur	2	2	..	..
Kalathur	1	1	..	..
Nedumballi	1	..	..	..
Lalapettai	1	..	..	..
Punji	1	1	..	..
Kadapperi	1	..	..	..
Padiyambakkam	4	4	20	16
Mottur	..	..	4	4
Karai	..	..	9	7
Nilakantarayanpettai	1	1	2	2
Ránipéttai	..	..	..	..
Arni Division.	2	..	1	1
Kannamangalam	1	1	74	31
Satyavizianagaram	1	1	..	..
Chevur	1	1	..	..
Kuppamu Division.			..	..
Attinattam	1	1	..	..
Peddagollapalle	1	..	..	..
Gundusettipalle	1	1	..	..
Gudupalle	4	4	..	..
Gundlapalle	1	1	..	..
Kuppamu	..	..	..	..
Total ..	110	92	422	314
Municipalities.				
Wallajah	8	7	58	41
Vellore	7	6	184	167
Tirupati	1	1	3	3

32. I shall conclude this report with a few general remarks on segregation and disinfection based on past experience. As to segregation, I think it may fairly be

argued that home segregation has so far proved successful. At any rate plague for the present has been more or less completely suppressed in five large towns where it had taken firm root. Whether the subsidence of the disease is due to the preventive measures adopted or to climatic influences only, the fact remains that home segregation has not so far produced the disastrous results foretold by its opponents. Prompt and complete evacuation of the area infected is the surest remedy for plague that exists, but such evacuation is impossible in the case of the large towns lying in the Pálár valley owing to the want of open country round them suitable for encampments. Home segregation at its best is but an imperfect remedy, but it is the only method of segregation suited to the large towns of this district where people will not go of their own accord to Government plague camps and where complete evacuation of the infected area is a physical impossibility. As regards disinfection, I should be glad to see the unroofing of tiled houses discontinued. This is a matter which I have already discussed fully in a separate report to the Plague Commissioner.

33. I submit herewith the District Medical and Sanitary Officer's report called for in the proceedings under reference.

From C. T. COSTELLO, Esq., B.A., M.B., Acting District Medical and Sanitary Officer, North Arcot, to the Collector of North Arcot, dated Vellore, 29th May 1899, No. Ex. 1.

With reference to your letter No. 1842, dated 4th instant, I have the honour to furnish the following report of plague in the district.

2. As plague in an indigenous form broke out almost simultaneously in different parts of the district and only some months after imported cases had begun to be reported, it may be well for practical purposes to describe the disease first as it continued as imported and the preventive operations in relation to it and next the indigenous form since the onset till now.

3. When plague appeared in epidemic form in the Bombay Presidency and elsewhere in the north, Arkonam was the first railway inspection station opened in this district as a preventive measure to examine all passengers from such infected places, and arrivals from such places in the district were passported and placed under observation for ten days. One imported case from Bombay was detected and segregated at Arkonam at the end of 1897.

4. About the middle of August 1898, plague occurred in indigenous form in Bangalore and rapidly assumed epidemic virulence.

5. On 16th August 1898, a telegram to this office was sent by the Collector that a railway porter newly arrived from Bangalore died at Jangalapalle near Tiruvallam and also four of his children between the 14th and 16th August and that his wife had symptoms of plague. The Collector and the Civil Surgeon of Chittoor were on the spot immediately after information was received. On inquiry it was elicited that a fifth child had died at Tiruvallam and was buried in the river on their way to Jangalapalle. The hut which they occupied was burnt, as also all other articles suspected of infection. The surviving patient was isolated and contacts disinfected and segregated. The patient under treatment recovered, and she as well as the contacts were discharged after the due period. The preventive measures thus promptly adopted were successful as no other case occurred.

6. According to G.O., No. 841 P., dated 18th August 1898, Jalarpet was made an inspection station with a view to prevent the importation of infection from Bangalore, and according to G.O., No. 889 P., dated 24th August 1898, Pákala was made an inspection station to prevent importation by the Southern Mahratta Railway and South Indian Railway lines.

7. On the 30th of August the second imported case of attack and death occurred at Tiruvathur, where also the District Revenue and Medical officers personally attended and adopted the necessary measures.

8. Soon after Mysore was declared infected according to G.O., No. 1001 P., dated 3rd September 1898, frontier road inspection stations were organised on the Mysore frontier to prevent importation by road from Mysore into this district. Four such road inspection stations were opened, namely, (1) to the west of Kothur, where the Bangalore enters Punganúru; (2) to the west of Allikuppam in Punganúru; (3) to the east of Patrapalli, where roads from Kolar and Kuppamu meet; (4) at Guntasettipalli. At these stations segregation camps and hospitals were erected, equipped and manned under the immediate orders of the revenue authorities, and medical subordinates of the nearest dispensary or hospital ordered to take charge at once and continue till relieved by special plague medical subordinates. All arrivals from Mysore and other infected localities, particularly from Bangalore, were given passports either at road frontier stations or at their station of destination by rail in this district and were strictly watched for a full period of ten days.

9. Imported cases which were few and far between in August and September began to increase in number in different parts of the district, all being traceable to Bangalore or other parts of Mysore.

10. In every case no time was lost in promptly taking the necessary steps towards the isolation of the sick and the segregation of the contacts either in camp or in their own houses.

11. Disinfection of contacts and of all suspected articles, house, &c., by perchloride of mercury solution and, wherever feasible and practicable by fire, was done. Thatched houses were burnt, tiled houses untiled and exposed to sun-light and heat, and the infected flooring, wherever practicable, was treated by the kiln method and in other cases with perchloride of mercury solution. Information as to the occurrence of plague was transmitted by wire and the nearest medical subordinate was on the spot and in most cases conducted the operations under the immediate and personal orders of the Collector and Sub-Divisional Officer and the District Surgeon or the Assistant Surgeon.

12. According to G.O., No. 1001 P., dated 3rd September 1898, and Dis. No. 104 P. of 1898, an ambulance staff consisting of two European nurses, two hospital assistants, one sanitary inspector and other menial servants was formed and stationed at Palmanér so as to meet any demand on the Mysore frontier and also to proceed to any part of the district under the Collector's orders. The staff was to advise and assist the Revenue officials in suppressing the plague. Orders were issued from time to time by Government prohibiting pilgrimage to all the important shrines and festivals in different parts of the district.

13. Another ambulance staff was organised and stationed at Vellore to meet any demands in the plains.

14. On 28th October 1898 Major Bannerman, I.M.S., visited Vellore, and after lecturing on the advantages of inoculation against plague initiated inoculation and on that same day ninety were inoculated, the Collector and the Sub-Collector setting the example.

15. Till the end of December 1898 the methods thus employed worked very satisfactorily and except in a few isolated instances, *e.g.*, at Wallajah, Marudambakkam, Sholinghur and Pallikonda, contacts of almost all the imported cases escaped the infection and were after the due period discharged.

16. With regard to the isolation of the sick and segregation of contacts, no force was used to send them to camp. Most of them preferred segregation in their own houses.

17. Mussalmans invariably in every case objected to being removed and were therefore kept segregated in their own houses guarded by the police to prevent egress and ingress. In such cases the patient, whenever practicable, was kept in a separate room.

18. The treatment of the sick as to whether by Vythians, Hakims or by qualified medical men was left to the option of the patient or of his people, and every care and precaution was taken not to wound their caste feelings or religious susceptibilities. In the case of female patients a nurse was always employed to examine and, whenever required, personally to attend to them.

19. In all cases the contacts were disinfected with perchloride of mercury solution, segregated and watched for full ten days and again disinfected and discharged.

20. The corpse was thoroughly disinfected and wrapped with a sheet steeped in mercury solution and buried six feet deep or burnt, and those who took any part in the funeral, either relatives or coolies, were also disinfected and placed under observation for ten days. Regarding the treatment of infected houses and other articles a brief description is given in paragraph 11.

21. Till the end of December 1898 the number of imported cases was 55, of which 48 died, and indigenous cases 6, all fatal. These latter are most of them traceable to infection from other previously imported cases in the neighbourhood.

22. Up to date the total number of imported cases is 114 with 93 deaths.

23. *Indigenous Plague.*—The first case of indigenous plague in Kuppamu was reported on 2nd December 1898, and on the occurrence of the same the Collector, Sub-Collector and the District Surgeon proceeded immediately to make the necessary arrangement there. Special Plague officer, Lieut. Scott-Elliot, was stationed at Kuppamu to carry on plague operations there and the Assistant Surgeon directed to remain there, as a temporary measure, to advise on medical and sanitary matters.

24. On 4th January 1899 one half of the ambulance staff was despatched from Palmanér to Kuppamu and there placed under the immediate orders of the Special Plague officer.

25. Necessary arrangements were made for a plague camp to which patients and contacts were removed. Cases began gradually to increase in number and the disease spread from house to house and street to street. The town became panic-stricken, and the people in the vicinity evacuated their houses and fled to the neighbouring villages. Such evacuation was not objected to. The town was divided into three circles and placed under strict observation. The Hospital Assistant and Sanitary Inspectors were directed to go from house to house and street to street in their respective circles to examine and report on any suspicious cases.

26. Patients and contacts in the majority of cases went into camp and the rest were segregated and watched at home. Thorough disinfection of infected houses and other articles was done with mercury solution or fire or both, and all excreta disinfected, covered with sawdust and burnt with kerosine-oil.

27. When the town was in a state of panic, no coolies could be got to do disinfection work and even the menials of the ambulance staff threatened to strike. Matters were represented to the Collector and a detachment of 14th Regiment, Madras Infantry, was got for carrying on the work of dismantling infected houses and of disinfection, etc. The Assistant Surgeon inoculated all the privates and the Native officer of the detachment, and the people who had been averse to inoculation slowly came forward, and in the course of three weeks over 200 were inoculated. These were followed cheerfully by an equally large number later on. Dr. A. F. Page joined the staff at Kuppamu and assumed charge as Plague Medical officer. The town became deserted and the number of attacks gradually went down. All uninfected houses that had been evacuated were not allowed to be re-occupied without being previously disinfected. The number of indigenous cases in Kuppamu up to date is 97 with 79 deaths.

28. *Vellore.*—The first case of indigenous plague in Vellore was reported as having occurred in old Munsif's Court street, Saidapet, on the 5th January 1899. The second case occurred in the neighbourhood, and the District Surgeon, Collector and Sub-Collector were wired to by the Assistant Surgeon. They promptly arrived the same day and the disinfection of the houses and other infected articles as well as the contacts was immediately done and these latter were segregated in their own houses. Other cases followed in rapid succession in the same street and its vicinity. Rats were found dead in some houses and some of these were voluntarily vacated by the inmates.

29. Observation and preventive staffs were organized without delay. The town was divided into five circles each to be patrolled by a Circle Inspector, and all the five were placed under Divisional Inspectors.

2. *Passport system.*—This system as laid down in G.O., No. 466 P., dated 13th May 1898, was introduced in the district in June 1898. Special passport-issuing officers were appointed by the municipal councils of Salem, Tiruppattúr and Vániyambádi at the railway stations of Suramangalam, Tiruppattúr and Vániyambádi. After the inspection station was opened at Jalarpet, the Chief Medical officer was appointed passport-issuing officer and local authority of the place. The District Medical and Sanitary officer was the local authority for the town of Salem. Medical subordinates and station-house officers performed these duties at 22 and 77 towns and villages, respectively, village munsifs being the local authorities in other places. In the beginning a comparatively small number of passports was issued, but they increased enormously as the Bangalore district and subsequently the whole of the Mysore Province were declared infected. The passport work was supervised by the District Medical and Sanitary officer for a few weeks and then I transferred the work to my own office; 49,777 passengers were intimated up to the end of May last. Of these 34,309 either underwent observation or left the district before the expiry of the ten days' period, 1,340 persons have not been traced and in the remaining cases the passports have yet to be recovered or accounted for by Tahsildars and Chairmen of municipal councils. These mostly appertain to the earlier period when the regulations were not well known to persons who attended our shandies and returned to their villages in the Mysore territory in the evening. Persons who failed to take out passports or to undergo observation regularly were reported to me or the Divisional officers, and in the absence of reasonable explanation they were prosecuted. The number of prosecutions instituted up to the end of May was 191.

On the whole the system has worked satisfactorily and has enabled us to detect and deal promptly with the majority of the imported cases that have occurred.

3. *Jalarpet railway inspection station.*—This was opened on the 22nd August 1898 and the examination of trains was conducted by the District Medical and Sanitary officer for a week until the special Medical officer Dr. Beit arrived on the 28th idem. At the outset the inspection staff consisted of one doctor, one retired assistant surgeon, two inspectresses and two hospital assistants. The first case of plague was detained on the 3rd October 1898, and by the end of the month the number of plague cases in the camp rose to eleven seizures and seven deaths. A large number of passengers were also detained for observation, so that it became necessary to replace the assistant surgeon by a doctor and to increase the subordinate staff both in the camp and in the platform. Some further additions to the staff were made in January when plague having broken out at Vellore and other places in the North Arcot district, the examination of westward trains was started. The staff at work on the 30th June 1899 consisted of three doctors, six hospital assistants, five nurses, nine clerks, one store-keeper, one engine driver, one fireman and 23 servants. Of these one hospital assistant and one nurse with a staff of servants are exclusively attached to the hospital camp.

The camp is divided into three main parts, viz., (1) the disinfection camp, (2) the suspect camp, and (3) the plague hospital with its staff quarters. The last is situated at a distance from the other two which are near the railway station. The suspect camp is capable of accommodating 160 natives (male and female) and contains two separate sheds for European male and female suspects. There are separate observation sheds attached to it in which persons of suspicious sickness are segregated until plague symptoms become pronounced. The hospital camp contains accommodation for sixteen native patients (male and female) and two sheds for Europeans. Besides these, separate wards are built for Panchamas. Up to the end of June last the number of plague patients detained in the hospital was 77, of whom 45 died. The number of persons kept under observation excluding those who were disinfected and discharged amounted to 10,936.

4. The inspection station at Jalarpet was for a few weeks evaded by passengers from the Bangalore side who alighted at Pachur, a small station at a distance of 7 miles to the west of Jalarpet; they thence proceeded by road to Tiruppattúr or Vániyambádi and took train there. I made inquiries and went to Pachur in October. Finding a large number of passengers alighting there who were not *bonâ fide* travellers to villages near Pachur, I posted a special hospital assistant with two police

constables to strictly enforce the original Mufassal Regulations 18 and 19. The passengers from Bangalore then resorted to rebooking at the intermediate stations within the limits of the Kolar and North Arcot districts so as to make it appear that they were not coming from an infected area. As a result of inquiries the passport rules were applied to all the stations on the Bangalore line to the west of Jalarpet. This course effectually prevented evasions by rail.

5. *Road frontier stations and Observation circles, etc.*—Simultaneously with the establishment of the inspection station at Jalarpet, the district was placed under "observation." After making the necessary arrangements at Jalarpet in consultation with the Sub-Collector and after inspecting some of the lines of communication from the Mysore territory, frontier stations were opened on all the seven main routes at Zuzuvadi, Kothakondapalli, Komaranapalli, Gummalapuram, Kagganur, Berikai and Bagalur. The sites for the stations were chosen either by myself or the Sub-Collector. Pending the arrival of special plague assistants for whom the Surgeon-General was addressed, some of the outlying dispensaries were closed and the hospital assistants deputed to these stations, and six out of seven stations were opened before the close of August and the other station on the 11th September 1898. Portions of the Hosúr and Krishnagiri taluks adjoining the Mysore territory to a depth of twenty miles were divided into twelve circles of two rows, each circle being ten miles in diameter. They were placed in charge of sanitary inspectors obtained through Sanitary Commissioner. Four circles were formed into a group and a Supervisor was appointed to each group. The Supervisors were salt Sub-Inspectors. An ambulance staff was organized and kept in readiness at Hosúr. An additional medical officer was also posted at Hosúr to assist the District Medical and Sanitary Officer. The supervision of the working of the frontier stations was entrusted to the Sub-Collector, while the observation staff, the ambulance staff and the medical duties in frontier stations were placed under the orders of the additional medical officer subject to the supervision and control of the District Medical and Sanitary Officer.

6. The Municipal Councils of Salem, Tiruppattúr and Vániyambádi were also warned with reference to rule 5 of the rules sanctioned in G.O., No. 522 M, dated 13th March 1897, to appoint the necessary observation staff, to provide hospital and segregation camps and to prepare themselves against the epidemic.

7. The station house officers and village officers were instructed to prevent the entry into their villages of persons coming without passports and taught what they should do on the occurrence of a suspected or actual case of plague. The Divisional officers, Tahsildars and Deputy Tahsildars were directed to give particular attention to the supervision of the work.

8. *Destruction of rats, &c.*—In the municipalities of Salem, Tiruppattúr and Vániyambádi the grain bazaars were frequently inspected by the municipal officials and rats found in grain bags and godowns were killed and burnt. Elsewhere Tahsildars and Deputy Tahsildars did the same both at their head-quarter towns and in the villages visited by them in their tours and instructed people personally and through the village officers to frequently search for these rodents, to have them killed and burnt. The good sheds attached to railway stations were frequently inspected for this purpose by the district as well as railway officials.

9. In the beginning of December 1898 rewards were offered for the destruction of rats, bandicoots and mice at 3 pies per head in the unions of Denkanikotta, Hosúr and in the first row of observation circles adjoining the frontier, viz., the circles of Thali, Mattigiri, Bagalur and Berikai. The system was subsequently extended to the Krishnagiri union and to the remaining observation circles. The expenditure incurred under the head from Local Funds amounted to Rs. 41-4-3.

10. The ordinary sanitary precautions were more closely attended to especially in the villages of the observation circles. Both district officials and the plague staff during their rounds had villages cleaned up. Choultries and other public buildings where travellers from infected areas, especially the Mysore territory, used to halt were disinfected at regular intervals, the sweepings and rags or other waste matters left by travellers were burnt.

11. *Commencement of Plague.*—The first imported case of plague was discovered in this district at Hosúr on the 26th August 1898, *i.e.*, within less than a fortnight of

the outbreak at Bangalore. He was a weaver who had arrived two days previously from the Bangalore city. He had high fever and enlarged glands, and a younger brother of his had died of plague at Bangalore ten days previously. It was, therefore, undoubted plague. Myself and the District Medical and Sanitary Officer were at Hosúr at the time. The patient was isolated in a mantapam 1½ miles from the Hosúr town and a younger brother who subsequently developed plague was also sent to join him. A guard was placed at the mantapam to prevent them from having any communication with others; the contacts were segregated and their houses thoroughly disinfected under the supervision of the District Medical and Sanitay Officer. The next imported case was that of a man who was found on the road near Krishnagiri. On removal to the hospital he became unconscious, had a bubo in the left groin and died shortly afterwards. This occurred on the 12th September 1898. I deputed the Sub-Collector to the place at once to make careful enquiries and find out his contacts and to have them segregated and to disinfect the places where he remained. Subsequently two cases occurred at Medinakuppam and one at Vartanapalli both being villages not far from the place where the last preceding case was found. The huts where the patients were isolated were burnt and the contacts kept under observation. The necessary disinfection was carried out under the supervision of the special medical officer Dr. Thomas. I myself then proceeded to the villages in question, and learnt that people from Bangalore were returning to these villages from the Kuppam railway station in North Arcot and thence by a jungle footpath. The villagers were instructed to keep out all arrivals for ten days which they very willingly carried out. While at Krishnagiri I got a wire of a suspected plague death of a Muhammadan girl at Vániyambádi and that there was serious opposition to all measures. I hastened to the place and all that took place there has already been reported to Government—*vide* G.O., No. 1365 P., dated 25th October 1898.

12. Since then the number of imported cases gradually increased, the number of attacks in October and November 1898 being 25 and 35, respectively. A large portion of these occurred in villages in the Hosúr and Krishnagiri taluks and they were inspected and precautionary measures enforced either by the additional medical officer, the Sub-Collector or the special plague officer who was posted to Hosúr about the middle of September. Those detained at the frontier stations were attended to by the Hospital Assistants attached to the frontier stations and elsewhere by the hospital assistant of the Ambulance Staff or of the nearest dispensary, subject to the orders of the additional medical officer. The burial or burning of the dead and the disinfection of their goods and the places occupied by them were carried out by the ambulance sanitary inspector or the circle inspector under the supervision and orders of one or the other of the above three officers. These officers also attended to the segregation of all contacts.

13. In this connection I may state that our arrangements were greatly supplemented by the efforts of the people in the Hosúr taluk. In almost every village in that taluk the people appointed their own agency (paid out of subscriptions) to watch arrivals from other places. People from infected villages were kept isolated at a distance for 10 days. People of one village were not allowed to go to another even to purchase necessaries without permission and except under surveillance.

14. *Indigenous Plague.*—The people of Mattigiri were trading stealthily with Bangalore and they appear to have brought infection with their goods. Besides, there was constant communication between the Remount depot and Bangalore. The first case was that of a tailor at Mattigiri bazaar who was seized on the 29th November and died on the 30th. The contacts were segregated in the sheds temporarily erected by the Remount depot. The tiles of the infected house were entirely removed, the interior of the house was drenched with perchloride solution and the clothes and bedding of contacts were disinfected near their sheds, the remainder of their property being exposed to the sun. The second case was attacked on the 5th December. About a dozen houses including those in which these two cases occurred formed a separate block; these were untiled and disinfected; dead rats were found in the houses and in ditches with enlarged glands. There was one attack on the 8th, another on the 9th idem and two on the 10th. The disease established itself and rapidly spread so that on the 11th and 12th there were ten attacks and four deaths.

I proceeded to Mattigiri on the 14th December. The patients were segregated in their own houses and the contacts in the chattram. Arrangements were made with the Superintendent of the Remount depot and the sepoy lines were converted into a plague hospital. A site on a high ground was at the same time selected and sheds with bamboo mats constructed thereon for segregating contacts. As several deaths occurred among contacts in the chattram, the latter was vacated and the contacts were removed into the new sheds as soon as they were ready. People were advised to evacuate and they, with a few exceptions, readily did so. A number of tents were procured from Madras and lent to some. The rest erected speedily temporary sheds and field huts and removed from the village. Most of these huts were in the owners' fields and in scattered camps. About the middle of the month, Sepoypálaiyam Kudiraipálaiyam and Godipálaiyam, which are portions of the Remount depot, occupied by its employés, were affected. The Superintendent of the Remount depot directed such of the depot servants who had not been attacked to evacuate their houses; they were at first housed temporarily in a depot building and afterwards removed to temporary sheds or into tents put up for them by the depot Ultimately every house was completely evacuated and the local police set to prevent persons re-entering their houses, but this was not effectively done. There were also cases in these sheds which having thus become infected were burnt and the contacts removed to the segregation camps. Plague cases within the depot limits were sent over to our hospital, but arrangements were made with the depot authorities that they should look after their own contacts. The Mattigiri circle was divided into three sub-circles and a sanitary inspector was appointed to each of them. The ordinary circle inspector was posted for duty in the infected village. The first ambulance was moved from Hosúr to Mattigiri and they were placed in charge of the plague hospital and the segregation camp subject to the immediate orders of Dr. Noble, the Additional Medical Officer. Mr. Hodding, Supervisor of the Denkanikota group, was placed on special duty at Mattigiri under Captain Ffrench, Special Plague officer, to attend to the untiling of houses, disposal of dead bodies, &c. Mr. Gilby, the Supervisor of the group and the sanitary inspectors were engaged in daily inspecting the sheds and tents into which the people had removed for several miles around. They promptly reported cases of sickness and segregated such cases and their contacts in separate sheds or removed them when convenient to the plague hospital and segregation camp at Mattigiri. There was great difficulty in arranging for the disposal of the dead. Nobody would touch the corpses, not even the near relatives. Special coolies were engaged on a pay of Rs. 8 a month and they were provided each with a pair of common clothing to work in, and the bodies were carried in a hand-cart placed at our disposal by the Depot Superintendent and buried. When the relations had no objection, the corpses were burnt. There were in all 121 cases at Mattigiri including the Remount villages, Kudiraipálaiyam, Godipálaiyam and Sepoypálaiyam, of which 89 proved fatal.

15 The evacuated houses were full of property and the owners had left locking them up. This was a source of difficulty. They were required to remove their things to the fields where they were exposed to the sun every day and the circle Sanitary inspector was required to see this done. Labour was not available for disinfection as people were afraid to go into the infected houses. With difficulty some coolies were got at 8 annas a day and they worked at disinfection under the ambulance sanitary inspector. The work went on very slowly. A detachment of 25 Sappers was at last procured from Bangalore under the command of a non-commissioned officer. The houses in which cases had actually occurred were disinfected, the floors dug up and burnt and then they were whitewashed. The other houses were drenched with perchloride of mercury. The roofs of houses were untiled, left exposed for two months and then they were retiled by the owners themselves.

16. The disease next broke out at Zuzuvadi on the 15th December, but being a small village and as the people evacuated their houses promptly there were only nine attacks and six deaths in that village.

17. Indigenous cases also occurred about the same time at Shulagiri. The infection to this village was probably carried by charcoal bags as the village trades in charcoal with Bangalore. Before the end of the month there were 40 seizures and

28 deaths. The weather being wet favoured the disease. The additional medical officer and the first ambulance staff were engaged at Mattigiri. The second ambulance staff which had previously been organized and kept in readiness at Salem was sent there at once and the District Medical and Sanitary Officer took charge of the operations there. A plague hospital shed and a contact camp were built by a party of Sappers deputed from Mattigiri. There was considerable difficulty in procuring supplies for the staff, the village having been evacuated. Supplies were arranged to be got from Hosur. There was the same difficulty here as at Mattigiri in regard to the disposal of the dead. Six toties were engaged at Salem and sent to Shulagiri immediately. Mr. Pell, Supervisor from the Krishnagiri group, was ordered to go round the various camps of the Shulagiri people daily as they scattered themselves in sheds all round the village on being ordered to evacuate. An extra additional medical officer was appointed. Cases continued to occur in the sheds until the people were persuaded to boil their clothes and bedding and to expose their goods to the sun. They here took out all their property with them into the fields. The disinfection of the village was carried out by the Sappers. At first the roofs of houses were entirely removed, but afterwards this was considered unnecessary and they were only removed in strips. At Shulagiri as elsewhere the thatches of all infected houses were burnt, those of uninfected houses being removed in strips to let in light and air. Bamboo framework was in all cases left standing. Whenever cowdung cakes were not available the floors of infected houses scraped off were burnt with straw and kerosine oil. Grain was emptied out of gunny bags and exposed to the sun while the bags themselves were saturated with perchloride, dried and re-washed under the supervision of the circle inspectors. After this the owners were allowed to re-fill the bags with grain. When property of any value was destroyed compensation was paid, but this was rare. Free permits for removing thatching grass from the reserved forests were granted to the people of Kothapalli, Jigur and Mukondahalli, the thatch of whose houses was destroyed in the course of disinfection. There are, however, very few thatched houses in the Hosúr taluk in the larger villages.

18. From Mattigiri, plague spread in January 1899 to Chinna Belagondapalli, Jigur, Sappatti, Edayanallur and Kothapalli. Berikai and Hosahalli in the Shulagiripálaiyam were also infected by the end of the month. At Berikai the people evacuated their houses very promptly and completely on the first suspicion of plague in their midst and this was effective in stamping out the disease rapidly. The Berikai circle was divided into two sub-circles, called north and south Berikai sub-circles, a sanitary inspector being appointed to each. The ordinary circle inspector was placed in charge of the village and the camps around. The gradual extension of the epidemic to many villages in the Hosúr taluk and the severity with which it prevailed at Anekal, Dombasandra, Sarjapur and other Mysore villages close to our borders rendered necessary stricter preventive measures. The guards at the frontier stations were increased and a post at Kembatt was established so that the frontier on the west may be regularly and systematically patrolled and arrivals without passports checked. Ghât inspection stations were established at Royakota and Kurubarapalli so that infection might not spread below the ghâts into the Krishnagiri taluk. A fourth Supervisor was appointed to the observation staff, the extent of each group being reduced to three observation circles so as to ensure better supervision on the part of Supervisors. The Bagalur circle was divided into two sub-circles, east and west, an additional sanitary inspector being posted to it. Groups Nos. I and II were placed in charge of Dr. Noble with the first ambulance corps and the supervision of the plague hospitals at Mattigiri and Hosúr was entrusted to him. Dr. Tebbs was appointed to the charge of the observation groups III and IV with the supervision of the hospitals at Shulagiri, Berikai and Krishnagiri. Seventy-five additional Sappers under the command of a European officer were sent for to complete the disinfection of all the villages.

19. Hosúr was the last important place to become infected. It is gratifying that although plague was severe close to Hosúr on all sides, the infection was kept off for a long while. The people recognized the advantage of evacuation and were making preparations for the purpose. They had no field huts, as in villages, to go to and it was difficult to procure hutting materials. Mats were purchased at Salem and sent to Hosúr and bamboos were also supplied. They were issued free of cost according to requirements of each family and to a value not exceeding Rs. 5 to indigent persons

and public servants drawing less than Rs. 10 per mensem. Those who were in receipt of pay of more than Rs. 10 were given one-half the cost from Provincial funds The annexed statement shows the details of the distribution and the cost of the materials. The total cost to Local and Provincial funds under this head amounted to Rs. 792 andRs. 69, respectively. The majority evacuated the town readily enough, but some families remained behind and some of those who went into sheds kept secretly visiting their houses. The disease was in consequence lingering in the town and sheds till evacuation was made compulsory and entry into the town without passes from the Special Plague Officer was made punishable and a cordon of police and prickly-pear hedges were placed round the town. This had the desired effect. In less than a fortnight the disease almost disappeared though probably the decline was also partly due to the approach of the hot weather. The camps were situated around the town and sufficiently convenient. The usual daily perambulation was made by the observation staff. The houses were disinfected in the same manner as at Mattigiri by the Sappers. The inmates of some of the houses which were merely drenched with perchloride of mercury subsequently developed plague in the sheds. These were marked for further disinfection. The Sappers were permitted to return to Bangalore on the 13th April. Nineteen coolies were then engaged for disinfection on condition of paying them wages at 4 annas per head per diem and batta 2 annas a day when taken out of Hosúr. The weavers of Hosúr, some of whom have sufferred a good deal from want of employment during the prevalence of plague, have taken to this work and the Special Plague Officer reports that they are a success. They have been employed on disinfection work also at Nagondapalli and Mukondahalli and other villages.

Statement showing the number of mats supplied to indigent persons, etc.

Mats supplied to						Number of mats sold.		Remarks.
Indigent persons.		Peons, etc., drawing below Rs. 10.		Officers drawing more than Rs. 10.				
Number.	Cost.	Number.	Cost.	Number.	Cost.	Number.	Cost.	
1	2	3	4	5	6	7	8	
	Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.	
1,086	604 1 8	346	188 8 0	267	137 7 0	569	302 11 8	

20. The annexed statement* shows in one view the number of cases imported and indigenous in various parts of the district and the period of their occurrence. Up to the end of June 468 indigenous cases with 360 deaths and 163 imported cases with 100 deaths occurred. Of these the majority (514 seizures and 384 deaths) occurred in the Hosúr taluk, the remaining cases being distributed between the Tiruppattúr, Krishnagiri and Salem taluks. Only one imported case occurred at Uttangarai. The remaining taluks were free. Including the imported cases the highest number was recorded at Hosúr followed by Mattigiri and Shulagiri, the attacks being between 125 and 100. At Berikai, Jeygoon and Chinna Belagondapalli the attacks numbered between 20 and 25. In other places they were not above 10.

* Not printed.

21. The subjoined statement shows the number of inoculations, the names of places and the officers who performed them. It did not find favour with the people except temporarily at Hosúr and Mattigiri where plague was raging or the outbreak was imminent. At my request a lecture on inoculation was delivered at Hosúr by Dr. Bannerman in December 1898 and at the close of the lecture and on the following day 191 persons including females were inoculated by him. Among those inoculated at Mattigiri, 29 persons were attacked with plague, of whom 16 died. The fact that inoculated persons died destroyed what little faith the people had in inoculation. Most of the cases, however, I believe, were cases inoculated when it was too late, but

this was unfortunately of course not understood. No case of plague has occurred among those inoculated at Hosúr, Mathagondapalli, Krishnagiri, or Salem. Inoculation was not pressed. In order to make it a success we require a sympathetic inoculator in whom the people have confidence.

Locality.	Total inoculations performed up to 30th June 1899.			Name of medical officer or subordinate who performed inoculations.
	Males.	Females	Total.	
Salem town	85	31	116	Lieutenant-Colonel A. N. Rogers Harrison, I.M.S.
Mattigiri and Godipalaiyam	16	14	30	Do. do.
Do. do.	15	3	18	Dr. H. A. E. Noble, A.M.O.
Do. do.	27	18	45	Major Bannerman.
.. ..	1,245	833	2,078	Captain Dodd, Surgeon of the Remount Depot.
Mathagondapalli	2	2	4	Dr. H. A. E. Noble.
Hosúr	141	50	191	Major Bannerman.
Do.	237	135	372	Civil Apothecary Gibbons.
Krishnagiri	22	17	39	Do. Fernandez.
Total ..	1,790	1,103	2,893	

22. Besides those at the frontier and ghât inspection stations and at Mattigiri, plague hospitals and segregation camps were also established at Shulagiri, Berikai, Hosúr, Krishnagiri and Súramangalam. At Shulagiri the Local Fund chattram was used for the purpose of hospital and accommodated eight cots. At Berikai a shed was erected. Both these were managed by the second ambulance staff. The hospital at Hosúr was built to accommodate two males and two females and was in charge of the first ambulance until they were removed to Mattigiri in December and then the management thereof was entrusted to the local civil apothecary and the hospital was enlarged for ten males and ten females. A health camp at a cost of Rs. 600 was built near Hosúr but it was not freely resorted to by the people. They have, as a rule, a strong objection to going to any sheds especially erected for them by Government, and much prefer their own. The Krishnagiri and Súramangalam sheds provided for four beds each. No case of plague was detained in the latter.

The number of patients treated at each of the hospitals and the mortality among them are shown in the subjoined statement:—

Temporary hospital.	Sex.		Class of patients treated.		Total patients treated.	Mortality.				
						Sex.		Class.		
	Males.	Females.	Hindus.	Muhammadans.		Males.	Females.	Hindus.	Muhammadans.	Total deaths.
Komaranapalli frontier inspection station ..	2	..	2	..	2	1	..	1	..	1
Berikai	4	1	5	..	5	3	..	3	..	3
Kothakondapalli frontier inspection station ..	2	1	2	1	3	1	..	1	..	1
Zuzuvadi frontier inspection station	7	6	8	5	13	4	4	4	4	8
Vániyambádi	2	..	..	2	2	1	..	..	1	1
Krishnagiri	2	..	1	1	2	1	..	1	..	1
Shulagiri	20	11	29	2	31	8	3	11	..	11
Mattigiri	12	23	30	5	35	2	8	10	..	10
Hosúr	25	18	40	3	43	13	11	23	1	24
Total ..	76	60	117	19	136	34	26	54	6	60

23. *Municipalities—Salem Municipality.*—The Council has appointed a military hospital assistant at the Súramangalam railway station to inspect arrivals and passport them. An observation staff consisting of nine circle inspectors and a certificated sanitary inspector has been appointed. The circle inspectors constantly move about their divisions, send all arrivals from infected areas to the local authority for observation and carefully watch the health of the inmates of the houses where they put up. There is a Eurasian nurse who inspects the female travellers at their residences. A plague camp has been constructed at some distance from the town at a cost of Rupees 1,602. The hospital contains accommodation for four patients. There were only three imported cases in the town—all of which were fatal.

Tiruppattúr Municipality.—The system of observation of travellers arriving from infected areas was started in July 1898. After the Bangalore district was declared infected, a special passport-issuing officer was posted at the railway station and an observation staff consisting of a divisional inspector and a circle inspector was appointed. The provisions of Original Mufassal Regulation I were widely proclaimed, houses were whitewashed and all precautions taken. The number of arrivals increased considerably since January 1899 owing to the outbreak of plague in the North Arcot district. An additional passport-issuing officer was appointed at the station and the observation staff was also strengthened by two more circle inspectors, four toties and three peons. A segregation camp and a plague hospital were provided at a cost of Rs. 1,373. The necessary equipment and stores were kept ready. Eight imported cases occurred, of which six proved fatal. In all these cases the patients and contacts were segregated in their own houses as they were unwilling to go to the plague camp. A special hospital assistant was employed from March 1899 to the end of June 1899 on account of plague and cholera duty.

Vániyambádi Municipality.—The same precautionary measures as at Salem and Tiruppattúr were adopted here. There was a special passport-issuing officer at the railway station, as also an observation staff and a special hospital assistant. A plague hospital and a segregation shed were erected. There were eight imported cases and one indigenous case, of these six proved fatal.

24. The Salt, Abkári and Customs department deputed 30 peons for plague duty and a temporary police establishment consisting of one Police Inspector on Rs. 70, a first-grade head constable on Rs. 25 + 15, a second-grade head constable on Rs. 20, a fourth-grade head constable on Rs. 14 and 88 first-class constables was employed. A European head constable on Rs. 35 and also some constables when necessary were deputed from the district force. The Inspector, two native head constables, one European head constable and 45 constables are on duty at Jalarpet in connection with the inspection of passengers on the platform and in guarding the plague camp. A detachment of 60 sepoys from the 17th Madras Infantry was guarding the camp from the middle of October 1898 to 25th March 1899.

25. Among the staff on plague duty two ambulance toties, two police constables and a peon of the Vániyambádi Municipality contracted plague and died.

26. In March and April several cases were imported at Krishnagiri from Bowringpet and Oorigaum and as plague prevailed also at Kuppamu in the North Arcot district close to our frontier in the Krishnagiri taluk, a special guard consisting of ten peons under a Sanitary Inspector was appointed to patrol the tracks leading from the Mysore State and the North Arcot district on the Krishnagiri-Vepanapalli side to watch all arrivals and to passport them.

27. The re-occupation of Mattigiri, Shulagiri, Berikai, Osahalli, Jígur, Zuzuvadi, Poonapalli, Kothapalli and a few other minor villages was permitted in the beginning of April and of Hosúr in May. There has been fortunately no recrudescence in these villages since.

28. The direct charges from Provincial and Local funds on account of plague measures up to the end of June last amounted to Rs. 1,06,364 as under:—

	Rs.
Provincial	31,874
Local	74,490
Total ..	1,06,364

29. *Opposition to Plague Measures.*—The measures have, on the whole, been smoothly worked without serious opposition. In the Hosúr taluk the villagers have realized the necessity and advantage of evacuation. At the outset owing to all sorts of rumours and scares there was some opposition in Vániyambádi, but this was soon overcome as abovementioned. A Supervisor Mr. Salisbury and his wife were mobbed

in Kelamangalam, Hosúr taluk, as some malicious person had spread a rumour that he had put some red powder into and poisoned a well. Two Forest-officers, Messrs. Moss and Daly, were badly beaten being mistaken for inoculators in the Námakkal taluk. There was a riot in Pulampatti in the Tiruchengod taluk due to the idea that a vaccinator was intending to inoculate. Beyond these instances nothing of importance occurred and idle rumours have now almost died away.

30. I cannot close the report without mentioning the excellent services rendered by Captain Ffrench, Special Plague Officer, and Additional Medical Officers Drs. Noble and Tebbs. Captain Ffrench's services have been invaluable and he has worked with untiring energy. Among the subordinates Civil Apothecary Gibbons at Hosúr has had especially heavy work and the services of Hospital Assistants Swamidoss Nadar, Paul and Raman Nair deserve recognition. Supervisors Mr. Gilby and Mr. Pell of the Salt department have also done exceptionally good work.

31. A copy of the District Medical and Sanitary Officer's report is enclosed.

From the District Medical and Sanitary Officer, Salem, to the Collector of Salem, dated 23rd May 1899, No. 332-P.

From the Surgeon-General with the Government of Madras, dated 24th June 1899, No. T-8/312.

From the Surgeon-General with the Government of Madras, dated 5th August 1899, No. T-8/422.

From the Surgeon-General with the Government of Madras, dated 24th August 1899, No. T-8/472.

From Lieutenant-Colonel W. G. KING, C.I.E., I.M.S., Sanitary Commissioner for Madras, to the Secretary to Government, Local and Municipal Department, dated Camp, Ootacamund, 26th August 1899, No. 60-P—T.

With reference to Ref. on C. No. 4608, dated 31st May 1899, I have the honour to submit certain remarks on the reports herewith forwarded to Government. I have received no intimation as to the desired scope of these reports and have not been supplied with a copy of the queries put by the Plague Commissioner to the officers concerned. I therefore can but confine myself to such matters as are brought to notice—apparently in reply to the queries that have been put. As the subject-matter treated is much the same throughout, I do not deal with events as they occurred district by district, but would attempt to secure lessons for future guidance from the experience gained by the reporting officers.

A.—Mode of importation of the disease to the Presidency.

2. In not a single instance has it been reported that plague has been introduced into the Presidency by means of infected material except in the Salem district. Here suspicion, but not proof, fell upon gunny bags that had been used for conveyance of charcoal, and, in another instance, upon clothing that, it was suspected, had been imported by a tailor. In both, the source of infection was said to be the Mysore territory, which immediately adjoins the district of Salem. A case to which no allusion is made in the reports was also stated to have occurred in the Salem Central Jail in a woolworker who had to treat material imported from Bangalore.

3. Experience points to the fact that ordinary merchandise is rarely placed under conditions which would enable vitality of the plague microbe to be retained for any length of time. That infection can be conveyed by personal clothing is, however, indubitable. Possibly the scanty nature of native clothing and the fairly frequent washing and exposure to sun it undergoes gives less risk in this respect than in the case of woollen materials so largely worn in European countries. This fact is of importance, in that risks as to infection by clothing worn by travellers are in practice so small as to give greater value to preventive measures directed to the end of keeping the infected human being—as the great cause of spread of the disease—under surveillance. The policy therefore pursued of only demanding disinfection of the person

and clothing of the exceptionally filthy and of taking no notice of ordinary merchandise beyond prohibiting importation of a few articles specially liable to be infected, and concentrating attention upon watching the health condition of those arriving from infected areas, has been justified in practice.

4. *The area affected.*—Looking at the total area affected in the Presidency, the query naturally arises why our borders should have been attacked and not the interior. So far, experience has pointed to the simple fact that the greater the passenger traffic from an infected locality the greater the chances of infection, and that the nearer the source of infection the greater the risk. During the period up to August 1898, no cases of plague had occurred in the Presidency beyond two in Madras City in 1897. These were in the persons of Madras inhabitants who had been subjected to infection by proceeding to Poona. The reason for this freedom would seem to be the fact that ordinarily the amount of passenger traffic between Madras and Bombay Presidency is not large and that it heavily diminished directly the existence of plague was known. Runaways from infected places in the Bombay Presidency rarely chose Madras for residence; hence the conditions that existed were that, whilst passenger traffic was small, merchandise arrived freely from the infected areas and apparently without evil result. It was not till areas having close *passenger* traffic with Mysore became infected that this Presidency fell a victim to indigenous plague. Mysore has considerable passenger traffic with Hubli, and this town being infected was therefore a serious factor for Mysore. Mysore in turn has much passenger traffic by rail and road with Madras. The people early fled from the infected City of Bangalore in large numbers to their own and British villages. Thus Salem, North Arcot and Anantapur along the borders of Mysore were gradually infected between August and December by the arrival of infected persons from the Mysore territory.

In the Anantapur district not only was this disease brought within its villages along its Mysore border (Hindupúr taluk) but into Guntakal by conveyance of infection direct from Hubli. From this second centre formed at Guntakal the disease spread to the Bellary and Kurnool districts, whilst a second focus was also formed in the Bellary district, in all probability by importation from Kopbal in the Nizam's dominions.

5. In short, intercommunication for purposes of trade and possibly much intermarriage of border families—inducing relations to flee to each other's houses in times of distress—suffices to explain the preference of the disease for the border districts. The interior of the Presidency apparently escaped not because there were climatic conditions which prevented its spread being favoured, but because human intercommunication with infected areas was very limited—for rural populations rarely care to flee far from their villages—and because such imported cases as did make their way to interior parts were so far as is known fully detected. That they were fully traced may not be the case, but having regard to the large proportion detected and segregated in the border districts before the disease baffled the vigilance of the authorities or the absurd opposition of the people prevented their success, it is a fair argument to assume that such cases as penetrated beyond the border districts were, without exception, segregated and thus rendered harmless.

B.—Precautionary Measures.

6. The prime method adopted was that of maintaining the persons from infected areas under a "system of observation," or, as it is sometimes called, "surveillance" for ten days after arrival. From 7th October 1896 to 18th January 1897 the method was voluntary in the case of District Boards and Municipalities; but was adopted universally at least in the latter having communication by rail with infected areas. These bodies posted sanitary inspectors or hospital assistants at railway stations in communication with Bombay, and from information gathered from passengers secured their domicilliary observation. The full inspection of passengers arriving by train from the Bombay Presidency was conducted at Adóni and Bezwada (from the 7th October 1896), as the stations nearest the frontier where, without appointing special medical staffs, this could be effected (G.O., No. 111 L., dated 19th January 1897). In the case of the Municipality of Madras, these arrangements were supplemented by

the entertainment of a special inspecting staff at Perambúr. By the 13th October 1896, with the consent of the Railway authorities, the names of passengers from infected areas were transmitted by the same train as that by which they travelled in the case of the Madras Municipality and in others the post was relied upon. By means of this rough non-compulsory method of surveillance the Madras City was undoubtedly saved from infection as early as October 1897, as by its means cases imported from Poona were traced and segregated. But, by this time, the possibility of relying upon this system had been greatly strengthened by the passing of the Epidemic Diseases Act and issue of regulations founded thereon under G.O., No. 219A M., dated 15th February 1897. Under these, railway observation camps had been opened at Guntakal and Arkonam, and the makeshift arrangement at Adóni was abolished in favour of the former, whilst Bezwada was abolished in favour of Kondapalli.

7. Under G.O., No. 1985 M., dated 18th November 1896, special regulations under the District Municipalities Act (Act IV of 1884) had been issued for the guidance of municipalities and had been formally accepted by them, in respect to the staff they should entertain and the action expected of them should invasion occur.

8. Regulations for protection of ports on the lines of the Local Government Board's (England) order were issued in G.O., No. 363, Marine, dated 22nd April 1897.

These regulations were found to agree practically with those subsequently advised by the Venice Convention.

9. Under no circumstances throughout the above arrangements was any such thing as wholesale stoppage of passenger traffic permitted. Persons were detained only if suffering from plague or presenting suspicious symptoms, when unable to give satisfactory addresses, or when so filthy that disinfection of their clothing and persons was thought advisable.

10. With the advance of plague in the Nizam's dominions, however, the liability to attack of this Presidency became more evident. Government then issued further regulations under the Epidemic Diseases Act (G.O., No. 93 P., dated 26th February 1898) which now clothed the system of surveillance with the necessary legal recognition, and laid down the requisite organization and methods for its being correctly effected. In rural tracts areas of 10 miles diameter were defined as "observation circles." In charge of each, there was appointed one certificated sanitary inspector and, as the supply of these became exhausted owing to the large demand, temporary sanitary inspectors were placed in charge. These latter men were of good educational standard, the majority having passed the Madras University Matriculation or higher examinations. They were subjected to about a fortnight's training in reference to the etiology of the disease. The sanitary measures necessary were practically demonstrated to them. The subsequent examination was fairly searching, as of 278 selected for training only 150 were regarded as competent. The certificated sanitary inspectors had passed the usual examination after four months' training in theoretical and practical hygiene at the Medical College, Madras. Supervisors, each placed in charge of four observation circles, were either Europeans or Eurasians recruited chiefly from the Salt and Abkári department. Collectors were directed to place themselves in communication with the Sanitary Commissioner for the supply of these trained men directly their districts were pronounced by Government to be "imminently threatened." To meet this demand a reserve of ten men was maintained under the Sanitary Commissioner. On the frontier, stations were opened guarding roads having much traffic. By G.O., No. 337 P., dated 16th April 1898, Guntakal railway observation station was abolished, in favour of one at Tungabhadra guarding the railway approach from the Bombay Presidency whence likelihood of invasion seemed most probable at that time. Pódanúr, Kondapalli and Hospet were similarly made railway observation stations. Subsequently, on Mysore being affected, Jalarpet railway observation station was established (August 1898). Thus all the railway approaches to the Madras Presidency from infected areas beyond it were guarded by inspecting staffs. On plague establishing itself in the Ceded districts, Tadpatri was opened as a railway observation station in January 1899 (Plague Commissioner's Proceedings, No. 263/90, dated 27th January 1899).

11. As a result of these various regulations and the organization stated above it became possible to ensure that arrivals by road, rail, or sea should be subjected to surveillance for a period of ten days *to whatever part of the Presidency they proceeded.* This was secured by the giving of a document under the additional regulations, requiring the persons to present themselves before certain local authorities appointed in municipalities and rural areas—a method familiarly known as the "passport system."

12. Increased vigilance as to the maintenance of sanitary conditions was attempted throughout the Presidency following various appeals from this office.

C.—Experience as to the utility of the precautionary measures adopted.

13. *Frontier Stations.*—Dr. Beach, Plague Medical Officer, Anantapur district, declares frontier road stations were of little utility owing to want of supervision, but gives no reason why they should not have been kept under effective supervision by the supervisors in whose divisions they happened to be. Major Robertson, I.M.S., of the same district, declares frontier road stations of no utility where the configuration of the country does not favour their being not readily evaded. The Collector of North Arcot considers that frontier road stations were evaded notwithstanding a patrol; but this patrol was composed simply of village servants. No facts or figures are given to support these opinions. The Collector of Salem had large opportunities of judging of the efficacy of road observation stations as his district was threatened by numerous infected villages in the Mysore territory. Neither in his present report, nor in his report embodied in G.O., No. 878 P., dated 12th June 1899, does he oppose the use of these stations, though acknowledging the difficulties, under certain circumstances, attending them.

14. Unless it were possible to rely upon a very well-worked scheme of co-operation with His Highness the Nizam's and the Mysore Governments, it does not seem to me feasible to abolish frontier road stations. Where configuration does not lend itself to ease of detection, it ought always to be possible to supplement them, or to substitute for them a patrol system. These frontier road stations are usually awkwardly placed and cannot be readily reached by officers for purpose of supervision. This seems their only fault, and it is one that can be remedied by tightening discipline of the supervisors responsible. Road observation stations must, of course, be useless institutions unless aided by "observation circles," as their great end is to secure the giving of passports on the first arrival of persons from infected areas, their actual surveillance being secured by the "observation circle staff."

15. In regard to complaints of behaviour of the staffs attached to frontier road inspection stations, it will be seen that these refer to hospital assistants—a matter with which the Surgeon-General will doubtless deal. Such complaints, however, to my mind emphasize the necessity for the policy which guided me in advising as to the pay and position of certificated and temporary sanitary inspectors, namely, that the pay should be sufficient to attract a well-educated and respectable class of men. The hospital assistant class is undoubtedly a poorly-paid agency.

Railway Observation Stations.—No opinions are expressed against these. Guntakal was instrumental in stopping 5, Hospet 3, and Jalarpet no less than 77 plague cases.

Observation Circles.—The following are quotations from reports as to the value of these:—

"On the whole, the system has worked satisfactorily and has enabled us to detect and deal promptly with the majority of the imported cases that have occurred" [*Collector of Salem*].

"The staff has worked well, the information being reliable and promptly delivered, and the necessary action to be taken in the isolated cases has been efficiently carried out" [*Lieutenant-Colonel Rogers-Harrison, I.M.S., District Sanitary Officer, Salem*].

"The passport system and inspection of all arrivals is as complete as possible. There is no difficulty in discovering the whereabouts of those infringing the Plague Regulations by absenting themselves from medical examination. This facilitates the

easy detection of plague cases and the immediate disinfection and isolation of the infected and contacts. This no doubt materially prevented the spread of the disease" [*Lieutenant-Colonel Pemberton, I.M.S., District Sanitary Officer, Bellary*].

"Bellary itself has been kept free though several imported cases occurred as they were promptly detected owing to the thorough way in which the passport system has worked" [*Dr. Illingworth, Additional Medical Officer, Bellary*].

16. The Collector of Salem alone states the number of cases of persons who were retained under surveillance under the passport system. He shows that, out of 49,777 cases, only 1,340 escaped observation or 2·7 per cent. From figures formerly gathered by me, I know that up to 16th December 1898 in Bellary cases had been observed with 12·6 per cent. of failures and North Arcot with 10·5 per cent. These results must be considered excellent, considering the freedom allowed to persons having passports. Failures were chiefly due to those possessing passports proceeding to independent territory.

17. It would have been interesting to have secured figures showing in how many instances the passport system was instrumental in securing the first information for local authorities of the importation of plague. None of the reporting officers enter into this point; but it may be assumed that practically all cases stated to have been imported were really discovered by this method, or by the "circle observation system" of which it is but a corollary. The Collector of Bellary shows that there were four cases of plague imported to the Municipality of Bellary and the same number to the Municipality of Adóni. In other localities in his district there were 21 imported cases. But in only 9 out of 20 affected villages in this district did plague become indigenous. The Collector of Salem shows that 8 cases occurred in the Municipality of Vániyambádi and 9 in that of Tiruppattúr, with one indigenous case as a result (a contact). In all, 163 imported cases in the Salem district were traced by this system and promptly dealt with.

The following is an extract from my annual report for 1898, which gives a cursory statement of the facts bearing on this point up to the end of December of that year:—

"Following the heavy incidence of plague in the Mysore territory during the last five months of the year, plague was imported in 96 separate localities, in a total of eleven districts. In 95 localities plague was imported 223 times. In 11 of these importation was repeated from four times to over thrice that number of times. Thus, in Madras twelve separate instances of importation were detected. Yet, the City of Madras remained free from plague, and in only twenty localities of five districts was it reported as indigenous up to the end of the year. It is fair to argue that the progress of plague, so long at least as it is confined to human beings, can be absolutely checked by a correctly-worked "surveillance system", backed up by isolation of the sick and the prompt application of sanitary measures. This is, of course, nothing but what might be expected. But it is possible to argue that we are not acquainted with how many instances of plague may have been imported and yet no indigenous plague has followed. This argument is tenable; but having regard to the certainty with which plague slowly but surely spreads where concealment has been effected, the chances are greatly in favour of the supposition that the system really effectively kept touch of all arrivals from infected areas. I refer to this subject, as the natural tendency is to point to the heavy expenditure necessary for the support of the staff required to work such a method, and, secondly, to show that of so many thousands of cases that were inspected, so few really turned out to be plague. But it seems to me that the chances would have been 100 to 1, that each case detected would, if it had been undiscovered, have led to indigenous plague in the locality concerned, and that, consequently, not only have the people in these places been spared an unnecessarily early visitation from the disease, but they have been spared the loss of lives and money that must follow its appearance, compared to which the expenditure necessary for the staff must be insignificant. It is apt to be felt, too, that perhaps this escape of localities was not so much due to the precautions taken as to some fortuitous circumstances, depending upon the inability of the plague microbe to accommodate itself to its environment. This factor undoubtedly does modify the chances of spread and,

probably, the virulence of the microbe; but it obviously is very methodical and persevering in its efforts to overcome all difficulties, and it seems to me that, given time and season, there is no place in this Presidency that can be regarded as safe from the possibility of the plague importation and subsequent spread."

18. *The Staff of Observation Circles.*—Praise is usually forthcoming for the work effected by supervisors. But the District Medical and Sanitary Officer of Anantapur dismisses the subject with the remark that they were a "very mixed lot", although he finds room for praise that I know personally was well deserved for two (one being a certificated sanitary inspector). This officer (Major Robertson, I.M.S.) joins the hue and cry lately raised by Collectors against temporary sanitary inspectors but carefully requires it to be understood that he considers the certificated sanitary inspectors efficient—a fact to which I invited the attention of Government in vain (G.O., No. 878 P., dated 12th June 1899). As to the assertion that "they could not speak the truth," I am not prepared to deal with so general a statement. It was hardly possible to attend to idiosyncrasies of this description in a fortnight's training! But, if the "lying" only occurred about distances from village to village, as solely suggested by Major Robertson, I think there was in men but recently imported into a district and unprovided with maps, room for misapprehension which might have been charitably taken into account. In the absence of specific instances, it seems to me Major Robertson's opinion may likewise on this point be due to misapprehension. That he is not removed from operation of this cause in arriving at his opinions, I may point out that there is no foundation whatsoever for his statement as to temporary sanitary inspectors, "that some could not speak English or write it." On my asking him for his instances, he quotes Bátcha Ṣáḥib as the only case he can remember, and referred me to M.R.Ry. Runga Rao, B.A., late plague supervisor, as his authority. This supervisor having been addressed by me, through the Collector of Cuddapah, has sent me the reply attached (No. 1), from which it will be seen that Major Robertson relied upon hearsay, and not upon personal acquaintance with the qualifications of the sanitary inspectors. His statement is completely refuted.

19. In regard to his assertion that his three Muhammadan inspectors were an "exceptionally bad lot," I would state that two of the three were exceptionally well connected, being relations of the Delhi family. A statement of the educational status of these is attached (No. 2). It will be seen that they were well fitted for the position they held. The third man—Saiyid Qádir Khán—which is the man Major Robertson probably really meant to refer to—passed his examination in plague matters before me creditably, and was, according to the supervisor, a really "useful" man in plague work, and, notwithstanding Major Robertson's statement, was sufficiently well versed in English to write his reports in useful if not ornamental language. He is a schoolmaster teaching English, and this alone should afford *a priori* grounds as to his knowledge of the language. The obtaining of Muhammadans as sanitary inspectors for plague work was a desirable point in administration, and I considered myself fortunate in obtaining these men as temporary hands for service in the district of Anantapur—having regard to the unsatisfactory attitude of their co-religionists at Guntakal. Major Robertson's cutting generalization that "some could not speak English or write it" is, therefore, absolutely a misapprehension on his part.

20. To say the last word on this subject, I maintain that against *certificated* sanitary inspectors not a word has been said. On the opposite, I have heard nothing but praise, and, in some instances, very high praise, of them from those immediately in contact with them, and even from those who would supplant them by revenue inspectors ignorant of sanitation. Of one man, Dragwidge, who lost his life from plague contracted on duty, I was assured personally by the Collector of North Arcot that he was of the very greatest value, and that he greatly regretted his loss. As to *temporary* sanitary inspectors, they were doubtless not all that could be desired; still they were selected with care as to respectability, educational status, and *particularly as to caste*, with the object of securing no embarrassment on this point. In the next campaign against plague, it will remain for Collectors to show that, with revenue inspectors of frequently not so good an educational class as the men I supplied, and devoid of even so short a training as I gave them, they can secure as good results as they have done with the men they have attempted to displace. In the meantime it is

noteworthy that the first specimen of a revenue inspector supplied as a supervisor in Anantapur does not seem to have impressed Major Robertson favourably as he held him "useless"!

D.—Preventive Measures.

21. Within certain limits the nature of action taken necessarily differed with the amenability of the people and, possibly, somewhat with the individual peculiarities of the district officers responsible.

In only one instance was any attempt made at securing a cordon round an affected village. This was by Mr. Elwin, Collector of Bellary. The village happened to be surrounded with rocks and other obstructions that rendered the place not one typical for the kind of treatment. Notwithstanding the "pin-prick" allusion by the Collector of Anantapur to the fact that a man escaped from the cordon, the action at this village was one of the best features of the campaign against plague in this corner of the Presidency. To attempt to cordon village after village would be ridiculous, but I certainly think that the method is both justifiable and likely to be of great advantage *when applied to small villages at the first entrance of the disease into an hitherto unaffected area*. The promptitude with which the villagers of Chippagiri were prevented from infecting their neighbours contrasts strongly with conditions round Guntakal, where not only was no effort made on the first appearance of the disease to restrain the movements of contacts (owing, apparently, to misconception of its nature) but where, subsequently, full freedom was knowingly permitted to the population *to wander* to neighbouring villages without surveillance. It was from this focus that the disease spread to the villages of the Bellary and Kurnool districts. Indeed, no other result could have been expected. I trust I may not be mistaken as to the utility of cordons. I by no means favour their use, but think no good reason exists because it happens that this method has been strained in its application to an absurdity as a protection against spread of disease that, within the limits I have defined, it may not be advantageous. The escape from the cordon to which the Collector of Anantapur alludes was in the case of members of a family possessed of "agricultural passes." The existence of "observation circles" outside the affected village, however, secured the early detection of the case at Uravakonda.

22. Unless it be at Chippagiri, no efforts appears to have been made to prevent persons from infected villages going to those adjoining for market supplies. This can best be seen to by arranging that supplies from healthy villages shall be sold at selected cleanly spots outside the infected village. Within infected areas also, it would seem but a desirable precaution, even in the case of healthy villages, to shift the usual market side to some little distance from the inhabited portion of the village.

23. Although the formation of "preventive circles" was sanctioned by Government (Plague Commissioner's Proceedings, No. 88, dated 7th October 1898), there was hesitation in employing them. On this point, there ought to exist a distinct understanding; an infected town or village should at once have thrown round it preventive circles. In the case of the Guntakal epidemic the necessity for careful searching for cases round an infected village was so loosely interpreted that the outbreak occurred at Kotalla close to Guntakal without its being recognized at its origin. The village had been given in charge of no plague inspector.

24. In Bellary full advantage was taken of the Regulation 6 allowing assistant sanitary inspectors in unions. Plague found Gooty and Uravakonda of the Anantapur district unprovided with them. This is a matter that requires attention in future. The Plague Regulations are framed on the understanding that towns of 10,000 inhabitants and upwards, not being municipalities, require inspection by a man stationed on the spot, charged with effecting the necessary sanitary and passport duties of a population of a size unmanageable by the ordinary village organization and observation circles.

25. As a result of not instituting the arrangement referred to in the following paragraph, the evacuation of most villages was accomplished without securing disinfection of the property of persons before proceeding to camp. Prevention of return to infected villages before completion of disinfection was also incompletely enforced. These are important points in the prevention of spread of infection. Their neglect seem largely to have minimized the influence of evacuation.

26. In only two places—Kuppamu and Hospet—was, according to the reports, any effort made to place persons leaving an infected village under surveillance, until on leaving the limits of a large area of country defined as "infected," they became involved in the "observation system" of an unaffected area, and were then required to accept passports. That is to say, a villager in an affected village might proceed to healthy villages without hindrance, and without being required to come under any system of surveillance. In Kuppamu, a police cordon was arranged for securing the names of those leaving the village. This, however, need by no means be regarded as an essential part of the system, as shown by the result of Hospet. The use of a cordon in aid of this method had doubtless become necessary at Kuppamu, because it was delayed to a late stage. Here "house segregation" had been adopted, with the usual sequel of the disease gradually obtaining such a hold upon the village that the inhabitants fled in terror. In Hospet, in Bellary district, on the opposite, the system was introduced under my advice by the Collector at the commencement of the second outbreak or general epidemic. That its operation was effectual, I can testify from my having whilst in the town required the most careful watching of the approaches to Bellary by the municipality and from special enquiries made by the passport staff in the town. The necessity for obtaining a passport before leaving an infected area undoubtedly exercises a restraining effect upon the movements of the population notwithstanding the absence of police or troops, whilst, should emigration be decided upon by them, they are placed under surveillance that does not trammel their freedom. The Collector of Bellary specially notes the fact that the disease did not spread to the village near Hospet, and although the timely aiding of the people to proceed to camp in the neighbourhood of the town must have had much to do with it, I regard the enforcement of the passport system as having greatly aided the total result. I have already pointed out (paragraph 8 of my letter, No. 1401-S., dated 4th May 1899, embodied in G.O., No. 878 P., dated 12th June 1899) that the enforcement of this method is essential, and is but a logical corollary of the existing passport system. By omitting the necessity for undergoing observation in the apparently healthy—in Additional Regulation 34—this requirement would be sufficiently met.

27. The general resort of the population of a village to their fields for camping purposes is a desirable and cheap method, but there was far too much timidity as to interfering with the people when they had gone there, under the impression they might be frightened away. I particularly pressed this matter on notice both verbally and by letter (*vide* also Plague Commissioner's Proceedings, No. 321/20, dated 3rd February 1899). Opinions were all against me, and I gave particular room for criticism in the trivial suggestion that when camps are spread *over fields in crop*, a bamboo pole with a red rag attached—I do not wish to dignify it with the name of a flag—*plus* a black board to show the number of persons in the single camp concerned, might be usefully used to identify their whereabouts. One officer styled the suggestion a "sumptuary arrangement," another felt sure it would frighten the people! Yet, I still venture to say that a field of jowari is as good a place to miss finding a human being or a black buck as can be found in this country, and that an expenditure of 4 to 6 annas to identify a spot would be well spent. It seems to me a curious trait in official correspondence * that this trivial and almost irrelevant suggestion of a flag should have overshadowed the important question of sanitary observation of camps which was that really at stake. I do not believe that with the most ordinary care such a result as frightening the people from their camps need be anticipated, *provided action were strictly limited to their sanitary care*. I consider that the staff should always be such as to secure complete sanitary inspection of these camps and to take necessary action founded thereon. An approach to this system seems ultimately to have been adopted in the Bellary district.

* Plague Commissioner's Proceedings, No. 1130, dated 25th April 1899.

28. *Methods of Disinfection.*—There can, I think, be no doubt from the reports, and from my own experience, that no disinfectors are so efficient as sepoys, and wherever possible they certainly should be employed in preference to daily labourers.

29. In the early stages of the plague, the solution of the mercury combined with hydrochloric acid advised in the Plague Regulations was not uniformly used. Later on attention was given to this matter. Uniformity in the use of disinfectants should be insisted upon. The matter of lime-washing referred to by Major Robertson has

already been settled (Plague Commissioner's Proceedings, No. 370/40, dated 1st March 1899). The use of Lieutenant-Colonel Lawrie's method of floor burning was ordered by Government, without this office being consulted. Personally, I think its use has a sphere of utility, but that to burn floors indiscriminately is unnecessary and wasteful. As to modes of distributing the perchloride of mercury solution, the matter has been discussed in G.O., No. 852 P., dated 23rd June 1899. Major Robertson maintains the uselessness of Chinese pumps. Dr. Beach declares that if this be so, a prayerless form of Chinese pump has been used. There may be force in Dr. Beach's statements, but nothing can get rid of the fact that a great deal of physical energy is necessary for their use, and if men be required to labour hour after hour in squirting the solution upon walls with these pumps perfunctory work results. I think my "gravitation disinfector" (Plague Commissioner's Proceedings, No. 308/24, dated 1st February 1899) will sufficiently well meet requirement. Major Robertson favours the use of tin-watering cans. I think these objectionable, not only on account of the inimical action of the solution on the tin, but by bringing about a reduction of strength of the solution. Moreover, it seems to me an impossible feat to arrange that water from a can shall meet a wall at a height and at an angle at which disinfectants can be delivered without much waste (G.O., No. 1262, dated 16th August 1899).

30. The question of dealing with roofs has lately been fully dealt with (G.O., No. 1005 P., dated 29th June 1899). I think the suggestion of Major Robertson that walls should be disinfected only 4 feet high should not be adopted. As a fact contamination of the walls may not have occurred at all, but so long as it is considered necessary to disinfect walls the method should be thorough and leave nothing to chance. Burning of roofs of houses was rarely employed on the ground that it alarmed the population. Such alarm, however, I have constantly maintained, need not occur *when the owner is paid on the spot before the public* instead of his having to wait for weeks till the bill is passed, during which he has had time to dilate on the "zoolum" practised. It is undoubtedly a mode that requires discretion in use, and I think this has been duly observed.

31. *The behaviour of Village Officers.*—I think the reports show clearly that it is impossible to trust to the village heads to give prompt information of attacks with certain exceptions. I hold it as certain that any system which ignores the "observation circle" method, and trusts to village heads and revenue inspectors who have had local dealings with them and as a result have gained "influence," will end in a hopeless muddle. This is a statement that, with the present tendency of official opinion, may carry little weight; but I have not spent a good part of my life in ascertaining the history of epidemics without gauging how far revenue agency of the character stated, *without special supervision* to keep it up to the required standard, may be trusted to for prompt reports. It will be noted that Dr. Power, Plague Officer, Kurnool, considers such agency "obstructive." Without going so far as this, I believe that experience will reveal that no reports will be made till repeated deaths render concealment impossible, and that the natural good feeling which exists between village heads and the revenue inspectors will not facilitate the ascertaining previous facts when, under such circumstances, deaths are reported.

32. *Buildings.*—I think experience gathered by district officers showed that in *rural areas* no attempt should in future be made to build hospitals on the type laid down in the additional regulations. It is better that an uniform pattern of small hut be used for *all* purposes—treatment of the sick, segregation of the healthy and accommodation for relations and of servants. The number of persons placed in such huts would alone vary with the requirements. It is of course understood that suitable relative positions would be provided. For hospital accommodation for towns, and for private caste hospital purposes, I think the pattern given in Plague Commissioner's Proceedings, No. 220A, dated 18th October 1898, should be adopted uniformly.

33. In certain instances reluctance to enter Government hospitals may have been contributed to by the want of accommodation for relatives of patients although required by the regulations—a result of hurry in construction. In the case of Muhammadan populations, also, the absence of provision of a ghosha ward must have acted adversely. These objections would be got over by the separate hut system in rural areas; but in towns it should be looked upon as essential that in erecting hospital camps before the arrival of the epidemic they should be complete *in all respects*. No

advertisement could be worse than the knowledge that in sheds kept ready in a town for plague cases, no separate accommodation has been provided for relatives, and that no arrangement exists for preserving "ghosha." Such structures having been seen and deliberately criticised before the arrival of plague, their unsuitability is recognized by the people, with the result that their being boycotted is predetermined.

34. *Observation Circles in Municipalities.*—The Collector of North Arcot draws attention to the too great size of observation circles in municipalities. The original intention was that these circles should not include more than from 7,000 to 10,000 inhabitants. The attempt, however, to reconcile this condition with municipal wards has doubtless not been of advantage, in that in certain municipalities the wards are really larger than these numbers would imply. I think it would suffice if it be held in mind that the staff laid down in G.O., No. 93 P., dated 26th February 1898, is merely the minimum necessary, and presupposes *the existence of a permanent sanitary staff* correctly proportional to requirements on the spot. As a part of the observation system preparatory to invasion, the latter condition should especially be demanded by Collectors of municipalities.

35. *Isolation of the Sick.*—With the exception of the Collector of North Arcot, all reporting officers agree that in early removal of the sick and evacuation of infected houses lies the best sanitary measure for prompt stamping out of the disease. To him it is evident that no detriment occurred to the population by permitting this erroneous method of indiscriminate "home segregation"—a method that I consider was conducted in the North Arcot district without the care desirable (*vide* my inspection notes on Walajapet, Ránipéttai and Vellore, dated 17th March 1899). He gives no facts to support his opinion. It is also necessary for me to add that in respect of what may be regarded as the complementary measures to the "home segregation" system for prevention of spread, the absence of any chronological statement showing in what order action was taken, in the arrangements detailed from paragraph 3 to paragraph 5 of his report, renders it impossible to correctly gauge their influence. Before it were possible to express such an opinion so opposed to general experience, it would be necessary to carefully compare results in respect to populations where evacuation and isolation had been correctly carried out, and the method he favours had been pursued, respectively. For example, from my own enquiries at Vellore, it would seem that the town affords no exception to the rule that locking up the healthy with the sick was fraught with danger to the latter. Experience on this point was sufficiently well gathered 200 years ago. This is the opinion formed by a physician who had gone through the Great Plague of London on the subject of "home segregation":—

"But if hereafter again a plague should break out (which God forbid) with submission to superiors, I should think it not improper to appoint proper accommodation out of the city for such as are yet untouched in infected families, and who should continue there for a certain time; the sick, in the meantime, to be removed to convenient apartments provided on purpose for them: for by this means, that practice so abhorrent to religion and humanity, even in the opinion of a Muhammadan of shutting up the sick and well together, would be avoided."

* * * * *

Also Defoe states, "as soon as any house is infected, all the sound people should be had out of it and not shut up therein to be murdered."

36. The method of introduction of plague in Vellore is assumed as shrouded in mystery; but it ought not to have been forgotten that "home segregation" of contacts and incomplete disinfection was adopted in the imported case of plague which was discovered, on the 25th October 1898, in the case of a sepoy's wife. It occurred in the part of Vellore town where indigenous plague was first subsequently ascertained (on the 3rd January 1899), namely, Saidapet. That effectual measures were not carried out in respect to this imported case in no way reflects upon the local administration. Every effort, except actual force, was used to secure correct segregation of contacts and disinfection of the house. But when confronted with the Collector's conviction that *indiscriminate*—I use this word advisedly—"home segregation" was not injurious, I am bound to point out that the chances are greatly that to the ineffectual action, in the first case, must be ascribed the invasion of Vellore. It is true that no case was

officially reported as of plague until the 3rd January ; but the Collector in his reports states that no history of importation in this instance could be discovered, that is, the disease was already indigenous, whilst it was suspected that "recent deaths" had been due to plague. Equally true is it that the chances are that the continuance of this system permitted of the subsequent spread of the infection from house to house. To this fact the accompanying map seems to me to testify. It will be seen that escape of infection in the main street of Saidapet, where it established itself, is rare. This map was prepared by Captain Ffrench (Special Plague Officer) before the Baker's street epidemic, and therefore this cannot be shown. It however followed the same course. Now, what occurred in the Baker's street epidemic was that, after the disease had been allowed by the hopelessly bad method of "home segregation" to get a complete hold of the place, it was evacuated *en bloc*. In the case of the Saidapet epidemic also the people ultimately fled from the area in number sufficient to secure a decided thinning of the population. Can it be said, therefore, that the stamping out of this epidemic was effected, notwithstanding the use of "home segregation"? It is evident that it ceased as soon as home segregation was no longer practised. What occurred in Vellore was no exception to the rule that if, when the disease becomes indigenous in an area it be not evacuated by an official order, the time must come when the people will evacuate it voluntarily, after useless destruction of life and danger to trade and property has resulted.

37. *Method of spread of the disease.*—Except so far as the introduction of cases into a community by human beings is concerned, the evidence forthcoming is of not a very definite nature as to mode of spread. The inference that when the inhabitants took away with them to their camps in the fields their infected property, subsequent spread occurred is repeatedly affirmed and is in all probability perfectly correct; but no attempt has been made to show that cases arose in families encamped beyond ten days without contact with fresh cases, showing that the full period of incubation had been passed. The Collector of Anantapur suggests importation by rats, but it will be seen from his letter, No. 1071, dated 19th June 1899 (attached No. 3), that, on my bringing to his notice certain facts that were within my own observation as to the incidence of plague in his district, he no longer presses this theory, nor does he support his theory that the greater the absence of sanitation the less the incidence of the disease. In this connection I think it would be well if Government would call attention to the desirability of officers on plague duty, recording all facts of a nature that will bear investigation in the Collector's plague diary suggested by me (*vide* Plague Commissioner's Proceedings, No. 951, dated 12th April 1899). In this way *reliable* data might be gathered.

38. *Ambulance Staff.*—Attention is called in certain of the reports to the uselessness of attempting to give medical attendance to the people, and the desirability of getting rid of the hospital section of that staff is recommended. The matter is one with which the Surgeon-General will doubtless deal, and I therefore shall not enlarge upon it. But it seems to me whilst one officer (Major Robertson) complains of *embarasse de riches*, in respect to having no less than twenty persons at his disposal for medical purposes, that he has not allowed himself to picture a state of affairs in which these are not present. Above all things, rapidity of action is essential in plague. It may occur that in a village attacked, not a soul will come forward to help in such material points as removing of filth, disinfection of clothing, removal of bodies and of the sick. Moreover, granted the people do not accept medical treatment, it cannot but be recognized that the presence of female toties is of great advantage in dealing with houses where females are attacked, and that where ghosha women are to be removed the presence of female ward attendants to accompany those would be of the greatest benefit. As to the presence of trained nurses, whatever their functions as to nursing may be, they must be invaluable in dealing with diagnosis of female plague cases. Moreover, it does not follow that although in one district medical attendance is refused it need be so in others. Thus, in Salem evidently the people really appreciated medical efforts. In Maddikera, Kurnool district, to my knowledge, it was gratefully accepted from Dr. Power by certain of the patients. Although I consider it a most important point of policy that medical treatment should not be thrust upon the people, it would seem to most persons callous not to at least make provision for it. That the additional Medical Officers primarily imported for treatment of plague

cases should stand aside and have little or no occupation, because the patients will not go to them for treatment, is quite another matter. I have maintained that the existing organization gives to the medical profession an erroneous place, and that hence their efforts are wasted—a matter which has however been duly considered by Government (G.O., No. 878 P., dated 12th June 1899). Under these circumstances, it would seem desirable that at least the first two ambulance staffs should be strictly in accordance with the regulations, and that, subsequently, the District Medical Officer, in consultation with the Collector, should reduce, if considered essential, that part of the staff intended solely for medical purposes. For this end the ambulance staff should in future be divided into two sections that can be detached complete—the medical and sanitary.

39. *Inoculation.*—Inoculation would probably have been more widely accepted than the reports show, were it not that the people could not be made to understand that attacks of the disease occurring within ten days of the prophylactic operation were really due to the fact that incubation from previously-acquired infection had been proceeding—a condition that inoculation is, so far as yet ascertained,—powerless against. Thus, matters usually progressed well enough in villages, till some cases of this description unluckily fell into the operator's hands. The people then either judged the operation incapable of affording them protection, or concluded that the similar rumours that they had temporarily distrusted were, after all, correct. This was the experience in the Salem district round Guntakal, Molagavalli and at Hospet. Whilst the masses were thus easily deterred from accepting the operation, the educated classes were open to conviction until the publication of Lieutenant-Colonel Lawrie's evidence before the Plague Commission. I had received special invitations to inoculate numbers of influential native gentlemen during the Christmas holidays; but, after hearing this evidence, they concluded that a certain risk from the "putrescent fluid" did exist, and that it would be wiser to defer the operation till their towns were actually attacked. But misinterpretation of the effects of inoculation is by no means confined to the "masses". It will be seen that I am ingenuously charged by the District Medical and Sanitary Officer of Bellary with having been instrumental in introducing plague into Hospet. He ascribes the outbreak to the "quality of the serum" used by me—an euphemism for stating that in M. Haffkine's anti-plague vaccine, with which solely the operation was performed, there existed living plague microbes. The facts of the case are that I arrived at Hospet at a time when I knew it was "imminently threatened" by invasion from Kopbal. No inoculations had previously been made, but nineteen operations were performed, several amongst leading men. Of these, one—a child ten years of age—was attacked by plague on the seventh day after the operation. Being a puny child for its age, it had received one-half the standard dose for its age. This however sufficed, as I judged it would, to cause it to have a normal fever re-action of three days' duration. Under the circumstances that re-action did take place was certainly fortunate, as an important lay-official did not scruple to criticise the insufficiency of my dosage—holding that I ought to have given $1\frac{1}{2}$ C.C. (or $\frac{1}{2}$ C.C. more than the maximum prescribed by M. Haffkine for the age of that strength of serum)—oblivious of the discretion essential as to size and consitutional condition of the individual; whilst another suggested to me that had I given the full dose the child would not have been attacked—forgetful of such a condition as incubation and of the hopelessness of attempting to check it. After the three days of inoculation fever re-action, there was a complete interval of freedom from fever, during which the child played about as usual but was attacked with plague on the seventh day. On the third day after the development of plague symptoms in the child, the mother was also attacked with genuine plague. Having regard to the usual period of incubation of plague, it is extremely unlikely, especially if the periods were reduced to hours, that the source of infection in this second case was from the child. In short, they must have been subjected to the same common source of infection, the attack of the mother being within the ten days of my operation on the child. The mother had not been inoculated by me. None of the eighteen others inoculated (several being from the same bottle) developed plague, nor any of the 60 inoculated by me shortly after in Bellary from the same consignment of serum. The father of the child was a stationmaster, and in the habit of receiving into his house various members of the Southern Mahratta Railway staff from Hubli, Dharwar, Gadag—all

infected places. The child was, to my personal knowledge, in the habit of playing in a shed with an earthen floor, where passengers from the affected localities must often have slept side by side with their baggage waiting for the next day's train or before removal to the observation camp. Here was certainly room for infection. But the outbreak of *indigenous* plague, showing cases had been concealed previously which occurred in the town—removed about 1½ miles from the station—within 28 days subsequent to the occurrence of these cases (which were carefully segregated) showed that probably no more extraordinary means of infection had existed than had prompted my original visit to the town, namely, plague in the Kopbal district of the Nizam's dominions within 16 miles, and whence coolies had arrived for work in the Hospet fields as was customary. I need hardly add that the occurrence of plague *within the period of incubation* from natural infection, subsequent to inoculation, is a common experience (*vide* paragraph 42).

40. Mattigiri may be regarded as a fair attempt to cut short a plague epidemic once started by means of inoculation. The moment the outbreak took place Lieutenant-Colonel Harrison commenced operations and performed 146 cases. I immediately also despatched there Major Bannerman, who added to them to the extent of 236 cases. Of the total of 2,893 cases inoculated, 29 were subsequently attacked and 16 died. The result of the effort, although started under favourable circumstances, was that inoculation was not held sufficiently long in favour owing to the people not understanding the difference between complete and partial immunity gained.

41. The dates of inoculation and attack were as follows :—

No.	Date of inoculation.	Date of attack.	Date of death.	Duration of immunity.	
				Months	Days.
1	14th December 1898	24th December 1898 ..	....		
2	14th " "	15th " " ..	....		
3	15th " "	19th " " ..	18th December 1898 ..	..	10
4	8th " "	20th " " ..	19th " " ..	..	1
5	19th " "	25th " " ..	20th " " ..	..	4
6	15th " "	28th " " ..	29th " " ..	..	12
7	14th " "	6th January 1899 ..	8th January 1899 ..	..	7
8	15th October "	6th " " ..	8th " " ..	..	13
9	15th December "	3rd " " ..	....	..	22
10	19th December "	9th January " ..	5th January 1899 ..	2	22
11	17th " "	4th " " ..	....	..	19
12	17th " "	8th " " ..	....	..	21
13	12th " "	30th " " ..	....	..	18
14	17th " "	6th February " ..	....	..	22
15	15th " "	1st " " ..	13th February 1899 ..	1	19
16	12th " "	2nd " " ..	....	1	20
17	1st " "	2nd " " ..	6th February 1899 ..	1	17
18	8th " "	12th " " ..	....	1	21
19	17th " "	6th " " ..	....	2	1
20	13th " "	6th " " ..	10th February 1899 ..	2	5
21	15th " "	8th " " ..	10th " " ..	1	20
22	14th " "	9th " " ..	13th " " ..	1	24
23	19th " "	11th " " ..	....	1	24
24	21st " "	9th " " ..	....	1	26
25	14th " "	11th " " ..	....	1	23
26	Inoculated in Bangalore ..	14th " " ..	....	1	19
27	15th December 1898	10th " " ..	17th February 1899 ..	1	28
28	19th " "	9th " " ..	10th " " ..	..	..
29	15th " "	8th " " ..	9th " " ..	1	26
			8th " " ..	1	21
				1	24

Owing to the rush of work at Guntakal, it does not seem to have been possible for Major Robertson to secure full details of results amongst the inoculated. All that can be said is that, in the cases that came under his own notice, there were five deaths and three recoveries amongst the inoculated. Amongst the deaths, one was inoculated 21 days previous, another three, another seven, and another ten, and one at Hindúpur 2 months and 21 days. In the Mattigiri outbreak the proportion of deaths (55 per cent.) to total attacks in the inoculated shows that a valuable grade of protection against death had been acquired by the inoculated.

42. Although, for reasons stated, the advance of inoculation has not been so rapid in this Presidency as was hoped, I have no doubt that a re-action will yet occur in its favour as soon as the educated classes are able to weigh more fully the *pros* and *cons*

of the operation than the newspaper reports of the evidence before the Plague Commission would allow them to do. I have always urged, and still believe, it would have been better policy on the part of the special advocates of inoculation in their attempts to popularize the operation, to have placed more stress upon its affording protection against death than against attack. This fact would soon have appealed forcibly to the uneducated, and proofs would have been soon forthcoming. The grade of protection against attack is a refinement of statistics that none but the educated can grasp. I also think that the employment of qualified female inoculators is desirable.

From Surgeon-General C. SIBTHORPE, C.B., F.R.C.P.I., Surgeon-General with the Government of Madras, to the Secretary to Government, Local and Municipal Department, dated Camp, Ootacamund, 19th September 1899, No. T. 8/573.

I have the honour to transmit the accompanying letter, No. 60-P—T., dated the 26th August 1899, from the Sanitary Commissioner, Madras, submitting, along with his remarks, the reports furnished by the Collectors concerned on the measures adopted to combat the outbreak of plague in this Presidency.

2. Lieutenant-Colonel King's review is most interesting and readable, and I agree in the main with his remarks.

3. As regards his paragraph 32, I concur with him that a uniform pattern of hut should be used for all purposes both in towns and rural areas.

4. His paragraph 38 is based on the result of experience in other parts of India. I quite agree with him that the ambulance staff, as proposed by him, is by no means excessive if any number of cases have to be dealt with. The employment of trained European or Eurasian nurses is most valuable. Although, in paragraph 7 of G.O., No. 878 P., dated 12th June 1899, Government has decided that trained native nurses should replace European and Eurasian nurses on the ambulance staff, except for the treatment of European patients, I know of no native women who can be called qualified nurses. There are native midwives, but they could not be obtained in any number and would not be trustworthy as they generally come from very low classes of natives. I also agree with him that the staff be separated into medical and sanitary.

5. I now beg to supplement the Sanitary Commissioner's report with my own remarks regarding the medical administration of the plague.

6. Owing to the advent of the plague in Bombay, Poona and other places in the Western Presidency, the Government, with commendable foresight and expedition, ordered, early in 1897, the inspection of all railway passengers at Arkonam, Guntakal, Kondapalli and Podanur (*vide* Government Orders quoted in the margin). Temporary regulations for combating the disease were issued with G.O., No. 219A M., dated 15th February 1897, and special care was established at Mangalore, southern ports of Malabar and Tuticorin (*vide* G.O., No. 181 M., dated 8th February 1897).

No. 181 M., dated 8th February 1897.
„ 261 M. „ 22nd „ „
„ 319 M. „ 27th „ „
„ 777 M. „ 2nd April „

7. The staff at each of the stations of Arkonam, Guntakal and Kondapalli consisted of a commissioned medical officer, a few hospital assistants, according to the importance of the station, and a European or Eurasian nurse—the latter being intended for the examination of gosha female passengers so as not to wound the religious susceptibilities of those natives and Muhammadans who observe the gosha system. There were also temporary Civil or retired Military Assistant Surgeons posted to Arkonam and Tungabhadra to assist the medical officer owing to the inspection work at those stations being very heavy. At Podanur, a civil apothecary and a hospital assistant were originally posted, and the former was subsequently replaced by a retired

Military Assistant Surgeon. Owing to paucity of officers, the District Medical and Sanitary Officer of Anantapur was allowed to change his head-quarters to Guntakal so as to be in charge of the inspection station and also of the district.

8. An additional inspection station was opened at Hospet in the latter part of 1897 (*vide* G.O., No. 2393A M, dated 1st November 1897) to prevent plague being brought into this Presidency from Hubli, and it was placed in charge of a commissioned medical officer with a retired Military Assistant Surgeon, a nurse and a few hospital assistants to assist him.

9. Medical subordinates were also employed on the frontier of the Ceded and other districts which adjoined the affected tracts for the inspection of those passengers who travelled by roads and did not make use of railways to avoid inspection.

10. To enable this department to provide medical men for these demands, Government, in Government Orders marginally-quoted, * sanctioned the employment by me of temporary Civil Assistant Surgeons, retired Military Assistant Surgeons and even uncovenanted medical officers on a liberal scale of pay. This sanction was largely availed of both in 1897 and in 1898 as will be seen from the list given in the margin.†

* No. 467, Public, dated 28th April 1897.
„ 683 „ „ 1st June „
„ 1494 „ „ 16th Nov. „

† *Uncovenanted Medical Officers.*

Mr. Taylor.
„ Spittler.
„ Conran.
„ Dorabsett.
„ Staunton.

Retired Senior Military Assistant Surgeons.

Trutwein.
Gillson.
Chalke.
Meneaud.
Everard.
McDermott.
Watts.
Todd.

Retired Military Assistant Surgeons.

Debnam.
Govind Singh.
Bowie.
Ryland.

Temporary Civil Assistant Surgeons.

Asirvadum.
Punyakoti Mudaliar.
Kri-hnasawmy Aiyar.
Subba Aiyar.
Gurdit Singh.
Vittal Row.
Pinto.
Ramanjulu Naidu.
Sundara Mudaliar.

Civil Apothecaries.

Parthasarathy.
Rodrigues.

‡ Lieut.-Colonel Pemberton.
Major Thompson.
„ Sanjana.
„ O'Hara.
„ Robertson.
Captain Vickers.
„ Wright.

Captain Donovan.
„ Mitter.
„ Gabbett.
„ Macræ.
„ Browne.
„ Illington.

11. About the middle of 1897, when all possible arrangements were being made by us to meet demands for plague duty, there came a requisition for commissioned medical officers, who were required for field service on the frontier. Thirteen ‡ such officers had to be withdrawn from civil duty and placed at the disposal of the Military Department. This completely crippled our resources and necessitated the Home Government being requested to send out temporary European Doctors both for plague and general duties (*vide* G.O., No. 1481, Public, dated 12th November 1897). The first batch of five officers sent out for Madras were—

Dr. Dalal,
„ Winter,
Dr. Jameson,
„ Stevens, and
Dr. Knapp

(*vide* G.O., No. 94, Public, dated 17th January 1898), but, on arrival in Bombay in December 1897, they were sent to Poona for three weeks' plague duty. Subsequently only Drs. Dalal and Knapp reported themselves for duty in Madras but had again to be sent back at once to Bombay (*vide* G.Os., No. 174, Public, dated 1st February 1898, and No. 256, Public, dated 14th February 1898).

12. The next batch of Plague Doctors who were sent out from England for duty in this Presidency and whose names are given in the margin (*vide* G.O., No. 457, Public, dated 19th March 1898) arrived in Madras in March 1898 with the exception of Dr. Thomas, who was detained in Bombay. Of the remaining nine, Dr. Battiss died immediately after while a patient in the General Hospital and the rest were posted to plague and general duties.

Dr. Beit.
„ Rendle.
„ Lusk.
„ Nightingale.
„ Myler.
Dr. W. Thomas
„ Langley.
„ Battiss.
„ Illingworth.
„ Charlesworth.

13. The plague having subsequently extended to the Ceded Districts and the Mysore Province, three more new inspection stations were opened in August 1898, viz., at Jalarpet, Pakala and Hindupúr; and Guntakal, which was abolished in April 1898 on the transfer of the inspection to Tungabhadra (*vide* G.O., No. 337 P., dated 16th April 1898), had also to be re-opened. Another inspection station was opened at Chingleput in October 1898 (*vide* G.O., No. 1246 P., dated 5th October 1898). To meet this additional strain on the department, it became necessary to import more Doctors from England (*vide* G.O., No. 1290, Public, dated 20th October 1898), and their names are given in the margin. The first eight arrived in Madras in October, Dr. Way on 1st November and the others in December 1898. Dr W. Thomas of the first batch, who was detained in Bombay, arrived in September 1898. Dr. Nightingale, who belonged to the first batch, was allowed to exchange with Dr. Power of Bombay, who joined at Kurnool on 8th November 1898. Three Doctors were employed as additional medical officers in each of the districts of Anantapur and North Arcot which were at one time threatened with a sharp attack of the disease and one additional medical officer in each of the districts of Bellary, Cuddapah, Kurnool and Salem. The rest were employed at plague-inspection stations and on general duties.

G.O., No. 841 P., dated 18th August 1898.
„ „ 889 P. „ 24th „ „
„ „ 892 P. „ 24th „ „

Dr. Woodward.
„ Anderson.
„ Noble.
„ J. Thomas.
„ Edwards.
„ Worthington.
„ Costello.
„ Hunter.
„ Way.
„ Thomson.
Dr. McLean.
„ Roberts.
„ Murray.
„ Lubeck.
„ Virtue-Tebbs.
„ Hanna.
„ Beach.
„ Low.
„ Page.

14. Three more inspection stations were opened in January this year, viz., Tadpatri, Tiruvannámalai and Dhone—the first in charge of a retired Military Assistant Surgeon, the second under a temporary Civil Assistant Surgeon and Dhone under a hospital assistant. There was also a hospital assistant at each of the first two stations to assist the medical officer, also a nurse.

G.O., No. 11 P., dated 3rd January 1899.
Plague Commissioner's Proceedings, No. 112—9, dated 13th January 1899.
G.O., No. 127 P., dated 24th January 1899.

15. The demands for hospital assistants were most heavy and beyond the scope of this department to meet. They were required not only for railway plague inspection stations, but also for ambulance staff and frontier road stations, and the number of men employed on such duties in the Ceded Districts and especially in Bellary was very considerable. Private hospital assistants were unwilling to apply as they were afraid of plague duty and this considerably added to our difficulties. It therefore became necessary, in addition to a few retired hospital assistants who had been entertained, to close several dispensaries in districts where there was no plague and to utilize the hospital assistants thus withdrawn from them in plague-stricken districts. This course was adopted in consultation with the Plague Commissioner and with the consent of the various local bodies. Although about 40 hospital assistants were thus secured, they were not, however, sufficient to meet the demands in full and had to be supplemented by a supply of twelve military hospital assistants from the Military Department.

16. Most of our District Medical and Sanitary Officers and especially those of Anantapur, Cuddapah, Kurnool, Bellary, North Arcot and Salem had very hard and trying duties during the whole time that plague lingered in their districts.

17. *Plague in the City of Madras.*—(i) Four plague hospitals and four segregation camps were organised and opened by the Madras Municipality. Thirteen imported and two indigenous cases of plague occurred up to the end of the year 1898. Precautions against the spread of infection were strictly carried out.

(ii) In accordance with the rules published by the Venice Convention, 68 vessels, arrivals from Bombay and Calcutta were, up to the end of the preceding year, inspected when between two and three miles distant from the port, and all passengers were inspected on shore prior to embarkation. No plague cases were detected.

18. *Plague in the Presidency.*—In all the railway inspection stations opened up to the end of 1898, 1,792,603 passengers were examined. Of these, 9,633 were detained for observation. Up to date 443 imported and 2,279 indigenous cases of plague occurred. The district which was affected most was Anantapur (64 imported and 625 indigenous), then came Salem (156 and 522) which is not as yet free, North Arcot (116 and 436), Bellary (21 and 280) and Kurnool (4 and 170). The precautionary measures taken as to segregation and disinfection were on the whole satisfactory.

19. *Type-plan of Plague Hospitals.*—The plan embodied in G.O., No. 256 P., dated 23rd March 1898, was directed to be followed so far as the general disposition of the hospital, servants' quarters, latrines and the amount of the accommodation to be provided in each building were concerned, but the details of construction were left to be settled by the local authorities according to the material available in each district. Where sufficient land was available the spaces between different buildings were ordered to be increased.

20. *Anti-Plague Prophylactic.*—Early in September 1898 orders were issued in G.O., No. 999 P., dated 3rd September 1898, to start *voluntary* inoculation by M. Haffkine's anti-plague prophylactic both in the town of Madras and the Presidency where there are commissioned medical officers. Up to December 1898, 5,685 inoculations were performed in the city and 10,532 in the Presidency, making a total of 16,217.

21. *Equipment.*—The equipment laid down in page 109 of the Plague Regulations, as modified by the Plague Commissioner in his Proceedings, No. 785—49, dated 20th March 1899, was ordered to be maintained in all the plague-inspection stations.

22. *Medical Stores.*—The Medical Store Depot, Madras, not having been provided with an adequate stock of medicines and disinfectants to meet the demands of the various plague-infected areas in the Madras Presidency, the Storekeeper to Government anticipated the silent and steady advent of the plague and lost no opportunity in submitting indents on the Secretary of State for such of the drugs as were not available and had run short in the depot. These drugs were received in time and, in the interval, acids (hydrochloric and sulphuric), the stock of which was out, were also obtained locally from Messrs. Waldie & Co., Calcutta, as per G.Os., Mis. No. 1189 P., dated 27th September 1898, and Mis. No. 35 P., dated 6th January 1899, respectively. The cost of stores obtained from England including freight amounted to Rs. 45,573-7-6 while that of the stores obtained locally stood at Rs. 1,020-9-11. Besides these, articles of local manufacture were also obtained to suit necessity and purpose.

23. All the requisitions received from the local authorities were promptly attended to and regularly complied with without any cause for complaint or delay.

24. The following statement shows the number of indents received and disposed of by the Medical Store Depot during the last three years:—

1896-97	2
1897-98	9
1898-99	94
Total ..	105

25. The work of the depot in this connection has been on the whole highly satisfactory and entirely due to the admirable manner in which Lieutenant-Colonel H. St.C. Carruthers maintained order and discipline.

26. *Finance.*—The total outlay on account of plague from Provincial funds amounted to—

	Rs.	A.	P.
1896-97	1,162	10	11
1897-98	22,394	2	2
1898-99	2,40,434	5	0

while under Local funds the expenditure for the corresponding period remained as follows:—

	Rs.
1896-97	*Nil.*
1897-98	41,112
1898-99	Not known.

27. The details of expenditure debited to Provincial during the last three years is shown in the appended statement. It will be seen from that statement that the expenditure under "salaries of officers" has been unusually large during the year 1898-99 when compared with that of the previous one. The rise under this head is mainly due to the special medical officers having been obtained from England as per Government Orders noted in the margin, to the entertainment of retired Military Assistant Surgeons, uncovenanted medical officers and temporary Civil Assistant Surgeons from time to time, and to the enhanced rate of pay offered to some of the above officers as will be seen from G.O., No. 683, Public, dated 1st June 1897, and G.O., No. 64, Public, dated 17th January 1899.

No. 457, Public, dated 19th March 1898.
„ 1290 „ „ 20th October „

28. *Exchange Compensation Allowance.*—Some of the commissioned medical officers having been detailed for plague duty, they were allowed exchange compensation allowance in accordance with the rules of the service which accounts for the increase under this head.

29. *Temporary Establishment.*—The gradual increase under this head represents the cost of establishment, both superior and inferior, entertained from time to time when the number of passengers from plague-infected areas was considerable.

30. The grant of travelling allowance to officers and subordinates for joining their first appointments, as per G.O., No. 941, Financial, dated 16th November 1897, the deputation, local, tentage and house-rent allowances sanctioned in the orders of Government noted in the margin fully account for the marked increase under these items, while the charges under postage and telegrams are chiefly attributable to the frequent use of telegrams in reporting the cases of plague to the several authorities concerned and the increased correspondence involved in connection therewith.

G.O., No. 797 M., dated 5th April 1897.
„ „ 1153 P. „ 23rd Sept. 1898.
Plague Commissioner's Proceedings, No. 907, dated 13th December 1898.
Plague Commissioner's Proceedings, No. 766, dated 18th March 1899.
G.O., No. 7, Public, dated 3rd January 1899.
„ „ 618 „ „ 5th June „

31. The increase under other items, some of which are trivial and call for no comments, represent the actual charges incurred in connection with the construction of sheds and the purchase of materials required for the formation and maintenance of camps and institutions for plague purposes.

32. The decrease under other items shown in the statement is due to the new method of adjustment of the charges sanctioned in G.O., No. 615, Financial, dated 17th May 1899. This has to a small extent minimised the expenditure on the Provincial side.

33. The expenditure under Local funds embraces the cost of medical establishment, nurses, &c. I have not the figures and facts before me to dwell upon the subject in detail as it would be a matter of time and delay.

34. *General Remarks.*—I may add that on the whole the financial measures were sufficiently satisfactory.

ENCLOSURE.

STATEMENT showing the Expenditure in connection with the Bubonic Plague during the last three years.

—	1896-97.	1897-98.	1898-99.
	Rs. A. P.	Rs. A. P.	Rs. A. P.
Salaries of officers	..	15,685 15 10	1,51,296 14 4
Exchange compensation allowance ..	..	511 15 4	2,051 2 11
Apothecaries and hospital assistants ..	502 14 1	442 7 7	..
Other temporary establishments ..	5 2 4	475 6 7	4,350 1 4
Famine batta	..	..	7 9 11
Local allowance of officers	..	..	1,720 0 0
Travelling allowance of officers ..	..	1,285 3 0	11,248 9 1
,, ,, of establishments.	14 8 0	18 2 0	649 9 5
Tentage allowance of officers	..	..	216 10 6
Plague ,, of officers	..	1,060 0 0	3,509 4 7
,, ,, of hospital assistants, &c.	..	426 9 7	246 7 7
House-rent allowance	..	8 3 7	457 15 0
Hospital equipment	280 2 6	..	5,115 11 11
,, clothing and bedding	52 0 0	..	2 1 0
Petty works of construction and repairs.	298 0 0	1,577 11 2	..
Cost of maintenance of caste plague hospitals	..	..	617 1 0
Purchase of country and European articles	..	..	983 0 9
Purchase of boots	..	..	2 10 0
,, repair and carriage of tents ..	..	..	3,225 0 3
Peons' belts and badges	..	..	5 1 0
Subscriptions to newspapers	..	..	212 10 7
Cost of Europe stores including freight.	..	..	45,573 7 6
Liveries and clothing of servants ..	..	..	93 15 0
Rattan mats	..	..	116 6 0
Purchase and repair of furniture ..	..	..	16 8 0
,, of periodicals	..	..	1 10 6
Cost of stationery	..	0 9 9	27 14 0
,, of medicines	..	..	513 11 9
Cloth for records	..	..	14 0 3
Carriage of stationery and records ..	..	..	67 1 3
Petty carriage and cooly charges ..	..	..	58 15 8
Railway passage	..	278 13 0	..
Contribution to private hospitals ..	..	..	775 0 0
Inoculation charges	..	..	1,347 1 0
Dhoby charges	..	..	0 6 0
Packing ,, ...	..	..	5 8 0
Lighting ,, ...	..	..	25 7 6
Postage ,, ...	..	29 4 6	1,246 3 11
Telegraph charges	..	849 11 0	1,315 5 0
Office expenses	..	10 15 6	88 15 11
Miscellaneous	10 0 0	238 9 6	2,626 9 10
Other purposes	..	6 1 3	1,800 0 0
Total ..	1,162 10 11	22,905 11 2	2,41,661 12 3
Deduct—Amount erroneously adjusted ..	..	511 9 0	1,227 7 3
Net total ..	1,162 10 11	22,394 2 2	2,40,434 5 0

ORDER—No. P., dated October 1899.

Note—Only the more important of the reports submitted have been printed. Mr. B. Macleod's was certainly not worth printing.

(Intld.) M.H.

The papers read above relate to the recent outbreak of plague in the Madras Presidency.

2. *Imported cases.*—Up to the 30th September 1899, 453 cases were imported into 188 places in the Presidency. Of these, no fewer than 112 were stopped at railway and road inspection stations, Jalarpet station alone contributing 63, and the others were discovered under the "observation" system. The necessary precautionary measures were promptly taken, and the spread of the disease was as a rule successfully prevented. This was particularly the case in the City of Madras, where,

notwithstanding the continuous influx of thousands of passengers from the plague-infected areas, there have been only 17 imported seizures and not a single indigenous case. Great credit is due to the vigilance of the municipal authorities. In the districts there were 436 imported cases as detailed below:—

Districts.	Number of		Percentage of mortality.
	Seizures.	Deaths.	
Anantapur	66	48	72·7
Bellary	29	26	89·6
Chingleput	13	10	76·9
Coimbatore	2	1	50
Cuddapah	1	1	100
Kurnool	5	5	100
Madura	1	..	..
Malabar	2	1	50
Nellore	2	2	100
The Nilgiris	2	1	50
North Arcot	132	111	84
Salem	174	105	60·3
South Canara	1	1	100
Trichinopoly	6	4	66·6
Total ..	436	316	72·4

3. *Indigenous plague.*—Plague in an indigenous form first appeared at Guntakal in the Anantapur district, in the beginning of August 1898, *i.e.*, at about the same time as it attacked Bangalore, both places being probably infected from the same source, viz., Hubli. From Guntakal, the disease spread to the other parts of the Anantapur district and to the districts of Bellary and Kurnool. The epidemic was then rapidly extending in Mysore and the districts of Salem and North Arcot, which were nearest to the infected portion of that province, were attacked early in December 1898. The plague was at its highest in the week ending 11th February 1899, when the number of attacks was 263 and the number of places infected 50. It gradually subsided with the approach of the hot weather, and ceased entirely in the week ending 8th July 1899. It re-appeared on the 11th July 1899 in the Salem district where, after lingering in a mild form for several weeks, it has shown a tendency to spread during the past few days. The other districts continue to remain free, but the recurrence of imported cases gives cause for anxiety. Charts illustrating the course of the plague are appended. The following table gives the total number of cases and infected places in each district and the percentage of mortality:—

Districts.	Number of infected places in the district.	Total population of infected places.	Number of		Percentage of	
			Seizures up to 30th September 1899.	Deaths up to 30th September 1899.	Column 5 to column 4.	Column 5 to column 3.
1	2	3	4	5	6	7
Anantapur	30	46,552	625	506	80·9	1·08
Bellary	10	29,589	282	241	85·4	·81
Kurnool	6	16,250	170	139	81·7	·85
North Arcot	19	98,813	680	527	77·5	·53
Salem	35	49,345	559	414	74·06	·83
Total ..	100	240,549	2,316	1,827	78·8	·75

4. *Plague measures.*—The measures prescribed for the suppression of plague and for the prevention of its importation are described in the Madras Plague Regulations and Rules, a revised edition of which has just been issued, and it is not necessary to

refer to them in detail here. They seem to have been generally carried out intelligently and well in the affected districts. The chief measures for combating an outbreak of plague are—

(1) The entire evacuation of the infected locality at an early stage of the epidemic.

(2) The removal of the people of the infected locality to temporary shelter in the open air and the stoppage of all direct communication between them and their houses and the surrounding healthy villages until the disease has abated.

(3) The thorough disinfection of houses by means of sepoys or trained coolies under efficient supervision.

The reports read above show that the greatest success was obtained when these measures were carried out thoroughly as was the case, for example, at Hosúr, Berikai and Hospet, and the chief reliance must be placed on them in future outbreaks of plague. It is presumed the irregularities in the working of the passport rules in the Anantapur district brought to notice by the District Medical and Sanitary Officer have been rectified by the Collector.

5. *Attitude of the people.*—At the commencement, there was a great deal of misunderstanding among the people about the plague policy of Government owing to the circulation of unfounded rumours regarding the plague operations in other provinces, and the local authorities experienced considerable obstruction in dealing with plague cases. At Guntakal the Muhammadans for some time refused to evacuate infected houses, and the Plague Commissioner had to make more than one personal effort to persuade them to yield. In the North Arcot district, there was a similar opposition. There were several petty disturbances in Salem, Trichinopoly and North Arcot. In some places the plague sheds were burnt down and in others Government officers were ill-treated. In the Hindúpur taluk of the Anantapur district, there was a serious riot in which the Tahsildar sustained severe injuries resulting in his death. Where considered advisable, prosecutions were instituted, and steps were taken to educate the people by personal explanation, by the circulation of vernacular circulars and otherwise. The result was a considerable change for the better as time went on and the people began to recognize the necessity of protecting themselves by avoidance of contact with persons from infected areas and to realise the value of evacuation, while still distrusting the Government camps. It may be hoped that should there be a second outbreak of plague in the coming cold weather, the obstructions offered to plague measures will be found to have considerably decreased. The Collector of Salem reports that the people there readily accommodate themselves to the measures taken by the local authorities.

6. *Troops.*—Sepoys were employed on plague duty in the City of Madras and in the districts of Bellary, Anantapur, North Arcot and Salem. At Chippagiri they were employed for cordoning the village, and at Jalarpet they guarded for some months the camp attached to the inspection station. With these two exceptions, the sepoys were wholly utilized for disinfection duty, and they are reported to have proved themselves very useful, and to have generally behaved well towards the villagers. The thanks of His Excellency the Governor in Council are due to the Lieutenant-General Commanding the Forces for the readiness and courtesy with which all requisitions for troops were complied with.

Note—Except in Salem.
(Intld.) M.H.

7. *Plague establishment.*—Special officers to assist the district authorities were appointed as necessity arose and were dispensed with when no longer required. In September 1898 a Plague Commissioner was appointed to supervise all plague operations in the Presidency. The appointment was abolished in May 1899 owing to the decline of plague.

8. *Expenditure.*—The following table gives the plague expenditure since April 1897:—

Districts.	1897-98.			1898-99.			1899-1900 up to 30th June 1899.		
	Provincial.	Local.	Municipal.	Provincial.	Local.	Municipal.	Provincial.	Local.	Municipal.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Madras City (*a*).	13,163	..	46,767	1,21,665	..	1,61,460	29,347	..	44,557
Anantapur (*b*) ..	8,229	11,991	..	46,442	55,694	1,138	14,734	17,420	89
Bellary (*b*) ..	2,132	9,095	752	95,201	1,27,809	9,859	13,614	41,177	1,551
Kurnool (*b*) ..	192	2,660	353	12,244	48,621	4,859	3,394	10,808	796
North Arcot (*b*).	4,391	10,105	723	38,899	25,084	8,753	25,266	16,096	3,556
Salem (*b*) ..	100	26	104	47,063	33,245	5,960	16,473	22,670	1,920
Kistna (*a*) ..	6,229	2,611	1,974	14,702	64	1,698	1,404	659	114
Cuddapah (*a*) ..	..	2	..	4,095	5,588	990	3,497	2,457	91
Chingleput (*a*) ..	96	856	965	1,100	1,569	2,723	1,619	378	495
South Arcot (*a*).	..	23	955	1,359	1,394	3,587	1,669	153	1,998
Coimbatore (*a*) ..	194	4,934	715	8,482	7,069	1,723	1,488	2,465	254
The Nilgiris (*a*).	707	..	80	437	9,632	12,080	324	1,862	1,448
Malabar (*a*) ..	1,377	2	2,575	2,760	4,124	3,784	933	2,471	825
South Canara (*a*).	187	2,012	3,380	4,485	2,103	2,311	154	1,627	358
Other districts (*c*).	2,404	644	10,318	6,080	4,852	32,622	1,416	821	3,706
Total ..	39,401	44,961	69,661	4,05,014	3,26,849	2,53,547	1,15,332	1,21,064	61,758

(*a*) Are places where special precautionary measures were taken on a large scale.
(*b*) Are districts where there was indigenous plague.
(*c*) Are places in which ordinary measures on a small scale were employed.

9. *Sanitary Commissioner's letter No.* 60 *P. T., dated* 26*th September* 1899.—As remarked by the Surgeon-General, the Sanitary Commissioner has submitted an interesting review of the plague operations. Some of the points therein mentioned have already been settled in G.O., No. 878 P., dated 12th June 1899, and other orders. The Government concurs in the remarks made by him in paragraphs 3, 14, 22, 23, 24, 25, 27, 29, 33 and 34 and approves of the recommendations contained in paragraphs 32, 37 and 38. Orders will separately issue on the proposal to amend Additional Mufassal Regulation 34 (paragraph 26 of the letter) and to divide the ambulance staff into two sections (paragraph 38 of the letter). As regards native nurses, the Surgeon-General is requested to submit proposals for training a sufficient number of women of good class, when the necessity for their services arises.

Note—It seems very doubtful whether what Dr. King says about climatic effect on plague in paragraph 5 is correct.
(Intld) M.H.

10. In conclusion His Excellency the Governor in Council puts on record his appreciation of the excellent manner in which almost all the officers under Government who have had to deal with plague measures, have done their work. The freedom from plague which the greater part of the Presidency has hitherto enjoyed is, no doubt, in a great measure due to the energy and care shown by those officers who up to date have had the administration of the Plague Rules. Whether or not

Note—It seems unnecessary to name officers separately.
(Intld.) M.H.

this Presidency will continue to remain comparatively free from plague is still doubtful, and the utmost vigilance continues to be necessary on the part of all concerned.

(True Extract.)

Ag. Secretary to Government.

To all Collectors (A, B, F, K).
„ the Sanitary Commissioner.
„ the Surgeon-General.
„ the President, Municipal Commission, Madras.
„ the Deputy Adjutant-General, Madras Command.
„ the General Officers Commanding Districts.
„ the Resident in Mysore (with C. L.).
„ the Marine Department.
„ the Political Department.

Endorsement—No. P., dated October 1899.

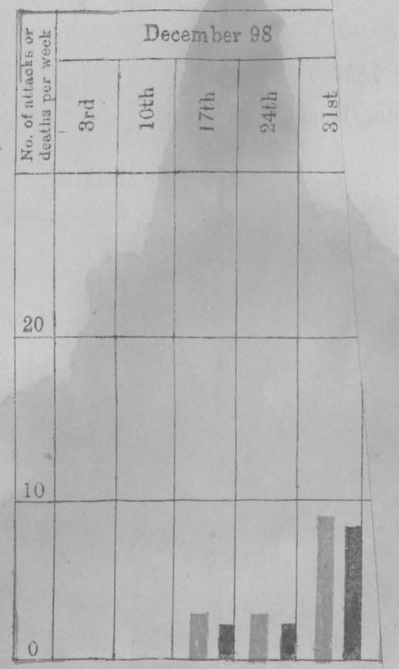
Copy to the Government of India, Home Department.

M. HAMMICK,
Ag. Secretary to Government.

Exd. A. F. Eccleton.

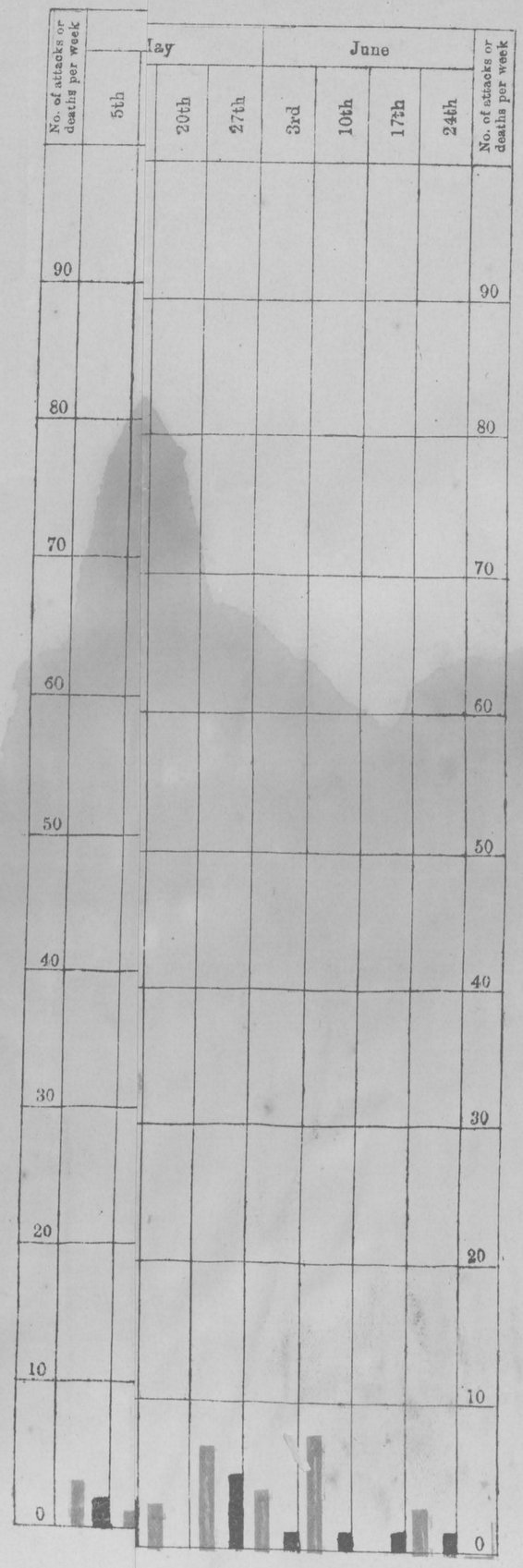
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Municipal Towns)

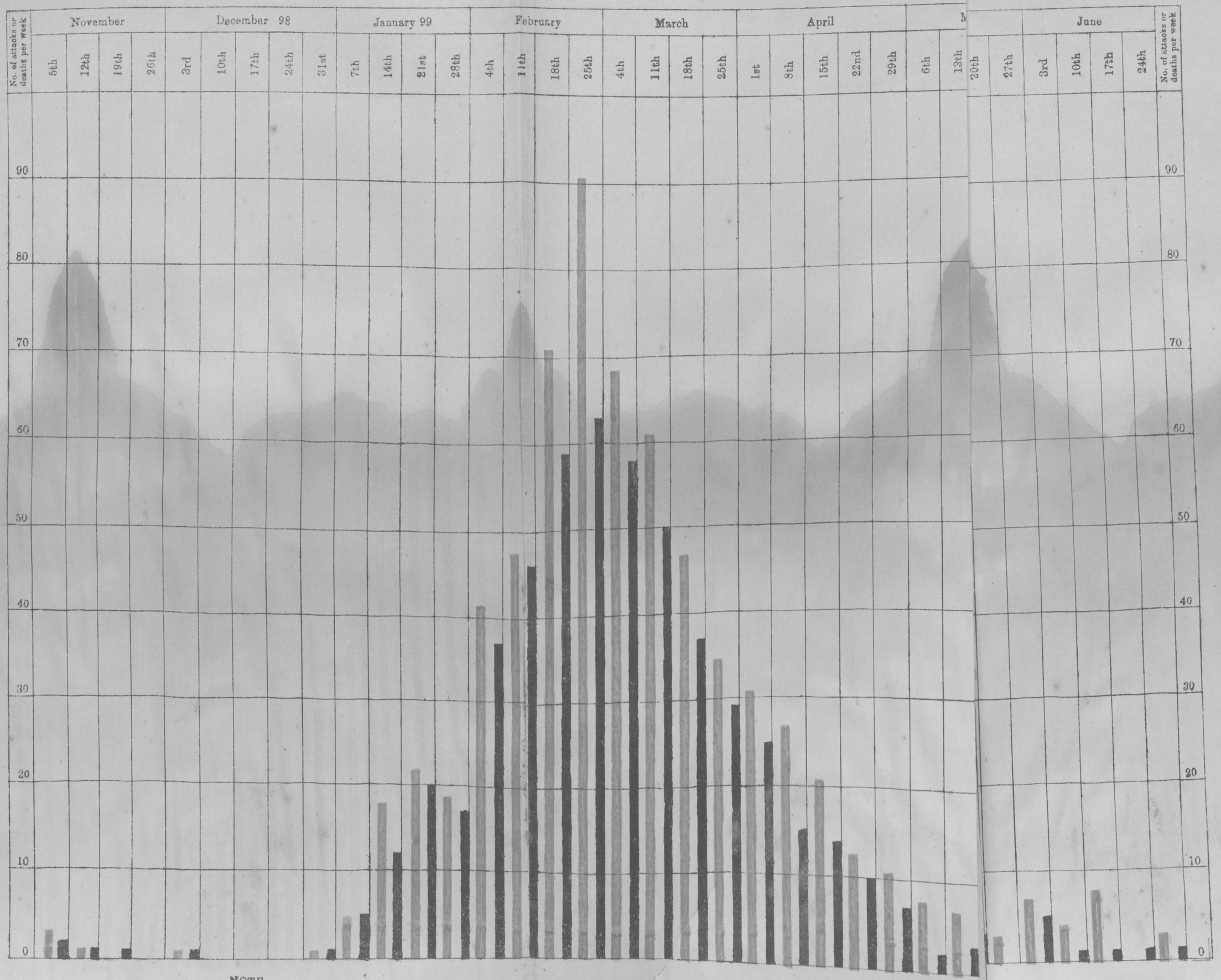


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1899

Diagram showing the weekly plague seizures and deaths (indigenous) in the infected district of N. ARCOT (including the unicipal Towns)

since the Commencement of the outbreak.



NOTE

Red col. represents the No. of attacks

Black col. represents the No. of deaths

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1899

[L. & M.]
500—16-5-99.

PLAGUE.

LOCAL AND MUNICIPAL DEPARTMENT.

5

Papers to be read in Proceedings:—

2

Again G.O., No. dated 189 .

Again G.O., No. dated 189 .

Current No. of 189 , dated , from

" " " 189 , " , " "

" " " 189 , " , " "

Read printed file (attached)

H M
2 Feb 4 Sec

ORDER. (The draft order has been printed vide pages 58-62 of printed file)

Note
Orig to whom complaint of
the report to be submitted have
been printed - Vol B
Proceedings were certainly not
sent to the printing

Harper

The papers read above relate to the recent outbreak of plague in the Madras Presidency.

2. Imported Cases. Up to the 30th September 1899 cases were imported into the Presidency. Of these, no fewer than 112 were stopped at Railway and Road Inspection Stations, and the others were discovered under the "observation" system. The necessary precautionary measures were promptly taken, and the spread of the disease was as a rule successfully prevented. This was particularly the case in the city of Madras where notwithstanding the continuous influx of thousands of passengers from the plague infected areas, there have been only 17 imported seizures and not a single indigenous case. Great credit-

is due to the vigilance of the municipal authorities - In the districts there were 436 imported Cases as detailed below. —

Districts	No of		Percentage of mortality
	Seizures	deaths	
Anantāpur	66	48	72·7
Bellary	29	26	89·6
Chingleput	13	10	76·9
Coimbatore	2	1	50
Cuddapah	1	1	100
Kurnool	5	5	100
Madura	1	"	"
Malabar	2	1	50
Vellore	2	2	100
The Nilgiris	2	1	50
North arcot	132	111	84
Salem	174	105	60·3
South Canara	1	1	100
Trichinopoly	6	4	66·6
Total	436	316	72·4

3. Indigenous plague - Plague in an indigenous form first appeared at Guntākal in the Anantāpur district in the beginning of August 1898 ie, at about the same time as it attacked Bangalore ~~and~~ both places being infected from the same source, ~~Seem to have been infected from Hubli~~. From Guntākal, the disease spread to the other parts of the Anantāpur Dt and to the districts of Bellary and Kurnool - The epidemic was then rapidly extending in Mysore and the districts of Salem and North Arcot which were nearest to the infected portion of that province were attacked early in December 98 - The plague was at its highest in the week ending 11th February 99, when the number of attacks was 263 and the number of places infected 50 - It gradually subsided with the approach of the hot weather and ceased entirely in the week ending 8th July 99 - After an interval of 15 days it reappeared on the 11th July 99 in the Salem Dt where, after lingering in a few places for several weeks, it showed a tendency to spread during the past few days - The other districts continue to remain free - Charts illustrating the course of the plague are appended - The following table gives the total number of cases and infected places in each district and the percentage of mortality

District	No of infected places in the Dt	Total population of infected places	No of		Percentage of	
			Seizures up to 30th September 99	deaths	Col 5 ÷ 64	Col: 5 ÷ Col: 3
Anantāpur	30	46,552	625	506	- 80·9	- 1·08
Bellary	10	29,589	282	241	- 85·4	- ·81
Kurnool	6	16,250	170	139	- 81·7	- ·85
North Arcot	19	98,813	680	527	- 77·5	- ·53
Salem	35	49,345	559	414	74·06	·83
Total	100	2,40,549	2316	1827	78·8	·75

but the occurrence of imported fever cases for annex 5

4. Plague measures. The measures prescribed for the suppression of plague and for the prevention of its importation are described in the Madras Plague Regulations and Rules, a revised Edition of which has just been issued, and it is not necessary to refer to them in detail here. They seem to have been generally carried out intelligently and well in the affected districts. The Chief measures for combating an outbreak of plague are —

(1) the entire evacuation of the infected

Total	436	Steps of the

(2) the removal of the people of the infected localities to temporary shelter in the open air and the stoppage of all direct communication between them and their houses and the surrounding healthy villages until the disease has abated.

(3) the thorough disinfection of houses by means of Sepoys or trained coolies under efficient supervision.

The reports read above show that the greatest success was obtained when these measures were carried out completely as was done for example at Hosur, Berikai, and Hospet, and the chief reliance

foreseen the irregularities in the working of the passport rules in the Guntakal Division brought to notice by the D.M. & H.O. have been rectified by the Collr

5

NOTE FOR THE 4

reliance must be placed on them in future outbreaks of plague. His

Attitude of the people. At the Commencement, there was a great deal of misunderstanding among the people about the plague policy of Government owing to the circulation of unfounded rumours regarding the plague operations in other provinces and the Local authorities experienced Considerable obstruction in dealing with plague cases. At Guntakal the Mahammadans refused to evacuate their infected houses, and the Plague Commissioner had to make more than one personal effort to persuade them to yield. In the North Arcot district, there was a similar opposition, which however could not be overcome, and the Collector was obliged to allow some segregation. There were several petty disturbances in Salem, Trichinopoly and North Arcot. In some places the plague sheds were burnt down and the plague officers there Government officers were assaulted. In the Hindupur Taluk of the Anantapur Dt, there was a serious riot

riot in which the Tahsildar sustained
severe injuries resulting in his death -
Where considered advisable, prosecutions
were instituted, and steps were taken to
educate the people by personal explanation,
by the circulation of vernacular circulars
and otherwise. The result was
there was a considerable
change for the better ~~in~~ as time went on
and the people
began to recognize the necessity of protecting
themselves by avoidance of contact with
infected persons from
infected areas and to realise the value of
evacuation, while still disliking the
Government camps. It is hoped that
should there be a second outbreak, maybe
coming cold weather, the mortality
people to whom ~~are~~ will be known & clear
Plague measures will be found to have
rendered possible.

Troops - Sepoys were employed on plague
duty in the city of Madras, and in the
districts of Bellary, Anantapur, North
Arcot and Salem: At Chittapur they
were first employed for cordoning the village,
and at Jolarpet they guarded for some
months the camps attached to the
Inspection Station - With these two exceptions,
the Sepoys were wholly utilized for disinfection
duty, and they are reported to have proved
themselves very useful, and to have generally
behaved well towards the villagers. The
thanks of His Excellency the Governor in

~~NOTE FOR THE~~

in Council are due to the Lt. General
Commanding the forces for the readiness
and courtesy with which all requisitions
for troops were complied with

7. Plague Establishment - Special officers
to assist the Dt authorities were
appointed as necessity arose and were
dispensed with when no longer required.
In September 98 a Plague Commissioner
was appointed to supervise all plague
operations in the Presidency. The appointment
was abolished in May 1899 owing to the
decline of plague - The following was
the strength of the temporary establishment
in February 1899 when plague was at its height

Designation of appointments	Provincial		Local		Municipal	
	No employed	Aggregate monthly Salary	No.	Salary	No	Salary
Plague Commissioner	1	1964	..	..	..	..
His Personal Assistant	1	300	..	..	..	..
Deputy Collectors	5	1710	..	..	..	..
Deputy Tahsildar	1	100	..	..	..	..
Special Submagistrates	4	100	..	..	..	..
Special Plague officers	10	6695	..	..	..	..
Superior Medical officers	27	13,050	..	..	..	..
Assistant Surgeons	15	3085	..	..	..	..
Civil Apothecaries	3	375	1	125	1	225
Nurses	24	2730	20	1920	16	1566
Hospital Assistants	29	1153	83	3418	41	1604

	Pro:		Local		municipal	
	Plague Supervisors	"	"	32	5263	1	60
	Plague Inspectors	"	"	141	8955	28	1383
	Assistant Plague Inspectors	"	"	29	665	"	"
	Circle Inspectors	"	"	"	"	46	595
	Assistant Health Officers	"	"	"	"	1	350
	Conservancy overseers	"	"	"	"	24	360
	Post Masters	1	20	"	"	"	"
	Postal runners	12	85	"	"	"	"
	Police Inspectors	1	85	"	"	"	"
	European Hd Constables	6	231	"	"	"	"
	Native " "	19	317	"	"	"	"
	Constables	342	2579	"	"	"	"
	Clerks	88	2315	86	1202	47	783
	Servants & menials	316	2292	584	4212	694	4052
	Troops	"	"	4	1500	1	200
	European officers	"	"	68	1711	12	333
	Native officers	"	"	407	4784	100	1500
	Lepers	~~447~~	"				
		~~867~~ 902	~~36032~~ 34,186	1455	33,753	1012	13011

8- Expenditure - The following expenditure table gives the plague expenditure since April 1897-

	1897-98			1898-99			1899-1900 up to 30-6-99		
Districts	Provincial	Local	municipal	Provincial	Local	municipal	Provl:	Local	municipal
Madras city (a)	13,163	"	46,767	1,21,665	"	1,61,460	29,347	"	44,557
Anantapur (b)	8,229	11,991	"	46,442	55,694	1138	14,734	17,420	89
Bellary (b)	2132	9095	752	95,201	1,27,809	9859	13614	41,177	1551

	Pro:	1897-98 Local	mpl	1898-99 Pro	L	m	1899-1900 Pro	L	m
Kurnool (b)	192	2660	353	12,244	48621	4859	3394	10,808	796
North Arcot (b)	4391	10,105	723	38899	25084	8783	25266	16096	3536
Salem (b)	100	26	104	47063	33245	5960	16,473	22670	1920
Kistna (a)	6229	2611	1974	14702	64	1698	1404	659	114
Cuddapah (a)	"	2	"	4075	5588	990	3499	2457	91
Chingleput (a)	96	856	965	1100	1569	2723	1619	378	493
~~Coimbatore~~ South Arcot (a)	"	23	955	1359	1394	3587	1669	153	178
~~Anil~~ Coimbatore (a)	194	4934	715	8482	7069	1723	1488	2465	254
The Nilgiris (a)	707	~~80~~ "	80	437	9632	12,080	324	1862	1448
Malabar (a)	1377	2	2575	2760	4124	3784	933	2471	82
South Canara (a)	187	2012	3380	4485	2103	2315	154	1627	35
Other districts (c)	2404	644	10318	6	4863	32622	1446	821	3700
Total	39401	44961	69,661	405014	326849	253547	115332	121064	16758

(a) are places where special precautionary measures were taken on a large scale
(b) are Districts where there was widespread plague
(c) are places where ordinary measures on a small scale were employed.

9. Sanitary Commr's letter No: 60 P.H. 26-9-99

As remarked by the Surgeon General, the Sanitary Commissioner has submitted an interesting review of the plague operations, some of the points therein mentioned have already been settled in G.O No: 878 P. and other orders.

2. 12-6 P.H. The Government concur in the remarks made by him in paras 3, 4, 14, 27, 29, 33 & 34, 22, 23, 24, 25, and approve of the recommendations contained in paras 31, 32, 36, 37 & 38. The S. Commissioner

Nov

It seems very doubtful whether what Dr. Kenny says about Climatic effect on plague in para 5. is correct

orders will be separately issued on the
~~to submit a draft embodying the~~
proposal to amend
~~proposed amendment of~~ Additional
(para 26 of ~~the~~ letter)
Municipal Regulation 34 ~~to the effect~~
~~that~~ the object in view
~~and to divide~~
~~manner the division of~~ the ambulance
staff into two sections (para 38 of the
letter) should be carried out. As
regards native nurses, the H.S. is requested
~~to ascertain whether~~ to submit proposals
for obtaining a sufficient number of
women of good class, when the necessity
for this duties arises.
~~A Memorandum is enclosed.~~

~~His Excellency in Council is glad to obtain~~
~~acknowledges the Excellent~~ work
~~which has been done~~ in connection
~~with all the Municipal Hospitals~~
~~during the Plague~~

10 In conclusion H.E. in C.
~~puts on record~~ his appreciation of
~~the~~ the excellent manner
in which almost all the officers
under him who have had to deal
with plague measures, have done their
work. The freedom from plague
which the greater part of the Presidency
has hitherto enjoyed is, no doubt in
a great measure due to the energy
& care shown by those officers who
~~up to date~~ have had to administer
Lucy 14/10/81 the Plague Rules.

Then secretary to write
a note of mine which may be
despatched separately
Lucy
18/10/81

Mem. Sd. not.
Handwritten
Exception under to Secret
Signature —
Put up
Separately
as letter is
despatched
20/10

(Write
It seems unnecessary to
issue Officers Separately
19 x. 99

Whether or not the Presidency will
continue to remain Comparatively
free from plague is still doubtful
~~but~~ and the watchful
vigilance continues to be
necessary on the part of all
Concerned —
19 x. 99

7

To all Collectors (A, B, 7 K)
" C.C
" D.H.S.
" Resident M.C., Madras
" D.H.S., Madras Command
" General Officer Commanding S.D.
" Resident in Mysore, and C.C.
" Medical Dept
" Vol Dept

"

Copy to the Govt of India Home Dept

"

NOTE FOR THE Legislature

In May last the ~~Govt~~ P.C called upon the Collectors of Salem, N. Arcot, Anantapur, Bellary and Kurnool to submit a report on the last outbreak of plague in those districts so as to reach him by the 1st of June. But by Govt. Ref. in C. No 4608 dt 31-5-99 these reports were required to be forwarded through the Sanitary Commissioner and the Surgeon-General. The reports from Anantapur and ~~Kurnool~~ N. Arcot were received direct by Govt ~~Govt~~ they were sent to the Sanitary Commissioner on 2-6-99 & 5-6-99 respectively. No other reports must have gone direct to the S.C

No reports having been received from the S.C with the remarks of S.C, the former officer was reminded on 3-7-99 20-7-99 & 4-8-99. May a reminder be sent every week ~~It is proposed to send~~ remind him ~~every week~~ till the reports are

NTD

You received we stamped here then the date at the date they were sent be of course etc

W 5.8.99

14/8/99 of the Magistrates

W 19.8.99

are received?

Surg
4.8.99

MHS
4.8.99

NOTE FOR THE Secy. & Sm
Cho 2868 P

The reports on the recent outbreak of plague in this Secy have just come from the Surgeon-General. There has been some delay on the part of the Sanitary Const but he has made up for it by ~~not~~ an interesting & useful review.

Considering the delay that has already taken place, a detailed review by ~~for~~ seems unnecessary. If the Secy will kindly read the report & the printed clean proof with a brief Draft note dealing with such of the points in the S.G's letter as require disposal will be submitted for disposal. It seems unnecessary to print all the Statements.

Surg
23.9.99

Thank Marshall for papers for print

Show proof —

The Statements especially one by me in Salem will need not be printed it would not be well to make a curse letter for Salem & Marshall as we made for Anderson

Make me - I shall be different from weekly report & do not print me as it will

[L. & M. / 402-26-3-98.]

NOTE FOR THE Secy, L & M.

A printed copy of the report on plague is submitted for approval. The papers have been printed in accordance with the Secy's instructions. The last para of the draft fo. is left blank. It is suggested that the services of the King and such of the officers of the Secy may be selected may be allowed Orders have been already issued [illegible] of the officers as were thought eligible for them. The draft fo. 2 contains the reasons for this.

The only point which the Govt. [illegible] in passing the plague draft is the report [illegible] of the Commissioner of Police on this point. He might have made it more definite & clear that the [illegible]

The delay in submitting the papers to the Secretary of State

2849-952. Reports received from [illegible] more than half a dozen remained and sent to the Secy of

6

Secy for instructions as to printing
27-9-99 - Papers returned by the Secy and sent to Press
6-10-99. First proof rec'd from the Press
9-10-99 - Ditto ditto - returned to the Press
17-10-99 - Second proof rec'd from the Press after one reminder.

Secy
19/10/99 Only important references are kept up into this note.

1,000—28-3-99.

NOTE FOR THE Secretary, L.D.

These are proofs of the diagrams proposed to be appended to the reports on the recent outbreak of plague in the Presidency, and are submitted for approval.

Secy
19/10/99 circulation to H.Ms. begins only on the 23rd instant. May the draft G.O. be printed meanwhile?

Yes. It was Secy
Exports in others 20/10/99

H
20.x.99

AA 25-10-99

1899) Department.

CURRENT No.

RECEIVED
31 OCT. 1899
REVENUE & AGRICULTURE DEPARTMENT

From The Superintendent, Madras Survey

No. 163

Dated 31st October 99.
Received 1-11-99
Registered
Enclosures Nil
Spare copies Nil.

SUBJECT.

5 diagrams for the Plague Report:—
Reports that 700 copies of each of the — will be ready by 15 Dec 99, that copies will be sent in batches as completed.

BACK PAPERS.

G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.

C. O. Form No 220-C.

C 3357-P.

SURVEY OFFICE,

MADRAS,

31 October 1899.

No 163 G

From

THE SUPERINTENDENT, MADRAS SURVEY,

To The Assistant Secretary to Government, Local & Municipal Department, Madras.

REFERENCE.—Your letter No. dated 26 October 99.

forwarding corrected proofs of the following :—

Register No.	Particulars of Map or Diagram.	Total number of copies required.	Date on which full number of copies can be supplied.
	Plague Report.		
5238	Weekly plague seizures & deaths &c in the North Arcot District —	700	15 Dec 1899.
5239	— do — Salem —	700	But rapid can be put in hand as copies
5240	— do — Kurnool —	700	
5241	— do — Bellary —	700	
5242	— do — Anantapur —	700	

Please reply on the back of this letter.

Superintendent, Madras Survey.

REPLY

To

The Superintendent, Madras Survey.

Recorded.

Or if possible, please change dates as below :—

Register No.	No. of copies.	Date.

Camp

Signature

Date

Office

File of original reports from Collectors, Sanitary Comrs and Surgeon General

Ref. on L.B. 4608.

Eo. on cNo 4545 Reb

To The Colls of Salem
N. York
Annapolis
Ballacy
Kennett

Sir

I have the honor to request that you will be good enough to send me in or before the ensuing a full narrative of the measures taken to combat the recent outbreaks of plague in your Dist. It is expected that reports may also be obtained from the D.-M. Hosp. and forwarded along with yours.

Dep. 1/5

Dep. 1/5

Dep. 1/5 Eg

Copy to S.C. S.F.

I Rec'd S.G. Dispatch Hd 1.8.99

1,000—4-10-98.

NOTE FOR THE [illegible]

In order whether the reports called for in P.C's Ref re Cuo 4608 should be compiled in this office on receipt, & whether any ~~reports~~ general report should be called for from the Sanitary Comrs or the Surgeon General.

Secy
23/5/81

Thro' desired reply 8th Cuo through Sanitary Comrs & Surgeon General, who can make what remarks they wish with their reports when be compiled in this office - who asks for the reports? Why are they wanted?

[illegible] 25/5/99

AUGUST 189
MAY 1899

LOCAL AND MUNICIPAL DEPARTMENT.

Ref re Cuo 4608.

Memorandum.

Dated the 189

No.

To Colls of Salem, N. Shields, Ambergate, Bellary & Kurnool

are requested to forward thro' the Sanitary Comrs & the Surgeon General their replies to the Surgeon Comrs letter Ref re Cuo 4608 dy 1-5-99.

Secy
27/5/81

To Mr Coll. of Salem
N. Shields
Ambergate
Bellary
Kurnool

Desd
M. Gr
1-6-99

V S. C
V Sg.

Note Mr Rose calling for these reports was perhaps under the instructions of the P.C. & should know why we wanted them.

Perhaps his intention was to prepare with the aid of these reports a report of his own for the information of Govt.

Bellary got them - they may be of some use

31. V. 99

Enclosure No 5 to Letter No 85-98 dt

Local & Munl. (1897) Department.

SANITARY COMMISSIONER WITH THE GOVERNMENT OF MADRAS. Register 2644 3 - JUN. 99

CURRENT No. 1261 R

SECRETARY TO GOVERNMENT 31 - MAY - 1899 LOCAL & MUNICIPAL DEPARTMENT

Urgent

Order.

Refer no 1261 P

Forwarded to the Sanitary Commissioner for examination with his remarks through the Surgeon General.

A Edgington
for Secretary to Govt

Camp Dis **No.** 4.

From The Collector of Anantapur

Dated 28th May 1899

Received 2-6-99

Registered 2-6-99

Enclosures 4 (1 map)

Spare copies

SUBJECT.

Submitting report on Plague operations in the Anantapur District during 1898-99.

Statement Shewing the number of persons inoculated in the District of Anantapur

Date (Week or Fortnight).	Place.	Number of persons inoculated					
		Europeans or Eurasians	muhammadans	Brahmans	Sudras	Other Castes	Total.
Upto 31st December 1898.	Guntakal	17	329	75	577	380	1378
	Anantapur	2	67	40	92	3	204.
	Dharmavaram	..	2	8	52	..	62
	Penukonda	..	..	15	31	4	50
	Madaksira	..	..	9	2	2	13
	Hindupur	..	..	7	2	..	9
	Total	19	398	154	756	389	1716
For the fortnight ending 15th January 1899.	Hindupur	1	13	1	9	6	30
	Anantapur	..	1	..	1	1	3
	Gooty	..	1	3	19	12	35
	Guntakal	..	5	13	12	15	45
	Total	1	20	17	41	34	113
For the fortnight ending 31st January 1899.	Anantapur	..	13	4	..	..	17
	Gooty	3	..	..	2	1	6
	Hindupur	..	4	7	13	6	30
	Total	3	17	14	15	7	56
For the week ending 4th February 1899.	Gooty	..	1	1	1	..	3
	Hindupur	..	..	1	11	..	12
	Total	..	1	2	12	..	15
For the week ending 11th February 1899.	....	Nil ..	.....				
- do - 18th February 1899	Hindupur	2	1	3	6	6	18
	Madaksira	..	..	18	3	3	24
	Gooty	..	2	..	..	2	4
	Total	2	3	21	9	11	46
- do - 25th February 1899.	Hindupur	..	1	..	5	1	7
- do - 4th March 1899.	Hindupur	1	..	1	6	7	15
- do - 11th March 1899.	.....	..	Nil ..	.....			
- do - 18th March 1899.	Hindupur	..	..	13	7	6	26.
- do - 25th March 1899.	Hindupur	..	13	..	7	6	26
	Gooty	..	1	2	2	..	5
	Total	..	14	2	9	6	31
- do - 1st April 1899.	Nil ..	.....					
- do - 18th April 1899.	Anantapur	..	..	6	3	..	9
- do - 15th April 1899.	Anantapur	..	..	4	..	..	4
From the 16th April 1899 upto date.	Nil ..	.....					
Grand Total.		26	454	234	863	461	2038

Abstract of the Statement of persons inoculated in Anantapur District

No.	Name of Place.	Europeans or Eurasians	Muhammadans.	Brahmins.	Sudras	Other Castes	Total.
1	Anantapur	2	81	54	96	4	237
2	Gooty	3	5	6	24	15	53.
3	Guntakal	17	334	88	589	395	1423.
4	Dharmavaram	..	2	8	52	..	62
5	Penukonda.	..	–	18	31	4	53.
6	Hindupur	4	32	33	66	38	173.
7	Madaksira	..	..	27	5	5	37
	Total	26	454	234	863	461	2038.

ANANTAPUR COLLECTORATE
OFFICE
RECEIVED ON
8- MAR 1899

LIST OF OFFICERS

ON PLAGUE DUTY

IN THE ANANTAPUR DISTRICT

FOR THE MONTH OF MARCH 1899.

To

The President
Dt Board
Anantapur

	Name or number.	Office.	Pay.	Allowance.	Date of commencement of appointment.	Duties of office.	No. and date of sanction.	Remarks.
	2	3	4	5	6	7	8	9
					SECTION I.—PROVINCIAL.			
...d Revenue	Mr. W. S. Marshall ...	Plague Deputy Collector.	250 0 0	...	27 9 1898	Inspecting camps at Guntakal and Thimmancherla and wherever there is plague, supervising the work of circle Inspectors and Supervisors.	G. O. 3909 Mis., 1 10 1898.	
	P. C. Govindasamy Rajah.	Head Clerk ...	30 0 0	...	19 8 „	Collector's Office	Plague Commissioner's Proceedings No. 611—8 11 1898 and G. O. No. 4188 —Mis. dated 28 10 1898.	
	A. Harihara Iyer ...	Clerk ...	20 0 0	...	8 12 „	Do.	Plague Commissioner's No. 681 16 11 1898.	
	D. Krishnamoorthy Row.	Head Clerk ...	40 0 0	...	4 10 „	Plague Deputy Collector's Office, Guntakal.	Do. No. 318—21 10 1898.	
	C. Jayaram Naidu ...	Accountant ..	45 0 0	...	26 11 „	Do. ...	Do. No. 759—28 11 1898.	
	S. Gopala Row ...	Clerk ..	20 0 0	...	4 10 „	Do. ...	Do. No. 681—16 11 1898.	
	D. Ramiah Naidu ...	Clerk ..	25 0 0	...	0 1 1899	Hd. Assist. Collector's Office Penukonda.	Do. No. 497—1 11 1898.	
	Three	Gumastahs ...	45 0 0	...	0 9 1898	Entertained in the Taluks of Gooty, Tadpatri and Hindupur	G. O. No. 1157—3 12 1898.	
	1 Rangachary ...	Head clerk ...	20 0 0	...	16 2 1899	Plague Dy. Tahsildar's Office. Guntakal.	Sanction applied for.	
	2 Gurumurthi ...	Clerk ...	15 0 0	...	Do.	Plague Dy. Tahsildar's Office, Guntakal.	Sanction applied for.	
	Two ...	Peons ...	14 0 0	...	Do.	Do.	Do.	
20 Police ...	Latchamana Row ...	3rd Grade Head Constable.	16 0 0	...	2 9 1898	On platform duty at Guntakal Junction.	I. G's. No. 3320—24 8 1898.	
	Four ...	2nd Class Constables.	28 0 0	...	15 8 „	On duty at plague camp Guntakal Junction.	Collector's R. C. 1639—15 8 98	
	One	1st Class do.	8 0 0	...	5 8 „	On platform duty at Guntakal Junction.	I. G's. telegram 8 9 1898.	
	Three	2nd Class do.	21 0 0	...	Do.	Do.	Do.	
	*Four	1st do. ...	32 0 0	...	3 1 1899	On duty at Konakondla village.	Do. C. No. 70—7 1 1899.	*Temporary plague force.
	Mr. Middleton ...	European Head Constable.	35 0 0	...	8 11 1898	On platform duty at Hindupur.	I. G's. Memo R. C. No. 2212 25 10 1898.	
	*Three	1st Class Constables.	24 0 0	...	Do.	Guarding the cash chest of the Plague Deputy Collector at Guntakal Ry. Police Station.	Plague Deputy Collector's R. C. No. 17 dated 8th February 99	*Temporary plague force.
	Three ...	1st Class do.	24 0 0	...	30 8 1898	On duty at Hindupur camp.	Inspector General's Endorsement No. 3350 on G. O. No. 889 P.	
	Four ...	1st Class do.	32 0 0	...	Do.			
	*Three ...	2nd do. ..	21 0 0	...	Do.			
	Ramaiah ...	4th Grade Head Constable.	14 0 0	...	1 11 1898	On duty at Chilamattoor.		
	Four ...	2nd Class Constables.	28 0 0	...	Do.			
	Four ...	1st Class Constables.	32 0 0	...	...	On duty at Chowlur, Hindupur Taluk.		
	Three ...	1st do. ...	24 0 0	...	30 8 1898	On platform duty at Hindupur.	Inspector General' memo No. 2212 R. C. dated 25- 0-98.	
	Hanumanthappa ...	3rd Grade Head Constable.	16 0 0	...	16 12 1898	On duty in Hindupur town.	Collector's Telegram dated 15 h December 98 and letter C No. 1152 P. dated 16-12 98.	
	One	2nd Class Constable.	7 0 0	...	Do.			
	*Seventeen ...	1st do. ..	136 0 0	...	Do.			
	Two ...	1st Class do.	16 0 0	...	0 2 1899	Assisting the Medical Officer at the Road frontier station at Madakasira.		
	Two ...	1st Class do.	16 0 0	...	22 2 „	Do. Penukonda.		
	One	1st Class do.	8 0 0	...	Do.	Watching the tents at Gooty.		
	Two ...	2nd Class do.	14 0 0	...	Do.			
	Four ...	1st Class do.	32 0 0	...	Do.	On Plague duty at Gooty.		
					SECTION II LOCAL.			
...	C. G. Ames ..	Lieutenant ...	...	...	200 0 0	12th Dec. 98.		
	Mohamed Salaba ...	Subadar ...	...	...	1 8 0 a day.	9th Jan. 99.		
	Runganaikulu ...	Do. ...	...	...	Do.	13th Sep. 98.		
	Moorgesam ...	Havildar ...	...	...	As. 12	9th Jan. 99.		
AP.	Venkateswamy ...	Naique ...	...	...	Do.	13th Sep. 98.	Sanitary Plague duty Hindupur.	Plague Commissioner's Telegram dated 21-10-98.
	Runganayakulu ...	Do. ...	...	...	Do.	Do.		
ne	Venkatachalam ...	Do. ...	...	...	Do.	9th Jan. 99.		
Co	Mohamed Hakim ...	Do. ...	...	...	Do.	12th Dec. 98		
	Ramaswamy ...	Do. ...	...	...	Do.	9th Jan. 99.		
	...sman Khan ...	Do. ...	...	...	Do.	Do.		

	Name or number.	Office.	Pay.	Allowance.	Date of commencement of appointment.	Duties of office.	No. and date of sanction.	Remarks.
	2	3	4	5	6	7	8	9
	Anthony ..	Naique ..	...	As. 12	9th Jan. 99			
	Abdulgaffar ..	Do. ...	...	Do	Do.			
	Narasimhuloo ..	Do. ...	...	Do.	18th Sep. 98			
	Jaganatham ..	Do. ..	...	Do.	9th Jan 99.	Sanitary plague duty Hindupur.	Plague Commissioner's Telegram dated 21-10-98.	
	Abdul Karim ...	Do. ..	...	Do.	12th Dec. 98			
	38 Privates ..	Sepoys ...	44 0 0	Do.	Sep. & Dec. 98 & Jan. 99.			
	Boochee .	Subadar .	...	1 8 0	23rd Sep. 9			
	Akkiah	Havildar ..	...	0 [illegible] 0	Do.			
	Moorgesam ..	Do. ..	...	Do.	Do.			
	Suryanarayana ..	Do. .	...	Do.	Do.			
	Applesawmy ..	Naique .	...	Do.	Do.	Sanitary Plague duty, Guntakal.	Do.	
	Runganayakulu ..	Do. ..	...	[illegible]	Do.			
	Runganayakulu ..	Do. ..	...	Do.	Do.			
	One	Drummer ..	...	Do.	Do.			
	Forty one ..	Privates ..	...	20 8 0	Do.			
24 A. Medical.	Mr. W.H. Murray ..	1st Additional Medical officer.	500 0 0	...	31 12 98	Incharge of Konakondla village with 1st Ambulance Staff.	Surgeon General's order No. 7189 dated 28-12-98.	
	Mr. J. Hunter ..	2nd do.	500 0 0	...	12 11 98	Incharge of Hindupur Sub division with 2nd Ambulance Staff	Surgeon General's No. 6093 dated 3-12-98.	
	Mr. H.P. Roberts ..	3rd do.	500 0 0	...	2 1 99	Incharge of 3rd Ambulance Staff Gooty.		
	Mr. W.H. Beach ..	4th do.	500 0 0	...	20 1 99	Incharge of District work Anantapur.	Surgeon General's No. 12 dated 16th January 1899.	
	K. Chenchal Row ...	Head Clerk.	30 0 0	...	31 8 98			
	C.R. Venugopal Pillai.	Clerk.	20 0 0	...	23 11 98	Office of the District Medical and Sanitary officer Guntakal	Collector's Reference C. No.25P dated 27th July 1898 P. C's. Proceedings No. 682 dated 16th November 1898. Collector's Dis. No. 103 dated 18th January 1899.	
	P. Thirumal Row ...	Clerk.	15 0 0	...	9 1 99			
24 D. Medical.	Mr. C.R. Meneaud ...	Retired Senior Asst. Surgeon.	350 0 0	...	13 1 99	On Inspection duty at Guntakal Railway Station.	Surgeon General's No. 153 dated 29th August 1898.	
	Mr. T. Todd ...	Do.	325 0 0	...	31 8 98	On Inspection duty at Hindupur	Surgeon General's No. 148 dated 26th August 1898.	
	Mr. J. Mc. Dermott...	Do.	325 0 0	...	7 2 99	Do. at Tadpatri.	Surgeon General's No. 28 dated 1st February 1899.	
	M. R. Ry. V. P. Subba Iyer.	Temporary Asst. Surgeon.	100 0 0	60 0 0	18 10 98	Incharge of Plague and Suspect Camps Guntakal.	Surgeon General's No. 35 of 8th February 1899.	

RAILWAY INSPECTION STATION.

1. Guntakal.

Mrs. H. Johnson ...	Nurse.	100 0 0	...	29 8 98	On Inspection duty Guntakal.	Surgeon General's No. 147 dated 25th August 1898.	
D. Rajagopal Pillai ...	Clerk.	15 0 0	...	August 1898	Assisting the Inspecting Officer.	Collector's Proceeding No. 10P dated 9th August 1898.	
T. A. Krishnasawmy Row.	3rd class Hospital Assistant.	25 0 0	10 0 0	24 8 98	Issuing passports at Guntakul.	G. O. No. 1037 P. dated 8th September 1898.	

2. Hindupur.

Mrs. C.M. Burghall ...	Nurse.	100 0 0	...	1 9 98	On Inspection duty at Hindupur.	Surgeon General's No. 148 dated 26th August 1898.	
H. Krishna Row ...	Clerk.	15 0 0	...	26 12 98	Assisting the Inspecting Officer.	Collector's Proceedings No. 10P dated 29th August 1898.	

3. Tadpatri.

Mrs. C. Edwards	Nurse.	100 0 0	...	11 2 99	On Inspection duty at Tadpatri.	Surgeon General's No. 28 dated 1st February 1899.	
N. Seshagiri Row Naidu.	Clerk.	15 0 0	...	29 8 98	Assisting the Inspecting officer.	Collector's Dis. No. 108 dated 29th August 1898.	

ROAD FRONTIER INSPECTION STATION.

1. Kodikonda.

P. Munisami Naidu ...	Retired Hospital Assistant.	55 0 0	27 [illegible] 0	21 10 98			
J. Subba Row ...	Clerk.	15 0 0	...	31 10 98	Duties prescribed in the Additional Mofussal Regulations 56.	Surgeon General's No. 218 dated 22nd October 1898.	
One ...	Sanitary Peon.	7 0 0	...	6 12 98		Collector's Dis. No. 440 dated 25rd October 1898.	
Two ...	Peons.	14 0 0	...	30 10 98 &11 11 98			

II. GOVINDAPUR.

T. Surianarayana Row Naidu.	Hospital Assistant	35 0 0	10 0 0				
AP. Ranga Reddy ...	Clerk.	15 0 0	...	...	Do.		
ne ...	Sanitary Maistry.	12 0 0	...				
Co ...	Peons ...	14 0 0	...	Dec. 1898 & January 99.	Do.	Collector's R. C. No. 525 dated 10-2-99.	
...	Toty ...	7 0 0	...	January 99.	Do.		

Name or number.	Office.	Pay.	Allowance.	Date of commencement of appointment.	Duties of office.	No. and date of sanction.	Remarks.
2	3	4	5	6	7	8	9
K. Narasinga Row ...	Temporary Sanitary Inspector.	40 0	30 0 0	25 1 1899	Do. Inagalur.	Do. 5P/T dated 24-1-99.	
K. Subba Row ...	Do.	40 0	30 0 0	Do.	Do. Manoor.	Do.	
L. N. Appajee ...	Do.	40 0	30 0 0	27 1 1899	Do. Kavali.	Do. 20P/T dated 25-1-99.	
L. Dorasamy Pillai ...	Do.	40 0	30 0 0	25 1 1899	Do. Palthur.	Do. 6P/T dated 24-1-99.	
E. S. Subramania Iyer	Do.	40 0	30 0 0	30 1 1899	Do. Agraharam.	Do.	
B. Srinivasa Row ...	Do.	40 0	30 0 0	2 2 1899	Do. Yerradikera Circle.	Do. 290/S dated 31-1-99.	
N. Venkataramiah ...	Do.	40 0	30 0 0	2 2 1899	Do. Nizavalli Circle.	Do. 313/S dated 1-2-99.	
P. Damodaram Mood	Asst. Sanitary Inspector.	25 0		27 1 1899	Do. Uravakonda Town.		
Mahammed Yeob ...	Do.	25 0		Do.	Do. Penukonda do.		
T. J. Rajaram Row	Do.	25 0		28 1 1899	Do. Dharmavaram do.		
S. Krishna Row ..	Do.	25 0		29 1 1899	Do. Yadiki do.		
Guru Raja Row ...	Do.	25 0		29 1 1899	Do. Madaksira do.		
P. Ramanjulu Naidu	Do.	25 0		25 1 1899	Do. Hindupur do.		
Twenty-eight ...	Peons ...	196 0	...	Sep. to Dec. 1898 & Feb 1899.	Under supervisor's & S. Inspector's.	Collr's. Dis. 2258 7 12 1898.	
Two	Servants ...	14 0 0	...	Dec. 1898	Watching tents at Guntakal.		
One ...	Do. ..	5 0 0	...	23 1 1899	Do. well at Konakondla.	Plague Commissioner's No. 396 dated 10-2-99.	
Staff employed to examine Passengers and issue passports at Stations not notified as Railway Inspection Stations.							
Amirthanayagam ...	Hospital Assistant.	55 0 0	..	Feb. 1899.	Issuing passports at Dharmavaram.	S. G. Telegram of Dec. 1898.	
T. U. Vedanayakam Pillai.	Do. ...	25 0 0	10 0 0 *5 0 0	9 10 1898	Do. at Gooty ...	,, 193—4 10 1898.	* House rent.
Ambulance Corps.							
Mrs. Mackoy ...	Nurse ...	100 0 0	... Board allowance per diem. 1 8 0	9 9 1898	Duties prescribed in Additional Mofusal Regulations 9 & 10.	S. G's. No. 172—22 9 98.	
T. Vaithalingam Pillai.	Hospital Assistant.	25 0 0	10 0 0	20 9 1898	Do.	,, 170—12 9 98.	Sanitary Inspectors and Hospital Assistants get extra allowance prescribed in the Mofusal Regulation 10.
Mohamed Oomer Patcha Saib.	Temp. Sanitary Inspector.	40 0 0	30 0 0	12 9 1898	Attached to No. 1 Ambulance staff	Collrs. order.	
Mohamed Ismal Saib.	Ag. Compounder.	15 0 0	...	21 1 1899	Do.		
Mrs. A. Nelson ...	Nurse ...	100 0 0	1 8 0 per diem.	7 10 1898	Do. 2nd Ambulance staff.	S. G. No. 210—14 10 98.	
W. S. Subramania Iyer.	Cir. Sany. Inspector.	45 0 0	30 0 0	25 9 1898	Do. ...	S. G's. No. 213—23 9 98.	
Ramamrutham Iyer ...	Hospital Assist.	25 0 0	10 0 0	7 10 1898	Do. ...	S. G. No. 160—2 9 98.	
S. Venkatakrishnaiah Naidu.	Temp. S. Inspector.	40 0 0	30 0 0	11 1 1899	Do. 3rd Ambulance staff ...	G. S. No. 77/S.—9 1 99.	
P. Thiruvenga Naiker	Hospital Assist.	55 0 0	15 0 0	2 1 1899	Do. ...	S. G. 7196—23 12 98.	
Six	Male ward attendants.	42 0 0	...				
Three	Cooks ...	24 0 0	...				
Three	Female ward attendants.	21 0 0	...	September and Jan. 1899.	Attached to 1, 2 and 3, ambulance staff.	G. O. No. 93P.—26 12 98 and Collr's. orders.	
Three	Dhobies ...	30 0 0	...				
One	Do. ...	7 0 0	...				
Four	Male toties ...	28 0 0	...				
Three	Female toties ...	18 0 0	...				
Four	Dhooly bearers...	32 0 0	...				
Four	Do. ...	28 0 0	...				
Plague and Suspect Camps. Guntakal.							
G. S. Williams ...	Hospital Assist.	25 0 0	10 0 0	20 9 1898	Duties in the suspect camps.	S. G. No. 253—29 11 98.	
Two	Peons ...	14 0 0	...	3rd & 11th Nov. 1898.			
One	Waterman ...	7 0 0	...	3 10 1898			
One	Male ward attendant.	7 0 0	...	1 11 1898			
One	Female do. ...	7 0 0	...	7 10 1898	Do. ...	Collr's. Prods. No. 100 P. 2 10 98.	
One	Dhoby ...	7 0 0	...	10 9 1898			
One	Male toty ...	7 0 0	...	15 9 1898			
One	Female toty ...	7 0 0	...	6 10 1898			

G.O. No. 2619

Anantapur Collector's Office,

No. A. 28th May 1899.

From

Bannatyne Macleod Esq., M.A. Barr.-at-Law.

Collector of

Anantapur.

To

The Secretary to Government,

Local and Municipal Department,

Madras.

Sir,

As directed in Plague Commissioner's Reference on current No. 460, dated 1st May 1899, I have the honour to submit a report on the plague operations in the Anantapur District during 1898-99.

2. During the early part of the year, there was a Railway Inspecting Station at Guntakal Junction under the Superintendence of Major Hakim I.M.S. the District Surgeon - Dr Febriary 1898 Some 70 Mecca

Pilgrims from Hyderabad were detained for 10 days at Guntakal on their way to embark at Calicut. I had special sheds erected for them and personally looked to their welfare ably assisted by Mr. N. Mainwaring, the Superintendent of Police.

3. At the beginning of the hot weather of 1898 owing to the increase of the epidemic in the territories of Bombay and Hyderabad, energetic steps were taken to guard the frontiers of the Bellary District by the institution of road frontier stations and the appointing of - Sanitary Inspectors to inspect Continuous tracts of 10 miles square. In pursuance of this policy, Major Hakim and the Guntakal Railway Inspection were transferred to Tunga-bhadra on the Hyderabad Frontier and Doctor Chalke Assistant Surgeon

acted as District Medical and Sanitary Officer of Anantapur.

4. A watch was kept by ordinary village agency on all the frontiers against plague cases and at Manepalli in Hindupur 4 ordinary patients caused an alarm which however proved unfounded. Up to July the season caused some anxiety through want of rain - Doctor Chalke interested himself as Municipal Chairman of Anantapur in keeping the town clean. Good rain fell in August and the plague beyond the Bellary frontier continued to increase, two cases occurring at Hospet in the Bellary District

5 In the beginning of August there were 3 suspicious deaths at Guntakal Junction among the native Representation. Stall Keepers, natives

of the Bombay Presidency, but doctor Chalke and Mr. Valentine, the Railway Apothecary decided that they were not plague - The Gooty Deputy Collector, T. A. Shanmuga-Sundram Pillai, could not but agree with them, but his enquiries shewed that the group of huts round Contractor Hafiz Khan's house just north of the Railway premises was a dangerous spot, as Bombay people came there and were entertained in a Komati's eating house and by Hafiz Khan. This assemblage of natives of the Bombay Presidency was inevitable owing to the Southern Mahratta Railway being managed from Dharwar. All the Railway officials and Contractors and their dependants came from the Western Presidency and Guntakal Junction is practically

a Bombay Colony.

6. The same remarks apply to the City Station at Bangalore and in the middle of August cases of Plague appeared simultaneously at Bangalore City and Guntakal Junction. I shall continue the report by weekly summaries beginning from the week ending

20th August 1898.

7. Rainfall 0.31 making a total of 6.02 against an average of 9.08. The first two Cases were those of a Komati woman from the huts near Hafiz Khan's and a Muhammadan wanderer followed by that of a Muhammadan Platform Cooly living in a hut behind the Porter's Lines at Guntakal. This third Case proved fatal. The huts of

The woman and Platform Cooly were burnt by Doctor Chalke and the Gooty Tahsildar, S. Vasudeva Rao and the native Refreshment Stall on ~~Guntakal~~ Guntakal Junction was closed and the place disinfected. A mantapam or temple in Guntakal village 2 miles away where the platform Cooly had taken refuge was also disinfected. I had when the matter was put before me declined to demolish the old plague camp at Guntakal Junction and the huts now proved invaluable for treating the earliest cases, and as a nucleus round which to enlarge the camp. As the camp was on black cotton soil, the partially made gravel path from the Railway Station was completed. An Hospital Assistant was specially deputed to treat these early cases. A Compensation of Rs 45 was paid for 2

huts burnt. The inspection of granaries for dead rats was ordered to be made by Sanitary maistries, Village Reddis in Unions and by Sub Magistrates and Hospital Assistants on market days. During the first half of August, I was touring in Kalyandrug Taluk with the Superintendent of Police on account of the threatening state of the season, in a Taluk which had not been visited by my predecessors for a long time. On 16th August I heard of cases at Guntakal Junction and by a forced march proceeded there arriving early on the 18th. I made my camp there near the Plague Hospital for some weeks continuously until Captain

Robertson I.M.S. arrived from Meerut as District Medical Officer and till the end of the year I was seldom absent from Guntakal.

8. Week ending 27th August 1898.

The Surgeon General and the Sanitary Commissioner visited Guntakal Junction and their visits and advice were valuable. There was a good deal of idle fear among the Railway Employes but our efforts happily averted a panic or strike. The rainfall was 0.02 giving a total of 6.04 inches against an average of 11.01. There were 3 attacks and 3 deaths at Guntakal Junction. One patient, the brother of a native brakesman, brought the infection from Bangalore. The other two were relatives of Railway Contractor

Hafiz Khan. The patients were taken to Hospital and the contacts segregated. The brakesman's quarters were unroofed and disinfected and Hafiz Khan's big house similarly treated. To the East of it lay the objectionable huts and as the correspondence acquiring them for the Railway had just come to a close, the opportunity was taken of burning them all down The Railway Fire Engine and the Southern Mahratta Railway Volunteers attended to prevent accidents, but happily their services were not necessary The burning of these huts was locally regarded as having had a very beneficial effect, as no further cases of plague occurred for some days. A suitable site about half a mile beyond the plague hospital was

selected as a burial ground and bodies were buried 6 feet deep — wrapt in disinfected cloths. The Plague Camp stands on high ground Shallow black cotton soil with hard red gravel underneath. Guntakal Junction was declared an infected area and the following villages placed under observation.

1. Guntakal
2. Timmancherla
3. Kesapuram
4. Nakkandoddi
5. Timmapuram
6. Konakondla.

Local Railway passengers were not allowed to start from Guntakal Junction without a passport of health. Some dead rats were said to have died at Volkart's cotton Press from starvation and in Hafiz Khan's house from poison

As rewards of 2 pies were insufficient to encourage the killing of rats, the amount was increased to 3 pies with moderate success. A gang of wandering gypsies, professional rat killers, were sent for but before arriving they bolted away for fear of infection. To keep out plague from Bangalore, Hindupur was made a Railway Inspecting Station and the Head Assistant Collector, Mr. Macmichael worked energetically at erecting the Camp. An incinerator costing Rs 180 was constructed at Guntakal Junction on Colonel King, the Sanitary Commissioner's suggestion but I never found that it was of much practical use. Temporary overseers were appointed for erecting the Camps at Guntakal Junction and

Hindupur and two extra Hospital assistants obtained

9. Week ending 3rd September 1898.

The rainfall was 1.54 making a total of 7.57 against an average of 11.30. There were no fresh attacks during the week. An attempt was made to prevent Hubli Engine drivers coming beyond Hospet but the Loco Department of the Southern Mahratta Railway could not — arrange it. The train officials were, however, like passengers examined on arrival at the Guntakal Junction. To prevent the unnecessary wait all day at Guntakal Junction I got Mr Greenall, District Traffic Superintendent, Madras Railway to arrange for the local train to wait a reasonable time for passengers from Khan's and Bangalore. It

inspected the Guntakal Southern Mahratta Railway waterworks and had the supply well cleaned of vegetable impurities. The Bellary District authorities were requested to prohibit the washing of clothes in an adjoining well. Doctor Chenai, the Superintending Physician of the Southern Mahratta Railway came to the Junction to inoculate with Haffkine's Serum. A crowd of people listened incredulously to his precepts until I stepped forward and submitted myself to be operated on as an example. Since then a fair amount of inoculation has been done by the local medical officers, not perhaps because people believed in the prophylactic but because it relieved them of various restrictions in the way of being

segregated and observed. The wildest rumours as to inoculation spread throughout the district. People were said to be poisoned with the infection and virile power lost and operators had to be careful to moderate their zeal to some extent.

The Hindupur Railway Inspection under Doctor Todd began working from 1st September. I cannot say that this officer has been as strict as he might have been and it required constant inspection to get him to detain suspicious persons. I am of opinion that such work should be kept in the hands of the Superior Grade of Medical men with English training. The Head assistant Collector, Mr. Macmichael was able by a visit to Tungabhadra under my orders to get a practical idea of the style of camp for Hindupur. The Southern Mahratta Railway

built a shed there adjoining the platform and at Guntakal the site of the Native Refreshment Stall was used for the District Surgeon's plague office. I arranged for 6 observation circles 20 miles deep round the Anantapur side of Guntakal Junction and I believe similar measures were taken in the adjoining districts of Bellary and Kurnool. These circles were worked by 6 Sanitary Inspectors and 2 Supervisors. Being foreigners they were at some disadvantage and their training being of the shortest they were not particularly efficient. The passport system was also got into proper working order. It operated as a useful check in preventing sick people from travelling and several cases of plague were brought to

light by its means. I warned the military authorities against allowing parties of soldiers to visit the neighbourhood for purposes of sport. House to House visitation in Guntakal Railway premises was carried on with more or less care by the Railway authorities. Clerks for the extra medical officers at Guntakal and Hindupur were engaged - Circulars were distributed with a view to allay alarm as to the plague policy of Government and Sanitary rules circulated. Captain R. Robertson I. M. S. arrived and took up his duties as District Officer. Doctor Chalke became additional Medical officer and was provided with an ambulance staff at Anantapur ready to proceed to any fresh centre of disease. He had a Eurasian nurse, a

Hospital assistant and menial staff well provided with medicines and disinfecting drugs and apparatus such as tubs and Chinese pumps

10. Week ending 10th September 1898.

The Rainfall was 2.31 making a total of 9.98 against an average of 12.01. Five cases of plague, two of them fatal, appeared in the detached house of ~~Bagyam~~ Pakkiam Pillai, a respectable Native Christian at Guntakal Junction. The house belonged to Guard Archer of the Southern Mahratta Railway stationed at Hubli. Besides his tenant Pakkiam Bagyam Pillai, he had in the house a dhoby and it was strongly suspected that Archer had been sending him clandestinely dirty clothes from Hubli to be washed. The Native Christian

had relatives at Gooty and the
house there was disinfected. The
house at Guntakal Junction was
burnt and paid for, the policy of
not burning houses having not yet
been recognised. It was abandoned
on account of the widespread alarm
it caused. The workings of the
Junction dhobies were looked into
and no infection was hereafter —
traceable to them.

A case of plague also occurred
at Timmancharla, a village ad-
joining the Railway premises. The
patient, Holigadu, worked on the plat-
form as a Cooly and caught the
infection from attending on an old
Konati woman, Subbamma, his
neighbour, in whose house it was
found that several suspicious
deaths had taken place. She was
connected with the Konati woman
[illegible] in the middle of August.

When her house was being cleared
of valuables before being burnt,
some dead rats were found in it.
Similarly an adjoining house of
Kesava Rao, an arrack agent, had
rats dying in it and had been
in consequence vacated. It was
now that the difficulties of plague
work began to be felt, the attitude
of the people being so unsympathetic.
They combined to conceal informa-
tion and only wanted to be left
alone, regardless of the risk of the
contagion spreading. For instance,
Hooligadu while moribund had been
removed from his house and put
in the courtyard of a small temple
which was carefully disinfected. The
System of partial evacuation of —
Timmancherla, i.e, sending out the
inhabitants of one quarter into

camp proved successful. Objections now began to be raised against sending patients and Contacts to the Educated Government Camp; the unalienated ryots fearing that they would be poisoned there by the doctors.

11. Week ending 17th September 1898.

The rainfall was 0.24 making a total of 10.22 against the average of 12.55. There were 5 indigenous attacks and 2 deaths - The two sisters of Hooligadu of Timmanchirla were attacked with plague while in the observation camp and another case occurred in the village - Two Railway mail sorters and the wife of another sorter were also attacked in their quarters near Hafiz Khan's house. Sorter Rajagopaul Naidu and his wife, who had been inoculated, escaped the infection. The people of Timmaincherla continued their efforts to hush up

Suspicious Cases, and it was only the Chance questioning of an old woman, a neighbour that led to the knowledge of the suspicious deaths in the Komati woman's house. The house of a Muhammadan, who was alleged to have died of Snake bite, was disinfected, and the Railway mail sorter's quarters were unroofed and disinfected. About this time a military Cordon of sepoys of the 9th Madras Infantry was established round Chippagiri about 6 miles off in the Bellary District, as cases of plague had occurred there. I took steps for a similar Cordon round Timmancherla, but the arrangement was cancelled by Government After a time the plague appeared in Gurtakal village 2 miles off

Subsequently by the employment of a Company of sepoys of the 9th Madras Infantry from Bellary under Lieutenants C.L. Plant and C.G. Hines and 3 Subedars.

The cordon system round Chippagiri had included the letting out of agriculturists by day on parole, but the opportunity was taken by some of escaping altogether, and a father and son brought plague by this means to Uravakonda, a place of 9,000 inhabitants, a closely built town with houses, mostly of the flat roofed type, most common in the Ceded Districts. I arrived there simultaneously with Doctor Chalke and his staff. The local Hospital assistant and Union Chairman, G. Srinivasa Rao, had taken immediate steps by isolating the sick and contacts in stone mantapams, and by our efforts we were able

to successfully prevent any spread of the disease in this large village. The Uravakonda people did not, however, take kindly to inoculation, though they took very effective steps to prevent further suspicious arrivals. All station masters on the Railways were supplied by their Companies with rat-traps, and throughout the epidemic none of the employes suffered except the few instances at Guntakal Junction. The water-tap on the junction platform, where native passengers washed their feet, was in my instance supplied with a stone slab slope round it to minimise the risk of infection from dirty stagnant water: Permanganate of potash was used to clear many wells, and as the inhabitants were told, of its poison their fears disappeared

Sanitary Inspectors round Guntakal having arrived began to take energetic measures for improving the cleanliness and Sanitation of villages in their circles. The Coolies at work on the Guntakal sheds had several panics and were with dipficulty got to come regularly for work. The Southern Mahratta Railway lent a pump for the Segregation Camp well at Guntakal and Mr. Wilkins of the Diamond mines at Vajrakarur supplied dynamite gratis for sinking a well at the hospital Camp. Iron tanks for water were got from Bombay for the Camps at Guntakal and Hindupur and pipe water from the Railway station well was laid on at Hindupur. From this time, Mr. Hammick became Plague Commissioner, and by his experienced advice afforded us much support and valuable direction.

Guntakal Junction and Timmancherla and Bangalore and Mysore districts were declared infected areas. Inoculation began to be appreciated in Guntakal village although no cases had yet been found there. Senior Assistant Surgeon Watts worked well on the duty of Inspecting trains at Guntakal Junction from 7th September 1898 till 13th January 1899 when he was relieved by Senior assistant Surgeon Mencaud, also a retired officer. The proposal to establish Road frontier stations on the Mysore frontier was postponed under Government orders.

13. Week ending 1st October 1898.

The rainfall was 2.61 inches making a total of 13.40 against an average of 16.33. There was one fatal attack at a private bakery near the Govern-

ment Segregation Camp at Guntakal Junction, the patient being the wife of a native fitter, who rented the end room of the building, a large tiled house. She was said to have done her household marketing in Timmancherla. All the inmates of the building and the neighbours were Segregated and the premises were unroofed and disinfected and some flour destroyed, for all of which — compensation was paid. Definite — orders were now issued not to disinfect houses by burning, ~~and~~ and to avoid raising popular discontent by harsh measures. If people would not use Government camps, they were to be allowed private hospitals and Segregation huts. Local Committees were formed in the more important towns throughout the District to watch the Several wards and give early intimation of attacks

of plague. The System worked well at Gooty, where there is a large proportion of educated inhabitants. A few tents were distributed to each tahsildar for use in case a plague patient was found. By this time Captain Robertson I.M.S., who had been making his head quarters in a small native built house at Guntakal Junction, had organised details in a masterly manner by Supplying medical Stores, Controlling the establishment and Superintending the building of Sheds. I could not have wished for a more practical, energetic and able officer. Everything necessary was indented for without extravagance, and I and my Subordinates Could Safely Support him in all matters.

There was no Revenue Officer Stationed at Guntakal and I got in for periods of 2 or 3 weeks, the

Deputy Tahsildars of Uravakonda, Gooty, Yadiki and Tadpatri in turn. This naturally interfered with their local magisterial and Revenue duties and it would have been desirable if my requests for a special Deputy Tahsildar had been granted at the beginning instead of the end of the epidemic. The Gooty Tahsildar's time was also much taken up at Guntakal in getting labour and materials for the camp, nothing being procurable except from a distance. Mr. W. S. Marshall took up his duties as Plague Deputy Collector at the end of September, and in a few days understood his duties, and cheerfully turned his attention to all the work which claimed it. The inhabitants of the infected quarter of Timmanchula removed to their camp of tents and huts in the fields, while their houses were disinfected, and the

results were gratifying, as no further cases occurred among them or their neighbours. The total population of the village was 1,000, about one fourth of whom cheerfully went into Camp.

The Railway authorities suggested another extra medical officer for examining passengers at Guntakal, as the trains generally came in simultaneously, but on the ground of economy the Plague Commissioner considered it unnecessary.

14. Week ending 8th October 1898.

The rainfall was .26 making a total of 13.87 against a general average of 17.48. Captain Robertson I. M. S. did about 200 inoculations at Gooty, largely aided by the aid of the London Missionary Society Agents, Reverend F. Marler and

Reverend. J. Ure. Doctor Chalke, who found plague work uncongenial, was transferred to Cuddalore, and was replaced by Doctor G. Charlesworth as Additional Medical Officer. Owing to the increased severity in examining passengers leaving Bangalore, there was a general exodus from that city, which threatened to spread plague in the surrounding Districts of Madras. Imported Plague cases appeared almost simultaneously at Anantapur, Dharmavaram and Hindupur. At the two former towns we were able to check its spread completely, but at Hindupur, though successful for the time, we could not, two months later, owing to its close proximity to the infected Mysore territory, with which much of its trade lies, so easily stamp it out. I was at Anantapur on

monthly treasury inspection duty and for the District Board meeting, when a Brahmin schoolboy, who had fled from Bangalore, developed plague at the house of his relative Narasimhachari, a pensioned Tahsildar. He was at once removed by Assistant Surgeon, Viranna Naidu, to the Municipal Sheds outside the town but did not survive. The house was disinfected and the inmates segregated in another empty house near by. Among them was Deputy Collector K. Vijiaraghava Chari then undergoing treasury training at Head Quarters.

At Dharmavaram 4 cases of tailors escaping from Bangalore were found in a Chultram in the heart of the town. Doctor Charlesworth proceeded there with his staff, and saved two of them by unremitting

driver's wife, was alarmed to find a dying rat in her consignment of bread from Bangalore and people were advised to be careful as to their source of supply. For hospital purposes arrack was got free of duty from the Tadpatri distillery. A second additional medical officer was asked for and Doctor J. Hunter arrived on 12th November and was available for the outbreak at Hindupur.

15. Week ending 15th October 1898.

His Excellency the Governor made a tour throughout the District. Being unable to visit Hindupur via Bangalore he entered the District at Dharmavaram and spent two days at Anantapur and Gooty before going on to Kurnool. In a public utterance at Anantapur; His Excellency was pleased to say that the Government appreciated the energy, the zeal and judgment

brought by me to bear on the threatening plague situation in the District of Anantapur. At Guntakal Junction His Excellency made a close and sympathetic inspection of the Plague Hospital, going into all the sheds for the sick, where he found 6 patients. The people of Guntakal village made representations to him that they should be allowed to have their own hospitals. This was allowed and private sheds for Muhammadans and Hindus were erected, but the majority of deaths over 100 took place in the various huts erected in the fields, when the village was evacuated.

At Yerratimmarajacheruvu between Gooty and Guntakal there was a plague case imported from Bangalore, but by taking immediate

steps we were enabled to prevent the disease spreading in that direction There were however, 3 attacks at Timmancherla, one at the Junction in the Collection of huts South of the Station, and six in Guntakal village, where dead rats began to be found. The houses were in each case disinfected and Contacts Segregated at the Junction Camp. A disquieting feature at Guntakal village was that the cases occurred in different quarters and were not Confined to one block as at Timmancherla. Increased efforts were made to get Correct information at Guntakal village, and the Reddi or headman behaved very well. The rainfall during the week was .39 making a total of 14.18 as against an average of 19.10 inches. Sanction was received for increasing the

accomodation at the Hindupur and Guntakal Segregation Camps. Government Sanctioned the opening of road frontier Stations on the Mysore frontier and the organizing of observation circles in the same locality, which had to be postponed till Sanitary Inspectors were available.

16. Week ending 22nd October 1898.

There was no rain during the week. There were 5 indigenous attacks in Guntakal village and one in Timmancherla, an imported case from Chippagiri. The Plague Commissioner remarked on the Timmancherla disinfection in favourable terms as being very thorough. Walls were scraped and sprayed with perchloride of Mercury; roofs swept and ventilating openings made. The roof floor

and wall refuse and old rubbish was burnt in front of houses in a cow dung kiln. Mr. Marshall, Deputy Collector attended to this matter in Guntakal village especially. The leading people of Guntakal busied themselves in erecting their apologies for hospitals – poor erections giving hardly any shelter. They had to be supplemented by Government donations of blankets, disinfectants and rations, but they helped to keep patients more cheerful than if they were taken away to the dreaded Govern. ment Sheds, and the percentage of recoveries about 50 percent was in consequence good. As the military Cordon was being withdrawn from Chippagiri, I hastened to agree with Mr Hammick's offer of a Company of Sepoys for disinfection work at Guntakal, a large village

of 5,000 inhabitants. I saw to their settling themselves in the military rest Camp, which was at the time closed for ordinary troops passing through. At Guntakal village further inoculation became impracticable owing to a villager dying a day or two after being operated on, the seeds of the disease having doubtless already developed in his system. The local uneducated popular opinion was unable to appreciate the saying that it is the exception that proves the rule. One of the Sepoys from Chippagiri on his way to Bellary was considered by Captain Robertson I. M. S. to be suffering from pneumonic plague, and was detained in hospital eventually recovering. He had been passed by Doctor Illingworth as not

suffering from plague, but we considered it safer to take every precaution. The sale at Hindupur of secondhand clothing from Bangalore was stopped.

17. Week ending 29th October 1898.

The rainfall was 0.54 making a total of 14.73 inches against an average of 20.56. There were at Guntakal village two fatal cases imported from Bangalore and 4 indigenous cases of plague. There was a suspicious death at Chowloor, South of Hindupur, on the Mysore frontier. The patient's family was segregated by the villagers in a mantapam across the river, not having been allowed to enter the village. The Tahsildar T.G. Sundaresa Iyer had visited the spot and approved of what had been done. The villagers of Guntakal began

voluntarily to leave their houses and the Sepoys disinfected all such empty houses. A full sanitary staff was now working in the village and, being relieved by the Sepoys of the duty of disinfection, was able to devote itself to getting information as to attacks. I believe that all cases were faithfully reported, even if sometimes rather late.

The most memorable event of the week was the unfortunate plague riot near Chilamathur, on the East side of Hindupur Taluk, in connection with the erection of a road frontier Inspection Station on the Eastern road to Bangalore, in the course of which the Tahsildar T.G. Sundaresa Iyer was killed by blows from sticks and stones on the evening of 26th October 1898. Had he and his

followers taken precautions to go armed or combined together to resist the mob till the arrival of the Police, his injuries would have been avoided. He was an energetic officer but did not understand anything of the art of self defence. On receipt of the news by wire I proceeded to the spot with other European officers and took up the Magisterial enquiry myself, resulting in the punishment of over 30 of those taking a leading part in the affair. On the 11th October Mr. MacMichael, the Head assistant Collector wrote to me in a D.O. letter "I got to Hindupur yesterday and found the town in an alarmed state. Not a shop in the bazaar was open. The Tahsildar and the Hospital Assistant made themselves unpopular by their excess of zeal after the Janapa girl's case of plague by ordering that corpses

were not to be interred without examination. I cancelled this at once and people are coming to their senses a bit." The shock of the Tahsildar's death. So affected the hospital assistant that he soon after went crazy through fear and had to be sent to Madras for treatment and rest. A pension for the sons and widows of the late Tahsildar was recommended after a separate formal enquiry as to his circumstances

18. The enquiry into the case detained me for some time away from Guntakal, and it was not till about the middle of November that a more determined effort was made to stamp out the disease at Guntakal by ordering the evacuation of the whole village. The Muhammadans and other residuum stoutly objected

to vacate their homes like their neighbours, but our firm insistance, combined with the knowledge perhaps that I was in a position with the Sepoys at my back to enforce my orders, was successful, and the whole village was evacuated and disinfected and the epidemic after a time stayed. One result of the complete clearing out of this large village was that the diseased rats eventually migrated in armies and I believe carried the infection 4 miles down the road to Konakondla

19. As a Compromise for the road frontier Station near Chilamathur I did not insist on the erection of Sheds, which had alarmed the Country Side, but formed the Station of tents under the Supervision of Mr. Brito, a stout Eurasian Salt officer. The inspection worked Smoothly and continued to be Successful in preventing Cases entering the South

East Corner of the District. It also served to prevent Cases going in from Hindupur to the Madanapalli Division of Cuddapah District, and was abolished in March 1899. Similar Success also attended the Sheds erected South of Madaxira to prevent the ingress of fugitive sick from Tumkur in Mysore, which was badly infected. Being situated on a ghaut it was possible to Command all the wheeled traffic. This was not practicable at Hindupur owing to the open character there of the Country. Two road frontier Stations on the Penukonda Ghauts formed of tents prevented the Spread of the disease from Hindupur Taluk into the Centre of the District.

20. Week ending 5th November 1898.

The rainfall was .12 making a total of 14-86 as against the average of 21.16.

An imported Case from Bangalore

was discovered at the Hindupur Rail-way Station. He was removed to the Plague Hospital and died next day.

At Guntakal village there were Seven indigenous attacks including m. Laxmanna, one of the leading men, who had interested himself in erecting the private hospitals, which now Came into use. The Muhammadans Continued to give trouble in Concealing cases and opposing disinfection of their houses. Doctor G. Charlesworth with his staff now camped at Guntakal village, where he superintended the work of disinfection by the Sepoys, and gave such medical aid as the villagers were willing to accept. He was also responsible for the collection of informa-tion as to attacks and mortality and Superintended the general Sanitary arrangements. He remained there till the end of December, when the Sanitary staff under Doctor Murray moved on 4 miles South to Konakondla along with the Sepoys. Doctor Charles-

worth then left to take up his appoint-ment as District Medical officer Rajah-mundry

There was another suspected case, a cooly, who had been doing disinfection work at Timmancherla and on falling ill, tried to reach Uravakonda in a cart from Gooty. His brother, a peon gave information that he expired before reaching Uravakonda via Vajrakarur. Disinfectin was attended to at his halting places at Gooty and Vajrakarur.

For Railway Inspectin Plague officers small badges of grey cloth with red letters were provided. One of the menial servants at Guntakal Junction Camp was convicted of Stealing a spoon and sentenced to six weeks rigorous imprisonment. Copies of the prize essay on plague were distributed.

21. Week ending 12th November 189

The rainfall was .43 making

a total of 17.30 against an average of 21.32

There were 20 attacks and 17 deaths during the week shewing increased virulence of the disease at Guntakal village, chiefly among the Muhammadans, who continued to be obstructive. Mr Marshall, the Deputy Collector and Captain Robertson found them only anxious to be left alone. Being illiterate and ignorant, they were most obstinate. Dead rats began to be found in the houses being disinfected.

The disinfection and partial evacuation of Timmancherla having proved satisfactory, the inmates were approached as to returning, but preferred remaining in camp for some few weeks longer.

Mr Hammick, the Plague Commissioner, visited Guntakal and directed the more energetic and routine measure of total evacuation along with

to be undertaken - The task in a large village of 5,000 inhabitants, with over 100 houses of bigoted and obstructive Muhammadans looked formidable without resorting to force, but by personal attention and a show of authority was successfully accomplished with satisfactory results. The newness of this method of dealing with the epidemic roused the passive resistance of a population wedded to old customs, but as an object lesson to other places of larger importance it was most necessary not to shew any disposition to flinch in our duty.

A case was found on the hills near Dumcherla in Gooty Taluk, a Kuraba, who had wandered from Guntakal. The Tahsildar S. Vasudeva Rao made vigilant investigation in tracing out the facts and took local sanitary precautions.

There was also a suspected case

at Bondaldinna, Tadpatri Taluk investigated by the Deputy Tahsildar C. Srinivasachari

22. Week ending 19th November 1898.

The rainfall was .55 making a total of 17.85 against a general average of 21.64.

At Hindupur there was one case imported from Dod Ballapur in Mysore, the victim being a girl, who died in the Choultry near the Hindupur Railway Station, her six companions escaping the infection. Proper precautions were taken by their segregation and the disinfection of the Choultry.

At Guntakal village there were seven indigenous attacks chiefly among the Muhammadans, who continued to be as incorrigibly obstructive as they dared, though they now were persuaded to select a site for Camping near the Durga Mosque. Finally

however only those connected with the mosque affairs went there, the remainder having Government sheds put up for them near the North East side of the village - The tents hitherto in use for the Timmancherla people, who had now re-occupied and patched up their houses, for which Compensation at Rs 3 per house was given, were pitched in Convenient Camps near Guntakal village. The Wodder quarters at Guntakal village were evacuated for disinfection by the Sepoys. As dead rats were found in the Police Station lines, they were evacuated. The Construction of a Road frontier Station at Chowloor was in view of the recent riot case at Chilamathur and the open nature of the country considered inexpedient and useless.

23. Week ending 26th November 1898.

There was no rain during the week. There were 24 attacks and 20 deaths in the village of Guntakal and its hamlet Kotala. The chief difficulty still lay in getting the Muhammadans to obey orders as to vacating their houses, as it was considered inadvisable to use more than moral suasion, the wishes of Government being explicit on this point. Captain Robertson seemed to have little hope of success but a few days patient insistance gradually tired out the Muhammadans. A Constable on duty at Guntakal refused to go to the Government Plague hospital when attacked with suspicious fever. He recovered eventually and was dealt with departmentally. A further supply of small circular-Cavalry-worn-out tents was received from Secunderabad and proved useful. In issuing a circular pointing

out the necessity for people vacating infected villages I omitted the recommendation of the District Medical Officer to number all houses as, though it might facilitate the detection of cases, it was likely to cause unnecessary panic.

24. Week ending 3rd December 1898.

The rainfall was 0.44 making a total of 18.30 as against an average of 22.13.

There were 31 attacks and 30 deaths all with the exception of two at Guntakal village. Although all had left the village by this time, people revisited it stealthily at night. A Police guard was put on to prevent this. One boy in camp was being brought back to their house by relatives; but died by the roadside where we found him next morning

The reddi reported 4 of the deaths as having occurred 20 days previously, thus shewing how unwilling people were to admit that their families were infected. Over a hundred tents were pitched for those evicted but people as a rule preferred their own shelters and most of the tents became available for use elsewhere. A new site for the Panchama Camp was selected and 2 watermen employed to get them water from Caste wells. At the instance of the long haired holy man of Guntakal, who escaped the infection, Rs 50 was given for deepening a drinking water pond at Virappagudi temple.

A case occurred on the Kolapeta side of Gooty rock, a muhammadan from Molagavelli in the Bellary District. A man with his wife and two sons were going by road to Kristapad in ~~Cuddapah District~~ Gooty Taluq

They were not admitted into Yerratimmarajacheruvu or Gooty and finally camped in a temporary shed, where one of the sons died. The local authorities took due precautions with success. The other imported case was at Hindupur a muhammadan lad from Bangalore.

200 Copies of Rules for treatment of Plague published in Plague Commissioner's Proceedings № 777 dated 23rd November 1898 were distributed throughout the district.

25. Week ending 10th December 1898

There was no rain during the week. Plague showed signs of diminishing at Guntakal village, the number of attacks there falling to 8. A case of Choleraic plague occurred in the Muhammadan sheds. One very sudden case attracted our attention. A Hindu woman

lay dead near her hut with a basket of bratties near, having died in the effort of lifting them.

Dead rats were found in the huts near Timmancherla Railway Station near the Cotton Press. The inmates were all moved into tents, and the Railway Station staff did the same, their houses being disinfected. These measures proved completely successful.

At Guntakal we gave the Muhammadans a tent for their small boys' school, but drew the line at building them a temporary mosque.

Mr Macmichael, the Head assistant Collector wrote from Madakasira that people there were keeping a sharp look-out against strangers from Mysore, and that the road frontier sheds at Govindapuram were approaching completion without obstruction, people having learned a lesson from the two at that overtook the rioters at Kri[illegible]

Chilamathur. Our efforts to keep out plague from Madakasira were quite successful, notwithstanding the ravages of the disease to the southward at Tumkur in Mysore.

There were sinister rumours of cases in Hindupur, and two were brought to light. The Acting Tahsildar C. Kristnayya did very good work there.

At Kotala, a hamlet of Guntakal situated a mile behind the Junction camp, a case occurred. We found a body in a hut, the relatives having decamped. They were traced out and did not suffer. The people of this hamlet were immigrants from a distance taking up outlying waste lands, and their houses were well laid out separately from each other but as often happened, the more sanitary a locality appeared, the worse it suffered. Thus Panchamas in their crowded huts hardly suffered

at all in any village

26. Week ending 17th December 1898.

There was no rain during the week.

There was a severe outbreak of 23 attacks at Kotala, where Mr. L. E. Buckley, the new Plague Commissioner directed operations of evacuation. Half the ambulance staff from Guntakal village were deputed for work here. The people combined together to conceal deaths, till the severity of the epidemic rendered it impossible to keep up their foolish behaviour After the survivors had moved into Camp, a very short distance from their homes, matters improved.

At Guntakal village there were 2 attacks.

At Hindupur nine indigenous Cases appeared and Doctor J. Hunter was deputed there. I spent some days giving him the result of my Experience at Guntakal. We had some

krishnapad in Anantapur Mr

difficulty in persuading people to use the Government Camp. After a few days on seeing the example of Guntakal and of villages evacuated in Mysore, and finding that rats were dying all over the town the population of 9,000 en masse of their own motion evacuated the town. Most of them camped in the vicinity, but many sent their families to friends and relatives in the neighbourhood with the result that many other villages in the Western end of Hindupur Taluk became affected. Immediate steps were taken to organize observation circles, but the necessary Sanitary Inspectors had to be hastily trained by the Sanitary Commissioner at Bellary, and were not able to arrive till later on.

27. Week ending 24th December 1898.

There was no rain during the week. According to Government orders all District Officers remained at their

posts and did not avail themselves of the Christmas Holidays. There were 41 attacks and 25 deaths during the week distributed as follows:-

Place.	Attacks	Deaths.
Chowloor	21	8
Hindupur	11	8
Guntakal village.	4	4
Kotala	4	5
Guntakal Junction	1	..

Chowloor, which lies 9 miles south of Hindupur on the affected Mysore frontier, was evacuated and part of the Hindupur staff detailed for duty, a few sheds being erected for their accomodation &c. The Hindupur Camp was enlarged and improved a little. The Madigas of Timmancherla were sent into camp a case having occured among them at the Junction. The complete and continuous evacuation of Hindupur was insisted on. The large weekly market there continued but on a sadly reduced scale. Orders were

issued for greater care and scruting at the Hindupur Railway frontier Inspection Station, as complaints came from the Bellary authorities. The local endeavours to keep plague out of Tadpatri were successful, though it is the largest and most insanitary place in the district. Viewed from the lines of Railway, Guntakal fields now looked like a huge camp - tents and booths being pitched over a large area. Four huts in the deserted village were burnt by accident. Rats were found to have begun dying in Konakondla 4 miles to the South. During the month of December, the Commission of Plague Experts passed through Guntakal and made local inspection and enquiry, recording the evidence of Captain Robertson I.M.S. and some Bellary officials.

28. Week ending 31st December 1898.

The rainfall during the week was nil. There were 30 attacks and 31

rumours of dead rats. No sick persons were found there. A dead Rat was found in the Guntakal Railway Telegraph Office, which was at once disinfected. The disinfection of Guntakal and Kotala was now completed and the Sepoys and Doctor Murray moved on 5 miles to Camp at Konakondla.

Hitherto, white washing had been done after disinfection of houses with perchloride of mercury, but in deference to medical opinion that the former neutralized the effects of the latter and with a view to save expense and conform to the prejudices of certain castes, whitewashing being a mere extra luxury, was dispensed with. Compensation for damages to houses and effects continued to be paid regularly by the Plague Deputy Collector. Ticket punches were supplied to officers in charge of Railway Inspection stations, but their careless use led to several

Complaints from passengers, who at the end of their journey had to take out passports on account of having their tickets punched, as if they came from infected areas.

29. The Police Force at Hindupur was strengthened, as it was difficult sometimes to enforce segregation of persons in contact with plague patients and to prevent thefts in the deserted shops and houses. With a view to shew that inoculation was perfectly voluntary I suggested that a small fee of one anna should be charged as no native of these parts would unwillingly part with money - but this self acting check was not approved of. I may here mention that owing to the plague, the traffic on the Southern Mahratta Railway suffered greatly and the day trains between Guntakal and Bangalore dore-way

with, to the great prejudice of local traffic in Anantapur, where passengers had to meet trains at inconvenient hours of the night.

30. Week ending 7th January 1899.

There was no rain during the week. There were no further attacks at Guntakal village but the following cases occurred in other places of Gooty Taluk.

	attacks	deaths
Konakondla.	10	7
Kotāla	1	1
Poliki	2	1
Gooty.	4	3.

Matters were, however, taking a turn for the better and no time was lost in adopting the methods hitherto found successful, viz, vacating, combined with disinfection of, the first houses attacked and then of the whole village or quarter, if the disease spread. Doctor Roberts with an ambulance staff was —

despatched to Gooty and by his good temper and bonhomie combined with firmness succeeded in a marked degree, the number of attacks there not exceeding 25. The necessity of workers at disinfection wearing shoes was now generally recognized by them. The well shod sepoys caught no infection, whereas a constable on duty at Guntakal, who had against orders gone barefoot paid for it with his life. The huts near Timmancherla Railway Station were re-occupied.

In Hindupur Taluk the number of cases were as follows :-

	attacks	deaths
Malapuram.	1	1
Kodigepalli	1	..
Chowloor	4	2
Hindupur	2	3.

and the plague continued severe in the adjoining portions of Mysore. As the local staff of coolies for disinfection

Dead rats were found in two houses at Vajrakarur, the seat of the Diamond Prospecting Industry and one of the inmates died. The necessary disinfection was carried out by a detachment of sepoys from Konakondla and this important place escaped lightly, the total number of attacks being 12 with 8 deaths.

32. Week ending 21st January 1899.

There was no rain during this week. There were 14 attacks and 21 deaths chiefly round Hindupur town, while elsewhere there were hopes of the disease disappearing. Doctor Beach, the fourth additional medical officer arrived and took up the current work at headquarters. His experience of the year before in the Bombay Presidency made him a very efficient successor to Captain Robertson, who on being promoted to be a major was transferred to Madras a month or two later.

33. Week ending 28th January 1898.

There was no rain during the week There was one death at Gooty and an outbreak of 10 cases at Poliki was discovered. Complete evacuation, however, soon improved matters there. The small villages near Hindupur, which lie close to each other, began to be affected, the total number of cases in this Taluk being 33, of which 4 were imported from Mysore. In all such instances the plan of vacation followed up by a detachment of Sepoys for disinfection was resorted to. Round Hindupur itself there were 26 attacks and 17 deaths, an unsatisfactory state of things due to the foolishness of those camping out, going to get property out of their houses in the town in spite of the efforts of the Police to prevent it. Short, however, of drawing a strong cordon round the town, no more

decisive measures could be taken

34. Week ending 4th February 1899.

There was no rain during the week. There were 54 attacks and 47 deaths during the week, of which 5 were imported and the rest indigenous distributed as follows:-

Taluk.	Place or Village	Attacks	Deaths
Gooty	Gooty.	3	2
	Poliki	6	9
	Uravakonda	1	1
Tadpatri	Tadpatri	1	1
Hindupur	Hindupur	10	11
	Pydeti	15	12
	Kolakunta	11	4.
	Madipu	3	1
	Parigi	1	1
	Moda.	2	3
	Puturlapalli	1	1
	Utakur	..	1.

This was the greatest number of cases so far recorded and the comparatively high mortality continued during the next fortnight. The Tadpatri case was that of a merchant from Gooty and prompt steps prevented the disease taking root. His relative

at Gooty was one of those, who vacated their houses suddenly. He told the Plague Supervisor that it was because a crow unluckily flew through it, and when complained of being insulted when the Supervisor sarcastically asked him whether it was a white crow or a red crow. The fact was that rats were dying and people took the hint. The disinfection of the whole vacated — Madiga quarter and of suspicious blocks in the Gooty Pettah was begun by local labour under Doctor Roberts's Supervision. As plague seemed advancing beyond the Guntakal line of defence the erection of a Railway Inspection Station at Tadpatri was taken up, and a compact and complete little camp crected near the Railway Station. Its position en route to Madras caused inconvenience to the educated people at Gooty and after a time amateur newspaper correspondents —

gave it their unremitting attention.

35. Week ending 11th February 1899.

There were 89 attacks and 65 deaths, of which 4 were imported and the rest indigenous distributed as follows:

Taluk.	Village	attacks	deaths
Gooty	Gooty	2	3
	Poliki	29	27
	Vajrakarur	2	2
Hindupur	Hindupur	1	1
	Parigi	1	1
	Kodigepalli	1	1
	Nimkampalli	3	2
	Pydeti	17	3
	Moda	7	9
	Chowloor	1	1
	Malapuram	1	1
	Kolekunta	17	9
	Gouraganapalli	6	4
Penukonda	Chalkur	1	1

The last village is on the borders of Hindupur and the villagers segregated the case successfully. The further outbreak at Poliki led to increased vigilance towards Penukonda. A suggestion was made to move the District munsiff

Court from Gooty temporarily, but the comparatively few attacks and the approach of the vacation rendered ~~it unnecessary~~ it unnecessary. The way in which merchants of Gooty and Hindupur ceased buying and giving advances on produce, caused trouble to ryots, now that the kist season had begun, and it became necessary to suspend the issue of coercive processes for a month or two.

A Deputy Tahsildar for plague work at Hindupur was sanctioned and was shortly transferred to Guntakal exchanging stations with the Plague Deputy Collector whose services were necessary at Hindupur to relieve Mr. MacMichael, the Head assistant Collector, whose busy season for Revenue work had begun. At Gooty the Deputy Collector R. Ramachendra Rao was equal to the occasion

36. Week ending 18th February 1899.

The plague cases during the week were 53 attacks and 54 deaths.

Taluk.	Village.	attacks	deaths.
Gooty.	Gooty	7	5
	Poliki	5	2
	Vajrakarur	4	2
Hindupur	Hindupur	..	2
	Parigi	9	5
	Gouraganapalli	1	2
	Chowloor	1	..
	Kolakunta	4	8
	Utukur	1	1
	Nimkanipalli	1	..
	Bevanhalli	6	6
	Pydeti	5	12
	Yerraguntla	4	4
	Moda.	3	3
	Madireddipalli	1	1
	Vittapalli.	1	(imported) 1.

The road frontier station South of Hindupur was moved to the ghauts west of Penukonda guarding the roads from the infected villages near Hindupur and from the Pavagada territory of mysore. I noticed similar stations in the

Strips of Mysore Country between Madakasira, Pavagada and Penukonda and they doubtless contributed to prevent the spread of infection. Observation circles were formed in Madakasira and Kalyandrug Taluks and a scheme was ready for Dharmavaram and Penukonda, but plague did not penetrate there. I made a tour by Penukonda and Madakasira to Hindupur where I met Mr Buckley the Plague Commissioner. As our inspection of Kolakunta near Hindupur shewed that disinfection was faulty, I sent for Lieutenant Ames from Konakondla to supervise his men, of whom 50 more were brought to Hindupur.

37. Week ending 25th February 1899

There were 42 attacks and 24 deaths, a substantial reduction, due to measures of evacuation taking

effect and we believe to the advance of the hot dry weather. The cases were distributed as follows:-

Taluk.	village.	attacks	deaths.
Gooty.	Gooty.	3	3.
	Poliki	1	–
Hindupur.	Hindupur	4	1
	Nimkampalli	6	4.
	Utukur	1	..
	Bevankalli	2	2
	Moda	1	2
	Yerraguntu	3	5
	Pydeti	5	3
	Parigi	4	2
	Chovloor	1	1
	Nadimipalli	1	..
	Srikantapuram	7	..
	Kolakunta	..	1
	Malapuram	1	..
	Pulikunta	2	..

I met the Plague Commissioner, Mr. Buckley at Gooty, where the complete evacuation of the Pettah was ordered and carried out successfully. The Konakondla Sepoys worked at Vajrakarur, going there 6 miles daily, and in Hindupur Taluk the work went on more satisfactorily: The

Tadpatri Railway Inspection Station began work from the 11th February. The local inhabitants objected to the site as being too near the Railway Station and Nandala pad, but the District Medical Officer was satisfied that it was the best – available, and not likely to be a source of danger. All this time the work of vaccination had come to a standstill, the people confusing the vaccinators with inoculating officers, in spite of all advice to the contrary. Mr. Macmichael the Head assistant Collector was promoted to be Sub Collector at Vellore, where his plague experience has doubtless been of value. He was – succeeded by Mr. H. G. Braidwood, who did what was necessary as the epidemic died away.

38. Week ending 4th March 1899.

There were 21 plague attacks and 22 deaths distributed as follows:-

Taluk.	village.	attacks	deaths
Gooty.	Gooty.	4	4
	Poliki	1	1
	Vajrakarur	2	2
Hindupur	Bevanhalli	1	1
	Chowloor	"	1
	Nadimpalli	"	1
	Sangameswarapalli	3	3
	Nimkampalli	2	3
	Pulikunta	1	2
	Srikantapuram	5	4.
	Malapuram	1	"
	Santebidanur	1	"

Several infected villages in Hindupur Taluk presented a clean bill

Sr[illegible] inquiry shewed that h[illegible] was clearly infected by m[illegible] from Hindupur, who being

I met with substance were able to

Mr. Bu[illegible] houses, and this class were

plete[illegible]tly responsible for spreading the

or[illegible] disease round Hindupur. A suspicious

death was investigated at a hamlet

of Amidala in the Uravakonda

Division and necessary steps taken.

A second Road frontier Station at

Penukonda on the Southern Ghauts

was opened

39. Week ending 11th March 1899.

The number of plague cases fell to 12 attacks and 14 deaths distributed as follows:-

Taluk.	Village.	attacks	deaths
Gooty.	Gooty	1	1
	Vajrakarur	3	2
	Amidala	1	1
Hindupur	Hindupur Hospital	"	1 (imported)
	Srikantapuram	1	3
	Nimkampalli	"	2
	Sangameswarapalli	"	2
	Kaggal	5	5
	Pulikunta	1	"

Round Srikantapuram and Kaggal, east of Hindupur was the worst affected locality, and evacuation and disinfection was as usual resorted to with good results, the sepoys going in detachments to the affected villages. Poliki was clear of plague, and the village shortly began to be re-occupied.

At Vajrakarur instances were found of ryots themselves making ventilating openings in their houses. The half Company of Sepoys near Konakondla received orders to return to Bellary, their work of disinfection being finished. They had behaved very well, and though not working long hours, did their business steadily and thoroughly. They would have been pleased if the question of their extra allowances could have been settled earlier than it was

40. Week ending 18th March 1899.

The number of cases fell to 8 attacks and 4 deaths in the following localities.

Taluk	Village.	attacks	deaths.
Gooty	Gooty	1	1
	Tatrakal	1	1
Hindupur	Parigi	2	1 (imported)
	Yerragunta		
	[illegible]		
	Srikantapuram	1	

The Tatrakal death was only a

suspicious one and the disease did not spread there. It also shewed signs of diminution in the adjacent Mysore territory. The disinfection work in and around Hindupur was approaching completion, and arrangements were made for shortly reducing plague establishments.

41. Week ending 25th March 1899.

There were two deaths of old cases and three attacks, viz, Yerragunta, Hindupur Taluk 2, Yerratimmarajupalli Cheruvu, Gooty Taluk 1. Complaints as to the detention of the trains at Tadpatri for examination of passengers were attended to. The services of the ambulance staff in Anantapur Municipality were dispensed with. A Sanitary Inspector in the Hindupur Range was dismissed for failure to report cases punctually last month at Bevanhalli. I met the Plague Commissioner Mr. L. E. Buckley at Guntakal and

di frontier Stations at Kodur and Govinda-
puram were abolished; and the
Sanitary Inspectors of Madakasira,
Kalyandrug and Gooty Taluks were
dispensed with.

45. Week ending 22nd April 1899.

The rainfall registered was 1.6, rather
more than is usual at this time of
year. There was one attack at Narsa-
puram near Hindupur and a death
of an old case at Srirangarayapalli.
The first named Small hamlet was
vacated and disinfected. I found
Hindupur Town beginning to fill
and resume its normal appearance,
but much damage has been done
to the trade of the place, which is
a large Central market. Half of the
Sanitary Inspectors in this Taluk
were dispensed with, only 3 and
a Supervisor being still retained.

46. Week ending 26th April 1899.

There was a rainfall of .36 during

the week. There was one attack and
two deaths in Narsapuram of Hindupur
Taluk and the place was disinfected.
A Sanitary Inspector in Hindupur Taluk
got 2 years' rigorous imprisonment for
bribery and a Hospital assistant at
Penukonda Road frontier Station was
suspended for irregularities in attend-
ance.

47. Week ending 6th May 1899.

There was a rainfall of 0.12
during the week. At Manepalli in
Hindupur there was one death of a
case imported from Kolar in Mysore
and one indigenous attack. This has
been the end of the epidemic in the
Anantapur District in spite of un-
usual rain for the hot weather. The
result of experience in Bombay shews
that there may be a fresh outbreak
later on during the rainy season,
but there are hopes that 1st May of escape.
lessons on the treatment of plague

outbreaks have been learnt by the people and should it appear, measures of giving early information, evacuation of houses, and segregation of strangers may be hoped to have the best results. Bangalore being free from the disease, outward train examination at Yesvantpur was discontinued, Hindupur being still left as a precautionary measure. The establishment there and at Guntakal Junction will be all that is left to remind us of the late Epidemic.

48. I append a statement of attacks and deaths from plague throughout the Anantapur District, shewing a total of 687 attacks and 552 deaths, divided nearly evenly between Gooty and Hindupur Taluks. The rest of the District, the central portion and the Eastern and Western sides escaped with only 7 cases, a fact on which we may, I think, reasonably congratulate ourselves as a success in localizing the epidemic. A chart of the death rate

Statement of attacks and deaths from Plague in Anantapur District from August 1898 to 6th May 1899.

No.	Name of Village.	Taluk.	Imported		Indigenous		Total		Remarks.
			attacks	deaths	attacks	deaths	attacks	deaths	
1	Guntakal Junction.	Gooty.	3	2	31	25	34	27	
2	" village.		4	2	109	94	113	96	
3	Timmancherla.		..	..	28	19	28	19	
4	Kottala (hamlet of Guntakal)		..	..	35	21	35	21	
5	Gooty.		..	..	25	24	25	24	
6	Konakondla.		2	2	19	12	21	14	
7	Poliki		..	..	54	47	54	47	
8	Amidala		..	..	1	1	1	1	
9	Yerratimmarajucheruvu		2	1	..	..	2	1	
10	Pathakothacheruvu		1	1	..	..	1	1	
11	Thatrakal		..	..	1	1	1	1	
12	Kristapad		1	1	-	-	1	1	
13	Jallipalli		3	3	-	-	3	3	
14	Vajrakarur		1	..	11	8	12	8	
15	Uravakonda		3	3	..	..	3	3	
		Total	20	15	314	252	334	267	
16	Tadpatri	Tadpatri	1	1	-	-	1	1	
17	Anantapur	Anantapur	1	1	-	-	1	1	
18	Dharmavaram	Dharmavaram	4	2	-	-	4	2	
19	Chalukur	Penukonda	1	1	..	..	1	1	
20	Hindupur	Hindupur	7	5	92	80	99	85	
21	Chowloor		..	..	46	30	46	30	
22	Malapuram.		1	1	2	1	3	2	
23	Pydeti		2	1	40	29	42	30	
24	Poolakurlapalli		1	1	..	..	1	1	
25	Hoda		1	1	16	16	17	17	
26	Kolakunta		..	..	30	24	30	24	
27	Parigi (and its hamlet)		4	3	13	13	17	16	
28	Modipi		..	..	3	1	3	1	
29	Gouraganapalli		..	..	7	6	7	6	
30	Manepalli		2	1	7	7	9	8	
31	Kotipi		1	1	-	..	1	1	
32	Santhebidanur		1	1	..	..	1	1	
33	Yerragunta		..	..	11	10	11	10	
34	Medireddipalli		1	1	..	..	1	1	
35	Vittapalli		1	1	..	..	1	1	
36	Bevinahalli		..	..	11	10	11	10	
37	Poolikunta		2	1	2	1	4	2	
38	Sangameswarapalli		3	3	..	..	3	3	
39	Kodigepalli		3	3	..	..	3	3	
40	Nimmakampalli		1	1	13	10	14	11	
41	Konapur		1	1	..	..	1	1	
42	Utakur		3	3	2	1	5	4	
43	Srikantapur (and its hamlet)		3	3	12	9	15	12	
44	Sadlapalli		1	..	..	..	1	..	
		Total	39	32	307	248	346	280	
		Grand Total	66	52	621	500	687	552	

is appended.

49. The following are some details of the sheds erected for Plague purposes at various places in the District.

Guntakal Junction Hospital - There are 6 large sheds 24 x 12 to contain 2 patients each - Flooring Concrete.

1 Dispensary 36 x 12 in 3 compartments including quarters for Hospital Assistant

1 Nurse's Shed 18 x 12

1 Police Shed 24 x 12

2 Family quarters 48 x 12 for relatives attending on patients

2 Hospital Servants Sheds 48 x 12

1 Shed for Servants of Europeans patients 20 x 10

2 old Sheds 30 x 10 -

also kitchens, latrines, bathing shed washing platform, a cinerator and mortuary and a new well with pump

Guntakal Junction Segregation Camp - This lies about 3 furlongs east of

the hospital and has the following accomodation.

2 European Sheds 24×12 each to hold 2 each

11 Native Sheds 12×12 with Verandah to hold 8 each.

1 Police Shed 24×12.

1 Observation Shed 24×12 for developed Suspicious cases.

1 waiting Shed: 24×12 for those being disinfected.

1 Camp Servants Shed 48×12

1 Shed for Servants of Europeans 20×12

also kitchens, latrines, 3 bathing Sheds, one washing platform and incinerator.

These two Camps cost about Rs 8,000.

The Thatched bungalow of Diwer Rodrigues adjoining the Segregation Camp was rented and used for medicines and Stores and quarters for Platform Inspectors and Hospital Assistants.

Guntakal Railway Station.

2 medical officers quarters 24×12 each

1 Hospital assistants quarters 12×12 with kitchens

Guntakal Village Camp.

1 Muhammadan Shed at the Dargah 60×12 to hold 6 families.

8 Sheds outside village 48×12 to hold 6 families in each.

2 hospital Sheds 60×12 to holds patients in each, Subsequently removed to Konakondla.

These Sheds Cost about Rs 2,000

Anantapur Municipality Camp.

3 Sheds Costing Rs 400.

Dharmavaram 6 Sheds Costing Rs 800.

Hindupur Hospital and Segregation Camps near Railway Station built on much the Same Scale as at Guntakal Junction but on gravel Soil instead of black Cotton

Hospital

2 Sheds for European patients to hold 2 each with Servants quarters, kitchen and latrines.

2 Sheds for Native patients to hold 6 each. with kitchens and latrines

1 Dispensary.

4. quarters for hospital Servants to hold 4 each.

1 Hospital assistants' quarters.

1 Nurse's quarters

1 Mortuary

1 incinerator.

Segregation Camp.

2 Sheds for Europeans to hold 2 each with Servants quarters, Kitchen and latrines.

19 Sheds for Natives to hold 8 each with Kitchen and latrines.

1 Police Shed

1 Nurse's quarters

1 Waiting room for those to be disinfected

2 disinfecting sheds.

1 Store shed.

Senior Assistant Surgeon Todd is

accomodated in a hired building near the Railway Station and there is a Shed on the platform for those requiring to be examined. Doctor J. Hunter and Lieutenant Ames found quarters in the D.P.W rest house and Mr. W.S. Marshall, Deputy Collector in a room of the new Taluk Cutcherry. They also had tents for touring. The Sepoys had their own tents.

The cost of the Hindupur Camp was about Rs 7500.

Chowloor - 11 Small Sheds costing Rs 175.

Tadpatri Railway Station. The Camp is in the same style as those at Guntakal Junction and Hindupur and cost Rs 6,500. It has the following accomodation.

Hospital

1 Shed with outhouses for 2 European patients.

2 Sheds for Native patients to hold 3 each

1 Hospital Servants Shed to hold 6

1 Mortuary

Segregation Camps.

2 Sheds with outhouses for Europeans to hold 2 each.
4 Sheds for Natives to hold 8 each
1 Hospital Shed for dispensary, Stores and Hospital assistant
1 Police Shed.
2 Sheds for Medical Officer and Nurse.
1 Observation Shed.
1 waiting shed.
2 bathing platforms, with washing platform, latrines, kitchens and incinerator.

No Steam disinfecting apparatus was erected at any of the Camps.

Road frontier Station at Govindapuram South of Madaksira

3 Sheds for Suspects to hold 8 each.
1 Hospital assistant's quarters
1 Hospital to hold 9 patients Cook rooms, Servants' quarters and latrines costing in all Rs 940

For the Stations at Kodikonda, Hindupur and Penukonda South

and West, tents were used.

All these Sheds have been left Standing in case of future eventualities but they are likely to suffer during the high winds prevalent in the South West Monsoon. The Small tents lent by the Military authorities have been returned to them.

At Guntakal village, Gooty and Hindupur, grants of Rs 3 each were given to poor Panchama families to erect their own health Camps. The Taluk establishment and Police at Hindupur and Gooty were also given grants to erect sheds.

In the majority of cases, however families camping out made their own arrangements and erected various kinds of poor shelters at their own cost, and there was very little grumbling. In some instances they seem likely to remain on their new sites and villages

often been slow and cautious in returning to their homes in the village.

50. I append a list of Plague establishment as it stood at the beginning of march, after which date reductions began to be made.

51. The following is a list of religious festivals practically stopped ~~altogeth~~ altogether, as people from distant places were not allowed to assemble as usual. Though this caused much loss to temple authorities and disappointment to worshippers, there has been no signs of discontent as it was recognised that such measures were clearly for the public good and likely to prevent the spread of plague. The people of Anantapur district were also prevented from attending many such festivals in other places including Mysore

List of religious festivals in Anantapur District stopped for Plague in 1898-99

No.	Name of festival	Date.
1	Subbarayani Parsa at Pargi	
2	Car festival of Subbarameswara Swami at Pydeti	10th to 25th January 1899.
3	——— do ——— do - at Uthur.	
4	- do - do - near Hindupur	
5	Pothuraja Parasa at Dadaloor	11, 14th February 1899.
6	Car festival of Venkateswara Swami at Hindupur	
7	- do - of Anjaneya Swami at Santebidanur	24th to 26th April 1899.
8.	- do - of Kanamanara~~yana~~simha Swami at Chilamathur	27th to 29th March 1899.
9.	- do - of Sangameswara Swami at Sangameswarapalli	10th to 13th March 1899.
10	- do - of Kari Basava Swami at Uravakonda	21st March 1899.
11	Nettai Kanti Swami's festival at Khesapuram, Gooty Taluk	11th to 12th April 1899.
12	Car festival of Kesava Swami at Havaligi, Gooty Taluk	25th to 27th April 1899.
13	- do - of Penmabolam Narasimha Swami at Penmabolam Gooty Taluk.	22nd May to 2nd June 1899.
14	Mastan Sahib Urusu at Guntakal	20th & 21st May 1899.
15	Car festival of Ramaswami at Lepatchi, Hindupur Taluk	16th to 27th April 1899.
16.	Pedda~~pudduru~~pappur Aswatham Tree at Pedda~~pudduru~~pappur, Tadpatri	7th to 16th March 1899.
17	Siddaswara Swami Jatra at Himavati, Madaksira	- do -
18.	Babayya Urusu, Penukonda.	23rd October 1898.
19.	Car festival of Narasimha Swami, Penmabolam Gooty Taluk	30th april to 10th may 1898.
20	Thimmappa Konda festival at Vitlampalli, Kalyandrug	8th to 13th April 1899.
21	Car festival of Venkataswara Swami at Penukonda.	17th to 29th April 1899.

52. On the question of Plague Expenditure I take the following figures from G.O. Financial No. 569 dated 3rd May 1899 shewing the items of expenditure, actual and probable, up to the end of June 1899.

	Rs.
Provincial	
Salaries of additional medical officers and assistant Surgeons	26,100
Establishment and subordinate medical officers.	1,005
Travelling allowances	1,000
Contingencies, postage, Stationery &c.	620
Salaries of Deputy Collector, Deputy Tahsildar with establishment & Contingencies	9,582
Police	6,789
Local	
Subordinate medical officers Sanitary officers and plague allowances.	34,117
Allowances to Troops	8,100
Establishment, nurses, attendants &c.	21,502
Supplies, Sheds hospital necessaries &c	34,220
Contingencies, furniture, Stationery, telegrams &c	9,090
Of this, the District Board rateably to its annual receipts will have to bear about one fourth.	
Municipal	
Ahmednagar	4,390

Owing to plague expenditure, the grants for roads under the Local Boa[rd] were stopped, a special mis[cellaneous]

in this District where owing to scanty funds roads are already in a very inferior condition. The emigration of merchants from the commercial centres of Hindupur and Gooty greatly interfered with ryots being able to sell their crops advantageously and rendered it difficult to collect the Government Revenue as no Cash could be had by ryots. The toll gate contractors also suffered through cessation of traffic, and the bids for the current official year fell from Rs 4609 to Rs 3898. The Abkari Revenue also suffered severely, prices for shops running low and many attracting no bids at all.

53. I append a Statement shewing the number of passports issued from the principal villages in the District, which with those for smaller places give a total of about 17,000. The work of dealing with these was first done by the District Surgeon and was afterwards transferred to my office.

Statement shewing the number of passports issued in Anantapur District up to 11th May 1899.

No.	Name of Village	No. issued
1	Gooty	1,061
2	Guntakal	6,927
3	Penneru	432
4	Royalcheruvu	396
5	Tadpatri	2403
6	Timmancherla	133
7	Dharmavaram	657
8	Anantapur	1815
9	Chakrlapalli	215
10	Garladinne	79
11	Hindupur	963
12	Kallur	309
13	Makkajipalli	57
14	Malugur	116
15	Nagasamudram	75
16	Penukonda East.	555
17	- do - West	336
18	Veravakonda	49
19	Madakasira	9
20	Bukkapatnam	3
21	Jakkalcheruvu	243
	Total	16,933

54. As seen from the enclosed statement of prosecution for evading the passport rules, there were comparatively few in this District, only those instances in which there seemed wilful evasion being prosecuted. A large number of persons were let off with a warning after necessary enquiry. A Statement is also added shewing the more serious offences under the Indian Penal Code which arose out of the Subject.

Statement shewing the result of the plague prosecution under the Plague Regulations.

No.	Name of the Court.	No. of cases	No. of accused involved	No. convicted	No. acquitted or discharged	Remarks.
1	District magistrate	..	..	..	..	
2.	Head assistant magistrate	..	..	..	..	
3	Deputy magistrate Gooty	..	..	..	..	
4.	— do — Anantapur	..	..	..	..	
5	— do — Plague	..	..	..	..	
6	Taluk magistrate Gooty	..	..	..	..	
7	— do — Tadpatri	-	-	-	-	
8	— do — Anantapur	3	3	2	1	The two accused were fined one rupee each.
9	— do — Kalyandrug	..	..	..	..	
10	— do — Penukonda.	..	..	..	..	
11	— do — Dharmavaram	11	12	9	3.	
12	— do — Hindupur	..	..	..	..	
13	— do — Madaksira	11	11	10	1.	
14	Stationary submagistrate Gooty	8	8	2(a)	6	(a) fined in one case Rs 10 ... ... other Rs 5
15	— do — Tadpatri.	3	3	3	..	
16	— do. Anantapur	3	3	2	1	The accused in one case fined Rs 15 in the second Rs 7 and in the third annas 4
17	— do. Penukonda.	1	1	..	1	
18.	Deputy Tahsildar magistrate Gooty	-	-	-	-	
19.	— do. Uravakonda	-	-	-	-	
20	Shoristadar magistrate Hindupur	-	-	-	-	
21	— do. Dharmavaram	-	-	-	-	
22	— do Madaksira.	-	-	-	-	
23	— do. Kalyandrug	-	-	-	-	
24.	Plague Sub magistrate	-	-	-	-	

Statement shewing the result of the plague prosecutions under the Indian Penal Code.

No.	Name of the Court.	No. of Cases	No. of accused involved	No. convicted	No. acquitted or discharged	Remarks.
1.	District Magistrate	3	40	32	8	one of these was Hindupur Tahsildar's murder case and the other was the Hindupur Tahsildar's Rioting case
2.	Head assistant Magistrate.	4	7	3 one Ramaswami was convicted under Sections 161 & 383 I.P.C. and sentenced to two years rigorous imprisonment. In the second case, one Kamal Saheb and Hussin Sahib were convicted and sentenced to one year's rigorous imprisonment each under section 392. I.P.C. for having threatened merchants that the accused were plague servants and for having robbed them of their money. In the third case, the accused were charged under Section 393. I.P.C, attempt at robbing a woman and her brother, travellers through Roddam under pretence that the 1st accused was a Police Inspector and 2nd and 3rd accused Head Talayaries under him. But they were acquitted being given the benefit of the doubt. In the fourth case, Reddi Rangappa of Chilamathur was charged under Section 213 I.P.C. for having taken gifts to shield the offenders in the Hindupur Tahsildar's murder Case. But he was discharged under Section 259 C.P.C. as no case was made out against him	4.	In one of these cases, Iyer, Sanitary Inspector whether this is due to plague

55. The total number of persons inoculated in the District was 2038 divided as follows:

Europeans and Eurasians	26
Muhammadans	454.
Brahmins	234.
Sudras	863
Panchamas &c	461.

Except in a case or two at Guntaka village, where apparently the operation was performed on patients already infected, the results were to secure the immunity of those inoculated. In the case of officials it instilled confidence and enabled us to go about without fear amid infection and death.

56. The report of the District Medical Officer will be forwarded shortly on receipt.

I have the honour to be

Sir

Your most obedient Servant

D Macleod

Collector

28.5.99

Enclosure to letter No 875 dated 19/5/99

Local & Municipal (1899) Department.

SANITARY COMMISSIONER WITH THE GOVERNMENT OF MADRAS
Register No 2724-S
12 JUN. 99

CURRENT No. 1352 P.

SECRETARY TO GOVERNMENT LOCAL & MUNICIPAL DEPARTMENT
5 JUN 1899

Urgent

From The Collector of Anantapur

Ref. on cno 1352 P.

Order

Forwarded to the Sanitary Commissioner in Continuation of ref. on c to 1261 P dated 2nd June 1899. Dis No. 985 2.6.99

A Edgington
for Secretary to Government.

Dated 1st June 1899

Received at Ootacamund 5.6.99 at Madras 6.6.99

Registered 7.6.99

Enclosures 7 (one plan)

Spare copies

Lang 8/6/99

AHS 7.6.99

DH 2641-S 3/6/99 sent 6 Bs on the 3/6

SUBJECT.

Submitting, by a Separate Packet, a Report of the Anantapur District Board on the affected parts of the Also the Reports received from the Dr Health Officer

BACK PAPERS.

No.	Date.

FURTHER PAPERS.

No.	Date.

Enclosures

Dis No 133

Office of the District Medical and Sanitary Officer, Anantapur.

Date 31st May 1899.

From,

Dr. H. W. Breeds 31/5

District Medical and Sanitary Officer,

ANANTAPUR.

COLLECTOR'S OFFICE. RECEIVED ON 1-JUN.1899 REGISTER No.

Paid 4s.

To,

The Collector of Anantapur.

Sir,

I have the honor to forward reports on the recent plague epidemic in this District from Major Rolestone & Mr. S, late acting District Medical & Sanitary officer, and from Drs. Greeves, Reade and Roberts, - additional Medical officers in charge of Plague Inoculation Columns Nos. I, II & III respectively.

2. It has been observed in the Inoculated specimens sent that only rarely taken and then three seven only or five isolated Cases in the Inoculated Taluq in which has remained free

MEDICAL DEPARTMENT.

From,

The District Medical and

Sanitary Officer,

ANANTAPUR.

To

The

Dated

Despatched 189 .

Received

No.

ENCLOSURE. :

Sidhout.

29th April 1899.

3288

3. I have nothing to add to Major Rolleston's report except with regard to the working of the passport system.

4. It has lately been brought to my notice that there have been such irregularities in the action of several of the passport issuing officers as almost entirely to vitiate the value of the whole arrangement.

5. At the Road Inspection Station Penukonda West the Assistant in charge was found to be in the habit of leaving signed passports in the possession of an irresponsible clerk; at Penukonda East the Assistant Richard used to sleep and take his meals in the town, although he was not supposed to leave the station at all, as all passports need to be issued by him personally: at Kadiri the

features of the Country record such as to render avoidance of inspection a most simple proceeding; at Dagshai there were grave irregularities still (2 inclusive) under Enquiry; at Geeta the Platform Sweetmeat Seller keeps his records in duplicate passport forms and over 250 filled in duplicate forms have been received from the Sand Station Luggage Clerk Some thing wrong heard awaiting explanation from the Kasauli Road lately in charge.

6. The fact of the matter is that very few natives regard the passport system as of any value at all and devoid intelligent men have characterised it as a mere farce; both passport officers and passport holders have an interest in keeping down the number of passports issued and here are at present entirely dependent on the Common honesty and zeal of their

who have proved in this District to be apathetic or dishonest or both.

7. As far as Road Frontier Stations are concerned nothing but Constant Supervision will tend to check the vagaries of the men in charge but I think that a careful check on passport issues at Railway Stations might be obtained from the passenger traffic returns which could be kept pace by Officers who could check Coolies & others who could hardly work in collusion with the passport officers without being found out by the Railway authorities.

8. At least 4 passport issuing and examining Seats done by one and the same man, and arrangements obviously open to objection as here pointed by the Post Head when the work was divided amongst two men, the number of passports would only all properly be

increased daily with plague infected
areas.

Q. Major Robertson must have been
unfortunate in the second of Chinese
Pumps which he obtained from Bombay
as I used them for 6 months in another
Presidency and found them most useful
and very easy to mend when they got
out of order. As a matter of fact
the pumps he got were not the original
Chinese ones (with a prayer book in)
but an imitation with the faulty values
of the originals and the added vice
of being very heavy. The metal values
should have been removed and
wooden pistons put in instead. The whole
proceeding can be carried out with
Chinese tools and result in a most
efficient pump.

10. I speak again from what I
experienced in keeping these pumps
when properly cleaned and oiled

will last quite two months. Wetting
a wall & put bricks with a watering
can, even with a rose on, is distinctly
laborious work and I consider a
pump useful though not absolutely
necessary.

I have the honor to be
Sir,
Your most obedient servant,

[signature]

Lt. & Executive Sanitary Officer

H.S.
31/5

Print 1358

Report on the outbreak of Plague in Amraoti District 1898-99 made by Major Kelcent Kelcentand D.H.S.

On the 6th August 1898 an anonymous letter was sent to the Collector from Yavatmal intimating that Lala, a Shevetmali belonging to the Hindu Kunbi community had died of Plague in the house of Papaya Khan, a Railway Contractor, 2 or 3 days preceding. On the 9th instant the Spl. Collector held an Inquiry at Yavatmal into the circumstances and Sanitary effects. The Inquiry shows that a Shevetmali named Kaka Dev employed by Contractors Ramdas and Bedardas

and a Coolie Ragchuleew das.

The Employees with his Servants lived in different Rooms in the same Lines as far as I Can understand, and the Coolie at some distance. The Coolie* seems to have been ailing for a few days with sore Eyes and then Contracted fever and died after 5 or 6 days. The two Servants* Next Simultaneously attacked with high fever and on the 3d of August were placed under the treatment of the Railway Apothecary. These next all died within 5 days. (One of the Servants had a small tender foot & a weight falling on his leg) Some of the Deceased had been to Nuleli but the Employee had been there and returned 1½ months previously. Fever had been prevalent

* 1st case.

* 2nd & 3rd cases

for some time amongst the Railway Employes and this was put down to bad water. The Sanitary Officer examined the iron Reservoir and found a quantity of "greenish sleiff" floating about and to this was attributed to a great extent the bad health of the Employes. The source of the water at Chamchenlee 4 miles distant was also examined. The Report Concludes that the fever was due to ordinary fever.

The next item of history is that the Railway Apothecary acted as the Police Magistrate during my absence at Nuwara Eliya on 3rd that he should Come and examine a Case of fever.

4th Case

Dr Schneider arrived in the Evening of 8th and met Captain Williams who had

28 Nov

passing through Gunteepal – both examined the Case (Case IV) described as a Mahomedan mendicant and pronounced to Plague. This man was found lying under a verandah Shed and after the diagnosis was established he was removed to a Plague Shed.

A Komati* woman was also found on 14th. to be suffering from Plague, she was living near the Sweepmens Lines and she was conveyed to the Plague Sheds. * 5th Case

On evening of 13th. a Mahomedan Shaik Saleb, Platform Coolie living near the Sweepmens Lines left his hut when the ground he was suffering with fever and took his family lived in a verandah temple near Gunteepal village, this family were taken charge of. 6th Case

It appears that Shaik Saleb frequented the house of the Komati woman;

The families who lived near the attacked persons were segregated and their houses removed down.

Ebrahimed Ismail and his mother Ashalee brought in on 23d. They lived in a house near No. 5. 7 & 8th Cases

9th Case. Krishnasamy arrived from Bangalore three days ago. Admitted 24th August. He lived in a Cooliesmans house in Staff Lines. The mans name, house &c was reported to Bangalore and plague found in his house then. This was undoubtedly an imported Case.

Since this date there were no further Cases until the 5th September when three more Cases were found in two huts about two furlongs from the original focus, one of this family was a woman who sold horses and used to frequent the infected focus on business, but next door to the 10 - 11 & 12 Cases.

was a dhoby who I suspect received clothes from a Gentoo at Kubelo for washing in lieu of house rent. This dhoby disappeared when plague broke out but was afterwards captured.

Two more Cases occurred on 16th, both were male Coolies. The above were all the Cases in the Railway quarters at the Junction. It appears one of these Cases had been diagnosed by the Railway Apothecary who was undoubtedly very Careful, Considerable saving of life and money would have been effected. The whole question of plague in the mofussil would be settled if this Cooli could be traced from the outbreak at the Junction. It is also possible Kubelo that Dr Ichalkie did not suspect something wrong when third death occurred within five days and one Case more in addition a Coolie, as the apothecary

13 & 14 Cases.

Dr Valentine

Collector says. Dr Ichalkie seems to have been puzzled and jumped to the realm although he must have known that every one drank the same water at the Junction. From the Junction the diseased Monkey travelled to Dimmancherla, a small village about one mile South alongside the Madras Railway. The diseased were started in a house inhabited by the Relations of the Komati people who were driven from the Junction. The Junction family Cases had four days, one four of the family having taken ill, three fugitives against orders of, and the second one child to Gunnapal one more to Kubelo to Ichalkie. Three more people in Dimmancherla died but no one was known of it for several days. Yet, it appears that a family of seven people living in Komati

house

house and they came and assisted the old Komati woman and nurse three children when ill. A father and son of this family none died and on the 3rd day becoming ill Dhras informed. Dr Arnold plague has diagnosed and the above facts have elicited with the addition that some sick people have taken away in carts at nights. Two other houses in the vicinity of this Komati house were affected. Therefore houses have burned down and the other houses in the block cleaned. Burning has the only cleansing that could be done to these houses. As the disease had been very virulent, a number of rats were found in each of these houses. The disease did not stop more but chased over to another block so that fully 70 houses in all block were vacated.

This evacuation undoubtedly broke the back of the disease. About this time a child who had been taken ill and recovered somewhat in the jungle was brought back by the people into the Village, she may have been in a few hours when the fact was brought to my notice, I had this entire family removed to Camp. Not withstanding this three Komati families who lived along side this particular house were attacked by plague. The disease now abated after a [illegible] 26 lives and no public [illegible] in the Village. The people evacuated based to a public about one mile beyond the Village in old tents supplied by the Government. There people after a time could hardly be persuaded to leave the tents and go back to the Village; the same thing

There is no evidence to show that Mahar had anything to do with the spread. About 500 inoculations were done in this Village. The people erected Cantonments on a small scale for themselves; a Suspect and a plague block for Mahomedans and the same for Hindus. They were very cautious and the people would not allow Government Servants near them. The upshot was three Sepoys died and the others would not go near the sheds but preferred dying in the fields.

Kottala On 28th November information was brought that Chinnu had broken out at that hamlet. Kapheas a Patel with his two sons and one daughter lived together in a small house. The Patel was a Mond Cullen and earned a livelihood working around the vicinity. He and one Son and his daughter caught plague. On the Patel

7

and Son dying the remaining Son took away the daughters two found dead on the 21st. The neighbours said that the father died about 10 days previous and the Son a few days before the daughter. The house a small one was burned to the ground. About the 13th December and outbreak occurred (2 cases at Bangalore Road) 11 attacks one day and 12 on do the following. There is no doubt but that Mahar were the Carriers of the infection in these Cases, as the Caste of [illegible] and the Pujels refused to let the Mahars would not be allowed to enter the Houses of the latter. The Pariah of the daughter were prosecuted for plague products & removals and that of the Patel and Son to Triplicane. The small hamlet now about 33 Souls.

(3)

Kona Kondla and Poleki.

Kona Kondla is situated about 4 miles from Gumbakab. Plague started here about the beginning of January. It is presumed that fugitives from Gumbakal Village must have obtained a footing here. The possibility of an army of rats proceeding from Gumbakab has occurred but there is no evidence to support this theory. Any way the disease again started in Komatokhouses and the people of the Village cleared out of them and went to Dr Murray with Rs 1 / Inspector Collins was stationed here. Vide Dr Murrays Report attached.

Poleki was about 5 miles west of Kona Kondla and was also depopulated of Kona Kondla. The disease spread here owing to the unprotected segregation by the Police. The people were crowded

8

located together in a temple and I appeared of the Shelter on 24th December but the Police allowed ingress and egress, the result has a sharp outbreak. Sixty three attacks and sixty deaths.

Karin a Village 6 miles from Kona Kondla. The disease has in all probability emerged from Kona Kondla. Dr Murray reported 29 cases with 17 deaths.

Gorky has attacked early in January. There were 20 attacks with fifteen deaths. Dr. Poleki has Stationed there with an Inspector Collins, assisted by 18 additional Police.

The above are the main attacks in the District. Infected Rats except at Kondakindi, Shanmugam and Kondakindi, but there were Rats poisoned [illegible]

Kindergun is not referred to in Murder treatise. MM

4

Disinfection.

Disinfection was carried out according to the Plague Regulations up to the end of January. Prior to any opening clearing of the district all the houses attacked were burned down, excepting a Railway Coolie's house, in the hope of stamping out the disease. After any operations I recommended one house in General Junction and the front four houses attacked in Dimmanchala to be burned down in the hopes of stamping out [illegible] as I found that this course made [illegible] and plague only succeeded in the burned houses and stabbed the roofs were Equally efficacious and significance to people dep[ri]ved of accustomed Conflagrations except in a few cases where small huts made of cadjan sticks and grass roofs were Concerned & in these cases the ordinary

methods of disinfection would [illegible]

2. Regarding opening up the roofs of dark infected houses. Openings were always made to the extent of 4 square feet. The roofs are usually made of bundles of jungle wood with a palm leaf mat or a few inches of cholam sticks. laid over this and then mud plastered on top. There is no fire risk in opening up a roof of this nature. I frequently found that the house occupier would [illegible] roof [illegible] that was the head [illegible] the rocket.

3 The disinfectant used was Carbolic acid in solution of 1 part to 20 parts water, Permanganate of Potash, Formalin, Izal, Perchloride and Lysol used in the ordinary Lysol generally. This method of [illegible]

disinfection is very laborious and expensive and I question very much if as good results could not be obtained by a (1-500) perchloride solution with an excess of acid, it would certainly be cheaper — as perchloride is fast on in any case to keep ~~the~~ down the dust.

4. She walls for 4 feet, good clothes, household utensils are kept all disinfected with perchloride solution. I have not seen any bad effects on clothing from the use of this solution. Bottom parts of cotton sheets with ordinary bedding.

5. For use of lime and of carbolised disinfluents where perchloride has been applied and only mentioned any excess of perchloride that has been applied. Limed line is obtained with considerable difficulty and in many cases

it is mixed with ordinary bedding Shearing Chunam which of course detracts from its value. A cart load of Caustic lime costs about six Rupees and half of this nearly is unusable as dust. I have not the figures with me as to the cost of bedding Gunta/sal Pillar but I and lend it will burn out a very expensive item. Lime washing certainly makes a village look ~~neat~~ nice clean and aesthetic but in my opinion does little else & is chemically neutralised by the excess of free chlorine

Mercuric chloride solutions have not been employed as there was no occasion for the use of this bedded disinfectant.

6. For general use which disinfectant does Excreta out?

4b

Quarantal Injection and Enema should

or uses to which it is put. I have seen
two Sepoys leaping to left the piston
rid vaid on account of the swollen condition
of the wood. It is also a very expensive
toy - at first it cost Rs 10. each at Bezawy
and Madras but later on I procured
as many as I wanted at Bombay at Rs
32-8-0 per dozen.

Brass garden pumps are likewise
useless the perishable nature of the soldier
rid two days time. Both Leach, Peachy,
Innes, and the Native officers heard
rid [illegible] any garden watering
pot with a hose [illegible]
The Cooper pig [illegible]
some less tools though [illegible]
month (I lead the native soldier must
be good) and less to advantage if
seeing [illegible] in almost any bazaar.

12.

Plague Hospitals. 1899

Three cases suspected case Plague Hospitals
immediate, hasty built and Equipped
during the season: Ghatkopar, Mahim
and Parel. The remains (2 sheds)
of a Pilgrim Camp was still standing
on my arrival rid September, and this
appended some shelter for Plague cases
at this period. The Camp was fine
excellent accommodation for 10 cases
Native and 2 [illegible] at shelter
for [illegible]
[illegible]
[illegible] recommended
[illegible]
[illegible]
[illegible]
and a hasty race in clearing of the Camp.

2. Improved Camp is on a smaller scale

US

and different design. It will afford complete accommodation for 10 Natives and 2 Europeans whilst the Inspect Camps will accommodate over 100 Natives. This Camp has in Charge of an Asst Surgeon, two Hospital Assistants and a Nurse. Both Gunthopal and Hindupur Camps have Serviceable Villocating plague cases.

3. Satpathy Camp only dates from end February & this Year, it is well Equipped and in Charge of the Asst Surgeon and [illegible] No plague has yet been treated [illegible]

4. At Gunthopal the Commissioners have erected sufficient accommodation for a few plague Cases. One hut already been erected there. No special Hospital Assistant has been detailed for these Sheds.

5. The various Unions Satpathy, Tadpatri, Veerapuram, Dharmavaram, Penukonda & Bukkapatam had a small supply of Condemned tents allotted to them for Plague uses, so that immediate Segregation could be resorted to if necessary. In addition to this at these Stations the Local Municipal officers had a good supply of disinfectants and Medical Comforts given to them for Plague purposes only.

Railway

[illegible] Railway Station [illegible] All passengers from Gunthakal Junction [illegible] were inspected at the Station platform by the Station Staff. During the plague season most thoroughly only [illegible] Cleaner piping - 10-30 Pm Mail

49

and different directions. [illegible]

from Bangalore and a Local about 1 P.M. and the afternoon. A good look out on the down Mail to Bangalore was also kept up. Two or three cases from Bangalore were removed from the train suffering with plague and a considerable number of suspects were detained.

2 Guntakal Junction. The Railway Inspecting Staff examined all trains S.M.R. Railway and Madras Railway arriving and passports were issued to those detained and infected persons. [illegible] were taken [illegible] the Civil authorities [illegible] The [illegible] passengers [illegible] and [illegible] were [illegible] for the Staff employed on Station.

3. Dispatch. The Inspecting Staff were Station [illegible] and Policemen for the [illegible]

examination of all passengers by the Mail, thus examination did away with an examination at Guntakal for the train, the object of this movement was to avoid the [illegible] Gates being inspected. The Staff was identical with that in charge of the Guntakal Plague Camp.

4. Bezwada Railway Inspection Stations were examination of passengers detraining and the issue of passports to them. At Bezwada Junction Station [illegible] [illegible] [illegible]

1887

Upward prospects &c.-

5. Local Inspections.

Hindupur and Madhavaram Taluqs were each divided into two Circles. Two Superintendents relieved the work of the Sanitary Inspectors in the Hindupur Taluq and only one Superintendent for the Madhavaram Taluq. The Kalyandrug Hyderabad portion was relieved by three Inspectors and one Superintendent.

The Gooty Taluq - Three Inspectors and one Superintendent relieved the Sanitary Inspectors in the Gooty Taluq and only one Superintendent for the Penukonda Taluq. Belvadi Hindu Kalyanadurg portion was relieved by three Sanitary Inspectors and one Superintendent.

The Penukonda Taluq - Three Inspectors and one Superintendent relieved the Sanitary Inspectors in the Penukonda Taluq and only one Superintendent for the Madakasira

he did very good work - his brother
P. Dungchow who Married William
Sanitary Education Came out most
Excellently - he had plague in almost
all his Circles, Six in number, and
Came out of it all Splendidly, She's
now Came out of the Collectorate Office
at Secundrabad.

At Hyderabad the Rev. Salt Brocken
did Excellent work - he saw no plague
before Coming to the Province. Mr. Golding
also had Experience Gained of

Plague [illegible] Thus is doubtful. HM

[illegible]

The Experience of Mr Reid was
very [illegible] Eagle to Head
Secundrabad.
HMS

The Experience of Mr Bruce was
very [illegible] by Colvin
Secretariat Secundrabad
HMS

Some Cases of Cholera

16

had occurred in his Charge. Still
Superintendent holds a very responsible
position, & am of opinion no one
should be given such a post unless
he holds a Sanitary Certificate.
As a rule I found the Temporary
Sanitary Inspectors are indifferent
and unpaid very Compared with the
Certificated one.

Unclassified Columns.

These unclassified Columns were
Equipped and [illegible] the
Cleaning

[illegible]

[illegible]

[illegible]

on 6th Feb. and remained there
for about four hrs. Re I Coleman
was again brought into Granbatch
village under Dr Charlesworth
in Rowenlee and remained there until
January 3d 1899 when it proceeded to
Kana Randla under Dr Murray.

No 2 Ambulance Column went to
Kundapur under Dr Hinder's charge
about the Middle of December - the
object of sending this Column to Kundapur
was a plague Camp already existed
here [illegible] into Selection for
[illegible]

No 3 Column went first to Kyasanur
under Dr Roberts and Surg Maj
each Column was partly equipped
with the first portion and provided
[illegible]
hospital tents and another subsequently
received

received. From my experience in
Anandapur District I do not think these
expensive Columns are of much use
from a Hospital point of view. The
people refuse to go near them. Dr.
Murray tried them at Kana Randla
and Police to send the people but in vain.
Each of these Columns mean one English
Plague Doctor, a Nurse, a Hospital
Assistant and a Compounder with a
Medical Staff of about 20 all doing nothing.
If Head Office requires [illegible] they
need [illegible]

[illegible]

[illegible]

53

Road Frontier Stations:

From Road Frontier Stations were opened in the District, two amongst the Pena Ronda Hills, one at Goorudapura and at Kudupura amongst the Hills and a fourth at Kadiwa, Abeleshes. Originally five, but two done away with.

their last has in my opinion useless as it did not Command the Road and any one could evade it.— Whereas the others were Localized on the only Passes - a Road, which winds in and out of the hills. These Stations were Equipped according to Regulation. - be[illegible] Staff, Regd and Unarmed.

Inoculation:

Directly Hearing about Small-pox Inoculation was Introduced Difficulties experienced to Start. No regard to Non Inoculated Cases of the Pocked Cases, but every Precaution

Continued

18

instances could Explanations be made of Inoculation. Personally am not aware of any death due to Inoculation. I have not been able to Explain Reluctance and Inoculation but know Known them to Exist. Considered Absences due to a Badly Cleaned Arm or a dirty needle. From January Inoculation Practically Ceased, this has undoubtedly due to the Remarks of Dr. Peebles Lancet on Dr. Klapp Kines Account. Children and Non Inoculated Excellently, Women indifferent [illegible] Remark Removed [illegible] Inoculable People [illegible] Called Attention to Non Inoculated Among the Inoculated Numbers Small Pox Cases Non Inoculated 21 Cases Previous Protected by Inoculation 7, Unprotected Non Protected by Inoculation

58

In concluding my report I must bring to your notice the services of Mr. Marshall Deputy Collector on Plague duty. He has throughout done excellent work and worked early & late both Land & Sea at Gunbarra. The work has been very responsible sometimes for mind, but he has never failed. I trust Government will take favourable notice of this

Services.

I also recommend

[illegible]

Police and Superintendent Mr. Stitt

P. Rothwell Esqre Port and C. Ridgeway

Esqre Health Officer for their work.

I have [illegible]

on [illegible]

15

Schedule Mr Knuckey will furnish details of Vide Case No 10 in list -

List of persons attended is appended.

	Number	Name	Age	Date & Hour attended	Date & Hour attended	Date & Hour Result
	1	Mamedeen Lebbe	24	11-5-98		
	2	Essay	23	1-10-98		
	3	Kelletamby	45	2-10-98		
	4	Sapiatamby	28	8-10-98		
	5	Chinnamma	26	9-10-98		
	6	Sapiatamby	12	13-10-98	23-10-98	
	7	Cadiatchy	40	15-10-98		
	8	Rahimitee	26	22-10-98	26-10-98	
	9	Kakkalan Lee	5	22-10-98	27-10-98	
	10	Packia Kanapathy	30	4-11-98	25-11-98	

will deal more fully on that subject.

I send Lieut Roberts
Despatch No 5.

Two copy

Yours

Lieut Roberts

Ag Superintendent Quarantine Service

tk
3/5

30 MAR 1899

Konakondla 28th March 1899.

Sir

I have to acknowledge receipt of your letter C.N. 2312 23.3.99
& beg to submit my report on the termination of the outbreak
of plague which occurred in the several villages under
observation from this camp

I. Konakondla population 200 – There were in all 22
seizures with a mortality of 18 – Of these deaths six took
place in children under 15 years of age – Eleven in adults
between ages of 16 & 45 & four were upwards of 45 years old
Between the 1st & 6th Jany ten cases were notified as
having occurred in the village with a fatal termination
in each case – the entire Vill[illegible] ted
& the people moved to th[illegible] m the 6th
Jany only 12 [illegible] with a mortality of
since which date no further cases have occurred –
The steps taken to combat the disease consisted in
evacuation of the village & the isolation as far as
possible of the sick from the healthy – Houses
where cases occurred were disinfected by Sepoys as
well as those with which they were in contact –
All houses where dead rats were found were also
thoroughly disinfected – Floors where such allowed
were dug up & burned & walls &c thoroughly drenched
with a 1 in 1000 solution of Perchlorid of Mercury & large
openings 4 feet square made in roofing to allow free penetration

of sun - The entire quarters occupied by the
Pariahs were disinfected. [illegible] found
in a number of the houses. Subsequent to their
vacation - [illegible] occurred among st
them - I think the probability is that the disease
was introduced into Konakondla from Guntakal -
Here the disease was prevalent by infected people
attending the weekly fair held here - Having cleaned
& repaired their houses the people have returned from
their temporary Huts in the fields -

II Polliki population 1500 - In this village during
January & Feby /99 Sixty three seizures were
notified with a mortality of Sixty - Of these deaths
24 took place in Children under 15 years of age - 26 in
Adults between 16 & 45 years old & 9 over upwards of
45 - Here as at Konakondla with evacuation of
the village the disease rapidly diminished, the
last [illegible] on the 7th of Feby; since which date there
have been no fresh cases up till the 24th of
December /99 the [illegible] appears to have been
[illegible] & into epidemic of plague from the Hindus who had
been frequently visiting relations at Guntakal &
Kotala both then infected places developed the
disease & died from it - As the [illegible]
intercourse in the earlier cases of the sick with
the healthy must be attributed the spread
of the disease here - The people are now busy
repairing their Houses &c & as the streets of the village
have been cleaned permission has been given them
to reoccupy the Village -

III Karur population 3212 - The total number of
cases [illegible] in this village during the
outbreak [illegible]
[illegible] under 15 years [illegible]
over 45 years [illegible] 45
During from the last [illegible] as compared with
the two previous villages [illegible] that where
the cases [illegible] the plague may
not have been so [illegible] Konakondla & Polliki
the steps taken to deal with the outbreak
were the same - with the exception that here
it was only necessary to have part of the village
vacated & since the 15th March no cases have
occurred - By the 15th April the village will
again be reoccupied -

As to the origin of plague in Guntakal I can offer
no opinion, but recognising [illegible] precautions
& contagions fever the Hindu [illegible] of
the people render [illegible] favourable subjects
for its [illegible] - Previous inoculation I have had
no opportunity of testing it as in none of the Villages
could the people be induced to allow themselves be
inoculated - Only two cases were brought into the Camps
for treatment both of the Pariah race [illegible] death resulting
in each case from Cardiac failure -

I have the Honour to be
Your Obedient Servant
W. Henry Wilson Major I.M.S.
Additional Medical Officer
1st Ambulance Column.

P.S.

The total [illegible] with a mortality [illegible] Muslims [illegible] in Amt [illegible] Mahomedans [illegible] of the deaths [illegible] 8% more than [illegible] Hindoos

I am not aware what [illegible] percentage of the population in the Central Districts are Mahomedans, but I fancy they are [illegible] able minority —

W. Lyon

With reference to question [illegible] in spread of the disease, the majority of the cases which [illegible] can be seen due to direct infection from a previous [illegible] rats were found in some houses where the disease existed but not in any number. That they are a means of [illegible] infection cannot be doubted but I think the rats primarily became infected by eating contaminated food of infected persons or coming in contact with their dried sputa in corners of the houses —

Several cases have been noted by me where no history of contact with [illegible] could be obtained, but a dead rat [illegible] in the house — At Polishi [illegible] plague occurred [illegible] — no dead [illegible] were found in the [illegible] but in the [illegible] adjoining [illegible] but subsequent to their vacation found two dead rats in one house & in another a dying Cat & three —

W. Lyon

Office of the Additional Medical Officer, Hindaun

Dated 10th May 1899.

From Lieut. Colonel John Hunter Edgell, C.B.

Additional Medical Officer

Hindaun

To The Lieut. Colonel

Assistant [illegible]

The District Medical

Secretary Office

Ajmere

Sir,

I have the honor to submit the following report on the [illegible] of plague [illegible] to date [illegible] of all the cases [illegible] by the Sanitary Inspector of Sanitation [illegible] to the origin of the outbreak in Hindaun, all the cases occurring appear to be [illegible] 98 which [illegible] imported from Bangalore. The case occurring on the 27 Nov 98

was a Mohammadan boy aged
fifteen. He was in the habit of
going to Bangalore but the
precautions and inoculation avoid-
ance were not practised there
for no segregation of plague
patients was then carried out
although a light case of Bubonic was
recognised in Hinduperum His
last trip was to Tumkur ten days
prior to the 27th of November 98.
but his illness dated from
the 24th November 98 the next
case was [illegible] the 7th December
He also was a Mohammadan boy
boy who frequently visited
the house of the former. This
was the first indigenous case
The second indigenous case
was a merchant who was the
employer of the boy first attacked
It is clear therefore that plague
was imported into Hinduperum
from Bangalore. The first case

[illegible] from fifteen
[illegible] reliable
[illegible] beyond
[illegible] to
[illegible] of
[illegible] for treatment
[illegible] several of those
were [illegible] on a [illegible]
and one or two refused to take
anything. On the whole I consider
the death rate in the Camp was
Comparatively low. Considering
the Condition [illegible] were
in when [illegible] for
[illegible] to
[illegible] and even those who
did, required a good deal of
persuasion.

I have the hon or to be
Sir
Your most obt Servt.

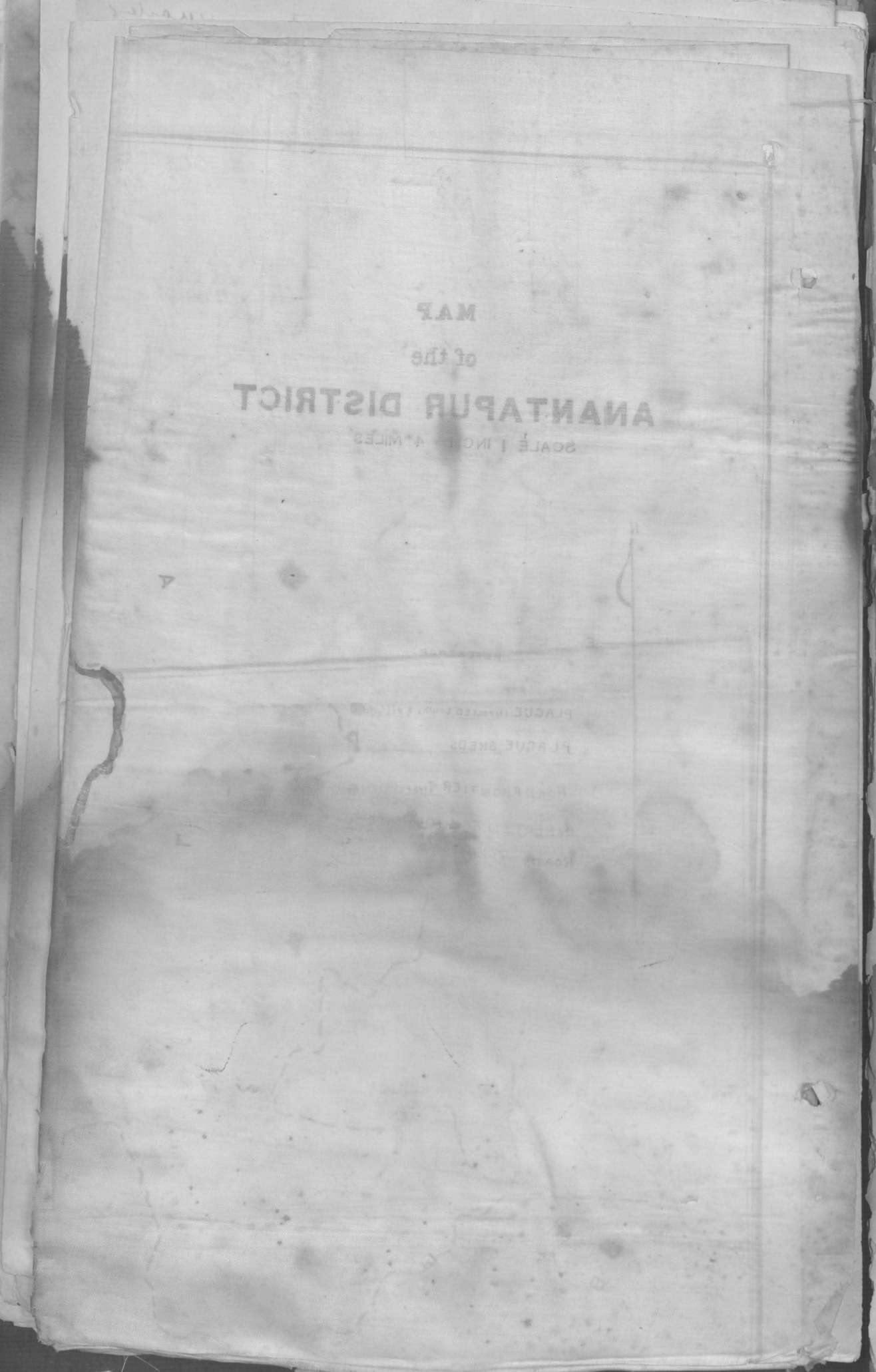
John Hinde
Additional Medical Officer

The lower town is the quarters of the Romaics & the poorer people, the upper town & Fort being occupied by the better classes, Proktonins, Valehads &c. &c who dwell in better & loftier houses with more perfect Sanitary arrangements with greater air space.

That the plague depends nearly entirely on want of Sanitation for its perpetuation is shewn by the fact that no case appeared at all in the upper town, this is [illegible] Commencing [illegible] between the Fort & the lower town is of necessity very free, seeing that the Bazaars is situated in the lower town & the Romaic classes suffered so much

as any.

Upon the appearance of rats
dead and dying among the grain
of a Komati in the Bazaar
orders are given there and then to
evacuate all the houses in touch
with it & each other making some
15 in all, The evacuation being
carried out simply upon the
appearance of dead rats & not
waiting for a case to declare
itself; by the time
the
Cases
sufficient for its spread are
Such as obtained in other
towns where dep mortality
occurs subsequently, ultimately



C. to B. 852 P.

1,000—1-96.

No. Dept/pwd

Anantapur Collector's Office,
1st June 1899.

From

Cannabyna Macleod Esq., M.A., B.C.S.,
Barrister-at-Law.,
Collector of Anantapur.

To

The Secretary to ~~the Commissioner of~~ Government,
Local & Municipal Department,
Madras
Ootacamund.

Sir,

C-1261 P

In continuation of my letter, Camp No. II dated 28th May '99, submitting the Report on the Plague operations in this District for the year 1898-99, I have the honour to forward by a separate packet, a map of this District showing the affected Taluks & villages, Plague Camps & Local Frontier stations.

2. The Report from Doctor Beach, the acting District Medical & Sanitary Officer of this District, promised in the last para 56 of the Plague Report referred to above is herewith forwarded along with the reports from Major Robertson and Doctors Roberts, Murray & Hunter the European Medical officers employed in this District during the Plague

Operations

operations.
All these reports are
valuable & interesting.

I have the honour to be.
Sir.
Your most obedient Servant.

Macleod
Collector

From

The Collector

To

The Secretary to the

Commissioner of

Madras.

2.699.

Dated 189 .

No.

Subject.

Current No. 2588/99

Enclosure No. 7 to Letter No. 875 dt. 9/5/99

Local & Munl. (1899) Department.

CURRENT No.

(through the Sanitary Commissioner and Surgeon General)

From The Collector of Bellary

Order

R. D No. 250 P.

Dated

Received 15 JUN 1899

Registered

Enclosures

Spare copies

OFFICE OF SURGEON-GENERAL WITH GOVT. OF MADRAS.

SUBJECT.

BACK PAPERS.

G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.

Treasurer, Chamb

Copy of Letter No 1135 P / 26.5.99 from the District Medical and Sanitary Officer Bellary to the Collector of Bellary.

With reference to your footnote Ref on C No 1752 P / 3.5.99 I have the honour to report that the district was declared "under observation" under G.O. No 936 dated 26th January 1898. Since then steps were taken to guard the frontiers by the employment of observation circles, Road Inspectors and other [illegible] introduc-

There are twenty one Road Frontier Inspection stations, each in charge of a Medical Subordinate with an establishment of one Gumasta, one Conservancy maistry, two peons, one toty and one police Constable. Provision is also made for sheds to treat sick and suspicious cases, and to detain travellers with no fixed abode, or those likely to spread the disease arriving from infected localities.

No [illegible] necessary to

Jurwagal and to Alur town. Inspection

intimation being sent to the local authority of the new station to prevent them escaping observation.

In addition to the above, 2 ambulance staffs were formed in September 1898 and 1 in January 1899. They were employed in the several infected villages. Plague having subsided and the staff withdrawn to Head quarters one was done away with on the 1st

on the 20th

October 1899

there are twenty one Road Frontier

[illegible] each in charge

the easy detection of plague cases
and the immediate disinfection &
isolation of the infected and contacts.
This no doubt materially prevented
the spread of the disease.

3 At the Bellary and Adoni Railway
stations there are special staffs to
Examine the arrivals. Segregation
camps are provided at both these
places. All suspicious cases are
detained [illegible] from in-

[illegible] Chandoli, Chinna

Durnagal and to Alur town. In such
all these villages prompt steps in dis-
infection into the towns carefully guarded
and all arrivals from infected
areas given passports.

6 As to the origin of the disease,
it was first imported into the district
in September - On the 6th of that
month two suspicious cases of
fever terminating fatally having
taken place at Chippagiri and been
reported to the District Medical &
Sanitary [illegible] immediately

There are twenty one Road Frontier

[illegible] cases

or not reported. The disinfection of all supposed infected houses was done at once.

The district Medical and Sanitary Officer formed an ambulance staff and sent it to Chippagiri under the additional Medical Officer and sheds were erected for the reception of the patients about half a mile from the village. There were in all 13 seizures and 13 deaths [illegible] the patients

[illegible]

Tarikonda
not visited

[illegible] Precautions, Chemical

Turuvagal and to Alur town. In [illegible] all these villages prompt steps were taken to suppress the disease by evacuation, segregation and disinfection and for the latter purpose sepoys were employed.

8 Thirdly a solitary case of plague was imported at Kolagondi in the Hadagalli taluk from Dharwar of the Bombay Presidency. The ambulance staff also worked here and was withdrawn when there was no fear [illegible] of

roughly clean the villages and sites
and to disinfect every house whether
infected or not. Small huts of no
value were burnt. All mudhuts
before disinfection had openings
made in the walls or roof, according
to the size of the room to admit
light and air and then they were
thoroughly disinfected. Perchloride
of mercury was the principal
agent used, and after every part
of the building and every article
in it was thoroughly saturated, the
[illegible] rubbish collected

but by a recent rule of the Plague
Commissioner this has been dis-
continued. The agency employed in
disinfection except at Hospet was
Sepoys under a British officer
and the work was done in a most
efficient manner. At Hospet a
special Assistant Collector was de-
puted to personally supervise the
disinfection.

The sick while under treatment
had all their excretions removed
in vessels filled with strong dis-
infectant

The report on plague in the Bellary District + the measures taken to combat the Epidemic in accordance with the D.C. med + Sanitary offices No. 1135 P of 6-5-99

Draft

In the beginning of May 1898, I was sent from Madras to do plague duty in the Bellary Dt. This duty at that time consisted in visiting the various circles into which the frontier of the Madras presidency along the Thungabadra river in this district was decided to inspect the Villages and the work of the plague supervisors and Inspectors, to urge the Village headmen to keep their Villages clean, to remove all filth with which the narrow passages between the houses was choked to clear away the constant droppings of cattle + buffaloes + to keep swine from roaming over the villages at will and to empty and distribute over the fields the putrefying manure which was collected in shallow pits close to the houses in many cases and in all cases surrounding even the largest villages. The Supervisors and Inspectors on plague duty were repeatedly instructed by me in their duties and responsibilities with regard to the village middies and inhabitants and to exercise great tact + caution in their dealings with the people in plague matters the more especially as the public

once a week and to report to the Dt. medl & Sanitary officer each week the date of each visit and the condition in which the village appeared to be, any cases of illness or death and the measures taken by the headmen to carry out their instructions.

These reports were sent to the Supervisors of their circle, each Supervisor had four such circles under his control and may in turn forwarded their inspectors reports with their own remarks weekly to the Dt. medl & Sanitary officer, comments and further instructions were added by the medical officer on plague duty and then the weekly reports or diaries as they are called of Supervisors alone were forwarded to the collector who added his remarks and orders, returned then to the office of Dt. medl & Sanitary officer whence they were, if necessary, returned through the Supervisors to their respective authors, the plague Inspectors. a union village had in addition to the circle Inspector a special assistant Inspector whose sole duty was to look after the village and its surroundings.

If a Suspicious occurred and the plague medical officer was not on the spot or near, the reddy sent for the nearest medical officer, he informed the Shanbhog of the Taluk who by telegram sent the news to the collector, Dt. medl & Sanitary officer, plague medl officer and his local Dy collector. The Sanitary commissioner to the Govt and the Surgeon General with the govt of Madras were also informed by wire.

Case

their contents which were disinfected as thoroughly as possible, if it was not practicable to disinfect them they were burnt - and then burnt down. This is no doubt the only really efficient method of disinfecting houses where plague has occured - orders however came down from Government forbidding anymore burnings lest the inhabitants seeing the smoke + flames became alarmed instead of burning the plague commissioner who came down to Chiplagini at that time gave orders that when a house was infected with plague holes were to be broken in the roof and walls to let in air and sunlight the floors were to be taken up to a depth of atleast 6 inches and burnt in which filled with alternating layers of the earthen floor + dried cow-dung cakes, in addition the floor and walls were sprayed by means of chinese pumps with corrosive Sublimate Solution of a Strength 1:1000. Finally the walls were whitewashed with Quick lime both inside and out for a height of about 6 feet. This work was done by the Sepoys under the Supervision of the collector, the medical officer on plague duty (myself) and the Subaltern in command of the troops

The Sepoys soon made very efficient hands at disinfecting houses. their native officers responsible for the proper carrying out of the work being very intelligent men

As a precaution all the Sepoys employed on this duty were inoculated by me, most of them came forward willingly after their Officer had set them the example, this operation was carried out publicly and when the Shasildar of Atur had been inoculated, many villagers came forward & brought their children & wives to be similarly treated. Several hundred natives of the village were in-oculated in addition to the whole force of Sepoys.

With two exceptions among the inhabitants of Cheppagiri - no evil after effects were observed and in these cases were not in any opinion due to the inoculation. The first case was that of a young woman who died after 10 days after being inoculated she had no ill effects at all for the first three days after the operation. She then contracted fever, she sought no Skilled advice and would not submit to treatment and died from hyperpyrexia - The Second case was that of an old man who succumbed to an attack of acute Bronchitis supervening on chronic bronchitis from which he had suffered at intervals for many years, he appeared fairly well when he presented himself for inoculation and no bad Symptoms preceded them-selves as the result though he died 3 weeks after being inoculated from the bronchial attack. These deaths were not

unnaturally put down by the more ignorant of the inhabitants to inoculation and our return suffered keenly to some extent. Not one of the people inoculated contracted plague though many had been in contact with cases, quite young children bore the operation well and with their elders experienced no more than the normal reaction. The two cases referred to above did not receive the full adult dose half a dose being given in each case - in the woman, because she was anaemic and in the man case on account of age and debility. Many people came for a second full dose a fortnight after the first among the Sepoys inoculated by me only one exception occurred to complete freedom from ill-results. This was in the case of a man inoculated 3 weeks before, he suffered rather more severely than usual from re-action and was off duty for several days and when recovered was put on Sentry duty instead of going into the village to disinfect houses. he slept out on the road the night and got a chill which brought on Pneumonia from which he recovered the was put down as plague at Gumlakha in any case it goes to show the acceptance of inoculation by Haffkine method as he recovered and could only have had

a mild attack even supposing the case to have been one of plague

The above brief history of the outbreak in Chippagiri will give the way in which the plague has been treated in every village in which plague occurred in the district when under my own supervision.

The orders of Government were carried out with regard to disinfection of houses after the first few cases of burning down had taken place and been henceforth forbidden when house to house visitation was objected to the Supervisor and his Inspector went round the village daily and with the ready enquiries for cases of sickness. This was also done in the various camps formed in the fields after the evacuation of the village - any case of sickness was reported to me at once, I immediately went and saw the case myself if a purdah woman, a nurse examined the patient and reported to me though the cases were almost unknown in the district. If the case turned out to be a plague or suspiciously like it it was at once taken to hospital, the contacts segregated in the isolation camp with a Sepoy guard over them and the people in the surrounding

a mild attack even Supposing the case to have been one of plage

The above brief history of the outbreak in Chiffagiri will give the way in which the plage has been treated in every village in which plage occurred in this district when under my own Supervision.

The orders of Government were carried out with regard to disinfection of house after the first few cases of burning down had taken place and been henceforth for-bidden when house to house visitation was objected to the Supervisor and his Inspector went round the village daily and with the Reddy enquired for cases of Sickness. This was also done in the various Camps formed in the fields after the evac-uation of the village - any case of sick-ness was reported to me at once, I im-mediately went and saw the case myself if a pundah woman a nurse examined the patient and reported to me though the cases were almost unknown in the district If the case turned out to be a plage or Suspiciously like it it was at once taken to hospital, the contacts segregated in the isolation camp with a Sepoy guard over them and the people in the Surrounding

houses sent into a segregation camp in the
fields. Disinfecting operations were at once
commenced and the infected and adjacent houses
thoroughly disinfected and cleaned according
to the rule.

Plague was thoroughly stamped
out in Ichippagini and never re-occurred.
The same methods in the main have been
employed in all places attacked with
similar results.

Bundy itself has been kept free though
several imported cases occurred as they
were promptly detected owing to the
thorough way in which the passport system
was worked, they were equally promptly
sent out to the plague hospital two miles
out of town after being visited by major
Evans I.M.S. and myself, all contacts for 10
days were put into the segregation camp
half a mile from the hospital and the town
well disinfected by the municipal Sanit-
-ary officers under our direct supervision.

By this means the great scourge
has been kept down in the district or at
least it has been prevented from as-
-suming formidable proportions and
has been effectually stopped from ever
gaining a footing in Bundy town
itself.

T. W. Illingworth

Chippagiri — Alur Taluk.

Pune
5784

Inc (Population 1884)

This village is situated at a distance of 5 miles from Guntakal junction in the Anantapur district where plague had appeared about the middle of August. Inspection of the existence of plague in the village was first aroused early in September 1898 at which time the Collector was with reference to additional regulation 2 — arranging for the formation of an observation circle consisting of this particular village and all villages situated within a radius of 6 miles. On 6.9.1898 two individuals were taken ill

57

was plague. The other individual, a female died on 11.9.98, but the District Medical and Sanitary Officer felt doubtful whether it was a case of plague.

2. As the plague was apparently indigenous and as Government on hearing of the occurrence telegraphed to the Collector on 10.9.98 to proceed to the spot with the Additional Medical Officer and take all precautionary measures arrangements were at once made for the formation of a new observation camp consisting of 6 observation circles with [illegible] of each for

sick the Ambulance staff that had for some time been assembled in readiness at Bellary.

3. On the advice of the District Medical and Sanitary Officer who examined on 10.9.98 the first suspicious case of fever which proved fatal as above stated, the shed in which the patient died, the house in which he was living before the attack and the village gate-way by which he was removed were all burnt. The inmates of the adjoining house in which the 2nd fever case of the 6th subsequently

[illegible]

to be given up and an informal sort
of inspection by the Tahsildar substituted
As the Officer in Command of the
detachment of sepoys reported on 16.9.98
that his 100 men were insufficient
for cordon duty, and as it was apprehended
that the Villagers would abscond unless
properly controlled should fresh cases
of plague occur, application was
made to Government and sanction
obtained for an extra force of 101 men.
These men arrived in the Village on 19.9.98
and were at first employed on cordon
duty along with the other men.

[illegible] of plague
the

the 22nd morning and the cordon staff
was also about to set out on the same
day when the Tahsildar and plague
Supervisor discovered in a hut on the
Confines of the Village a case of plague
that appeared to have been imported
from Guntakal. The patient – a boy –
and the other members of this family
were immediately removed to the
temporary plague sheds outside the Village
and the apothecary in charge of the
[illegible] Hospital at Alur sent for
The latter agreed with the Tahsildar and
the Supervisor that the boy was suffering
from plague [illegible]

60

60

As 15-9-98, no houses were destroyed by fire, but all articles of trifling value condemned by medical Officers as liable to retain infection were thus destroyed. To the owners of the property who were affected by this measure, Compensation amounting to Rs 519 in all was paid.

There was at first considerable difficulty experienced in inducing the villagers to submit themselves to the operation of inoculation, but their reluctance was gradually overcome by persuasion and owing to the good [illegible] by the Daffadar and [illegible] in all

away. The cordon was accordingly withdrawn and the ambulance staff permitted to return to Bellary on 21.10.98

528

9. There has up to date been no re-crudescence of the disease in this village.

6

10: The next village where plague broke out was Molagavalli situated at a distance of 3 miles from the railway station of the same name on the Madras Railway line and of about 8 miles from Chippagiri. with a population of 3216. On 2.11.98 ie 12 days after the withdrawal of the cordon and Ambulance staffs from the latter village, the Tahsildar of Alur received a report from the Plague Inspector of the circle of the discovery at Molagavalli of a case of fever with glandular swellings under the arm pit, and at once proceeded to the village with the Assistant Sub-Surgeon [illegible] the latter to the patient under [illegible] of allowing [illegible] up until [illegible] that the two developments [illegible] plague the Tahsildar had the Patrol removed to a temporary shed put up outside the village

and the Contacts 8 in number segregated
in another Shed. Mc. sheds were guarded
by the police.

11 Mc patient was a Komati by name
Iswarayya. He had been to Gooty
on business on the morning of 22.10.98
and returned to Molagavalli on the
night of the following day. Via Guntakal
He was apparently in good health till
31.10.98 when the fever already alluded
to began. He is supposed to have
Contracted the infection when at Gooty
or Guntakal.

12 On the receipt of information of
The [illegible] case on 3.11.[illegible] the Collector
[illegible]

the next morning and pronounced the
Case to be one of plague. Upon
the disinfection of the man's house
and the evacuation and disinfection
of the neighbouring houses were ordered
and put in hand under the personal
superintendence of the Collector and the
District Medical and Sanitary Officer.
The disinfection was at first carried
out by the Ambulance staff assisted
by a few coolies of the village specially
Engaged for the purpose.

13 On the afternoon of 5.11.98 an
indigenous plague case was detected
in the [illegible] opposite to that of
[illegible] Iswarayya [illegible]

14. The inmates of the houses in that portion of the Village held to be infected were at first sent to a health camp but they were subsequently allowed to remove themselves to sheds in their own fields at a distance from the Village, where they were subjected to daily inspection.

15. There were no fresh attacks reported till 18 / 11 / 98 when a Koli woman attached to the ambulance staff developed plague and died the next day. She was the only uninoculated member of the ambulance staff and apparently caught the infection in the discharge of her duties which frequently brought her in contact with the first [illegible]

village to temporary sheds put up in their fields and it was found out towards the end of the month that there had been several suspicious fever cases which had not been reported to the authorities, the corpses in the fatal cases being disposed of by clandestine burial. Subsequent enquiries showed that whenever an inmate of any particular house was attacked with fever the other inmates at once took him and as much of their property as possible and left the village at night for the fields: This could be done without much fear of [illegible] detection owing to the [illegible] [illegible] [illegible] as the people thereabouts [illegible] away to other places [illegible] were hurried on that way and [illegible] the vast black cotton plain [illegible] the

midst of which the Village is situated afforded any amount of hiding places. It was tolerably clear by 9.12.98 that the Village was inspected in almost every corner and orders were accordingly issued to evacuate the whole place except a substantially built house occupied by the peddi whose whole family had been inoculated. 768 houses in all were evacuated and disinfected the inmates thereof numbering 3210 having removed to the fields. A detachment of 100 sepoys under a British Officer for disinfection work was retained for Bellary on the [illegible] a few

until 14.3.99 when orders were issued permitting reoccupation of the houses, the Villagers being directed to boil all their clothing and expose it to the sun before re-entry.

18. During the outbreak the Special Deputy Collector and the Additional Medical Officer were generally encamped at the place and engaged in patrolling the camps and supervising the preventive measures. The Collector paid several visits to the Village. Inoculation was not so popular as at Chippagiri, the total number inoculated being only 112: the chief reason for this was that at [illegible] person, [illegible]

reported was 129, 106 of which proved fatal, but it is believed that several persons were attacked and perished in the fields whose cases were never heard of.

2670
5 9

Enclosure No 2 to Bellary Collector's letter

Current No. of Dist.

4. Dis: No. 1017-P

BELLARY COLLECTOR'S OFFICE.
Dated 20-6-1899.

OFFICE OF SURGEON-GENERAL
21 JUN. 1899
WITH GOVT. OF MADRAS.

From E. A. Elwin Esquire
Ag COLLECTOR OF
BELLARY.

To

THE Surgeon-General with the
Government of Madras.

Sir,

I have the honour to append below an addendum to para 16 of my narrative of the measures taken to combat the plague in this district, submitted with this office letter

Dis: No. 250-R / 14.6.99.

Addendum

Special Deputy Tahsildar to relieve the Tahsildar of some of his ordinary work was appointed about the time his appointment lasted till the end of the official year.

I have the honour to be
Sir
Your most obedient servant
E. A. Elwin 20/6/99
for Collector

15
20

R.B. 20.6.99

II

2d. 3766.

Registered 2854-S 30 JUN. 99 THE GOVERNMENT OF MADRAS

The Sanitary Commissioner
Madras

Forwarded in continuation of his
office 2d. 3607 dated 22nd June 1899

Captain Thos
for Surgeon-General
with the Govt. of Madras.

Madras
28th June 99

Peddahotur — Alur taluk.

20. From Molagavalli the disease spread to Peddahotur, a village six miles off to the north with a population of 2859. After the Evacuation of Molagavalli, some of the people of that place who owned lands in Peddahotur used to resort for their drinking-supply to a tank called 'Dasanagowni kunta', to which the inhabitants of Peddahotur also were in the habit of coming, and the infection is supposed to have been thus communicated from the former to the latter.

21. On 23-12-1898, the Tahsildar of Alur when in Camp at Molagavalli received a report from the peddi of Peddahotur that 3 suspected cases of plague had been discovered there. He at once proceeded to Peddahotur in company of the Special Dy. Collector and the Additional Medical Officer who were then in charge of the

the plague operations at Molagavalli. The Additional Medical Officer Examined the patients and declared that they were suffering from plague. Thereupon the Special Dy: Collector arranged for the immediate removal of the patients to the Molagavalli Plague Camp and for the Segregation of the contacts in their fields and for the evacuation of the infected houses and those adjoining them. One of the patients, a female, died before removal and was buried with all the necessary precautions in a grave in her father's field two miles off from the village, under the Supervision of the Plague Inspector. The other two patients were removed to Mola-gavalli Camp, where they were treated by the Medical Officer in Charge. One of them died the next day (24-12-'98) and the other eventually recovered.

22. On 24-12-'98, the Medical Officer Selected Sites outside Peddahotur for [illegible] and hospital Camps, and

and the construction of sheds was begun. On 24-12-'98 and 26-12-'98 Some of the Sepoys Engaged in disinfection work at Molagavalli marched to Peddahotur and disinfected the Evacuated houses, 39 in number. In the meantime the District Medical and Sanitary Officer had despatched a portion of the Molagavalli Ambulance Staff to the spot.

23. When intimation of the outbreak of plague at Peddahotur was received, the Collector was in Camp at a distant place. He however, arrived at Alur 5 miles from Peddahotur, on the morning of 28-12-'98 and visited Peddahotur the same afternoon as well as on 31-12-'98, and was Satisfied with the precautions taken at the village. His Stay from 28-12-'98 to 1-1-'99 at Alur having convinced him that the plague was not unlikely to be carried from Peddahotur and Molagavalli into Adoni town and the Adoni taluk across the [illegible] provided

tract of country some ten miles square between
the Observation Groups I and IV, he at once
constituted the tract in question an observation
Circle, put a Sanitary Inspector in charge of
it, and added it to group No 1, the Supervisor
of which had then comparatively light work

24. After the first outbreak there was
a lull till 20-1-99 and it was thought that
the infection had died out, but subsequent
enquiries showed that during the interval
there had been several suspicious cases of
fever which were systematically concealed by
the peddi of the village and his relatives,
the patients being removed to pick-yards and
other out-of the-way spots which were not
frequented by the staff engaged in daily
inspection of the segregated and others
living in the fields, of being tenanted by
any one. The peddi was placed under
suspension by the Divisional Officer
pending enquiry into his conduct.

Plague Inspector reported two fresh cases in Takalwadi

25. On 21-1-1899, the Talukdar who had heard
rumours that cases of plague were being con-
cealed, made a strict local enquiry with the
result that towards Evening he discovered two
cases of fever in a straw-yard outside the village.
One of the Hospital Assistants attached to
the Ambulance Staff was at once called in
to examine the cases and on the morning
of 22-1-99 pronounced them to be plague.
Later on during the course of the day a
third plague case was discovered in the fields.
Of these 3 cases, 2 proved fatal, and 1
recovered. From this day forwards, there
was a Series of attacks and deaths as
noted below:—

Date	Number of attacks	Number of deaths
22-1-'99	3	"
23-1-'99	4	3
24-1-'99	2	3
25-1-'99	1	1
27-1-'99	3	1

to the Tahsildar regarding their health. All measures were supervised by the Additional Medical Officer, and Special Deputy Collector, for the greater part of the time from Molagavalli.

28. The last plague case proved fatal on 11-2-'99, but it was not until 11-4-'99 that orders were issued permitting the re-occupation of the houses.

Enclosures

Ag: Collector.

Plague

R & No. 250 P. BELLARY COLLECTOR'S OFFICE,

Dated 14-6-1899

From E. A. Elwin Esquire
Ag COLLECTOR OF
BELLARY.

To

THE Secretary to Government (Local & Municipal Department) through the Sanitary Commissioner and the Surgeon-General.

Sir,

Adverting to the Plague Commission letter No. on c 9th 4608 and to your Memorandum No. 5 99 dated 31-5-99 I have the honour to submit a narrative of the measures taken to control the recent outbreak of

* Separate accounts herewith sent for Chippagiri, Molagavalli, and Beddahotur. The accounts for the remaining villages will follow

REVENUE DEPARTMENT.

From
THE COLLECTOR OF
BELLARY

To
THE

No.

Dated
Despatched
Received
189 .

Enclosures.

Abstract.

SANITARY COMMISSIONER WITH THE GOVERNMENT OF MADRAS
Register 2807-S
20 JUN. 99

Enclosure No 85 to letter No 5739/G/1/57

Local & Munl. (1899) Department.

CURRENT No.

Through the Sanitary Commissioner and Surgeon-General.

From The Collector

Bellary.

Order

R. Dis No. 250-P

Dated 19.6.99
Received
Registered
Enclosures 2
Spare copies

SUBJECT.

BACK PAPERS.

G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.

Hospet union - Hospet taluk.

29. Hospet village is the head-quarters of the taluk of the same name and has a population of 12,878, and comprises with the adjoining villages of Chitwadigi (population 3278) and Mudlapur (population 283) the Hospet union.

1st outbreak.

30. The disease first appeared in an indigenous form early in December 1898 at Mudlapur close to the Hospet railway station. The Sanitary Commissioner for Madras inoculated on 2.12.98 a girl of 10 years age, a member of the family of the railway station master, who was apparently in good health at the time the operation was performed. On the 2nd day after inoculation the child had mild respiratory symptoms and apparently recovered in a day or two. On the 7th day after inoculation i.e 8.12.98 she was attacked however with high fever accompanied by convulsions and developing symptoms of plague two days later died on 11 night

of 11.12.98, when the Plague commissioner and the collector were on the spot. How the infection was communicated to the child it has never been ascertained.

31. The house in which the death occurred was thoroughly disinfected and the contacts of the deceased were after disinfection removed to the camp attached to the Railway inspection station. Two of the contacts - the wife and a son of the station master - developed symptoms of plague on 17.12.98 while under observation, but eventually recovered.

2nd outbreak.

32. As in the case of the 1st outbreak, nothing definite has been ascertained about the origin of this outbreak it is probable, however, that the disease was introduced by persons of the boya caste who after the end of the Tungabhadra river at the end of November were in the habit of resorting in large numbers to the Toddy shops situated at a distance of a few miles from Yadgir in the Gulbarga Taluk of the Hyderabad State.

33. On 7.1.99 a boya boy aged 6 years was brought to the Hospital hospital suffering from fever. On examination the Civil Apothecary found symptoms of plague, and immediately had the patient removed to the plague hospital attached to the railway inspection station and the contacts segregated. As there was nothing to show the case to be an imported one suspicion that other cases were being concealed was aroused and accordingly on that evening the Tahsildar in company of the Civil Apothecary and the Inspector of Police made a house-to-house inspection in the boya quarters and discovered 3 more cases of plague in different houses. The inspection was continued the next morning (8.1.99) when another case was discovered. In the evening a Lambadi woman was brought to the hospital by a man who stated out to be her husband and left by him in the verandah. a few minutes later she was examined and found to have symptoms

of plague. The patients in all the above cases were removed to the plague hospital and the contacts to the observation camp. 9- was by this time quite clear that there was indigenous plague in the village.

34. On hearing of the outbreak, the collector at once arranged for the despatch of an ambulance staff and himself proceeded to the spot on 9.1.99 with the Additional Medical officer. The Sanitary Commissioner also arrived there on the next day and gave personal instructions regarding evacuation and disinfection. In order to protect Bellary and other places the collector under Additional Regulation 21 notified the Hospet union as an infected locality and introduced the pass system. The Civil Surgeon who has considerable influence in the village was recalled & his work at the hospital by one of the hospital assistants attached to the conservancy staff and put on the special duty of inspecting the houses in search of discovery of any such cases that might occur. The people in the boya quarters and others living near the infected houses were persuaded to evacuate their houses and remove themselves to the fields. Disinfection under the supervision of the Plague Supervisor of the local group was begun, coolies being specially employed for the purpose. In spite of these precautions the infection gradually spread to many parts of the village and at length reached the village of Chitwadigi where the 1st attack occurred on 16.2.99, and subsequently cases occurred in different parts of that village.

35. As the disease had evidently taken a firm hold on Hospet and Chitwadigi it was considered necessary to adopt drastic measures for its eradication, and the evacuation of the whole of the houses except a few detached ones that had in all probability not become infected was resolved upon. There was at first a little opposition to the proposal, but through the exertions of the local officials the

reluctance of the people was overcome and the evacuation which was first begun at Hospet in the boya quarters on 8.1.99 was completed on 15.2.99. In Chitwadigi the evacuation was commenced immediately after the 1st attack there and was completed about 23.3.99. The whole population of Chitwadigi (3278) and of the Hospet town (2,898) with the exception of some 200 who lived in detached petas outside the town vacated their houses and settled themselves in temporary sheds built in the fields and scattered over an area of 15 square miles round the two villages. Care was taken that the sheds were at least 20 yards apart from each other so that should plague break out in any one of them there would be no great risk of the spread of contagion and infected articles might easily be destroyed by fire without endangering the safety of other habitations.

Simultaneously with the evacuation the disinfection of houses was begun, special coolies and establishments as in other parts of the district being employed for the purpose. Excluding a special gang for urgent work and odd jobs, there were in all 81 coolies divided into 8 gangs of 10 each. Mr. Moore one of the Assistant Collectors was placed in charge of the disinfection operations, assisted by a Plague Supervisor who was relieved of his ordinary duties and specially posted to Hospet and Chitwadigi. In order to ensure constant supervision over the coolies, each gang was placed under the control of a maistri and over every 2 maistris was an assistant plague inspector. The detailed scheme for disinfection was approved by the Plague Commissioner in his proceedings No. 913 / 5.3.99. 3147 houses in Hospet and 711 in Chitwadigi were in all disinfected the work was begun early in March and completed on 17.5.99. The total cost of the disinfection amounted to Rs 3,502. The work of this kind that was being carried out during my visit to the place on January was not very thorough and there had been several days between that period and the time when wholesale evacuation was decided upon & therefore ample

reluctance [illegible]
the scheme referred to above received formal sanction, had the houses already disinfected in the earlier days of the outbreaks disinfected over again for safety's sake.

37. In addition to the measures detailed above and with a view to stamp out the disease and prevent its spread to the adjoining villages, the people in the camps were not allowed to return to the town without permission nor were they allowed to leave Hospet for other villages without obtaining special passes from the Stationary Sub Magistrate, Hospet, who was authorized to issue them in consultation with the local medical officer. Instructions were also issued to the village officers of the Hospet taluk not to allow the Hospet people enter their villages unless they held passes issued by the Stationary Sub Magistrate. The Hospet [illegible] observation circles were each subdivided into wards and each subdivision placed in charge of a plague inspector to ensure more systematic patrol of the villages and prompt detection of any suspicious case that [illegible] occur. Four camp superintendents were employed to watch the movements of the people in the camps and report on their health daily. The Civil Apothecary who was on special duty from the beginning, was constantly going round the camps. The result of these measures was that the disease did not spread beyond the Hospet Union.

38. During the Plague Commissioners visit to Hospet on 22.3.99, the people in the camps complained to him of the hardship of the rule preventing their return to the town. The rich people wanted to guard their property: the weavers said they were at the end of their resources and could not weave in their camps: the cultivators wanted to take manure to the fields: and the merchants had to store jaggery in their homes. The Commissioner referred their complaint to the Collector with his remarks for disposal. The Collector granted the concessions sought for under certain limitations. As regards the complaint of the rich people any inoculated persons were allowed to remain in the village after dark: they were compelled

to sleep on the flat roofs of their houses and were disinfected in the mornings before their return to the camps. In the case of weavers it was considered desirable to keep them entirely out of the town and such of them as were unable to maintain themselves were paid half wages during the period of their detention in camps. (Plague Commissioners' Proceedings No. 1084 dated 18.4.99). The carting of manure was allowed under proper precautions and with reference to the system of passes. The merchants were allowed to store jaggery in houses that had been thoroughly disinfected provided the cartmen and coolies obtain passes and did not remain in the town longer than was absolutely necessary.

In August last the leading inhabitants of Hospet applied for permission to erect separate sheds for the disinfection and segregation of the different castes of the observation camp attached to the Hospet railway inspection station.

The application was granted in G.O. No. 827 dated 17.8.98 and in the Plague Commissioners' proceedings No. 623 dated 4.3.99 a contribution of Rs 621 being the moiety of the cost of the private sheds constructed by the people of Hospet was sanctioned. The people of Chitradrigi raised among themselves subscriptions amounting to Rs 1000 and constructed their own plague hospital adopting the plan of sick hospitals attached to the plague camp. 3 patients and 21 contacts of Chitradrigi were removed to and segregated in the private camp. They were treated and observed here by the Civil Apothecary Mr. Stocking. The Hospet people also constructed a similar hospital, but none was treated or segregated therein. With the exception noted above all the plague patients were removed to the Government camp for treatment. The contacts of plague patients were for some time segregated in the observation camp attached to the railway inspection station but as it was

considered objectionable to detain them in the same camp along with those detained from the trains, separate sheds were constructed for the use of the Hospet contacts.

40. Inoculation was not at all popular during the 2nd outbreak as the first indigenous attack of plague that proved fatal on 11.12.98 was attributed by the people to the operation performed on the patient some days previously by the Sanitary Commissioner. The prejudice of the people was, however, ultimately removed to some extent and 993 people were in all inoculated. Of these 43 were mahomedans of Chitwadigi who were encouraged to submit to the operation by their moulvi Sayyid [illegible] this gentleman also assisted [illegible] in this meritorious by persuading his coreligionists to [illegible] their houses and he has since had the honour of Khan Sahib bestowed on him.

The number of indigenous attacks and deaths were as shown below

	No. of attacks	No. of deaths
Hospet	71	61
B.T.	71	
Chitwadigi	19	13
Mudlapur	3	
Total	93	75

There have been no fresh attacks since 7.4.99 in Hospet and since 8.4.99 in Chitwadigi.

42. A special Deputy Tahsildar was appointed to relieve the Tahsildar of a part of his ordinary duties.

43. The District Medical and Sanitary Officer after inspecting the union on 16.5.99 reported that the disinfection had been satisfactorily done and recommended that re-occupation of the houses might be permitted. On the same day, instructions were accordingly given permitting re-occupation prior right of entrance being given to those in

Acting Collector

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Chinnahotur and Marakattu Aliyalang

44. From Peddahotur the plague spread to Chinnahotur and Marakattu, 74 which are within a miles distance. The Peddahotur ryots were resorting to the house of the Chinnahotur blacksmith. The smith's child, a girl of 2 years old, who had previously been suffering from fever developed symptoms of plague on 3. 2. 1899 and died on the same day. The body was buried with the usual precautions and the contacts were segregated in their own fields as they were unwilling to go to the segregation camp at Peddahotur. The house in which the case occurred and seven adjoining houses were evacuated and disinfected.

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days prior to the outbreak of plague and the villagers were frequently resorting to Peddahotur on business.

On 28.2.99, two cases of Cholera were discovered with buboes - the Hospital Assistant attached to the Amildaree staff at Peddahotur examined the cases and declared them to be plague. One of the patients, an adult male died on that date (28.2.99) and the other, a Kurumba boy of 15 years, was removed to the Peddahotur plague camp and eventually recovered. On 5.3.1899, there were 2 more cases, one of which proved fatal on the same day. The other, which was [illegible] survived.

[illegible] of cholera in the [illegible] 1899 [illegible]

numbering 140 were disinfected by peons sent from Peddahotur. The work was begun on 7.3.99 and completed in a week. There were no further attacks subsequent to 5.3.1899 and orders were issued for the reoccupation of the village on 11.4.99.

Collector
Acting

R.B
19.6.99

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days prior to the outbreak of plag...

Iruvagal — Alur taluk

46. This village is situated at the north-Eastern Corner of the taluk within a mile from Togalagallu and Doddagonda, two of the infected villages in the Pattikonda taluk of the Kurnool district. Dead rats were found in the house of a man of Uppara caste who had taken a lease of the Tamarind trees at Togalagallu, and in 3 other adjoining houses.

47. The first case of plague occurred in the Upparas house on 8-2-99 and proved fatal. On the same day there was another in the adjoining house of a Panjari, which also proved fatal on [illegible]

was wide-spread in the village, it was considered desirable to disinfect all the evacuated houses. Accordingly a detachment of sepoys was sent from Peddahotur for the work. The sepoys began disinfection on 8.3.99 and completed it on — 11.3.99, The number of houses disinfected being 140. With these measures the further outbreak of the disease in the village was stopped.

Collector
&
Acting collector

12.13
19.5.99

Alur — Alur taluk.

48. Alur is the head quarters of the taluk of the same name and has a population of 2766. It is situated at a distance of about 5 miles from Peddahotur and 8 miles from Indagavalli both of which were infected with plague.

49. The agricultural labourers of Alur used to go to the Indagavalli and Peddahotur fields for work. On 16.2.99, a boya woman aged 22 years was found suffering from high fever at Alur. The Dahsildar on enquiry ascertained that She had been resorting to the fields and mixing with the people of the infected villages and had therefore been under observation. The Medical Officer [illegible] The investigation of plague cases [illegible]

which the patient was living and one of the adjoining houses were disinfected 5 dead rats having been found in them. The contacts were also segregated in their own fields, their persons, clothing, bedding etc being disinfected under the supervision of the civil Apothecary, Alur, and the Sanitary Inspector before removal.

50. The boys patient eventually recovered but her step daughter a girl of 4 years of age, who had been in contact with her, was attacked with plague on 18.2.99 and died 2 days later. From then onwards a series of cases [illegible] as follows:—

[illegible] Date of death

51. As dead rats had been found in some of the infected and other houses, the evacuation of the portion of the town known as the Peta was resolved upon and the residents were persuaded to remove themselves to the fields. The houses evacuated were disinfected by coolies employed for the purpose under the supervision of the local officers

52. After 6.3.99 there was no further attack till 4.4.99. On that date when everything was ready for the re-occupation of the evacuated portion of the town, a case of bubonic plague occurred in the [illegible]

death occurred on 22.2.99 and to whom she was related. She was removed to a field outside the village and has survived the attack. Another case occurred in the same portion of the town on 10.4.99 and two more cases on 12.4.99. These three proved fatal.

53. As there had thus been 4 indigenous cases in the fort and as the place consists of narrow lanes and ill ventilated houses, the District Medical and Sanitary officer considered that the place should be thoroughly disinfected to prevent a recurrence of the disease

[illegible] directions were issued [illegible] to have the [illegible] thoroughly [illegible]

for the services of the sepoys having been submitted to and approved by Government, a company consisting of about 75 men under a British officer arrived at Alur on 25.4.99. It was subsequently agreed between the Collector and the District Medical and Sanitary Officer that every portion of the village whether previously disinfected by Coolies or not, ought to be disinfected by the Sepoys in view to prevent any further outbreaks in this important centre, and orders were issued to take up work first in the fort and afterwards in the other quarters.

54. By the time [illegible] the sepoys [illegible] by the [illegible]

advice of the District Medical and Sanitary Officer, the hamlet was on 28.4.99 ordered to be evacuated but the people did not remove for a week subsequently as they required time to put up sheds in the fields. In the meantime, there was heavy rain followed by high winds and before the evacuation of the hamlet took place, the infection must have been carried into it from the fort. A Chuckler girl aged 12 years had fever for 2 days after the removal of her family to the fields on 4.5.99. Con[illegible] the Additional Medical Offic[illegible] declared it to be [illegible] of a terminal type.

was conducted in accordance with the rules. The contacts were disinfected and segregated.

This attack was followed by another on 15.5.99 which also proved fatal; in this case the patient was a cooly employed to do odd jobs in connection with the disinfection by the sepoys who must have contracted the disease through walking about in the infected houses. After this attack the Tahsildar was reminded of the absolute necessity for seeing that all persons engaged in such work wear gloves and are disinfected [illegible]

[illegible]

will with the permission of the District Medical & Sanitary Officer be allowed to reoccupy their houses.

There were in all 20 attacks and 16 deaths from 16.2.99.

Collector
Acting Collector

16/6/99

Officers specially commended for good work.

Chippagiri M.R.Ry, M. Sambasiva Rau Nayudu, Tahsildar of Alur. This officer did excellent work under most trying circumstances.

Other villages in the Alur taluk.

M.R.Ry, P. Venkoba chari, acting Tahsildar of Alur.

Mr. G. T. Lever, Special Deputy Collector.

Molagavalli

Molagavalli Sanna Reddi, acting headman of Molagavalli.

Hospet Union.

M.R.Ry, P. Rama Rau, Rao Bahadur, acting Tahsildar of Hospet.

Abdul Karim Saheb, Inspector of Police.

Mr. E. Stocking, Civil Apothecary.

Bharatappa reddi of Hospet.

Collector
19/6/99
Acting Collector

K.R.
19.6.99

Imported cases of plague occurred at these places as noted below, but energetic steps were taken in each case to segregat the patients and contacts and to disinfect houses, clothing &c, and no outbreak followed.

	Date	Attack	death.
Hospit inspection station.	1·8·98.	2	..
	2·8·98	..	1
	4·8·98	..	1
	16·8·98	1	..
	28·8·98	..	1
	13·9·98	1	..
	16·9·98	..	1
	27·11·98	1	1
	31·12·98	1	..
	1·1·99	..	1
	13·1·99	1	..
		7	6
Holagondi, Badagali taluk	25·11·98	1	..
	10·12·98	..	1
		1	1
Bellary municipality.	30·11·98	1	..
	1·12·98	..	1
	6·12·98	1	1
	4·2·99	1	1
	8·2·99	1	1
		4	4

	Date	Attack	Death
Sirigeri, Bellary taluk	13.12.98	/	..
	14.12.98	..	/
		/	/
Adoni municipality	5.1.99	/	..
	6.1.99	/	..
	12.1.99	..	/
	17.1.99	/	/
	20.1.99	/	..
	22.1.99	..	/
		4	3
Kurudagadda, Hospet taluk	11.1.99	/	..
	13.1.99	..	/
		/	/
Amravati, Hospet taluk	18.1.99	/	/
Itigi, Hadagali taluk.	23.1.99	/	..
	29.1.99	..	/
		/	/
In fields between Honnahalli in Hospet taluk and Yelchanki in Bellary taluk.	27.1.99	/	/
On the road side 5th mile Hospet-Kamalapur road.	27.1.99	/	/
Sankalapuram, Hospet-taluk.	1.2.99	/	/
Kakkalerinahali, Bellary taluk.	11.2.99	/	/
Hirehal, Bellary taluk.	24.3.99	/	/

21/2848 A

R.B. 19.6.99.

Erskine Ag

Acting collector

R. Dis. No. 250-P

BELLARY COLLECTOR'S OFFICE.
Dated 19. 6. 1899.

From E. A. Elwin Esquire
Ag COLLECTOR OF
BELLARY.

To

THE Secretary to Government,
Local and Municipal Department.

Sir, Through the Sanitary Commissioner
and Surgeon. General.

In continuation of my letter × 250 / 14.6.99 I have the honour to submit herewith the narratives for the remaining villages in which there were outbreaks of plague, and a list of officers who did specially good work in connection with the suppression of the outbreaks.

2. A statement showing the imported cases of plague which may be found occurring is also enclosed.

I have the honour to be
Sir
Your most obdt servant
Erskine
Ag
Acting collector

Hospet Union,
Chimakhotur and Uravakonda
& Tumugalla.
Adur.

R.B. 19.6.99

	Date	Attack	Death
Sirigeri, Bellary taluk	13.12.98	/	..
	14.12.98	..	/
		/	/
Adoni municipality	5.1.99	/	..
	6.1.99	/	..
	12.1.99	..	/
	17.1.99	/	/
	20.1.99	..	..
	22.1.99	..	/
		4	3
Kurudagadda, Hospet taluk	11.1.99	/	..
	13.1.99	..	/
		/	/
Amravati, Hospet taluk	18.1.99	/	/
Itigi, Hadagali taluk.	23.1.99	/	..
	29.1.99	..	/
		/	/
In fields between Honnahalli in Hospet taluk and Yelchenki in Bellary taluk.	27.1.99	/	/
On the road side 5th mile Hospet-Kamalapur road.	27.1.99	/	/
Sankalapuram, Hospet taluk.	1.2.99	/	/
Kakkakenahalli, Bellary taluk.	11.2.99	/	/
Hirehal, Bellary taluk.	24.3.99	/	/

21/2849 88

12·13/19.6.99.

Kachivin Ayy
Acting collector

R. Dis. No. 250-P

BELLARY COLLECTOR'S OFFICE.
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2. A statement showing the imported cases of plague which may be found accurate is also enclosed.

I have the honour to be
Sir
Your most obt servant
E A Elwin
Acting collector

Hospet Union,
Chinnahotur and Uttarakallu
Tumungalla.
Adur.

12·8/19.6.99

2741/5

Enclosure No 1 to Letter No 25/573 of 19/6/99

Local and Municipal

Revenue (189) Department.

CURRENT No.

OFFICE OF SURGEON-GENERAL
27 JUN. 1899
WITH GOVT. OF H.E. MADRAS.

From

The Collector of Kurnool

Order

No. L/1

Dated 18th June 1899

Received

Registered

Enclosures 5 (one of these will follow)

Spare copies

SUBJECT.

Reporting on the progress of plague in the Kurnool District and the measures taken to eradicate it.

BACK PAPERS.

G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.

Report on Plague operations in the District of Kurnool

The first case of Plague in the District occured in Kurnool city. On the 2nd Dec'r 95 several people arrived from Bangalore and on the next-day one of them died of Pneumonia. This was regarded as suspicious and the woman who lived in the house with him was removed to the Segregation Camp where on December 5th she developed Pneumonic Plague aborted and died on the next-day. No other cases occured until December 14th. When 3 cases of bubonic plague were discovered in Maddikera in the houses of some Brahmins, but from enquiries made it would seem that the Plague had existed for some time before but had been concealed. The patients were at once treated in their own houses. all the contacts segregated in a large building in the town and the whole of the block in which the cases occured vacated. One case of plague occured amongst the 20 contacts. The greater part of the people on being addressed left the village and built huts for themselves

in the fields - but from their habit of bringing in the Plague patients from their camps at night and leaving them in the houses the town was constantly being re-infected.

The out break lasted from December 14th 1898 till March 22d. 1899 - when the last plague patient died and since then there has been no fresh outbreak.

A Plague camp was also built close to the village but the villagers preferred prepared to take to the fields and to treat themselves.

Neither the Hospital nor the segregation sheds were used during the outbreak - There were in all 73 cases and 59 deaths.

Allardinne -

Plague was first discovered here on January 1st, but, as in Maddikera, there had been several suspicious deaths during the preceding month. It occured amongst the malacaste and as soon as it was discovered, 4 houses belonging to people of this caste were burnt - The rest of the houses disinfected and all the inhabitants took to camps in the fields - the whole town was vacated and thoroughly disinfected. The outbreak lasted from January 1st till February 27th when the last case died. There were 37 cases and 33 deaths.

Togalagal. -

A village about 21 miles from Allardinne - here again Plague broke out amongst the madigas and was discovered on January 11th when, as in Allardinne, the suspected houses were burnt - and the people sent to huts in the fields.

No further cases occured until January 30th when there was a recrudescence owing to contagion being brought from Allardinne. In all there were 11 cases and 8 deaths.

Dudakonda - which is the parent village of Togalagal and is situated about 1½ miles from it was attacked on February 1st: probably from infection from Togalagal - The outbreak was treated by vacation of houses and disinfection and lasted till 17-2-99 during which time there were 12 cases and 10 deaths -

Pattikonda -

Plague broke out here on January 21 1899, and as far as could be ascertained was brought from

allardinne - the same plan of treatment was adopted as in the other villages and on February 27th the Epidemic was at an end.

However a recrudescence, the cause of which has not been traced, occured on april 29th - Since then there have been 2 cases and 2 deaths - altogether there have been 31 cases and 24 deaths in Pattikonda -

Peravali -

An outbreak occured at Peravali on February 28th and was traced to a Komity who had dealings with Pattikonda - The outbreak was a short-one and during its course there were 7 cases and 6 deaths.

Besides the above named villages - there were imported cases in Dhone Tuggili and Kyrupelly - One case occurring in each - but the Epidemic not spreading any further.

General remarks -

The plan of treating the outbreak pursued in most cases was as follows:— If the people did not of their own accord go to the Hospital the patients were segregated in their own houses and the contacts in an empty house close by; the people living close by were advised to take to huts in the fields which, as a rule, they were only too ready to do. The contacts were segregated for 10 days and such patients as recovered were also segregated for 14 days after recovery.

Clothes -

Ordinary clothing which had been in contact with Plague was burnt - Valuable clothes were dis-infected and exposed to the Sun -

Houses -

After being soaked with Perchloride solution the floor was dug up to the depth of 3 inches and burnt - The walls &c were thoroughly washed with perchloride solution - all furniture was exposed to the Sun and the roof was well opened up so as to let the Sun at every part of the walls and floor.

Dead bodies -

were burnt as a rule though in some places owing to difficulty in getting fuel they had to be buried in graves 6 ft: deep.

Treatment of Patients -

The great majority of cases occured in the Camps in the fields and the patients refused treat-ment. In these cases - they were watched and on

The most prevalent form of plague was the bubonic form but the most fatal was the pneumonic form which not a single case of recovery is recorded - There being 17 cases and 17 deaths.

The chief difficulty encountered by the Plague officers has been due to the negligence of the Village officials. Each Korale has one of my Subordinates but cannot at some time or other be present at the inspection and disinfection of infected houses. I therefore have to depend on information by the Village officials. I myself from personal enquiry have no doubt that cases had existed a day or two before the Authorities had taken steps in the matter. I was to have been brought before the notice of the authorities and the same complaint has been made by the Plague Superintendents who enquired into the origin of the out-break in other places. There were 3 Plague camps in the District. One at Kurunegal, one at Chilaw, one at Maddikona but with the exception of one case at Chilaw and one at Kurunegal the camps were not used, the people preferring to build huts for themselves in the fields. This seems a good plan as the huts can be burnt with the body and clothing on the spot immediately after a death and the people themselves handle every thing connected with this proceeding.

Kurunegal
18th May 99

H. R. Freeman
for D.M. & Sanitary Officer.

Enclosure (2)

Statement showing the population &c of the infected villages. No. 1

Serial No.	Name of Village	Population	Date of out break	Duration of epidemic	No. of attacks	No. of Deaths	Remarks.
				M D			
1	Kurunegal	26000	6-12-98	7-2-99 2	1	1	Imported
2	Maddikona	7504	13-12-98	22-3-99 3 18	73	59	
3	Chilaw	2500	16-12-98	17-12-98 -- 2	1	1	Do
4	Alankarama	671	26-12-98	2-3-99 2-5	37	33	
5	Kirimpalla	1600	11-1-99	18-1-99 -- 8	1	1	Do
6	Pogadagalla	200	11-1-99	4-2-99 1-1	11	8	
7	Puggala	1867	14-1-99	21-1-99 -- 8	1	1	Do
8	Pattikanda	4383	17-1-99	31-3-99 2-15	31	24	
9	Pudikanda	700	31-1-99	22-2-99 -- 23	12	10	Including the imported case of 28-12-98
10	Peravali	2664	24-2-99	23-3-99 1--	7	6	
	Total				175	144	

H. R. Freeman
S.C.S
(Collector of Kurunegal)

Enclosure (3)

Statement of prosecutions for breach of plague passport rules No. 2.

No.	Names of Courts	Total number of cases (entries in this column are exclusive of cases transferred)	Persons involved	Cases disposed of				Cases pending		Remarks.
				Convicted		acquitted				
				No. of cases	No. of persons	No. of cases	No. of persons	No. of cases	No. of persons	
1	Hd Asstt Magte Nandyal	2	7					2	7	These were transferred to the Special Register prescribed by the High Court owing to the whereabouts of the accused not being ascertained
2	Taluk Magistrate Kolkuntla	1	1	1	1					
3	" Cumbum	3	4	3	4					
4	" Koilkuntla	3	3	3	3					
5	Sher Magte Kolkuntla	1	4					1	4	The whereabouts of the accused persons cannot be traced.
6	" Koilkuntla	1	1	1	1					
7	Dy Sabr Magte Kurnool	5	5	5	5					
8	" Town Peapally	9	10	7	8			2	2	The whereabouts of the accused persons are not known
9	" Cuddapah	1	1			1	1			
10	Sty Sub Magte Pathikonda	21	26	11	16	10	10			
11	" Nandyal	16	16	4	4	1	1	11	11	The whereabouts of the accused persons are not known.
	Total	63	81	35	45	12	12	16	24	

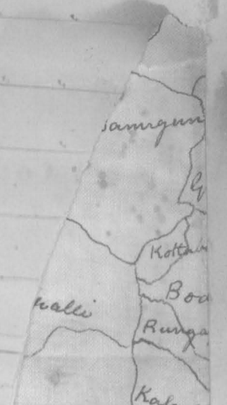


W. R. Ba[illegible] M.C.S.C.S.
Collector of Kurnool
(Chairman)

Enclosure 5

Statement showing by dates of occurrence, of the number of seizures & deaths (indigenous & imported) in each of the villages visited by plague particulars.

Name of Village	Date of occurrence	Indigenous		Imported	
		Seizures	Deaths	Seizures	Deaths
1. Kurnool Town	6 12 1898	"	"	"	"
2. Maddikera	7 12 1898	"	"	"	"
	14 12 '98	2	"	1	1
	15 12 '98	1	"	"	"
	16 12 '98	"	1	"	"
	17 12 '98	"	1	"	"
	18 12 '98	1	"	"	"
	19 12 '98	1	"	"	"
	21 12 '98	"	1	"	"
	23 12 '98	1	1	"	"
	25 12 '98	"	1	"	"
	26 12 '98	1	1	"	"
	28 12 '98	2	"	"	"
	2 1 '99	"	2	"	"
	7 1 '99	1	1	"	"
	10 1 '99	4	1	"	"
	11 1 '99	2	1	"	"
	12 1 '99	3	1	"	"
	14 1 '99	1	1	"	"
	15 1 '99	3	2	"	"
	16 1 '99	3	3	"	"
	17 1 '99	1	2	"	"
	22 1 '99	3	"	"	"
	24 1 '99	"	2	"	"
	25 1 '99	2	1	"	"
	27 1 '99	1	"	"	"
	29 1 '99	1	2	"	"
Carried over		34	25		

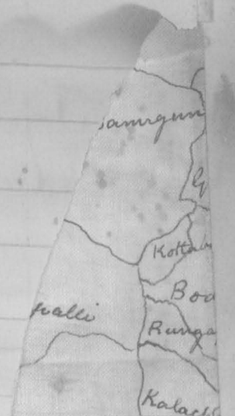


Name of Village	Date of occurrence	Indigenous Seizures	Indigenous Deaths	Imported Seizures	Imported Deaths
Brought forward		34	25	-	-
2. Maddikera (continued)	1 2 '99	2	"	"	"
	2 2 '99	3	1	"	"
	3 2 '99	1	2	"	"
	7 2 '99	2	2	"	"
	8 2 '99	2	3	"	"
	9 2 '99	1	"	"	"
	11 2 '99	6	6	"	"
	13 2 '99	4	3	"	"
	15 2 '99	2	1	"	"
	16 2 '99	1	1	"	"
	17 2 '99	3	3	"	"
	18 2 '99	1	2	"	"
	21 2 '99	1	1	"	"
	22 2 '99	2	2	"	"
	23 2 '99	1	1	"	"
	24 2 '99	1	1	"	"
	1 3 '99	4	2		
	3 3 '99	1	1		
	4 3 '99		1		
	17 3 '99	1			
	22 3 '99		1		
Total		73	59		
3. Kardinne×	Between the 26th & 30th 12 '98	1	1		
	3 1 '99	12	11		
	4 1 '99	1	1		
Carried over		12	11		

× This is No 4 in Tael: No (2)

Name of Village	Date of Occurrence	Indigenous Seizures	Indigenous Deaths	Imported Seizures	Imported Deaths
Brought forward		12	11	"	"
3. Alardinne (Continued)	5 1 '99	1	1	"	"
	9 1 '99	"	1	"	"
	22 1 '99	6	4	"	"
	23 1 '99	1	2	"	"
	24 1 '99	"	1	"	"
	25 1 '99	3	1	"	"
	29 1 '99	6	4	"	"
	30 1 '99	2	1	"	"
	8 2 '99	1	1	"	"
	10 2 '99	2	"	"	"
	16 2 '99	1	4	"	"
	17 2 '99	1	1	"	"
	27 2 '99	1	"	"	"
	2 3 '99	"	1	"	"
Total		37	33		
4. Pattikonda×	28 12 '98			1	1
	17 1 '99	1			
	19 1 '99	1			
	22 1 '99	3	1		
	23 1 '99		1		
	24 1 '99	1	1		
	29 1 '99	1	2		
	2 2 '99	3			
Carried over		10	5	1	1

× This is No 8 in Tael: No (2)



Name of Village	Date of occurrence	Indigenous Seizures	Indigenous Deaths	Imported Seizures	Imported Deaths
2. M	Brought forward	10	5	1	1
4 Pattikonda (continued)	8 2 '99	3	3	"	"
	9 2 '99	1	1	"	"
	10 2 '99	1	3	"	"
	13 2 '99	1	1	"	"
	14 2 '99	2	"	"	"
	20 2 '99	3	3	"	"
	13 3 '99	2	1	"	"
	15 3 '99	1	2	"	"
	22 3 '99	2	"	"	"
	23 3 '99	1	"	"	"
	27 3 '99	1	"	"	"
	29 3 '99	"	1	"	"
	31 3 '99	"	1	"	"
	28 4 '99	1	"	"	"
	30 4 '99	"	1	"	"
	3 5 '99	1	"	"	"
	4 5 '99	"	1	"	"
	Total	30	23	1	1
5. Koyampalli	11 1 '99			1	"
	18 1 '99			"	1
	Total			1	1
Jogalagollu	12 1 '99	2			
	15 1 '99	1			
	31 1 '99	2	1		
	1 2 '99	"	2		
	Carried over	5	3	"	"

Name of Village	Date of occurrence	Indigenous Seizures	Indigenous Deaths	Imported Seizures	Imported Deaths	
	Brought forward	5	3	"	"	
5 Jogalagollu (continued)	8 2 '99	"	1	"	"	
	10 2 '99	2	2	"	"	
	11 2 '99	4	2	"	"	
	Total	11	8	"	"	
7. Duddikonda ×	1 2 '99	3	1	"	"	× This is No. 9 in Encl: No (2)
	2 2 '99	1	"	"	"	
	8 2 '99	2	"	"	"	
	10 2 '99	1	1	"	"	
	11 2 '99	1	1	"	"	
	16 2 '99	1	4	"	"	
	20 2 '99	1	1	"	"	
	22 2 '99	2	2	"	"	
	Total	12	10	"	"	
8. Peravali ×	24 2 '99	1	"	1	"	× This is No. 10 in Encl: No (2)
	28 2 '99	"	1	"	1	
	1 3 '99	1	"	1	"	
	2 3 '99	"	2	1	"	
	3 3 '99	"	1	"	1	
	5 3 '99	"	1	"	"	
	6 3 '99	1	1	"	"	
	8 3 '99	1	"	"	"	
	15 3 '99	1	1	"	"	
	23 3 '99	1	1	"	"	
	Total	7	6	3	2	
9 Juggali	14 1 '99	"	"	1	"	
	21 1 '99	"	"	0	1	
	Total	"	"	1	1	

KURNOOL DISTRICT

Thome Beach,Madras.

18th June 1899

leave,

partment,

f Madras



REFERENCE

HEAD QUARTERS OF ~~CIRCLE~~ INSPECTORS. of Circles now retained

— DO — OF SUPERVISOR.

CIRCLE BOUNDARY.

DENOTES PLACES WHERE PLAGUE CASES OCCURRED.

KURNOOL DISTRICT



Saint Thome Beach, Madras.

Dated 18th June 1899

NO. L/1

From

Mahomed Raza Khan Esquire, S.C.S.,

Collector of Kurnool on leave,

To

The Secretary to Government, Local and Municipal Department,

through the Surgeon-General with the Government of Madras

and the Sanitary Commissioner for Madras.

Sir,

Adverting to Plague Commissioner's letter NO.4608, dated 1st May 1899, I have the honour to report as follows:-

Kurnool Town

2. The first case of plague occurred in this district at Kurnool on the 6th December 1898. A party of Woddars consisting of five persons arrived from Bangalore on the 30th November last. One of them, a male adult, died on the 2nd December of acute pneumonia brought on by excessive drinking and exposure to cold winds at night. As the man had arrived from an infected place and the disease he was suffering from was one which might develop into plague, he was removed to the Municipal sheds outside the town and there he died. The District Medical and Sanitary Officer and the Additional Medical Officer who treated this patient under my personal supervision were however, of opinion that the case was not one of plague. On the [illegible] December a pregnant woman who was one of the arrivals from Bangalore and who had been attending on the above referred deceased was suffering from threatened abortion and fever. Every attention was paid to her [illegible] treatment by myself and the medical subordinates but she [illegible] following morning. The case was suspected as one of plague by the medical officers and was accordingly reported as such. The bedding and clothing of the deceased were burnt down at once and the shed wherein she was kept was thoroughly disinfected. Another woman who had been in contact with the deceased pregnant woman was segregated by me in the Municipal sheds for ten

days. The other arrivals from Bangalore were segregated in an isolated house in the town and carefully observed for the prescribed period. There were no cases at all subsequently in this town.

3. Plague broke out in an epidemic form a few days after Maddikera at Maddikera where it carried off more people than in any other place in this district. On the 9th December, the wife of one Venkatacharlu of the village was attacked with fever and died on the 11th idem. His child died on the 13th of convulsions. Venkatacharlu himself had an attack of high fever on the 13th and had symptoms of plague such as frontal headache and pain in the armpits. The local Hospital Assistant suspected this case as one of plague. On the 14th, Buchacharlu an uncle and neighbour of Venkatacharlu - was attacked with fever. The Special Deputy Collector accordingly reported by wire the cases of these two men as suspected plague cases. I proceeded forthwith to Maddikera accompanied by Dr.Power. Buchacharlu's wife also was found to be suffering from fever. The infected houses were not evacuated at once but, being isolated, were allowed to be temporarily occupied by the patients pending the erection of sheds which were being most expeditiously constructed. The contacts were segregated in a spacious isolated building. All the three patients were under the personal treatment of Dr.Power as - desired by me. They died with developed bubos, and the cases were registered as genuine cases of plague.

4. Immediately after my arrival at Maddikera, I wired for the ambulance staff and a party of two Head constables and twelve constables for cordon and disinfection duties and they arrived on the 17th December. Mr.Anderson, plague supervisor, was also with me at Maddikera. House to -- house inspections and diligent inquiries were made with a view to ascertain the occurrence of genuine or suspected cases and to take the necessary precautions for preventing the further spread of the disease. Whenever cases were reported or detected, - the requisite measures were promptly and vigorously adopted such as the evacuation of the infected houses, the isolation of the patients, the segregation of the contacts, the thorough -- disinfection of the infected houses, the maintenance of cordon &c. The disease however showed no signs of abatement for sometime. The people were - quietly persuaded by me to evacuate not only the infected houses but also those adjoining them. They were convinced that segregation was a measure calculated to prevent the spread of plague, and gradually nearly the whole of the Fort portion which was infected was evacuated by the inhabitants by the middle of February. The people, however, showed a tendency to return to their houses too soon and thus they re-imported the infection into the village and there was no diminution in the number of plague cases. The tendency was closely watched and repressed. - The evacuation of the remaining few(about 30)houses was also effected mostly through persuasion, and where necessary by warning of prosecution; and the whole of the Fort portion was -- evacuated by the first March. From that date there was a marked decline in the epidemic, only two attacks and three deaths occurring from the 2nd to 22nd March, the date of the last case in the village.

Some of the persons who evacuated their houses went to other villages but the majority of them lived in the fields in sheds put up by themselves with bamboo mats, tattis, cholam stalks &c.; none of the relations of the patients liked to send them to the plague sheds constructed by Government, and none of the contacts chose to remain in those sheds; but they preferred to live in -- their own sheds at some distance from the seat of infection outside the village, and they were allowed to do so. The patients generally refused to be treated by Government medical officers. They chose either to take medicine from native Hakims or to make some other arrangements of their own, and they were left to select any course they preferred. They however accepted the nourishment(milk, rice &c.) and cloth offered to them.

There were 73 seizures and 59 deaths in this village.

Origin of the outbreak

5. The first three cases referred to in para 3 supra were first believed to be indigenous; but, on careful and detailed enquiries being made later on, the origin of the infection was traced to certain arrivals from Molavali, Bellary District. During November, there was such an influx of people into Maddikera from Guntakal, Molagavali, and Chippigiri(all infected places of the Anantapur and Bellary districts) that the local Hospital Assistant was quite unable to cope singlehanded with the work of issuing passports to the new arrivals and observing them for the prescribed period. He accordingly applied for an extra hand, and this help was given him. Four salt peons were also deputed to watch the principal routes leading into the village and to see that the arrivals from infected parts duly took out passports. It was reported that in Maddikera there were several deaths under ----

circumstances pointing to plague prior to those discovered on the 13th and 14th, but they were either not reported or not detected. Particularly in the house belonging to one Yeda Nagaiya there were four deaths in the beginning of December, and it was ascertained that there were frequent visitors from Molagavali at this house. It is probable that infection was in the first instance conveyed by these visitors to the inmates of this house and that it was gradually extended to other houses.

Dhone

6. Shortly after the outbreak of plague at Maddikera an imported case occurred at Dhone on the 16th December. A party of five persons arrived there from Bangalore on the 13th December. All of them were healthy for two days, but on the third day one of them, a woman aged 23 years, was suffering from high fever(105°) and her treatment was carefully attended to by the Dhone Hospital Assistant. The Tahsildar of Ramallakota took most prompt steps to have a temporary but substantial shed erected for her segregation at three furlongs from the village and had it completed the same (16th) evening. At 8 P.M. in addition to the high fever which the patient had, she complained of pain in her throat and was restless. The Hospital Assistant and the Tahsildar suspected the case to be one of plague and had the woman removed to the new shed where she died the following morning. The house wherein she was living was thoroughly disinfected, and her clothing, bedding &c., were burnt. The contacts were disinfected and segregated in a portion of their house and were carefully observed for ten days. No case occurred in this village subsequently.

Alardini

7. Plague next broke out in an epidemic form at Alardini about 21 miles north of Pattikonda.

There were six deaths in three families in this village from fever between the 26th and 30th December, but these were not reported. On the 3rd January three persons connected with two of the three families above mentioned were found to be suffering from fever with bubos and these three cases were detected and registered as plague cases. Instant inquiries were instituted as to the nature of the six prior cases and they were also ascertained to have been plague cases. The origin of infection could not be traced to any arrival from any infected area, and the cases were all indigenous due to exposure and excessive drinking.

The victims in the three cases of the 3rd January were all males(Parayas). They were isolated in three different sheds and were placed under the treatment of the Pattikonda Hospital Assistant who had proceeded to the village with the Tahsildar. The contacts were removed to a distance and were guarded by the police from mixing with the patients or healthy persons of the same Mala caste. The infected houses were evacuated by the residents themselves and were whitewashed and disinfected. There was some slight opposition to the plague measures here, none agreeing to disinfection. In order therefore to prevent the introduction of infection, the camp of these malas which was about a mile from the village was watched by a police guard, and one head constable and six constables were also detailed for cordon duty in the village. A second ambulance staff was also formed immediately. Mr.Gahan and Dr. Power were immediately ordered by me to proceed to the village on the sixth, and I took the District Medical and Sanitary officer with me there on the 9th January. The whole of the village was evacuated about the end of January partly through the efforts of the Tahsildar and partly through the good sense of the people who were convinced of the efficacy of evacuation as a preventive against the development of plague. There were consequently only six seizures and seven deaths during February against 25 attacks and 20 deaths during the previous month, and the epidemic disappeared entirely on the 2nd March. The inhabitants were allowed to reoccupy their houses in the beginning of April.

Kyruppalli

8. The Forest Talari of Kyruppalli who was engaged with the village servants in clearing out certain infected houses at Alardini on the 6th and 7th January had a sudden attack of fever on his return to his village on the 11th idem. Dr.O'Hara who examined him suspected his case as one of plague especially as he complained of some pain in the groin. He was isolated in a shed in a field at some distance from the village and was given nourishment by the Monigar. The contacts were segregated in sheds put up for them and the house of the patient was thoroughly disinfected. He died on the 18th January. There were no other cases in this village.

Togalagollu

9. On the same day on which the imported case occurred at Kyruppalli, Togalagollu, a mazra of Maddikonda about midway between Pattikonda and Alardini was visited by plague. Six persons(all madigas) had died in this village of fever between 29th December

and 8th January, i.e, four cases between 29th December and 6th January and two cases on the 8th January; but the careful inquiries made showed that these cases were not plague cases.

The man who died on the 29th of December was reported to have had dealings with the residents of Molagavali and to have been going to and returning from that village before his death, and it is possible that he introduced the infection into his village.

Report of the four suspicious deaths which occurred between the 29th of December and 6th January reached the Tahsildar on the latter date, and he proceeded at once to the village accompanied by the Hospital Assistant. They had the hut where the last suspicious death took place burnt and got the others opened up. All the rubbish &c. found in this were burnt. Two more madigas were found by the Tahsildar to be suffering from fever, and they died on the 8th January. Their bodies and clothing &c. were burnt as also their huts in which they had been living. The contacts were segregated in their own huts outside the village and a police-guard was placed over the camp in the fields to which most of the madigas had removed on the occurrence of the suspected cases above adverted to. Dr. Power and Mr. Gahan proceeded to the village on the 9th January. Dr. O'Hara relieved Dr. Power there as desired by me the following day. The ambulance staff was also despatched immediately to carry out the inspection and other duties. The first genuine case of plague occurred in the village on the 11th January as above stated, and the epidemic lasted for about a month. The whole village was evacuated within a few days of the occurrence of the first plague case. There were 11 seizures and 8 deaths during the period.

10. On the 14th January a madiga woman left Alardini where she had been ailing in the camp in the fields for six days and was proceeding to her native village, Pagadivi. On her way her fever increased at Tuggali where the Monigar detained her in a hut outside the village and sent for her mother from Pagadivi to attend on her. The glands of the patient's neck and her whole face were swollen and the case was treated as one of plague. The patient's mother was given a separate shed close by. The patient was given food and nourishment but she refused English medicine. The rags &c. she had were burnt and she was given new clothing. She died on the 21st January.

11. Plague broke out at Pattikonda on the 17th January. A mala boy was attacked on that day and his sister two days after. Both had bubos in their arm-pits. A certain individual who had gone to Alardini returned to Pattikonda and died there on the 28th December. Since then dead rats were found in his house and in the neighbouring houses including that belonging to the patients above referred to. It was suspected that the person who died on the 28th December caught the infection at Alardini and that he died of pneumonic plague and that the infection gradually spread to other houses.

On the very day on which the two cases occurred, all the malas evacuated their houses and went to the fields to live there in sheds erected by themselves. Later on, the Marageri× was also deserted as also the houses which adjoined these localities. On the 28th January I proceeded to the village and found that the Divisional Deputy Collector, the Tahsildar, the Supervisor and the ambulance staff duly attended to the carrying out of the requisite measures. On the 20th February when Mr. Buckley and I inspected the village, only 22 houses in the vicinity of the infected quarters remained occupied; and even of these, 13 were quitted by the 24th and steps were ordered to be taken for the evacuation of the remaining nine houses. Owing to the prompt measures adopted, in the way of evacuation, in my presence, there were no fresh cases for three weeks (from the 20th February to 12th March), but on the 13th March two fresh cases occurred and the disease resumed its course. This was partly due to the tendency on the part of some of the persons who had left the village to have surreptitious access to their houses before they were pronounced to be free from infection, and partly to the nonevacuation of a few (the nine houses above referred to) of the houses in the neighbourhood of the infected localities. Steps were then taken to keep strict watch and to prohibit the reoccupation of the infected houses before permission was granted therefor. Endeavours were also made to have those nine houses evacuated. One Basappa was reported to refuse to quit his house and to have instigated the other houseowners to do likewise; I immediately sent for him and ordered that he should evacuate his house in 24 hours; thereupon he quietly returned to Pattikonda and quitted his house without any trouble whatever, and his neighbours followed suit and the infected portions were entirely evacuated by the beginning of April. No ---

× the portion of the village occupied by Malas i.e., Paraiyas.

cases occurred from the 1st to 27th April. On the 28th April, however, a -- case was reported and another on the 3rd May; careful inquiries were instituted by the Divisional officer and the District Medical and Sanitary officer as to whether or not these were really plague cases. Their reports showed that the two cases were genuine and that they were due to the hasty reoccupation of the evacuated houses in a few cases by the owners concerned. The requisite measures were adopted to prevent the further spread of the disease and it disappeared.

12. Twenty days after the outbreak at the mazra of Togalagollu Dudikonda mentioned in para 9 supra, plague entered the principal village Dudikonda; the outbreak in the latter being due to the intercourse of its inhabitants with those of the former and vice versa. The patients in the first cases were isolated in huts erected in the fields and the contacts were also segregated at some distance from the village. The whole village was evacuated and disinfected and the inhabitants removed to sheds put up by themselves outside the village. The epidemic lasted for about three weeks during which there were twelve attacks and ten deaths. This village also was allowed to be reinhabited (after thorough disinfection of the houses) in the beginning of April, there having been no fresh cases for over a month previously.

13. In Peravali four miles from Tuggali, the disease broke out on the 24th February. It was imported by a Komti who had transactions and intercourse with the people of Gooty and Pattikonda. He and his wife died within four days of each other under circumstances creating suspicion of plague infection. Dead rats were found in his house and the adjoining houses. Such houses were evacuated by the inmates under the directions of the Tahsildar, the Sanitary Inspector and the Hospital Assistant and the inhabitants removed to sheds erected by themselves outside the village. One head constable and six constables were also deputed by me for cordon and disinfection duties. The disease lasted for 27 days, the -- number of seizures during the period being seven and of deaths six.

14. There were in all 175 seizures and 144 deaths in the whole district. The ratio of cases of recovery to the number of attacks was thus very low owing chiefly to the destructive nature of the disease, and also in part, perhaps to the reluctance of the patients to accept English medical treatment. Maddikera contributed the largest number of victims and Peravali had the smallest share of the calamity, leaving out of account Kurnool town, -- Dhone, Kyrupalli and Tuggali in each of which a single imported case ---

occurred. Plague was severest during the latter part of the cold season, that is, between the 20th January and 20th February and - the largest number of cases, that is, 11 attacks and 9 deaths on any one day during the course of the epidemic occurred on the 11th February. With the evacuation of the infected villages and the advance of the hot weather the disease was gradually on the decline and it left the district entirely on the 3rd May 1899.

Temper of the people

15. The people offered no opposition whatever to plague measures. I used to associate with them very freely and to explain matters to them gently in person. They quietly evacuated their houses, the only exceptions where any difficulty was experienced not by me but by the Deputy Collector and Tahsildar being the - cases of a few individuals in Pattikonda and Maddikera as above stated. Even these were made to quit their houses by my personal persuasion to them and where necessary by warning of prosecution. Such of the inhabitants as left the infected villages generally put up sheds outside these at their own cost. Small contribu--- tions (Rs.12 in all) were paid in a few cases by me where the people were too poor to bear the cost of the sheds themselves.

The people also evinced their readiness to have their sick and the contacts segregated. They also agreed to the carrying e out of disinfection which consisted in

(1) soaking the floor with perchloride solution, digging it to a depth of three inches and burning it.

(2) washing the walls with the same solution and

(3) opening up the roof so as to let the sun at every part of the walls and the floor.

The single instance of exception was that of the Malas of Alardini, none of whom agreed to the disinfecting measures; but precautions were taken to prevent the communication of infection by them to other individuals. Compensation amounting to Rs.60 was paid in a few cases where it was found necessary to burn down sheds for purposes of disinfection.

Particulars regarding inoculation are given in the report of the District Medical and Sanitary Officer.

Railway Inspection at Dhone

16. Owing to the outbreak of plague in Maddikera

and other villages of the Pattikonda taluk to the east of Guntakal a railway inspection station was established in the beginning of January as recommended by me at Kurnool Road for the examination of passengers arriving from infected areas. The establishment employed there consisted of --

1 Civil Apothecary
1 East Indian Nurse
1 clerk
1 male toti
1 Female toti
2 cooks
1 head constable
8 constables

No passengers were detained at this station. It was closed in the beginning of May.

17. The supervision of the working of the Passport rules was transferred from the District Medical and Sanitary officer's office to that of mine from the 1st February 1899. From the particulars -- available in my office, it is found that about 4000 passports were issued in the case of arrivals in this district from infected areas. The observation of such persons was conducted with care and attention by the local authorities concerned.

Passport rules

18. 81 persons concerned in 63 cases were prosecuted for evasion of passport rules, and of these 45 individuals involved in 35 cases were convicted and sentenced to pay fines ranging from rupee 1 to Rs.50. In 12 cases the accused (12 in number) were acquitted and the remaining 16 cases were pending on the files of the magistrates concerned. In none of these cases could the whereabouts of the offenders be traced.

Evasion of Passport rules

19. On the 31st August 1898 I recommended to Government

Observation circles

(1) the abolition of the seven circles constituting the southern -- range of the circles on the Hyderabad frontier and

(2) the formation of as many new circles on the Anantapur and Bellary frontiers. On the 12th September the Government approved of the first recommendation fully, and with regard to the second, they directed that the scheme should be limited to the establishing in consultation with the Collector of Anantapur of observation staff to a depth of 20 miles around -- Guntakal. The following three circles were accordingly formed:-

Villages	Circles
Pagadiri	Pagadiri circle A
Jonagiri	
Yerragudi	
Chennammapalli	
Eddukoddadi	
Tuggali	
Maddikera	Maddikera circle B
Agaram	
Bannuzula	
Peravali	
Hampa	
Edavali	
Pattikonda	Pattikonda circle C
Peddahulti	
Hosur	
Puchakalayandimodo	
Chokaralla	
Ratana	

Three sanitary inspectors were appointed to the new circles, and Mr. Anderson was transferred to the new division as supervisor.

On the 15th December, that is, soon after the plague broke out in this district, the Plague Commissioner wired to me that the system of observation round Guntakal should be extended so as to cover Molagavali also. The following four circles were then formed in addition to the three organized on the western borders of the district in September.

Villages	Circles
Devankonda	Devankonda circle D
Nalakododdi	
Bellikallu	
Jutur	
Chinnivakalti	
Karumanehu	
Kolapari	
Dadadikotakonda	
B.Pattikonda	
Ch.Pattikonda	

Devanakonda
Velamakur
Mutukur
Kyrupalli
Alardini
Kemkanur

Devankonda circle F

Pandikona
Dudikonda
Nallachelema
Mukkella
Pendakal

Pandikona circle G

Arrangements were forthwith made to procure Sanitary Inspectors for the new Circles and Mr Berlie was placed in charge of them as Supervisor. Messrs Johnson & Hare were in charge of the Kevinool and Gudur Circles.

20. The plague operations were conducted under my immediate control and in the early stages of the epidemic I directed ---- operations in person assisted by the additional Medical officer. The supervisors and the Hospital Assistants worked directly under the District Medical and Sanitary Officer, and the Sanitary Inspectors under the supervisors. The ambulance staff worked under the officers placed in charge of the operations at the places where their services were needed. I made numberless inspections of the infected villages in view to satisfying myself that prompt and vigourous measures were adopted for eradicating the disease. The Additional Medical Officer, Dr. Power, and the Plague Dy. Collector, Mr. Gahan, worked very hard and were of immense aid to me. Diaries were submitted to me by the Plague Deputy Collector direct and by the Supervisors through the District Medical and Sanitary Officer, and whatever defects were pointed out or suggestions were made were promptly attended to. The Sanitary inspetors were also required to perambulate their with diligence and make careful inspections of villages and inquiries regarding deaths among travellers from infected areas, or under other suspicious circumstances by reference to the register of arrivals from infected parts kept by village heads. the results of their inspection were reported in their weekly diaries and any action that was necessary was taken without any delay.

Conduct of the operation.

21. The following enclosures are submitted:-

(1) District Medical and Sanitary Officer's report dated 18th May 1899
(2) Statement showing the population &c. of the infected villages
(3) statement of prosecution for breach of passport rules
(4) a map of the Pattikonda taluk showing the infected villages &c.

I have

I have the honour to be,

Sir,

Your most obedient servant,

Illegible S.C.S.,

Collector on leave.

26/6/99

Enclosure No 4 to Letter No 1573 dated 19th 1899

SANITARY COMMISSIONER
Registered
8 - JUN. 99
WITH THE GOVERNMENT OF MADRAS.

Local & Munl. (189) Department.

SANITARY COMMISSIONER TO THE GOVT.
8 - JUN. 99
WITH THE GOVERNMENT OF MADRAS.

2686-S/

CURRENT No. 1295 P.

SANITARY COMMISSIONER TO THE GOVT.
JUN 1899
MUNL. ADMN. & LEG. DEPT.

Letter

To

From The Collector of North Arcot

Reference ~~Order~~ 1295 Dated 7-6-99

Forwarded to the Sanitary Commissioner for transmission with his remarks through the Surgeon General

a Registrar

In Secretary to Government

Dated 3rd June 1899.

Received

Registered 5-6-99.

Enclosures 1

Spare copies

Surg 5/6/99

Brief No. 1842/P of 99

SUBJECT.

Submitting a narrative of the measures taken to combat the recent outbreaks of plague in this District.

89

BACK PAPERS.

G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.

No. Ex: 1

Rcd No. 1842 dfd 31-5-99

Vellore,
29th May 1899.

From,
G. T. Costello Esq. B.A., M.B.
Actg. District Medical & Sanitary Officer,
North Arcot,
Vellore.

To,
The Collector,
North Arcot District
Chittoor.

Sir,

With reference to your letter No. 1842 dated 4th inst. I have the honor to furnish the following report of Plague in the District.

2. As Plague in an indigenous form broke out almost simultaneously in different parts of the District and only some months after imported cases had begun to be reported it may be well for practical purposes to describe the disease first as it continued to be imported and the preventive operations in relation to it and next the indigenous form since the onset till now.

3. When plague appeared in epidemic form in the Bombay Presidency and elsewhere in the North, Arkonam was the first Railway inspection Station opened in this District as a prevent measure to examine all passengers

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from such infected places and arrivals 1388
from such places in the District was prevented to
and placed under observation for 10 days. ion from
One imported case from Bombay was detected No. 889
and segregated at Arkonam at the end of made
1897. importation
railway

4. About the middle of August 98 plague
occurred in indigenous form in Bangalore
and rapidly assumed epidemic virulence. imported

5. On 16.8.98 a telegram to this Office at
was sent by the Collector that a Railway
Porter newly arrived from Bangalore died
at Jangalapalli near Tiruvallam and
also 4 of his children between the 14 and
16 August and that his wife had symptoms
of plague. The Collector & the Civil Surgeon
of Chittoor were on the spot immediately
after information was received. On inquiry
it was elicited that a 5th Child had
died at Tiruvallam and was buried in
the river on their way to Jangalapalli.
The hut which they occupied was burnt
as also all other articles suspected of
infection. The surviving patient was
isolated and contacts disinfected and
segregated. The patient under treatment
recovered and she as well as the contacts
were discharged after the due period.
The preventive measures thus promptly
adopted were successful as no other
case occurred.

6. According to G. O. No. 841 dated
18th August 98 Jalarpet was made an

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an inspection Station with a view to prevent the importation of infection from Bangalore and according to G. O. No. 889 dated 26th August 98 Pakala was made an inspection Station to prevent importation by the S. M. Railway and S. I. Railway lines.

7. On the 30th of August the 2nd imported case of attack and death occurred at Tirupathur where also the District Revenue and Medical Officers personally attended and adopted the necessary measures.

8. Soon after Mysore was declared infected according to G. O. No. 1001 dated 3rd September 98 the Frontier road inspection stations were organised on the Mysore frontier to prevent importation by road from Mysore into this District. Four such road inspection Stations were opened namely (1) to the west of Kothur where the Bangalore enters Punganoor (2) to the west of Allikuppam in Punganoor (3) to the east of Patrapalli where roads from Kolar and Kuppam meet (4) at Guntasuntapalli. At these Stations segregation Camps and Hospitals were erected equipped and manned under the immediate orders of the Revenue Authorities and Medical subordinates of the nearest Dispensary or Hospital ordered to take charge at once and continue till relieved by Special

Morning of August 1898

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Special Plague Medical Subordinates.
All arrivals from Mysore and other infected localities particularly from Bangalore were given passports at either road frontier stations or at their station of destination by rail in this District and were strictly watched for a full period of 10 days.

9. Imported cases which were few and far between in August and September began to increase in numbers in different parts of the District, all being traceable to Bangalore or other parts of Mysore.

10. In every case no time was lost in promptly taking the necessary steps towards the isolation of the sick and the segregation of the contacts either in Camp or in their own houses.

11. Disinfection of contacts and of all suspected articles houses etc by Perchloride of mercury solution and whenever feasible and practicable by fire was done. Thatched houses were burnt, tiled houses untiled and exposed to sun light and heat and the infected flooring wherever practicable was treated by the Kiln method and in other cases with Perchloride of mercury solution. Information as to the occurrence of plague was transmitted by wire and the nearest Medical subordinate was on the spot and in most cases conducted the operations

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operations under the immediate and personal orders of the Collector and Sub. Divisional Officers and the District Surgeon or the Assistant Surgeon.

12. According to G. O. No. 1001 P, dated 3rd September 98 and Dio. No. 104/P of 1898 an ambulance staff consisting of 2 European Nurses, 2 Hospital Assistants, 1 Sanitary Inspector and other menial servants was formed and stationed at Palmeras so as to meet any demand on the Mysore frontier and also to proceed to any part of the District under the Collector's orders. The staff was to advise and assist the Revenue Officials in suppressing the plague. Orders were issued from time to time by Government prohibiting pilgrimage to all the important shrines and festivals in different parts of the District.

13. Another ambulance staff was organised and stationed at Vellore to meet any demands in the plains.

14. On 28.10.98 Major Bannerman I.M.S. visited Vellore and after lecturing on the advantages of inoculation against plague, initiated inoculation and on that same day 90 were inoculated, the Collector and the Sub. Collector setting the example.

15. Till the end of December 1898 the

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In the case of female patients a nurse was always employed to examine and whenever required, personally to attend to them.

19. In all cases the contacts were disinfected with Perchloride of Mercury solution, segregated and watched for full 10 days and again disinfected and discharged.

20. The Corpse was thoroughly dis-infected and wrapped with a sheet steeped in Mercury solution and buried 6 feet deep or burnt and those who took any part in the funeral either relatives or Coolies were also disinfected and placed under observation for 10 days. Regarding the treatment of infected houses and other articles a brief description is given in Para 11.

21. Till the end of December 98 the number of imported cases was 55 of which 48 died and indigenous cases 61, all fatal. These latter are most of them traceable to infection from other previously imported cases in the neighbourhood.

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22. Up to date the total number of imported cases is 114 with 93 deaths.

D.

1088p

Indigenous Plague

23. The first case of indigenous plague in Kuppam was reported on 2.12.98 and on the occurrence of the same the Collector, Sub. Collector and the District Surgeon proceeded immediately to make the necessary arrangements there. Special Plague Officer Lieut. Scott. Elliot was stationed at Kuppam to carry on plague operations there & the Assistant Surgeon directed to remain there as a temporary measure to advise on medical and sanitary matters.

24 On 4.1.99 one half of the ambulance staff was despatched from Palmaner to Kuppam and there placed under the immediate orders of the Special Plague Officer.

25. Necessary arrangements were made for a plague Camp to which patients and contacts were removed. Cases began gradually to increase in number and the disease spread from house to house and street to street. The town became panic-stricken and the people in the vicinity evacuated their houses and fled to the neighbouring villages. Such evacuation was not objected to. The town was divided into 3 Circles and place

placed under strict observation.
The Hospital Assistant and Sanitary Inspectors were directed to go from house to house and Street to Street in their respective Circles to examine and report on any suspicious cases.

26. Patients and contacts in the majority of cases went into Camp and the rest were segregated and watched at home. Thorough dis-infection of infected houses and other articles was done with mercury solution or fire or both, and all excreta disinfected, covered with sawdust and burnt with Kerosine oil ~~and~~ etc.

27. When the town was in a state of panic no Coolies could be got to do disinfection of work and even the menials of the ambulance staff threatened to strike. Matters were ~~reported~~ represented to the Collector and a detachment of 16th Regiment M. I. was got for carrying on the work of dismantling infected houses and of disinfection etc. The Assistant Surgeon inoculated all the Prisoners and the Native Officers of the detachment and the people who had been averse to inoculation slowly came forward

1108P

forwards and in the course of 3 weeks over 200 were inoculated. These were followed cheerfully by an equally large number, later on. Dr. A. J. Page joined the staff at Kuppam and assumed charge as Plague Medical Officer. The town became deserted and the number of attacks gradually went down. All uninfected houses that had been evacuated were not allowed to be re-occupied without being previously disinfected. The number of indigenous cases in Kuppam up to date is 97 with 79 deaths.

Vellore.

28. The first case of indigenous plague in Vellore was reported as having occurred in old Brunsiff's Court Street, Saidapet on the 5th January 97. The second case occurred in the neighbourhood and the District Surgeon, Collector and Sub. Collector were wired to by the Assistant Surgeon. They promptly arrived the same day and the disinfection of the houses and other infected articles as well as the contacts was immediately done and the sick were segregated in their own houses. Other cases followed in rapid succession in the same street and its vicinity.

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Rats were found dead in some houses and some of these were voluntarily vacated by the inmates.

29. Observation and preventive staffs were organised without delay. The town was divided into 5 Circles and each to be patrolled by a Circle Inspector and all the 5 were placed under Divisional Inspectors.

30. According to G. O. No. 80 dated 11. 1. 99 Vellore was declared plague infected and arrangements made for providing passports to persons leaving Vellore by road or by rail and later the infected area was declared to be comprised between Kalambur and Pakala on the S. I. R. line and between Shaolinger and Jalarpet on the M. R. C. line so that travelling from within these limits to any other place was required to take out a passport. Every case of plague or of suspected plague and the houses and contacts etc were treated as per Regulations. All deaths from suspected causes were reported at once and Hospt. Asst. T. D. Thomas of the Municipal Hospital examined the Corpse, the Hospital nurses doing such work in the case of women, and any corpse cleared timely

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D.

26th instant, The total numbers up to date being 186 seizures and 168 deaths 40. The results of treatment in the Plague sheds is highly encouraging and this as well as the early disappearance of the disease so soon when it was feared might assume a severe epidemic proportions is to a great extent attributable to the exertion of Dr: W. B. Edwards and the rest of the plague staff

40. Walaja, Arcot & Ranipet.

These three towns being near each other may be treated under one heading. A few imported cases had begun to occur there from September 98 and the first indigenous case was reported on 13.1.99. The nearest Medical Subordinate under the directions of the Collector and District Surgeon promptly carried out the necessary preventive and sanitary measures. A camp was put up in Walaja and later in Ranipet and on 4.2.99 two Special Plague officers and two Special Plague Medical officers one of each for Walaja and Ranipet and the other for Arcot were appointed. A detachment of the 14th Regt No 3 were got down inoculated and utilized for the work of disinfection etc. The detection of cases & isolation at home or in Camps of the sick and

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my hearty thanks to all the Medical subordinates of the District who readily and willingly co-operated and acquitted themselves very well indeed and of these I may especially mentioned the following names :-

1. Civil Apothecary M.D. Gnanamony of Ranipet.
2. 2nd Class Hospt. Asst. T.D. Thomas of Vellore.
3. 3rd Class Hospt. Asst. Md. Jamaluddin Sahib of Vellore.
4. Bnd Class Hospt Asst. Syed Abdal Rahiman.
5. 1st Class Hospt- S.C. Winslow of Walajah.
6. Do Mudliar Dawasiganam of Arco-

The undersigned has been all along at Head Quarters (Vellore) doing Jail and office duties.

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Lieut. Col. J. Lawrence I. M.S. had a very busy time of it and was always on the move in different parts of the Dist. His arduous work hearty co-operation and winning manners always contributed much towards success. I feel great pleasure in particularly bringing to your notice the good work done by Assistant Surgeon P.N. Lakshmanan who shared

Rajpore

C No 1295

NORTH ARCOT, COLLECTOR'S OFFICE,

Chittoor dated 3rd June 1899

No. 1295 OF 1899.

FROM

R. H. Campbell Esqr

Collector and District Magistrate,

North Arcot,

To

The Secretary to Government,
Local and Municipal Department. Fort Saint George
Madras.

SIR,

With reference to the Rajpore Commissioner's proceedings M.C. No 4608, dated 10th ult. I have the honor to submit following narrative of the steps taken to breaks of the rude

up

1897 1898.

2. Until Rajpore broke out in Bangalore at the beginning of August 1898

this district was considered to be practically safe from infection as the chances of the disease spreading into this district from Bombay and Hyderabad were very remote. When however a few cases of plague had occurred in Bangalore a porter employed under the Madras Railway Company who had lost two of his children from the disease left Bangalore on the night of the 12th August 1898 and arrived at a village in this district called Jangalapalle near Tirupattur Railway station on the morning of the 13th idem. He was accompanied by his wife and four children and all of them had contracted the disease before they left Bangalore. The porter and his four children died shortly after their arrival and the wife alone survived. These were the first cases which occurred in this district excepting of course the one case detained

in the plague camp at Arkonam in October 1897. The late Collector Mr. Batten himself proceeded to the village and supervised the work of disinfection which was carried out thoroughly without any opposition being met with. As the Plague increased in virulence at Bangalore a general exodus of the population commenced and many of the refugees came to this district with the inevitable result that imported cases of Plague began to occur in a number of towns and villages of this district. The immigrants from Bangalore settled mainly in the towns of Vellore, Arcot, and Wallajah and in villages lying in the vicinity of the South west line of the Madras Railway. This is evidenced by the fact that while almost all imported and indigenous cases occurred in the tracts referred

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referred to above, the northern portion of the district was almost free from the disease. The number of plague cases imported in october 1898 was considerably larger than that imported in the other months and it is therefore probable that the bulk of the immigration took place in october. The following table shows the number of imported cases which occurred during each of the months in last year:-

Month	Imported	Discovered on the
August 1898	37	6
September 1898	1	1
october 1898	25	24
November 1898	11	10
December 1898	8	5

All these cases were imported by rail either from Bangalore or from other places in the Mysore Province.

3. After the occurrence of the

first few imported cases, the following general measures were adopted to prevent the spread of the disease from the Mysore province:-

(a) Railway Inspection stations were established at Dakala and Jalarpet in order to prevent the importation of plague by rail.

(b) Four Road Frontier Inspection stations were abolished on the chief roads leading from the Mysore province into this district in order to prevent importation by road.

(c) Seven Observation circles were started along the Mysore frontier and were placed under the charge of trained Sanitary Inspectors.

(d) The railway stations of Patchur, Mulanur, Kuppam, Jolarpet and Bidanathum on the Bangalore section of the Madras Railway were declared infected in order

order to prevent persons from the Mysore province booking at those stations and escaping observation.

(e) A Hospital assistant was deputed to examine all passengers alighting at Kuppam Railway station and was empowered by the Collector under Regulation 29 of the original Mufassal Plague Regulations to detain all suspicious persons in [illegible] specially provided for the purpose. This was found to be necessary in order to prevent suspicious persons breaking their journey at Kuppam and proceeding to their places of destination by road.

(f) The chairman of all the Municipalities in the District were requested to entertain the observation staff prescribed in G.O. No. 522 Dated 13th March 1897.

(g) Two ambulance staffs

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were formed with complete equipments and stationed at Palmaner and Vellore.

(h) A staff corps officer was put on the special duty of supervising all the plague arrangements on the Mysore frontier and the District Medical and sanitary officer was relieved of all his ordinary duties so that he might devote his whole time to Plague work.

(i) The attendance of pilgrims at all important fairs and festivals at which a large number of persons from infected areas were expected was prohibited with the sanction of Government.

(j) In order to popularize inoculation and its effects, Mr. Ballard indented Major Bainbridge to deliver four lectures at Tirupati, Vellore and Chittoor. The [illegible] purpose of these lectures [illegible] was therefore

therefore allowed for the first time and the leading members of the Labbai Community had the house disinfected under the supervision of a medical officer. The people of Nallaya and Sholinghur followed the example set at Kishoram and there was even a small riot at Sholinghur, the rioters being tried and convicted by the Head assistant Magistrate. At about the same time the confidential order of Government regarding segregation and evacuation was received and the necessary instructions were issued confidentially to Divisional officers, Tahsildars and Deputy Tahsildars. In the cases that followed evacuation of infected houses and segregation of patients and

contacts in specially built huts were resorted to only when there was not much opposition on the part of the people. Disinfection was however carried out in a thorough manner.

6. In spite of the refusal of the people to vacate infected houses and go into camps, the measures adopted against the imported cases under discussion seem to have been very successful; for, except in the case of Pallikonda and Marudambakkam no fresh attacks occurred and the infection appears to have been confined completely. In Marudambakkam two fresh attacks occurred but these were among the contacts who were attending upon the patient. The two cases that occurred in Pallikonda were among people who, it was ascertained, had unlawful access to the infected

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divided into three parts:— viz., Robinsonpet Kothapet and Pathapet (old Kuppam). Robinsonpet was the first to be affected. The Zemindar of Kangundi who lives in this part of the town evacuated his house and proceeded to Kangundi a village 8 miles from Kuppam. His retinue consisting of about £20 families and some others followed his example, and there was a general tendency on the part of the inhabitants to emigrate. A notice was published in the District Gazette under the Orders of the Plague Commissioner warning the inhabitants of the villages to refrain emigration taking place of the danger they run by taking in people from Kuppam and suggesting to them the advisability of keeping such immigrants in isolated buildings or huts outside their villages for a period of 10 days before admission.

This

This notice did not however have the desired effect and the people thought that the notice in question gave them power to resist the entry of public servants on duty into their villages and began to resist them accordingly. I had therefore to publish another notice to the effect that the first notice did not apply to public servants on duty and that any body resisting their entry will be prosecuted. During the [illegible] from Kuppam a cordon of police was placed round the to take down the names of people going out and their places of destination. These were communicated to the Plague Inspectors and the local authorities who kept them under observation for 10 days.

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9. Mr Scott Elliot of the IV Madras Pioneers assumed charge of the plague

plague operations at Kuppam shortly after the outbreak commenced. The Ambulance staff stationed at Palmaner was immediately sent to his assistance and a plague camp was erected without delay in a suitable spot. Dr Page appointed as Additional medical officer to this District arrived in Kuppam at the beginning of February.

Mr Scott Elliot organized a system of informal house to house visitation in Kuppam. This system worked well and almost every case that occurred was brought to light. Coolies were difficult to procure for disinfecting houses and who procured demanded high wages. One Native Officer 5 non-Commissioned officers and 50 men of the 7th Madras Infantry were therefore sent to Kuppam for plague duty. Here, as in other places, a reasonable amount of Compensation was paid promptly to the owners of houses for the loss sustained by them during the process of disinfection and this made them submit quietly to the plague measures.

From Robinsonpet the disease spread gradually to Kothapet and ultimately to Pathapet. The town being small and the people being comparatively law-abiding Mr Scott Elliot was able to induce nearly 50 per cent of the cases to go into the camp. Disinfection was carried out in the manner prescribed in the Regulations.

The only step taken by the people of Kuppam to protect themselves was the evacuation of the town [illegible] was not resorted to as freely as it should have been. The total number inoculated in Kuppam is 450, but this includes also a number of people

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people belonging to surrounding villages who were inoculated at Kuppam. There were five attacks and two deaths among the inoculated. The evacuation of the town was complete by the beginning of April, small huts being provided in the fields for people who could not find accommodation for themselves. The disease died out almost immediately after the evacuation. All the houses were disinfected before the owners were allowed to occupy them.

The number of cases imported from Kuppam to other villages was only 5. The total Kuppam cases were 126 and 70 respectively. 5 per cent of the attacks were pneumonic and the rest bubonic. 46 cases were treated in the plague camp. Of these 28 or 60.87 per cent died. Among 60 people segregated and treated in their own homes 50 or 83.33 per cent died. Almost all the people attacked were Hindus and 50 per cent of the total number attacked were coolies.

Vellore

The first case of plague in Vellore was reported in the Saidapet ward on the 3rd January 1899. The source of infection was not traceable but it was probably due to the large number of people from Bangalore who had settled in the vicinity. It was however elicited during the course of enquiry into the case that dead rats were found in two houses in the adjoining street and that the owners evacuated them immediately. It also appeared from enquiries that there were some recent deaths from plague in the same street which were all returned falsely as deaths from other causes. Fresh cases followed in the same street within a

a few days, and the disease spread rapidly to other parts of the town. The Bakers' street and two streets adjoining it were the worst affected.

Immediately after the outbreak, a special Plague officer and an Additional medical officer were appointed solely to attend on plague cases in the town. The preventive staff prescribed in G.o. No. 522 M. dated 13th March 1899, was entertained. A plague camp was erected near the town. A detachment of 100 sepoys with an European officer was got for disinfection purposes. Inspection stations were started on the roads leading from Vellore to Arcot Katpadi and from Vellore to Arcot and all passengers going out of Vellore Town were examined at these stations. It was impractic- able to establish stations at the other roads leading fr. Vellore. Observation Circles were established round the town to a radius of 10 miles to prevent the spread of the disease. All railway stations at which

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passengers from Vellore could book were notified under Government sanction for the purpose of the passport rules. The observation circles already existing within the town were found to be too extensive for 5 Inspectors to manage and an assistant Plague Inspector was therefore appointed to each circle. A vigilance Committee consisting of the leading members of the town was formed to assist the Sp. Plague officer in carrying out plague measures, but this like similar Committees for Arcot and [illegible] to help [illegible] Plague [illegible] two Government Servants Private [illegible] and Peons were employed in [illegible] for a total of 620 29 persons. A population of 44925 were inoculated.

15. The prevention of the Concealment of plague Cases was the most difficult task in Vellore. People adopted every Conceivable means to Conceal Cases and it was

difficult to prevent the concealment.

15. The attitude of the people was by no means conciliatory especially at the beginning of the outbreak. They objected at first to the medical inspection of the sick and the dead but they became more amenable latterly. Camp segregation was unpopular at the beginning, but the kind and careful treatment accorded to the few persons segregated in the Camps has made it more liked of late. The total number of persons attacked in the Camps are 167 or 7 out of 184 segregated. 76 per cent of the persons segregated in their homes all died.

17. As large proportion of the population sleeps in the open. There was a talk at one time about erecting Camp hospitals but the matter never got beyond the talking stage

The Brahmins of the place subscribed about Rs 300 among themselves and were prepared to erect their own hospital but for some reason or other they gave up the idea.

18. Disinfection was carried on by sprays in the houses prescribed by the rules under the supervision of the Special Plague officer and the additional Medical officer. The Baker's Street and two other streets adjoining it, which were severely infected were barricaded for about six weeks and a house in them thoroughly disinfected. The [illegible] Tower Co [illegible] Kolhapur [illegible]

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[illegible] 189 [illegible] one of [illegible] Cases etc. [illegible] 1808 per cent of the attacks in Belgaum were among Hindus; 1849 per cent among Mohamedans and the remainder among the Native & other Classes

22.90 per cent of the attacks were pneumonic and 77.10 per cent bubonic.

19. Arcot. In the course of his enquiry in Vellore about the first indigenous case that occurred in that town Mr. Batten heard accidentally that plague cases were occurring and being concealed in Arcot. Enquiries were made and on the 13th of January the first authentic case of indigenous Plague was detected and reported. This was followed by other cases at short intervals, and by the end of January the disease had spread [illegible] town. There was [illegible] of infection

[illegible] reported

[illegible] The Collector proceeded to Arcot [illegible] of the fourth indigenous case and made the following arrangements. The town was divided into six circles and a Circle Inspector was appointed to each circle. A retired Police Inspector was appointed as the Superintendent of all the circles. A vigilance Committee was formed of the leading members of the several communities. A plague Camp was erected at a suitable spot and a detachment of sepoys was obtained for carrying out disinfection. A Special Plague Officer and an additional Medical officer were appointed to superintend the plague operations. A second Ambulance Staff was sent to Vellore from [illegible] for plague duty.

19. The Circle [illegible] their rounds [illegible] Commissioner [illegible] the Superintendent [illegible] Each Circle [illegible] Inspector [illegible] Sepoy [illegible] Constable or a Sepoy [illegible] house immediately they found an [illegible] attack or a suspicious case in it and this guard remained [illegible] the Resident Officer arrived and pronounced his opinion on the Case. The guard was withdrawn if the Resident Officer did not think it to be a plague case

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and continued if it was so. The disinfecting parties were sent to the infected houses on the next day and finished their work the same day. The batta due to segregated persons was paid in advance every morning. Cases occurred in all the parts of the town but Chandapet and Ammanpolaim situated in the south of the town were the localities most affected.

20. Camp segregation was never popular in Arcot but Captain Searle the Special Plague officer introduced a system of segregating patients and their contacts by means of mat huts shaped like [illegible] Cart or jutka. [illegible] houses [illegible] of infected [illegible] and the people were generally willing to accept them for the remainder of the period.

23. The attitude of the people was generally indifferent. They did not [illegible] but they take any steps to prevent the spread of the disease. They can be persuaded to other places in case of emergency. Some of the people in Vepery and Labbai Street came forward with a proposal to erect their own hospital but the proposal was never carried out in spite of the encouragement of the Special plague officer. One individual named Sundra Mudaliar of Arcot rendered good service by disinfecting houses evicting into in the part of the town occupied by him and distributing native medicines.

22. The Special plague officer had at one time entertained the [illegible] disinfecting all [illegible] houses in the town. [illegible] found that the plague cases [illegible] were not of the abandoned houses which were re-occupied before disinfection.

23 25 The total numbers of attacks and deaths in Arcot were 182 and 154 respectively. 70.96 per cent of

Cases were bubonic. There was only one Case of pneumonic plague. In the remaining cases no enlargement of glands was visible. 18.13 per Cent of the attacks were among Mahamadans and the rest among Hindus of all Castes. Cultivators and Coolies were the people most affected.

22. 26. Wallajah and Ranipet-

It was not until some Cases of plague had been Concealed and a general exodus of the people had Commenced that the existence of the disease in these two places was brought to the notice of the authorities. The first reported Case at Wallajah occurred on the 1st January 99. Dr Ashe was the ex-officio Chairman of the Municipality and he did his best to stamp out the disease. The Municipality had only two observation circles before and some circles had only been formed to

be too extensive, the town was divided into four circles and an Inspector appointed to each. A divisional Asst Inspector was appointed to supervise the work of all the Inspectors. The precautionary staff required under G.O No 522 M dated 18th March 1897 was entertained immediately. Coolies were available for Carrying out disinfection work and no detachment of Sepoys was therefore said for. A special plague officer and additional medical officer were appointed to superintend the plague operations both at Wallajah and Ranipet. Observation circles were started round these towns in continuity to the lines already established round the Railway stations between Jolarpet and Arkonam. Shotting lines were noticed by Government for the purpose of passport rules.

A vacant building on the outskirts

of Vellajah town had already been
Chosen for the purpose of a plague Camp
and a fresh Camp was erected in Ranipet.

25. The method employed for the detection
of Cases was similar to that employed
in Arcot and Vellore. Camp segregation
was unpopular here as in other places
and only 7 Cases in Vellajah and 2
Cases in Ranipet were segregated in
Camps. The rest were segregated in their
own houses. Disinfection was carried
out in the manner prescribed in the
Regulations by parties of
Coolies under
the supervision of the plague officers.
Reasonable Compensation was paid
to the owners of houses for the loss sustained
by them in the process of disinfection.

No fresh Attacks have occurred in
houses once infected.

26. There were on the whole
58 attacks and 47 deaths in Vellajah
and 94 attacks and 47 deaths

in Ranipet. The disease was it will
be seen of a Comparatively mild type
in Ranipet. The total number of houses
infected in Vellajah was 58 and in
Ranipet 68. Almost all the attacks
reported in Vellajah and Ranipet
were among Hindus and it is therefore
suspected that there has been some
concealment of Cases among Mahammadans.

27. 29 No steps were taken by the people
themselves to check the spread of the
disease. They were not however hostile
towards plague Officers
people were
Hamm

Cases were imported from Vellore
into Ranipet and Vellajah but no
villages but such Cases were isolated.
No indigenous Case is reported in any
of the villages round Vellore. A few
Sporadic Cases of indigenous plague
occurred in villages round Arcot
and Vellajah but prompt steps

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were taken to stamp them out. A description of the measures taken to combat the disease in these Cases is probably unnecessary.

29. The following statement gives the number of attacks and deaths which have occurred since the Commencement of this year:—

Month.	Imported		Indigenous	
	Seizures	Deaths	Seizures	Deaths
January 99	9	6	51	42
February 99	24	20	185	139
March 99	15	14	113	93
April 99	3	8	48	28
May 99	7	3	19	6

[illegible] see [illegible] above that the decrease noted [illegible] in the month of February and [illegible] the succeeding months account. There are [illegible] cases only in Manjeri [illegible] the towns and [illegible] taluk [illegible] and [illegible] which took place in [illegible] each [illegible] is appended below:—

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Taluks and Municipal Towns	Imported		Indigenous	
	Seizures	Deaths	Seizures	Deaths
Chittoor Taluk				
Chittoor	4	2	-	-
Jangalapalle	5	4	-	-
Veppalai	1	1	.	.
Virantangal	1	1	.	.
Graemchet	1	1	.	.
Velkur	1	1	.	.
Kalavagunta	1	1	.	.
Chendragiri Taluk				
Chendragiri	1	1	.	.
Peruru	1	1	.	.
Mangaperam				
Palmaner Taluk				
Palmaner	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Taluk				
[illegible]	1	1	9	7
Kachampatta	[illegible]	[illegible]	[illegible]	[illegible]
Valathur	[illegible]	[illegible]	[illegible]	[illegible]
Vikatpur	[illegible]	[illegible]	[illegible]	[illegible]
Venkatapuram	[illegible]	[illegible]	[illegible]	[illegible]
Reddimarapukkam	1	1	.	.
Kattheri	4	4	.	.

Vadairingipuram	2	2	"	"
Kangayanellore	1	1	.	.
Darapadanedu	1	-	.	.
Perambadi	1	1	.	.
Peranambat	2	1	.	.
Kilpatti	1	1	.	.
Vellore Taluk.				
Pallikonda	3	2	2	2
Sirukanchi	1	1	.	.
Vellur	2	2	"	"
Thorapadi	1	1	.	.
Viriyapuram	2	2	"	.
Kalanipakkam	1	1	.	.
Virupatchipuram	2	2	.	.
Sadupperi	1	1	.	.
Adugathaer	1	.	.	.
Satyamangalam	1	1	.	.
Chitheri	1		.	.
Wallaja Taluk				
Kalambur	4	4	.	
Chettput	1	1		
Kavanur	1	1		
Wandewash Taluk.				
Tenkarai	1	1		
Vandavasi	1			
Melpur	1			
Arcot Taluk.				
Timiri Thur	1	1		
Karai	1	1		
Vishavaram	3	3		

Kuttiyam	1	.	.	.
Kathivadi	1	.	.	.
Kurambadi	1	1	2	1
Mamandur	1	1	.	.
Muppaduvetti	"	.	1	1
Kilkuppam	1	1	.	.
Valli	1	.	.	.
Brahmadesam	.	.	1	1
Mangadu	2	2	1	1
Ayalam	"	"	1	1
Velur	"	-	5	5
Sattur	1	1	.	.
Arcot	2	2	182	154
Wallaja Taluk				
Arkonam	1			
Pulivalam				
Sholinghur	2			
Mamandakkam	1		2	2
Nandalpur	2	2		
Amur	2	2		
Kaletheri	1			
Nedumballi	1			
Lalapettai	1	1		
Vilinji	1		20	16
Kadiapatta	4	4	4	4
Vadiyambakkam			9	7
Mottur			2	2
Karai	1	1		

Nilkantarayanpet	"	"	1	1
Ranipet	2	.	74	31.
Arni Division.				
Kannamangalam	1	1	.	.
Satyavirjianagaram	1	1	.	.
Cheyur	1	1	.	.
Kuppam Division				
Attinattam	1	1	.	.
Neddagollapalle	1	.	.	.
Sundusettipalle	1	1	.	.
Indukalle	4	4	.	.
Sundlapalle	1	1	.	.
Kuppam	"	"	106	78.
Total	110	92	422	314.
Municipal				
Vellore	7	7	58	41
Vellore	6	6	184	167
Tirupati	1	1	3	3

30. I shall conclude this report with a few general remarks on segregation and disinfection based on past experience. As to segregation, I think it may fairly be argued that Home segregation has so far proved successful. At any rate Plague for the present has been practically completely suppressed in 5 large towns where it had taken a firm root. Whether the subsidence of the disease is due to the precautions adopted or to climatic influences only, the fact remains that Home segregation has not of late produced the disastrous results foretold by its opponents.

Prompt and complete evacuation of the area infected is the surest remedy for Plague that exists, but such evacuation is impossible in the case of the large towns

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lying in the Palar valley owing to the want of open country round them suitable for encampments. Some segregation at its best is but an imperfect remedy, but it is the only method of segregation suited to the large towns of this district, where people will not go of their own accord to Government Mapne camps and where complete evacuation of the infected area is a physical impossibility. As regards

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Collector

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Enclosure No 36 letter to S/S/7380/9 19/7/99

Local & Munl. (1899) Department.

CURRENT No.

Through the Sanitary Commissioner and the Surgeon General with the Government of Madras

DE
22 JUL 1899

From The ag Collector of Salem

Order.

No. 1310 P.

Dated 20th July 1899

Received

Registered

Enclosures

[illegible] copies

SUBJECT.

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Report regarding measures taken on the outbreaks of plague in the Salem

23/7/99

that a youngish writer of this name was

and the first two evacuated on account of the spread of the disease, in January 1899 the disease continued among those in huts around the already infected villages except Susavadi where it ceased soon after the village was evacuated and at Kamanatoddi and Naller where no other cases occured, and became indigenous in the villages of Jegur (13), Chinnabelagondapalli (4) and the town of Hosur (3) which are in the neighbourhood and in free communication with Anatagiri, and in the other villages Soppatti (2), Bedrapalli (3), Kottapalli (2) in the Hosur taluk - in the field hospital ground Anatagiri (40) and Mallagiri (as occurred but only to Vaniambadi from North Arcot to which one indigenous case of the previous type arose in a house where in disinfecting the house imported case died but no cases resulted - in all 137 indigenous and 5 imported cases occurred and in the villages of Berikai, Soppatti, Gadajpalli (part of Anatagiri), Reddanallur (evacuated by the villagers in anticipation), Chinnabellagondapalli, Jegoor, Bedrapalli, Kottapalli, were evacuated, in February the disease continued to spread slowly in the Hosur Taluk and became indigenous in Kuthiraipollicem (26) (part of Anatagiri) Kotur (5), old Anatagiri (22), Poonapalli (2) Kedrinallur (3), Koramur (1), Osahalli (10) which were promptly evacuated: also the town of Hosur where the disease became established at the end of January: the Contact of an imported case died under suspicious circumstances at Tirupatur in the huts around Berikai (11), Chinna bellagondapalli (9) Bommandapalli (1) Belagondapalli (1), Hosur (31), Jegoor (11), Sappatti (1), Bagal (2) Begatapalli (2), Bedrapalli palli (2) ther Cases occurred id at in the ter ing to north - there ll indigenous and 11 imported cases at Tirupatur (3) Krishnagiri (2) Vaniambadi Jolarpet Railway Inspection Station (5) - in March there was a diminution in the number of Cases as compared with the previous two months the indigenous Cases being 67 and imported 4 the disease commenced to abate at Hosur towards the end of the month but

but became indigenous in the villages
Periya
of Bellagondapalli (4) Mudigarapalli (1),
Palasanatham (2) in the Hosur taluq which were
evacuated, and fresh cases occurred in
huts around Hosur (53), Mataguri (3),
Poonapalli (2), old Mataguri (1), Chinna-
bellagondapalli (1), the imported cases
occurring at Tirupattur (1) Krishnagiri (2)
Chappadi (1) — in April there was a further
decrease in the disease the indigenous
being 20 & the imported 12 - indigenous cases
Cases occurred in four fresh villages
Teppana Agraharam (1), Mukondapalli (5)
Nagondapalli (2) Kothakondapalli (1) in the
Hosur Taluk which were evacuated - and
other cases occurred at Hosur (15), Kothur (1)
Chick Bellagondapalli (1) and imported cases
at Berikai (1) Krishnagiri (1)
Pethabellagondapalli (1)
Mudigaripalli (1)
Mountain and Harpet Railway Stations (6)

Up to the end of [illegible] indigenous
Cases ~~occurred~~ with 3 deaths occurred
imported cases with 7 deaths occurred in
these the large majority of 483 indigenous
cases and 358 deaths and 60 imported
cases with 37 deaths occurred in the
Hosur Taluk in the villages in the neigh-
bourhood of the Frontier with the Mysore

Mysore Province, the few other cases being
distributed between the Krishnagiri, —
Tirupattur and Salem Taluks the remain-
ing five Southern taluqs keeping free of
the disease.

Indigenous cases occurred in 3 towns
and 29 villages but only the town of Hosur
and the villages of Shulagiri, Mataguri,
Kattaripolium, old Mataguri and Berikai
suffered to any serious extent.

Preventive measures

Where single cases occurred isolation
of the sick and segregation of the contacts
were carried out, small huts usually being
available for the purpose in the fields
around or [illegible] and the villagers
eager to adopt [illegible] cases; infected -
ildings were [illegible] with perchloride
[illegible] solution [illegible] disinfection
[illegible] Cases [illegible] the huts or
houses being burned after disinfection
and the contacts segregated and kept
under observation for 10 days. When the
disease became established Complete
evacuation of the town or village took place
and in the smaller villages this measure was
carried out speedily and without trouble
as materials and many field huts were

were available but in the town of Hosur and the larger villages of Shulagiri, Berikai and Mataguri, the process took some time as there was difficulty in procuring sufficient materials for the required number of huts and it was necessary to assist the people and supply tents and labour - the sooner evacuation took place the quicker the infection left the villages but it was found to be necessary to prevent as far as possible the villagers paying surreptitious visits to their houses before disinfection had been completed as by so doing the infection was maintained.

At Hosur, Krishnagiri, Mataguri, Shulagiri and Berikai temporary Hospitals and Segregation Sheds were established and ab ambulance staff were employed at Mattiguri and Shulagiri

The circle Inspectors visited the villages in their respective circles frequently and village munsifs were relied on for information in Sporadic cases but where the disease became indigenous the villages evacuated and the inhabitants scattered about in the fields it became necessary to increase the number of inspectors and from Sub circles around the infected area so that by daily visits to the huts early information of fresh Cases might be obtained and the necessary steps to remove to Hospital or isolate the sick and segregate the contacts, disinfect and destroy rags and rubbish and dispose of dead bodies could be carried out with as little delay as possible: also that the neighbouring villages could be watched more closely: when evacuation of a village occurred the movements of the inhabitants were closely watched and a rough census taken otherwise they were restricted as little as possible but as a rule the villagers did not move for as the neighbouring villagers would not receive them - and they could not leave their fields [illegible] early, consequently through the inf[illegible] followed the [illegible]le from their [illegible] to with [illegible] get the disease and [illegible] to the villages around [illegible] census though it did to some extent around Mataguri and Hosur.

At Mataguri [illegible] Shulagiri where the disease first became indigenous so much fear was caused by it that labour of any description was difficult to obtain and the burial of the dead was often delayed but

but as the servants of the ambulance staffs became accustomed to the work and sappers were employed for construction and disinfection the difficulties became less.

The reoccupation of evacuated villages has not been permitted till a full month has elapsed from the time of complete evacuation or without the special permission of the Collector and in some instances the villagers have been slow in availing themselves of the permission as they have provided themselves with — sufficiently comfortable accommodation in the fields for the fine weather but when the wet and cold season sets in they no doubt will be more eager to return to their abodes in the villages.

Disinfection. Houses that were known to be infected were [illegible] at the time and after the place was evacuated and the white washing and disinfection commenced particular attention was given to such houses. The first step was to remove part of the tiled or thatched dwellings and the process has been completed throughout the village. Disinfection and cleansing of the premises were commenced: Scavengers accompanying the Sappers to burn rags, rubbish or filth and the Sappers clearing the houses of furniture &c. and applying the disinfectants to the floors and walls and afterwards lime washing the walls in the cases where the owners were poor and unable to do so themselves, otherwise lime washing was left to the owners themselves who were generally willing to do it: in a few instances only where the huts were of a very poor description the thatched roofs were removed and as far as possible burnt on the floor of the huts: in some instances the refilling retailing has been done by the owners who were required to be present at the time of the disinfection of their premises and to assist in moving their property.

Latterly at Hosur the disinfection and unroofing has been done by ordinary Coolies under the supervision of the Special plague Officer.

So far recrudescence in the evacuated villages has not been attended by a recurrence of the disease but it is too early yet to be certain that the measures taken have completely succeeded in eradicating the infection — an acid solution of Corrosive Sublimate of the strength (1–1000) prescribed in the plague regulations was almost entirely relied on as a disinfectant and was applied by means of Chinese pumps: clothes were either boiled or soaked in Corrosive Sublimate

Solution and grain and other articles which could not be treated to were exposed to the Sun. To meet the requirements of imported and single cases all circle inspectors and Supervisors were supplied with disinfectants and stocks were kept at all hospitals and dispensaries — throughout the district and at head-quarters.

Inoculation. Inoculation did not find favour among the people in the district except temporarily at Krishnagiri and Hosur when plague was prevailing and at Salem and Krishnagiri when Scares arose from imported cases and even then it was mostly the educated that availed themselves of the opportunity afforded them to undergo the operation. At Hosur and Krishnagiri where it was observed that the inoculated contracted the disease and died the people were discouraged and finding from observation in that evacuation of their houses to a great extent saved them from the dreaded disease they generally chose this alternative and consequently gave up seeking inoculation so nothing has been done in this direction for some time past.

Many foolish Scares have passed throughout the district and found belief among the people usually to the effect that harm instead of benefit was intended by the operation and this together with the passport regulations made them, particularly women & children very shy of going to the medical institutions for the relief of their ordinary ailments consequently in some places there has been a very large diminution in the attendance but the suspicion of harm is slowly passing off and the people regaining their usual confidence as regards the Hospitals and dispensaries, but in the matter of vaccination which has also suffered much, the opportunity increase, the number of operations performed in the localities and the medical officers are shown in

in the following statement :—

Locality	Total inoculations performed up to 30th april 1899.			Name of Medical officer or Subordinate who performed inoculations.
	Male	female	Total	
Salem	85	31	116	Lt Col. A.N. Rogers Harrison I.M.S.
Mataqiri with Hadapoliem	16	14	30	—— do ——
—— do ——	15	3	18	Dr. H. a. E. noble
—— do ——	27	18	45	major Bannerman.
—— do ——	1245	833	2078	Captain Dodd
Mathagonda palli	2	2	4	Dr. H. a. E. noble
Hosur	141	50	191	Major Bannerman
—— do ——	237	135	372	Civil apothecary Gibbon
Krishnagiri	22	17	39	Civil apothecary Fernandez

Among those inoculated at mathigiri, 29 cases of plague occurred and 16 deaths resulted — in — of plague has occurred among those inoculated at Mathagondapalli, Krishnagiri & Salem

Manner in which infection spread.

In the municipal towns of Salem, Erode and Vaniambadi where a few imported cases occurred, the infection did not spread except in two instances. Single cases subsequently occurred amongst those accompanying the

the imported cases and one pneumonic case occurred to a coolly employed in disinfecting a house in which an imported case had died. When the disease became endemic the spread was slow at first and in several instances attended by mortality amongst rats and mice. Subsequently the spread became more rapidly from house to house. At first infection was imported from Bangalore city and Contonment and from infected villages in the impore province near the frontier that having become established at mathigiri in this district slowly spread to the surrounding villages. Only one case was imported from the Kolar District. As to the manner or method by which the infection was got the persons making definite statements said though dead rats were found and in overcrowded and unclean localities an offensive

State of the atmosphere was observed also when the people moved to huts from infected houses the infection sometimes followed as though conveyed in bedding and clothing: in one instance some bags of waggery were suspected and consequently destroyed. The first indigenous case which occurred at mathigiri was a tailor who was known to be in constant communication with Bangalore and clothes were probably the means of conveying the infection, at Shulagiri and Osahalli charcoal bags were suspected. None the Hospital attendants or Sapper engaged in disinfecting work contracted the disease but a Police Constable who stole jewels from the dead body of a patient at Hosur died from the disease in a few days.

Climate & its effects on the spread of the disease.

The inclemency of the weather in the Hosur Taluk, which is on

the same high level as the upper plateau, at the end of the year when the disease first became indigenous delayed the complete evacuation of the villages and by causing the people to crowd together particularly at night time and collect about them as much bedding and clothing etc as available no doubt materially favoured the continuance and spread of the infection, and the gradual diminution of the disease as the warmer and drier weather approached and the people could live and expose their houses & property more freely to the air indicates that the disease only thrives in damp, dark overcrowded and ill ventilated dwellings.

Ambulance staff for The 1st ambulance staff with an establishment and equipment according to the scale prescribed in the Mufassal Plague Regulations was formed at Trichi in September and was transferred to Mettupalayam in November and did useful work in that and the neighbouring villages which subsequently became infected. The 2nd ambulance staff was formed at Salem in December and was transferred to Dharapuram shortly afterwards and has done good work there and at Berikai.

The strength of these staffs varied from time to time through sickness and desertions and was with considerable difficulty maintained as nearly as possible at the full complement but owing to the thin population of the country and the hardship attending the duty in the neighbourhood of cleared villages with a panic stricken population scattered in all directions, sufficient coolies were difficult to obtain in inclement weather and a dangerous infectious disease to be dealt with was real

and

and work was often exacted from the menials with great difficulty - there has been less discontent lately as the work has been lighter and other circumstances more favourable but there is little doubt that the menial servants for quiet work will always be difficult to obtain and keep together for any length of time.

Nurses:- Three Eurasian Nurses were employed and did useful work among female passport holders and patients. Headquarters Webber and Lilley with the Ambulance staff about them moved to the 2d ambulance at Katakapii and Benikai to which they due for the very efficient and cheerful manner in which they performed their duties and contributed to the comfort and welfare not only of the patients in hospital but to the members of the staff under most trying circumstances.

Observation Staff:- Has been distributed in 12 circles each with a radius of 5 miles and comprising from 80 to 100 villages in charge of one circle inspector these again were divided into four groups each with a supervisor to direct and supervise the work of the circle inspectors. At Matagini, Bagalis and Benikai Sub circles were established on account of plague being indigenous in the neighbourhood. The staff has worked well, the information being reliable and promptly delivered and the necessary action to be taken in the limited area has been efficiently carried out as the services of Supervisor Hedingat Matagini, Supervisor Lilley at Kraier and Supervisor Polk at Kialuagini and Benikai deserve commendation

and

the latter officer's untiring attention to his duties, often under most trying circumstances, largely contributed to the very satisfactory results obtained in eradicating plague from the villages of Okulagiri and Benikai and preventing the spread of the disease to other villages in the neighbourhood.

Hospitals:- Hospital sheds constructed with bamboos and matting with grass or tiled roofs according to the dimensions and plans described in the plague regulations were provided for each of the Road Frontier stations at Gummalapuram, Komaravanpalli, Komaravanapalli, Kothakondapalli, Susavada, Bagalur, Benikai, Kurubarapalli and Rayaketta accommodation for two of both sexes being provided: the establishment and equipment being according to the regulations: the treatment of the sick being entrusted to the Hospital Assistants in charge of the stations subject to the immediate control of the additional medical officer.

At first a plague hospital was established with accommodation for 2 males and 2 females at first under the control of the 1st ambulance staff and subsequently under the civil

apothecary

apothecary in charge of Local Fund Hospital with a separate establishment, when the accommodation was enlarged for 10 males and 10 females

At Malagiri the repoys lines were adopted for the purpose with accommodation for 7 males and 7 females under the management of the 1st ambulance Staff. At Pulagiri a Local Fund Chuttram was used for the purpose and accommodated 8 cots and at Berikai a Shed was erected and were managed by the 2nd ambulance Staff.

The Hospital at Jolarpet was under the immediate Control of the Surgeon General.

Hospital Sheds - have also been maintained at Tirupatur 8 beds, Vaniambady 10 beds, Krishnagiri 4 beds Salem 4 beds and Suramangalam 4 beds. and Equipped according to regulations but only those at Krishnagiri and Vaniambady have been used for a few patient

Segregation Sheds were also provided at each of these places and a health Camp at Kumor near Hosur.

In these temporary hospitals 61 men, 46 women, 29 children were treated of whom 76 recovered and 60 died or a mortality of 44.11 per cent. 21 deaths resulted from the pneumonic, 34 from bubonic and 5 from the Septic forms of the disease -

The low mortality among those treated at Mulagiri and Malagiri is attributed to most of the Cases being of the bubonic type which has been less fatal than the pneumonic or Septic types and to the care the patients received from the Nurses

Types of the disease observed

A large majority of the Cases observed in and out of hospital were of the bubonic form the inguinal & femoral glands being mostly affected, but the pneumonic and Septic forms were met with occasionally. The following Statement shows the sex Class, mortality and types of disease among those treated

Temporary Hospital	Sex		Class of patient treated		Total treated	Mortality				Total deaths	Pneumonic		Septic		Types of disease					
						sex		Class							Bubonic - glands affected					
															Inguinal or Femoral		axillary		cervical	
	M.	F.	Adults	Children		M	F.	Adults	Children		M	F	M	F	M	F	M	F	M	F
Komarranapalli	2	"	2	"	2	1	"	1	"	1	1	"	"	"	"	"	"	"	1	"
Benikai	4	1	5	"	5	3	"	3	"	3	"	"	"	"	4	1	"	"	"	"
Kottakondapalli	2	1	2	1	3	1	"	1	"	1	"	"	"	"	2	"	"	"	"	1
Linganadi	7	6	8	5	13	4	4	4	4	8	2	2	"	"	4	4	"	"	1	"
Kamandoddy	2	"	"	2	2	1	"	"	1	1	1	"	"	"	1	"	"	"	"	"
Krishnagiri	2	.	1	1	2	1	"	1	"	1	"	"	"	"	2	"	"	"	"	"
Mulagiri	20	11	29	2	31	8	3	11	"	11	2	"	4	"	6	2	7	5	2	3
Malagiri	12	23	30	5	35	2	8	10	"	10	1	2	"	2	7	10	2	6	2	3
Hosur	25	18	40	3	43	13	11	23	1	24	7	"	"	"	13	3	2	4	2	4

Diet

The Scale of ordinary Hospital diet was observed, the milk and Spoon diet Supplemented by meat extracts being administered during the febrile Stages and followed by half or full diets as the patients Convalesced. Stimulants

in the form of arrack was freely given when necessary.

Treatment: At the onset of the disease a purgative was usually necessary with the early administration of stimulants and tonics - buboes were sometimes incised and generally treated with Carbolized dressings

Disinfection: As admissn patients were provided with clean clothing and bedding and their own boiled and disinfected: Excreta were mixed with disinfectants and buried: the floorings were frequently scraped or washed and disinfected,

Attendants

attendants were provided with sandals & disinfectants for their hands and their clothing boiled and disinfected daily.

Disposal of the dead:- Clothes were saturated with disinfectants and the bodies burnt unless there was objection when burials to a depth of 5 feet were resorted to.

Medical Officers:- Dr: Walwyn Thomas was in charge of the 1st ambulance staff and operations around Hosur from 11.9.98 to 26.10.98 when he was succeeded on leaving the district by Dr: Noble who remained till 25.4.99 when he also left the district. Dr: Vertue Debbo was placed in charge of the 2nd ambulance staff and the operations around Shulagiri and Denkanikaire These Officers though new to the country & working under unfavourable conditions have performed their duties with ability and untiring energy and much of the success of the operations devised to check

check the spread of the disease may be attributed to their exertions.

Dr. Victor Zebbs deserves special credit for the very satisfactory results attending the precautions taken around Bhulageri and Beirkai and this officer is now in immediate charge of both ambulance staffs and the operations in the Hosur and Krishnagiri talugs.

Medical Subordinates. —

With the exception of those whose conduct has been separately reported on all have performed the important duties entrusted to their care with diligent attention and carefulness and have submitted to the hardships of exposure and isolation with as ~~from~~ much contentment as could be expected under the circumstances and I beg to bring to notice the particularly good work done by Hospital assistants Raman Nair at the Sudanda frontier Station, Hospital Assistant Swaminadan Nadar with the 1st ambulance staff and Hospital assistant Paul with the 2nd ambulance staff.

Civil Apothecary Gibbons in charge of the Local fund and plague Hospitals at Hosur and Civil Apothecary Fernandez at Krishnagiri have worked hard and will deserve commendation.

I have &c

Sd/ A. N. Rogers Harrison
Lieut. Col. I.M.S.
Dt med. & San. Officer.

(True copy)

Asst Surgeon
For Agl Master

led 2ER 21.7 + 2M 24/7

No. 1310
P

Salem Collector's Office,
20 July 1899.

From

Robert B. Clegg Esq. I. C. S.
Collector and District Magistrate,
Salem.

To

The Secretary to Government, Local and Municipal
through the Sanitary Commissioner and the
Surgeon General
Madras.

Sir,

I have the honor to submit the report regarding the measures taken to combat the outbreaks of plague in this District called for in Plague Commissioner's letter no. 4608 of the 1st May last

2. Passport System This system as laid down in G. O. no. 466 dated 13.5.98 was introduced in the District in June 1898 Special passport issuing officers were appointed by the Municipal Councils of Salem Tirupathur and Vaniambady at the Railway Stations of Suramangalam Tirupathur and Vaniambady. After the inspection

27/2886

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Station was opened at Jalarpet, the Chief Medical officer was appointed passport issuing officer and Local Authority of the place. The District Medical and Sanitary officer was the Local Authority for the town of Salem. Medical subordinates and Station House officers performed these duties at 22 and 77 towns and villages, respectively, village Munsiffs being the Local authorities in other places. On beginning a comparatively small number of passports was issued but they increased enormously as the Bangalore District and subsequently the whole of the Mysore Province were declared infected. The passport work has superseded by the District Medical and Sanitary officer for a few weeks and then I transferred the work to my own office. 49771 passports were issued up to the end of May

May last. Of these 34,209 either underwent observation or left the district before the expiry of the ten days period, 1340 persons have not been traced and in the remaining Cases the passports have yet to be recovered or accounted for by Tahsildars and Chairmen of Municipal Councils. These mostly appertain to the earlier period when the regulations were not well known to persons who attended our Shandies and returned to their villages in the Mysore territory in the evening. Persons who failed to take out passports or to undergo observation regularly were reported to me or the divisional officers and in the absence of reasonable explanation they were prosecuted. The number of prosecutions instituted up to the end of May was 191.

On the whole the system has worked satisfactorily and has enabled us to detect and deal promptly with the majority of the imported cases that have occurred.

Jalarpet Railway Inspection Station

This was opened on the 22nd August 1898 and the examination of trains was conducted by the District Medical and Sanitary officer for a week until the special medical officer Doctor Bell arrived on the 28th idem. At the outset the inspection staff consisted of one doctor, one retired assistant Surgeon Surgeon, 2 inspectresses and two Hospital Assistants. The first case of plague was detained on the 3rd October 1898 and by the end of the month the number of plague cases in the Camp rose to 11 recoveries and deaths. A large number of persons were also detained for observation so that it became necessary to replace the assistant surgeon by a doctor and to increase the subordinate staff both in the Camp and in the platform. Some further additions to the staff were made in January when plague having broken out at Vellore and other places in the North Arcot District, the examination of westward trains was started. The staff at work on the 30th June 1899 consisted of 3 doctors, 6 Hospital Assistants, 5 nurses, 9 clerks 1 Store keeper 1 Engine driver, 1 fireman and 23 servants. Of these 1 Hospital Assistant and one nurse with a staff of servants are exclusively attached to the Hospital Camp.

The Camp is divided into 3 main parts viz (1) the disinfection Camp (2) the Suspect Camp and (3) the

Station was opened at Salatgi [illegible]

On the [illegible]

plague hospital with its staff quarters
The last is situated at a distance
from the other two which are near
the Railway Station. The suspect
Camp is capable of accommodating
60 natives male and female and
Contains two separate sheds for
European male and female suspects
There are separate observation sheds
attached to it in which persons
of suspicious sickness are segregated
until plague symptoms become pronounced
The hospital camp contains
accommodation for 16 native patients
male and female and two sheds
for Europeans. Besides these, separate
wards are built for Panchamas
Up to the end of June last the number
of plague patients detained in the
Hospitals was 71 of whom 45 died. The

The number of persons kept under observation
Excluding those who were disinfected
and discharged amounted to 10936

4. The inspection Station at Jalarpet
was for a few weeks evaded by passengers
from the Bangalore side who alighted
at Pachur, a small Station at a
distance of 7 miles to the west of
Jalarpet; they thence proceeded by
road to Tirupattur or Vaniambady
and took train there. I made enquiries
and went to Pachur in October
Finding a large number of passengers
alighting there who were not bona-
fide travellers to villages near
Pachur, I posted a special Hospital
Assistant with two Police Constables
to strictly enforce the original instructions
Regulations 18 and 19. The passengers
from Bangalore then resorted to

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rebooking at the intermediate stations within the limits of the Kolar and North Arcot districts so as to make it appear that they were not coming from an infected area. As a result of enquiries the passport rules were applied to all the stations on the Bangalore line to the west of Jalarpet. This course effectually prevented evasions by rail

5. Road Frontier Stations and Observation Circles etc. Simultaneously with the establishment of the inspection station at Jalarpet, the district was placed under "Observation" - After making the necessary arrangements at Jalarpet in consultation with the Sub Collector and after inspecting some of the lines of communication from the Mysore Territory, frontier stations were opened on all the seven main routes at Tuttanadi, Kottanapalli Komarapalli, Gummalapuram, Kaggunta Berikai and Bagalur. The sites for the stations were chosen either by myself or the Sub Collector Pending the arrival of Special Plague Assistants for whom the Surgeon General was addressed, some of the outlying dispensaries were closed and the Hospital Assistants deputed to these stations and 6 out of 7 stations were opened before the 6th of August and the other station on the 11th September 1898. Portions of the Hosur and Krishnagiri Taluks adjoining the Mysore Territory to a depth of 20 miles were divided into 12 circles of two rows each circle being 10 miles in diameter 132 They were placed in charge of Sanitary Inspectors obtained through Sanitary Commissioner. Four circles were formed into a group and a Supervisor was appointed to each group. The Supervisor

there Salt Sub Inspectors. An ambulance
Staff was organized and kept in
readiness at Attur. An additional
medical officer was also posted
at Attur to assist the district medical
and Sanitary officer. The supervision
of the working of the frontier Stations
was entrusted to the Sub Collector
while the observation Staff the ambulance
Staff and the medical duties in frontier Stations were
placed under the orders of the additional
Medical officer subject to the supervision
and control of the district medical and
Sanitary officer.

6. The Municipal Councils of Salem
Tirupattur and Vaniambady were
also warned with reference to rule
5 of the rules sanctioned in G.O. No.
522 M. dt 13.3.97 to appoint the
necessary observation Staff, to provide
hospital and segregation Camps

and to prepare themselves against the
Epidemic.

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7. The Station House officers and
village officers were instructed
to prevent the entry into their villages
of persons coming without passports
and taught what they should do
on the occurrence of a suspected or
actual case of plague. The divisional
officers, Tahsildars, and deputy Tahsildars
were directed to give particular attention
to the Supervision of the work.

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8. Destruction of rats &c. — In the municipalities of Salem, Tiruppattur and Vaniembady, the grain bazaars were frequently inspected by the municipal officials and rats found in grain bags and godowns were killed and burnt. Else where Tahsildars and deputy Tahsildars did the same both at their Head Quarter towns and in the villages visited by them in their tours and instructed people personally and through the village Officers to frequently search for these rodents to have them killed and burnt. The goods sheds attached to railway Stations were frequently inspected for this purpose by the District as well as railway Officials.

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9. In the beginning of December 1898, rewards were offered for the destruction of rats, bandicoots & mice at 3 pies per head in the Unions of Venkamkotta, Hosur and in the first row of Observation circles

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circles adjoining the frontiers. viz: the circles of Thali, Hatigiri, Bagalur and Berikai. The System was subsequently extended to the Krishnagiri Union and to the remaining observation circles. The expenditure incurred under the head from Local Funds amounted to Rs 41-4-3

10 The ordinary Sanitary precautions were more closely attended to especially in the villages of the observation circles. Both district officials and the plague Staff during their rounds had villages cleaned up. Choultries and other public buildings where travellers from infected areas, especially the mysore territory, used to halt were disinfected at regular intervals, the Sweepings and rags or other waste matters left by travellers were burnt.

11 Commencement of Plague — The first imported case of plague was discovered in his district at Hosur on the 26th August 1898 ~~idem~~ it, within less than a fortnight of the outbreak at Bangalore. He was a weaver who had arrived two days previously from the Bangalore City. He had high fever and enlarged glands, and a ~~brot~~ younger brother of his had died of plague at Bangalore 10 days previously. It was, therefore, undoubted plague. Myself and the District medical & Sanitary Officer were at Hosur at the time. The patient was isolated in a mantapam 1½ miles from the Hosur town and a younger brother who subsequently developed plague was also sent to join him. A guard was placed at the mantapam to prevent them from having any communication with others. The contacts were segregated and their houses thoroughly disinfected under the supervision of the District medical and Sanitary Officer. The next imported case was that of a man who was found on the road near Krishnagiri. On removal to the hospital he became unconscious, had a bubo in the left groin and died shortly

12
13

shortly afterwards. This occurred on the 12. September 1898. I deputed the Sub. Collector to the place at once to make careful enquiries and find out his contacts and to have them segregated and to disinfect the places where he remained. Subsequently two cases occurred at Madanakuppam and one at Vartanapalli both being villages not far from the place where the last preceding case was found. The huts where the patients were isolated were burnt and the contacts kept under observation. The necessary disinfection was carried out under the supervision of the Special medical officer Dr. Thomas. I myself then proceeded to the villages in question, and learnt that people from Bangalore were returning to these villages from the Kuppam Railway Station in north Arcot and thence by a jungle footpath. The villagers were instructed to keep out all arrivals for ten days which they very willingly carried out.

While

While at Krithnagiri I got a wire of a Suspected plague death of a Muhammadan girl at Vaniyambady and that there was Serious opposition to all measures. I hastened to the place and all that took place there has already been reported to Government vide G. O. No: 1365. P. dated 25.10.98

12. Since then the number of imported cases gradually increased, the number of attacks in October and November 1898 being 25 and 35, respectively. A large portion of these occurred in villages in the Hosur and Krithnagiri Talugs and they were inspected and precautionary measures enforced either by the Additional medical officer, the Sub. Collector or the Special Plague officer who was posted to Hosur about the middle of September. Those detained at the

frontier

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frontier Stations were attended to by the Hospital Assistants attached to the frontier Stations and elsewhere viz the Hospital Assistants of the Ambulance Staff or of the nearest dispensary, subject to the orders of the Additional medical officer. The burial or burning of the dead and the disinfection of their goods and the places occupied by them were carried out by the ambulance Sanitary Inspector or the Circle Inspector under the supervision and orders of one or the other of the above three officers. These officers also attended to the segregation of all contacts.

13. In this connection I may state that our arrangements were greatly supplemented by the efforts of the people in the Hosur taluq. In almost every village in that taluq the people appointed their own agency (paid out of Subscriptions.) to watch arrivals from other places. People from infected villages were kept isolated at a distance for 10 days. People of one village were not allowed to go to another even to purchase necessaries without permission and except under Surveillance.

14 Indigenous Plague:— The people of Mathigiri were trading stealthily with Bangalore and they appear to have brought infection with their goods. Besides, there was constant communication between the Remount depôt and Bangalore. The first case was that of a tailor at Mathigiri bazaar who was seized on the 29th November and died on the 30th. The contacts were segregated in the Sheds temporarily erected by the Remount depôt. The tiles of the infected house were entirely removed,

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the

the interior of the house was drenched with perchloride Solution and the clothes and bedding of contacts were disinfected near their Sheds, the remainder of their property being exposed to the Sun. The 2nd Case was attacked on the 5th December. Abont a dozen houses including those in which these two cases occurred formed a Separate block: these were untiled and disinfected; dead rats were found in the houses and in ditches with enlarged glands. There was one attack on the 8th, another on the 9th idem and two on the 10th. The disease established itself and rapidly spread so that on the 11th + 12th; there were 10 attacks and 4 deaths. I proceeded to Matejiri on the 11th December. The patients were segregated in their own houses and the contacts in the Chattram. Arrangements were made with the Superintendent of the Remount depot & the Sepoy lines were converted into a plague hospital

A.

A Site on a high ground near the Same time Selected and Sheds with bamboo mats constructed thereon for segregating contacts. As Several deaths occurred among contacts in the Chattram, the latter was vacated and the contacts were removed into the new Sheds as Soon as they were ready. People were advised to evacuate and they with a few exceptions readily did So. A number of tents were procured from Madras and lent to Some. The rest erected Spadily temporary Sheds and field huts and removed from the village. Most of these huts were in the owner's fields and in Scattered camps. Abont the middle of the month, Sepoy Station, Kudirapollium & Gadipollium which are portions of the Remount Depot occupied by its employees were affected. The Superintendent of the Remount depot directed each of the depot Servants who had not been attacked to evacuate their houses: they were at first housed temporarily in a depot building and afterwards removed to temporary Sheds

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v

or into tents put up for them by the depot. Ultimately every house was completely evacuated and the local police set to prevent persons reentering their houses: but this was not effectively done.

There were also cases in these Sheds which having thus become infected were burnt & the contacts removed to the Segregation Camps. Plague cases within the depot limits were sent over to our hospital but arrangements were made with the depot Authorities that they should look after their own contacts. The Matigiri circle was divided into three sub circles & a Sanitary Inspector was appointed to each of them. The ordinary Circle Inspector was posted for duty in the infected village. The first ambulance was moved from Hosur to Matigiri and they were placed in charge of the Plague Hospital & the Segregation Camp subject to the immediate orders of Dr. Noble, the Additional Medical Officer. Mr. Hodding, Supervisor of the Dinkanikotta Prong, was placed

placed on special duty at Matigiri under Captain French, Special Plague Officer, to attend to the untiling of houses disposal of dead bodies &c. Mr. Gilby, the Supervisor of the prong and the Sanitary Inspectors were engaged in daily inspecting the Sheds and tents into which the people had removed for several miles around. They promptly reported cases of sickness and segregated such cases and their contacts in Separate Sheds or removed them when convenient to the plague hospital & Segregation camp at Matigiri. There was great difficulty in arranging for the disposal of the dead. No body would touch the corpses, not even the near relatives. Special coolies were engaged on a pay of Rs 8 a month and they were provided each with a pair of common clothing to work in, and the bodies were carried in a hand cart placed at our disposal by the depot Superintendent and buried. When the relations had no objection, the corpses were burnt. There were in all 121 cases at Matigiri including

the Removed Villages, Kuthiarpalayam Gadipalayam, & Sepoypalayam, of which 89 proved fatal.

15. The evacuated houses were full of property and the owners had left locking them up. This was a source of difficulty They were required to remove their things to the fields where they were exposed to the Sun every day & the Circle Sanitary Inspector was required to see this done. Labour was not available for disinfection people were afraid to go into the infected houses. With difficulty some coolies were got at 8 annas a day & they worked at disinfection under the ambulance Sanitary Inspector. The work went on very slowly. A detachment of 25 sappers was at last procured from Bangalore under the command of a non-Commissioned Officer. The houses in which cases had actually occurred were disinfected, the floors dug up & burnt & then they were whitewashed. The other houses were

drenched

drenched with perchloride of mercury. The roofs of houses were untiled, left exposed for two months & then they were retiled by the owners themselves.

16. The disease next broke out at Tuzuvadi on the 15th December but being a small village and as the people evacuated their houses promptly there were only 9 attacks and 6 deaths in that village.

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17. Indigenous cases also occured about the same time at Shalagini. The infection to this village was probably carried by charcoal bags as the village trades in charcoal with Bangalore. Before the end of the month there were 40 seizures and 28 deaths. The weather being wet favoured the disease. The additional Medical officer and the 1st ambulance staff were engaged at Mattigiri. The 2nd ambulance staff which had previously been organized and kept in readiness at Salem was sent there also. and, the Dt Medical and Sanitary Officer took charge of the operations there. A plague hospital shed and a contact camp were built by a party of Sappers deputed from Mattigiri. There was considerable difficulty in procuring

many villages in the Hosur taluk and the severity with which it prevailed at Anekal, Doubasandra, Sarjapur and other mysore villages close down borders rendered necessary strict preventive measures. The guards at the frontier stations were increased and a post at Kempati was established so that the frontier on the west may be regularly and systematically patrolled and arrivals without passports checked. That Inspection Stations were established at Ryzakota and Kurubarapalli so that infection might not spread below the ghats into the Krishnagiri taluk. A fourth Inspection was appointed to the Observation

Staff observation, the extent of each group being reduced to 3 Observation circles so as to ensure better supervision on the part of supervisors. The Bagalur circle was divided into two sub circles, each and each an additional Sanitary Inspector being posted to it. Groups Nos I and II were placed in charge of Dr Noble with the 7th ambulance corps and the supervision of the plague hospitals at Mathigiri and Hosur was entrusted to them. Dr Jebb was appointed to the charge of the Observation groups III and IV with the supervision of the hospitals at Shulagiri, Bargur and Krishnagiri 75 additional coffers under the command of a European Officer

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were sent for & complete the disinfection of all the villages.

19. Hosur was the last important place to become infected. It is gratifying that although plague was severe close & Hosur on all sides, the infection was kept off for a long while. The people recognised the advantage of evacuation and were making preparations for the purpose. They had no field huts, as in villages, to go to, and it was difficult to procure hutting materials. Mats were purchased at Salem and sent to Hosur and bamboos & rope also supplies. They were issued free of cost according to requirements of each family and to value not exceeding Rs 5-0-0 to indigent persons and public servants drawing less than Rs 10 per mensem. Those who were in receipt of pay of more than 10 Rs were given one half the cost from Provincial funds. The annexed statement shows the details of the distribution and the cost of the materials. The total cost to Local and Provincial funds under this head amounted to Rs 792 and 69 respectively. The majority evacuated the town readily enough but some families remained behind and some of those who went to the

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Statement showing the number of mats supplied to indigent persons etc.

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Mats supplied to						Number of mats sold.		Remarks
Indigent persons		Peons &c drawing below Rs 10		Officers drawing more than Rs-10				
Number	Cost	Number	Cost	Number	Cost	Number	Cost	
1	2	3	4	5	6	7	8	9.
1086	604 1 8	346	188 8	267	137 7	579	302 11 8	

Kept pending writing from Karoo. The disease was in Cawnpore suspended in the Cawn and Mads the evacuation was made Campaign and entry into the Cawn within Kanee. Then the Shahjahanpore Affair was pushed forward and a corps of Police and Irregulars near Kalpee were blockaded the Cawn. This had the Desired effect. As Cawn then a fortnight the disease almost disappeared Kanpur Instantly the Deaths was also hardly due to the efficacy of the hot weather & Campore were diminished as soon the Cawn and Mutineers communicated

The usual Daily (or annual) Return

Was made up

Station

Kanpur

Disinfected

disinfected in the same
manner as at Mattigiri by
the Sappers. The inmates of
some of the houses which
were merely drenched
with perchloride of mercury
subsequently developed plague
in the sheds. These were
marked for further disinfection.
The Sappers were permitted
to return to Bangalore on the
13th April. 19 coolies were then
engaged for disinfection on
condition of paying them
wages at 4 annas per head per
diem and batta 2 annas a day
when taken out of town. The
weavers of town, some of whom
have suffered a good deal from
want of employment during
the prevalence of plague, have
taken to this work and the Special
Plague Officer reports that they

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are a success. They have been employed on disinfection work also at Nagondapalli & Mukundapalli & Mer villages.

20. The annexed Statement shows in one view the number of cases imported and indigenous in various parts of the District and the period of their occurrence. Up to the end of June 468 indigenous cases with 360 deaths and 163 imported cases with 100 deaths occurred. Of these the majority (574 seizures & 384 deaths) occurred in the Hosur Taluk, the remaining cases being distributed between the Jimpattur Krishnagiri & Salem Talukas. Only one imported Case occurred at Uttangarai. The remaining talukas were free. Including the imported cases the highest number was recorded at Hosur followed by Krishnagiri and Shulagiri the attacks being between 125 & 100. At Bargur Jegoor and Chinna Belagondapalli the attacks numbered between 20 & 25. In other places they were not above 10.

21. The subjoined statements shows the number of inoculations, the names of places and the officers who performed them. It will be found

Locality	Total inoculations performed up to 30th June 1899			Name of medical officer or Subordinate who performed inoculations
	Males	Females	Total	
Salem Town	85	31	116	Lt Colonel A. N. Rogers Harrison IMS
Krishnagiry and Gadiputtam	16	14	30	— Do —
— " —	15	3	18	Dr H. A. E. Noble A.M.O
— " —	27	18	45	Major Bannerman
— " —	1245	833	2078	Captain Dodd Surgeon of the Remount depot
Mathagondapalli	2	2	4	Dr H. A. E. Noble
Hosur	141	50	191	Major Bannerman
— Do —	237	135	372	Civil Apothecary Gichlum
Thirthagiry	22	17	39	Dr Fernandez
Total	1790	1103	2893	

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familiarity with the people except temporarily at Hosur
and Mattigiry where plague was raging
or the outbreak was imminent. At
my request a lecture on inoculation
was delivered at Hosur by Dr Bannerman
in December 1898 and at the close of the
lecture and on the following day 191
persons including females were
inoculated by him. Among those
inoculated at Mattigiry, 29 persons
were attacked with plague of whom
16 died. The fact that inoculated
persons died destroyed what little
faith the people had in inoculation.
Most of the cases, however, I believe,
were cases inoculated when it was
too late but this was unfortunately
of course not understood. No cases
of plague has occurred among
those inoculated at Hosur, Mattia-
— Sundapalle

– gudapalli, Krishnagiry, or Salem.
Inoculation was not pressed. In
order to make it a success we require
a sympathetic inoculator in whom
the people have confidence.

22 Besides those at the Frontier and
ghat inspection stations and at
Mathigiry, plague hospitals and
Segregation camps were also established
at Shulagiry, Berikai, Hosur, Krishna-
-giry and Suramangalam. At
Shulagiry the Local Fund Chuttram
was used for the purpose of
hospital and accommodated 8 beds.
At Berikai a Shed was erected.
Both these were managed by the
2nd ambulance staff. The Hospital
at Hosur was built to accommodate
2 males and 2 females and was
in charge of the 1st ambulance
until they were removed to Mathigiry

in December and then the management
thereof was entrusted to the Local
Civil Apothecary and the hospital was
enlarged for 10 males and 10 females.
A health camp at a cost of Rs 600
was built near Hosur but it was
not freely resorted to by the people.
They have as a rule a strong objection
to going to any sheds especially
erected for them by Government
and much prefer their own. The
Krishnagiry and Suramangalam
Sheds provided for 4 beds each.
No case of plague was detained in the
latter.

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The number of patients treated at each of the Hospitals and the mortality among them are shewn in the subjoined Statement.

Temporary Hospital	Sex		Class of patients treated		Total patients treated	Mortality				Total deaths.
						Sex		Class		
	Males	Females	Hindus	Mahomedans		Male	Female	Hindu	Mahomedan	
Thomarnapalli Frontier Inspection Station.	2	..	2	..	2	1	..	1	..	1
Berikai	4	1	5	..	5	3	..	3	..	3
Uthankarai Frontier Inspection Station.	2	1	2	1	3	1	..	1	..	1
Tenkanikadi Frontier Inspection Station	7	6	8	5	13	4	4	4	4	8
Vaniambady	2	..	..	2	2	1	..	..	1	1
Thirupathy	2	..	1	1	2	1	..	1	..	1
Shulagiry	20	11	29	2	31	8	3	11	..	11
Mathigiry	12	23	30	5	35	2	8	10	..	10
Hosur	25	18	40	3	43	13	11	23	1	24
Total	76	60	117	19	136	34	26	54	6	60

23. Municipalities

Salem Municipality. The Council has appointed a Military Hospital Assistant at the Saramangalam Railway station to inspect arrivals and passport ~~them~~ them. An observation staff consisting of 9 circle Inspectors and a certificated Sanitary Inspector has been appointed. The circle Inspectors constantly move about their circumscriptions, send all arrivals from infected areas to the local authority for observation and carefully watch the health of the inmates of the houses where they halt up. There is a Eurasian Nurse who inspects the female travellers at their residences. A plague camp has been constructed at some distance from the town at a cost of Rs 1802. The Hospital Contains

Contains accommodation for 4 patients. There were only 3 imported cases in the town all of which were fatal.

Tiruppattur Municipality

The system of observation of travellers arriving from infected areas was started in July 1898. After the Bangalore District was declared infected a special passport issuing officer was posted at the Railway Station and an observation Staff consisting of a Divisional Inspector and a Circle Inspector was appointed. The provisions of original Mufassal Regulation I were luidely pro-claimed, houses were white-washed and all precautions taken. The number of arrivals increased considerably since January 1899 owing to the outbreak of plague in the North Arcot District. An additional passport issuing officer was appointed at the station and the observation staff was also strengthened by two more Circle Inspectors four Vaties and three peons. A Segregation Camp and a plague hospital were provided at a cost of Rs 1373. The necessary equipment and stores were kept ready. 8 imported cases occurred of which 6 proved fatal. In all these cases the patients and contacts were segregated in their own houses as they were unwilling to go to the plague camp. A special Hospital Assistant was employed from March 1899 to the end of June 1899 on account of plague and cholera duty.

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Vaniambady Municipality

The same precautionary measures as at Salem and Tiruppattur were adopted here. There was a special

Special passport issuing offices at the Railway Station, as also an observation staff and a special Hospital Assistant. A plague Hospital and a segregation shed were erected. Here were 8 imported Cases and one indigenous case. Of these 6 proved fatal.

24 The salt, abkari and Customs department deputed 30 peons for plague duty and a temporary Police Establishment consisting of one Police Inspector on Rs 70, a 1st grade Head Constable on Rs 25-15, a 2nd grade Head Constable on Rs 20, a 4th grade Head Constable on Rs 16 and 88 First class Constables was employed. A European Head Constable on Rs 35 and also some Constables when necessary were deputed from the District Force.

Inspector

Inspector, two native Head Constables one European Head Constable and 45 Constables are on duty at Jalarpet in Connection with the inspection of passengers on the platform and in guarding the Plague Camp. A detachment of 60 Sepoys from the 17th Madras Infantry was guarding the Camp from the middle of October 1898 to 25th March 1899.

25 Among the Staff on plague duty two ambulance ladies, two Police Constables and a peon of the Vaniambady municipality contracted plague and died.

26 In March and April Several Cases were imported at Tirupattur from Bowringpet and Doddigunta and as plague prevailed about Tirupattur in the North Arcot District close to our Frontier in the Krishnagiry Taluq a special guard consisting of 10 peons under a Sanitary Inspector was appointed to patrol the tracks leading from the Mysore State and the North Arcot District at the Krishnagiry-Vepanapalli side to watch all arrivals and

15

to passport them.

27. The re-occupation of Mathigiry Shulagiry, Berikai, Olahalli, Jeegur, Zunzunadi, Poonapalli, Tho thapalli and a few other minor Villages was permitted bi the beginning of April and of Hosur in May. There has been fortunately no recrudescence bi these villages since.

28. The direct charges from Provincial and Local funds on account of Plague measures up to the end of June last amounted to Rs 106364 as under.

Provincial	31874
Local	74490
	106364

Opposition to Plague measures

The measures have on the whole been smoothly worked bi them since opposition. In the Hosur Taluq the villagers have realized the necessity and advantage of evacuation. At the outset owing to all sorts of rumours and scares there was some opposition bi Vaniambady, but this was soon overcome as above mentioned. The Supervisor Mr Salisbury and his wife were rushed in Helamangalam, Hosur Taluq, as some malicious person had spread a rumour that he had put some red powder into and poisoned a well. The Forest officer Messrs Moss and Daly were badly beaten being mistaken for inoculators bi the Nomadic Jalugs. There was a fight in Calampatty bi the Denkenigode Taluq due to the idea that a Vaccinator was intending to inoculate. Beyond these instances nothing of importance occured and idle rumours have now almost died away.

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30. I cannot close the report bi thus mentioning the excellent services rendered by Captain French Special

Special Plague officer and the Additional Medical officers Doctors Noble and Fallis. Captain Ffrenches services have been invaluable and he has worked with untiring energy. Among the subordinates Civil Apothecary Gibbons at Hosur has had especially heavy work and the services of Hospital Assistants Swamidoss Nadar Paul and Raman Nair deserve recognition. Supervisors Mr Gilby and Mr Bell of the Salt Department have also done exceptionally good work.

31. A copy of the District Medical and Sanitary Officer's Report is enclosed.

I have the honor Sir

Your most obedient humble Servant

[illegible]

28/2588 of 1899

Name of locality	Taluq	3-9-98	8/10-6-97	17-6-97	24-6-97	30-6-97	7-7-97
1. Hosur	Hosur	2	-	-	-	-	-
2. Krishnagiri	Krishnagiri	-	-	-	-	-	-
3. Varatanapalli	—do—		-	-	-	-	-
4. Madanatimmam	—do—		-	-	-	-	-
5. Vaniyambadi	Tirupattur		-	-	-	-	-
6. Gurramalapuram	Hosur		-	-	-	-	-
7. Jalarpet Plague Camp	Tirupp	2	2	-	-	-	-
8. Erzuvadi Frontier Station	Hosur		-	-	-	-	-
9. Bagoor	—do—		-	-	-	-	-
10. Nattigiri	—		-	-	-	-	-
11. Salem Town	Sa		-	-	-	-	-
12. Tirupattur	Tu		-	-	-	-	-
13. Jalarpet Village			-	-	-	-	-
14. Kottakondapalli T. S.			-	-	-	-	-
15. Bagalur			-	-	-	-	-
16. Denkanikota			-	-	-	-	-
17. Nallur			-	-	-	-	-
18. Maveripalnam			-	-	-	-	-
19. Ettikodi			-	-	-	-	-
20. Elulagiri			-	-	-	-	-
21. Nomaranapalli			-	-	-	-	-
22. Girisamudram			-	-	-	-	-
23. Erzuvadi V.			-	-	-	-	-
24. Mamanthur			-	-	-	-	-
25. Perumalpe			-	-	-	-	-
26. Chinnak			-	-	-	-	-
27. Kelliand			-	-	-	-	-
28. Kothaf			-	-	-	-	-
29. Jigg			-	-	-	-	-
30. Kapf			-	-	-	-	-
31. Be			-	-	-	-	-
32. ?			-	-	-	-	-
33.			-	-	-	-	-

14-7-97	21-7-97	28-7-97	4-8-97	11-8-97	18-8-97	25-8-97	1-9-97	8-9-97	15-9-97	22-9-97	29-9-97	6-10-97	13-10-97	20-10-97	27-10-97	3-11-97	10-11-97	17-11-97	24-11-97	1-12-97	8-12-97	15-12-97	22-12-97	29-12-97	5-1-98	12-1-98	19-1-98	26-1-98	2-2-98	9-2-98	16-2-98	23-2-98	2-3-98	9-3-98	16-3-98	23-3-98	30-3-98	6-4-98	13-4-98	20-4-98	27-4-98	4-5-98	11-5-98	18-5-98	25-5-98	1-6-98	8-6-98	15-6-98	22-6-98	29-6-98	6-7-98	13-7-98	20-7-98	27-7-98	3-8-98	10-8-98	17-8-98	24-8-98	31-8-98
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Local & Munl. (1899) Department.

CURRENT No. 1059 P.

ASST SECY TO GOVT. 26 JUN 1899 MUNL & LEG DEPT.

From Surg. Genl. C. Sibthorpe, C.B., F.R.C.P.I.
Surgeon-General
with the Govt. of Madras.

No. 1312

Dated the 24th June 99.

Received at Ootacamund 25-6-99
at Madras 28-6-99

Registered 28-6-99

Enclosures

Spare copies.

Letter Cons 1059 P

~~Order~~

The reports referred to have been forwarded to the Sanitary Comrs. for transmission through the Surgeon-General, who is requested to send them at an early date with his remarks

Secy 29/6/99

606

1.7

To Mr. C.S.

Copied 1.7.99

To Dr. Copied 1.7.99

Dr 15/8/99

SUBJECT.

Stating that the Collectors of North Arcot and Guntakal Districts report that they have sent in their reports on plague operations direct to Govt.

BACK PAPERS.

G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.

A No 1598.

No. 88/312

OFFICE OF SURGEON-GENERAL
WITH THE GOVERNMENT OF MADRAS,
Camp Ootacamund the 12th June 1899.

From

SURGEON-GENERAL C. SIBTHORPE, C.B., F.R.C.P.I.,
SURGEON-GENERAL WITH THE
GOVERNMENT OF MADRAS,

To

THE HON'BLE THE CHIEF SECRETARY TO GOVERNMENT,
Local & Municipal DEPARTMENT.

SIR,

With reference to Memorandum
Reference on C No. 4608, dated 31st May 1899.
I have the honor to state for the information
of Government that the Collectors of North
Arcot and Anantapore Districts report
that they have sent in their narratives
direct to Government as the channel
of submission was not then intimated

1295
7.6.99

I have the honor to be,
Sir,
Your most obedient Servant,

C. Sibthorpe
Surgeon General.
Surgeon-General
with the Govt. of Madras.

Local & Munl. (1899) Department.

CURRENT No. 23187

File

Order

From Surgeon General
C. Sickthorpe C.B. I.M.S.
Surgeon-General
with the Govt. of Madras.

No. T8/422

Dated the 5th August.

Received 8 AUG 1899

Registered 8-8-99

Enclosures 1.

Spare copies.

Note

The orders calling for Plague Reports from Offrs of infected districts are now at Ooty.
await its return
8/8

SUBJECT.

Pubn submitted the 5 q mans.
Not required next week.
11/8/99
Mr Ivory
Monday
11/8

Forwarding a copy of telegram from the Secretary Commissioner regarding Reports on plague operations.

P.A.S.

BACK PAPERS.

G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.

Copy of Telegram from the Sanitary Commissioner
to the Surgeon General with the Govt: Madras.

No. _____, dated 30th July 1899.

"Your 1147 of twenty fifth July please inform Government last report of Series Salerii reached me twenty fourth queries on this pending"

(True copy)
Captain A.M.S.
Ag: Secy. Surgeon-General
with the Govt. of Madras.

[1]

No. 2313 P.

OFFICE OF SURGEON-GENERAL
WITH THE GOVERNMENT OF MADRAS,
Camp Ootacamund 5th August 1899.

No. T8/422

From

SURGEON-GENERAL C. SIBTHORPE, C.B., F.R.C.P.I.,
SURGEON-GENERAL WITH THE
GOVERNMENT OF MADRAS,

To

THE ~~HON'BLE THE CHIEF~~ SECRETARY TO GOVERNMENT,
Local & Municipal DEPARTMENT.

SIR,

With reference to a reminder Memorandum dated 20th July 1899, I have the honor to forward for the information of Government the enclosed copy of Telegram from the Sanitary Commissioner, Madras to whom the Reports referred to in the reminder have been forwarded for remarks

I have the honor to be,
Sir,
Your most obedient Servant,

C. Sibthorpe

Surgeon General
Surgeon-General
with the Govt. of Madras.

1
2313 Postcard

Local & Munl. (1899) Department.

CURRENT No. 2542 P

File

Order

From Surgeon General
& Sikhanpe CB, IMS
Surgeon-General
with the Govt. of Madras

No. 8472

Dated the 24th August 99.

Received 29 AUG 1899

Registered 29-8-99

Enclosures

Spare copies.

SUBJECT.

Reporting that the Sanitary Commissioner has been called upon to expedite the despatch of the Reports on the last outbreak of Plague in certain districts

BACK PAPERS.

G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.

No. 23427

[No. 4]

OFFICE OF SURGEON-GENERAL
WITH THE GOVERNMENT OF MADRAS,

No. 18472 Camp Triplicane, Madras, 24th August 189 .

From

C. B.,
SURGEON-~~MAJOR~~-GENERAL C. SIBTHORPE, F.R.C.P.I.,
SURGEON-GENERAL WITH THE
GOVERNMENT OF MADRAS,

To

THE Secretary to Government
Local and Municipal Department.

SIR,

In reply to Memorandum dated August 189[illegible] calli
for Reports on the last out-break of Plague in certain Dist[illegible]
I have the honor to report for the information of Government
that the Sanitary Commissioner Madras has been called upon t
expedite their despatch. They will be forwarded as soon as r[illegible]

I have the honor to be,
sir,
Your most obedient servant

C. Sibthorpe

Surgeon-Gener[illegible]
Surgeon-General with the Govt: of M[illegible]

Local & Munl. (1899) Department.

CURRENT No. 28689

Order

From Surgeon General C. Lebthorpe, C.B. Rep.
Surgeon General with the Govt of Madras

No. T/573

Dated the 19th September 1899

Received 23 SEP. 1899

Registered 23-9-99

Enclosures 28 (2 maps) &
C. Nos. 1352, 1261 & 1295-P
Spare copies. noted

SUBJECT.

Transmitting with his report thereon letter No 601 dated the 26th August 1899 from the Sanitary Commissioner, Madras, submitting along with his remarks the reports furnished by the Collectors concerned on the measures adopted to combat the outbreak of plague in this Presidency.

BACK PAPERS.

G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.

Cuddalore Collector's Office
Cuddalore 11th July 1899.

To

The Sanitary Commissioner for
Madras,
Through the Collector of Cuddalore.

Sir,

Referring to my Memo. 47/7, dt. the
11th inst. I received here in Camp at
Royachoty on the 13th. I respectfully
to state that I do not know
Oosman Patcha Saheb is. Out of
the Seven Inspectors working with
me there was one Syed Ahmed Zaf
Khan, Inspector of Velpumadugu Circle
who was somewhat below the mark
as regards his knowledge of English.
He was found however very useful

in looking after the Sanitation.

In the Course of my Conversation with Dr. Robertson I do remember having mentioned this Inspector's name to the above effect. I told him that the Inspector's knowledge of English was poor & that he now & then Consulted others for drafting official Correspondence. "Some of the men + ++ so that their diaries came to be written by others". This is not literally true This one Inspector Consulted others to see the English was alright. The diary of this Inspector was in his own handwriting which was tolerably good. He was a Temporary man trained at Saidapet.

I beg to remain
Sir
Your most obedient Servant,
P. Ramarao.

5/2/84

No. 2.

Temporary Sanitary Inspector

Educational status of Muhamad Oosman Patcha Sahib.

Passed Middle School in the Ist class in 1883.

Passed Police Test in 1893.

Held the Appointments of special Translator and clerk of the Sea Customs Office CoCanada 4 years.

Appointed as Inspector of Police Cuddapah District in 1889 and transferred to the Trichinopoly District.

Served as Station House Officer for a period of seven years.

Resigned in favour of the post of Agent to the Nawab of Masulipatam.

To read and write English, Tamil, Hindustani, and Telugu.

Talk- Canarese and Persian.

Temporary Sanitary Inspector

Educational status of Muhamad Oomar Patcha Sahib.

Passed U.C.S. examination in 1880.

Criminal lower test in 1885.

Police Inspector's test in 1882.

Served as Police Inspector for 2 years in Coimbatore and South Canara Districts.

Served as correspondence clerk in the Executive Commissiariat office, Secundrabad for 4 years.

Served as 8th clerk in the Sub Judge's Court, Cocanada for 4 years.

Assistant Traffic Superintendent, East Coast Railway for 8 months.

To read and write English, Tamil, Telugu, and Hindustani.

To talk--- Canarese.

[500—5-6-99.]

No. 37/P

Office of Sanitary Commissioner,
~~Madras~~, Camp Masulipatam 14th June 1899.

From

Lieut.-Colonel W. G. King, C.I.E., I.M.S.,
Sanitary Commissioner for Madras,

To

The Collector of Anantapur.

Enclosure.

Sir,

In your letter No: A. dated 28 May 1899, you state as follows :-

"An incinerator costing Rs 180 was constructed at Guntakal Junction on Colonel King, the Sanitary Commissioner's suggestion, but I never found it was of much practical use". Would you kindly state whether this incinerator was made of stone or brick in mud and or in chunam, and if the latter whether it was so specified by me, and in what communication to you. Was there no work for the incinerator to fulfil or did those in charge of it neglect to cause it to fulfil its function ? I may state that, whilst it is probable I advised an incinerator for use at the Plague Hospital Camp, I am not aware of making ~~only~~ any such recommendation in regard to the Guntakal Junction-otherwise than with respect to the railway porters lines, where the expenditure would not have come under your cognizance. I would also add, if your account adheres to my events as they occurred by dates, that I was not in this Presidency during the week ending the 27th August. It was not until the 14th September that I met you at Guntakal and thereafter advised you or Captain Robertson at intervals until the arrival of Mr: Hammick relieved me of responsibility.

2. I should further be obliged by your kindly giving me the evidence on which you make the important and interesting sanitary statement that "the diseased rats eventually

migrated

migrated in armies and I believe carried the infection 4 miles down the road to Konakondla".

This remark is made by you in your account for the week ending 22nd october; but you again refer to rats dying at Kona-Kondla in the week ending the 24th December. I was present at Gooty and myself sent a telegram to the Deputy Collector on plague duty at Guntakal giving him what I believe was the first intelligence of rats dying at Konakondla-from information given to me by Certificated Sanitary Inspector Kothanda Rama Rao on the 24th Dec 1898. Am I therefore to understand that dead rats were discovered in Konakondla during the week ending October, and again during the week ending the 24th December ?

3. In para 55 you assert that of a total of 2038 cases of inoculation "except in a case or two of 4 patients already infected " immunity was secured as a result of the operation. Is this information given as a result of full enquiry as to results in each of the 2038 cases; or on what evidence do you make this statement ?.

4. You state "the more sanitary a locality appeared, the worse it suffered. Thus Panchamas in their crowded huts hardly suffered at all in any village".

(a). Would you kindly give the rate percent of attack by plague amongst Panchamas, Mahomedans and Hindus respectively of the total villages attacked; or, if such statistics be not available, could you illustrate your meaning with more limited statistics.

(b). Please compare the structure of the dwelling of the average well-to-do Sudra in your district with that of the average Panchama-more especially with reference to points affecting the ventilation of dwellings, and the habit of retaining cattle within dwellings.

(C). In reference to habitation by rats of dwellings occupied by Sudras and Panchamas, respectively, are you of opinion that the extent of stores of grain in the former would offer greater temptation to rats than in the latter.

(d). Has your experience in this epidemic of plague been such as to bear out your remark to the extent of your conceiving that an insanitary locality and overcrowded huts would be unfavourable to the spread of plague?

5. As your letter quoted above has to be forwarded to Government with my remarks thereon, I trust you will not mind kindly answering this reference at a very early date, so as to prevent any further delay in transmission than absolutely necessary.

I have etc,

(Signed). W.G.King,

Lieut-Colonel, I.M.S.

Sanitary Commissioner for Madras.

(True Copy).

Lieut-Colonel, I.M.S.

Sanitary Commissioner for Madras.

Ananatapur Collector's office,

No: 1071
19-6-99

Dated 19th June 1899.

Camp, Ananatapur.

From

B. Macleod EsQ,. M.A., Bar-at law,

Collector of Anantapur.

To

The Sanitary Commissioner, Madras.

Sir,

With reference to your No: 27.P/T dated 14th June calling for further information as to the Plague Report of Ananatapur district, I have the honour to state as follows :-

2. The incinerator at Guntakal Junction Plague Hospital, was made of stone in mud. While it was under construction your instructions as given in one of your quarterly reports were brought to my notice by the District Medical officer. There was owing to popular prejudices never a full hospital, and there was not enough work for the incinerator to fulfil, insufficient to induce those in charge to use it regularly.

3. That armies of rats migrated from Guntakal is a statement based on the report of the Subedar in charge of disinfection who saw their traces. The appearance of the disease in an otherwise rather inexplicable manner amongst rats at Thimmancherla Railway station and among men and rats Konakondla supports the theory that diseased rats transmitted it, and I saw one such rat dead on the way to Konakondla. Dead rats were all along a feature of the epidemic at Kona-Kondla.

4. As to inoculation I speak as a non-professional observer and did not sufficiently investigate the question.

5. As to plague often sparing insanitary localities , I similarly speak from ordinary observation and instance it as an unaccountable feature of the disease. Statistics as to percentages of classes of population are not readily available. Panchamas' dwellings are as a rule smaller and worse

ventilated

ventilated than those of well-to-do Sudras and do not generally accommodate so many cattle as the latter-stores of grain especially in the houses of Komaties would be likely to attract rats.

I do not agree in the opinion. W. G. King.

I have etc,

(Signed). B.Macleod,

Collector.

(True Copy).

Lieut-Colonel, I.M.S.

Sanitary Commissioner for Madras.

8/2881 Plague

Plague Enclosure No. 4 to Letter No. 3573/1899

[500—5-6-99.]

No. 60 P/J. Camp Ootacamund, 26 August 1899.

Office of Sanitary Commissioner,

From

Lieut.-Colonel W. G. King, C.I.E., I.M.S.,

Sanitary Commissioner for Madras,

To

The Secretary to Government,

Local and Municipal Department.

Enclosure. 4

Sir,

With reference to Ref: on. C. NO. 4608 dated 31st May 1899, I have the honour to submit certain remarks on the reports herewith forwarded to Government. I have received no intimation as to the desired scope of these Reports, and have not been supplied with a copy of the queries put by the Plague Commissioner to the officers concerned. I therefore can but confine myself to such matters as are brought to notice apparently in reply to the queries that have been put. As the subject matter treated is much the same throughout, I do not deal with events as they occurred district by district, but would attempt to secure lessons for future guidance from the experience gained by the reporting officers.

A Mode of importation of the disease to the Presidency.

2. In not a single instance has it been reported that plague has been introduced into the Presidency by means of infected material, except in the Salem District. Here suspi-

10

cion

but not proof, fell upon gunny bags that had been used for conveyance of charcoal and, in another instance, upon clothing that it was suspected had been imported by a tailor. In both, the source of infection was said to be the Mysore territory, which immediately adjoins the district of Salem. A case to which no allusion is made in the Reports was also stated to have occurred in the Salem central Jail, in a woolworker who had to treat material imported from Bangalore.

3. Experience points to the fact that ordinary merchandize is rarely placed under conditions which would enable vitality of the plague microbe to be retained for any length of time. That infection can be conveyed by personal clothing is, however, indubitable. Possibly, the scanty nature of native clothing and the fairly frequent washing and exposure to sun it undergoes, gives less risk in this respect than in the case of woollen materials so largely worn in European countries. This fact is of importance, in that risks as to infection by clothing worn by travellers are in practice so small as to give greater value to preventive measures directed to the end of keeping the infected human being -as the great cause of spread of the disease- under surveillance. The policy therefore pursued of only demanding disinfection of the person and clothing of the exceptionally filthy, and of taking no notice of ordinary merchandize beyond prohibiting importation of a few articles specially liable to be infected, and concentrating attention upon watching the health condition of those arriving from infected

infected areas, has been justified in practice. 1084R

4. The area affected. Looking at the total area affected in the Presidency, the query naturally arises why our borders should have been attacked and not the interior. So far, experience has pointed to the simple fact that the greater the passenger traffic from an infected locality the greater the chances of infection, and that the nearer the source of infection the greater the risk. During the period upto August 1898, no cases of plague had occurred in the Presidency beyond two in Madras City in 1897. These were in the persons of Madras inhabitants who had been subjected to infection by proceeding to Poona. The reason for this freedom would seem to be the fact that ordinarily the amount of passenger traffic between Madras and Bombay Presidency is not large, and that it heavily diminished directly the existence of plague was known. Runaways from infected places in the Bombay Presidency rarely choose Madras for residence. Hence, the conditions that existed were that, whilst passenger traffic was small, merchandize arrived freely from the infected areas, and apparently without evil result. It was not till areas having close passenger traffic with Mysore became infected that this Presidency fell a victim to indigenous plague. Mysore has considerable passenger traffic with Hubli, and this town being infected was therefore a serious factor for Mysore. Mysore in turn has much passenger traffic by rail and road with Madras

Madras. The people early fled from the infected City of Bangalore in large numbers to their own and British villages. Thus, Salem, North Arcot and Anantapur along the borders of Mysore were gradually infected between August and December, by the arrival of infected persons from the Mysore territory

In the Anantapur District not only was this disease brought within its villages along its Mysore border (Hindupur taluk). but into Guntakal, by conveyance of infection direct from Hubli. From this second centre formed at Guntakal the disease spread to the Bellary and Kurnool districts, whilst a second focus was also formed in the Bellary District, in all probability by importation from Kotbal in the Nizams dominions.

5. In short, intercommunication for purposes of trade and possibly much intermarriage of border families-inducing relations to flee to each others houses in times of distress-suffices to explain the preference of the disease for the border districts. The interior of the Presidency apparently escaped not because there were climatic conditions which prevented its spread being favoured, but because human intercommunication with infected areas was very limited-for rural populations rarely care to flee far from the villages- and because such imported cases as did make their way to interior parts were so far as is known fully detected. That they were fully traced may not be the case, but having regard to the large proportion detected and segregated in the border districts before the disease baffled the vigilance of the authorities (or the absurd opposition

2

oppostion of the people prevented their success, it is a fair argument to assume that such cases as penetrated beyond the border Districts were, without exception, segregated and thus rendered harmless.

B. Precautionary measures - The prime method adopted was that of maintaining the persons from infected areas under a "system of observation", or, as it is sometimes called, "surveillance", for ten days after arrival. From 7th Oct. 1896 to 18th Jan 1897, the method was voluntary in the case of District Bds, and Municipalities; but was adopted universally at least in the latter having communication by rail with infected areas. These Bodies posted Sanitary Inspectors or Hospital Assts. at Railway Stations, in communication with Bombay, and from information gathered from passengers secured their domicilliary observation. The full inspection of passengers arriving by train from the Bombay Presidency was conducted at Adoni and Bezwada (from the 7th Oct 1896) as the stations nearest the frontier where, without appointing special medical staffs, this could be effected (G.O. No 111, dated, 19th Jan 1897). In the case of the Municipality of Madras, these arrangements were supplemented by the entertainment of a special inspecting staff at Perambur. By the 13th Oct 1896, with the consent of the railway authorities, the names of passengers from infected areas were transmitted by the same train as that by which they travelled in the case

of the Madras Municipality ,and , in others,the post was relied upon. By means of this rough non-compulsory method of surveillance the Madras City was undoubtedly saved from infection as early as October I897 -as by its means cases imported from Poona were traced and segregated. But ,by this time , the possibility of relying upon this system had been greatly strengthened by the passing of the Epidemic Diseases Act, and issue of Regulations founded thereon under G.O.No 219 A.M. dated I5th Feb I897 . Under these, Railway Observation Camps had been opened at Guntakul and Arkonum, and the makeshift arrangement at Adoni was abolished in favour of the former ,whilst Bezwada was abolished in favour of Kondapulli .

7. Under G. O. No I985 .M. dated I8th Nov I896 , special Regulations under the District Municipalities Act (Act IV of I884) had been issued for the guidance of Municipalities and had been formally accepted by them ,in respct to the staff they should entertain and the action expected of them should invasion occur .

8. Regulations for protection of Ports on the lines of the Local Government Board's (England) Order were issued in G. O. No .363 Marine ,dated 22nd April I897. ~~Under no circumstances was any such thing as wholesale stoppage of traffic~~ These Regulations were found to agree practically with those subsequently advised by the Venice Convention.

9. Under no circumstances throughout the above arrangements was any such thing as wholesale stoppage of passenger traffic permitted. Persons were detained only if suffering from Plague or presenting suspicious symptoms ,when unable to give satisfactory addresses,or when so filthy that disinfection of their clothing and persons was thought advisable .

10. With the advance of plague in the Nizam's dominions ,however, the liability to attack of this Presidency became more evident. Government then issued further Regulations under the Epidemic Diseases Act (G.O.No 93.P.dated 26th Feb I898L&M) which now clothed the system of surveillance with the necessary legal recognition ,and laid down the requisite organization and methods for its being correctly effected . In rural tracts, areas of ten miles diameter were defind as "observation circles " . In charge of each there was appointed one Certificated Sanitary Inspector and, as the supply of these became exhausted owing to the large demand , Temporary Sanitary Inspectors were placed in charge . These latter men were of good educational standard -the majority having passed the Madras University Matriculation,or higher Examinations . They were subjected to about a fortnight's training in reference to the etiology of the disease . The sanitary measures necessary were practically demonstrated to them .

The subsequent examination was fairly searching ,a of 278 selected for training only I50 were regarded as competent .

The Certificated Sanitary Inspectors had passed the usual examination after four months training in theorectical and practical hygiene at the Medical College, Madras . Supervisors - each placed in charge of four observation circles - were either Europeans or Eurasians recruited chiefly from the the Salt and Abkari Dept. Collectors were directed to place themselves in communication with the Sanitary Commissioner for the supply of these trained men directly their Districts were pronounced by Government to be "imminently threatened". To meet this demand , a Reserve of ten men was maintained under the Sanitary Commissioner . On the frontier , stations were opened guarding roads having much traffic . By G.O.No 337 P., dated 16 April Jan I898 , Guntakul Railway Observation Station was abolished , in favour of one at Toongabudra guarding the railway approach fromthe Bombay Presidency whence likelihood of invasion seemed most probable at that time . Podanur , Kondapulli , and Hospet were similarly made Railway Observation Stations . Subsequently , on Mysore being affected , Jalarpet Railway Observation Station was established (August I898) , ThUs , all the railway approaches to the Madras Presidency from infected areas beyond it were guarded by inspecting staffs . On plague establishing itself in the Ceded Districts , Tadpatri was opened as a Railway Observation Station in January I899 (Plague Commr Proceedings No 263-90 , dated 27th Jan I899)

11. As a result of these various Regulations and the organization stated above , it became possible to ensure that arrivals by road , rail, or sea, should be subjected to surveillance for a period of ten days to whatever part of the Presidency they proceeded . This was secured by the giving of a document under the Additional Regulations , requiring the persons to present himself before certain local authorities appointed in Municipalities and rural areas- a method familiarly known as the "passport system " .

12. Increased vigilance as to the maintenance of sanitary conditions was attempted throughout the Presidency following various appeals from this office .

C. Experience as to the utility of the precautionary measures adopted.

13 Frontier stations - Dr . Beach , Plague Medical Officer , Anantapur District , declares frontier Rd stations were of li/tle utility owing to want

14

want of supervision, but gives no reason why they should not have been kept under effective supervision by the supervisors in whose divisions they happened to be. Major Robertson, I.M.S, of the same District declares Frontier Rd. stations of no utility where the configuration of the country does not favor their being not readily evaded. The Collector of North Arcot considers that Frontier Rd. Stations were evaded notwithstanding a patrol; but this patrol was composed simply of village servants.

No facts or figures are given to support these opinions. The Collector of Salem had large opportunities of judging of the efficacy of Road observation stations as his district was threatened by numerous infected villages in the Mysore territory. Neither in his present report, nor in his report embodied in G.O.NO. 878 P dated 12th June 1899 does he oppose the use of these stations, though acknowledging the difficulties, under certain circumstances, attending them.

14. Unless it were possible to rely upon a very well worked scheme of cooperation with His Highness the Nizam's and the Mysore Government, it does not seem to me feasible to abolish Frontier Road stations. Where configuration does not lend itself to ease of detection, it ought always to be possible to supplement them, or to substitute for them a patrol 15
system. These Frontier Road stations are usually awkwardly placed

placed, and cannot be readily reached by officers for purpose of supervision. This seems their only fault, and it is one that can be remedied by tightening discipline of the Supervisors responsible. Road observation stations must of course be useless institutions unless aided by "Observation Circles", as their great end is to secure the giving of passports on the first arrival of persons from infected areas, their actual surveillance being secured by the "Observation Circle Staff". 15.

In regard to complaints of behaviour of the staffs attached to frontier Road Inspection stations, it will be seen that these refer to Hospital Assistants- a matter with which the Surgeon-General will doubtless deal. Such complaints, however, to my mind emphasize the necessity for the policy which guided me in advising as to the pay and position of Certificated and Temporary Sanitary Inspectors, namely, that the pay should be sufficient to attract a well educated and respectable class of men. The Hospital Assistant class is undoubtedly a poorly paid agency.

Railway Observation Stations. No opinions are expressed against these. Guntakal was instrumental in stopping 3, Hospet 3 and Jalarpett no less than 77 plague cases.

Observation Circles. The following are quotations from reports as to the value of these :-

"On the whole, the system has worked satisfactorily and has enabled us to detect and deal promptly with the majority of the imported cases that have occurred" (Collector of Salem.).

"The Staff has worked well, the information being reliable and promptly delivered and the necessary action to be taken in the isolated cases, has been efficiently carried out". (Lieut-Col: Rogers-Harrison, I.M.S., District Sanitary officer, Salem).

"The passport system and inspection of all arrivals is as complete as possible. There is no difficulty in discovering the whereabouts of those infringing the Plague Regulations by absenting themselves from Medical examination. This facilitates the easy detection of plague cases and the immediate disinfection and isolation of the infected and contacts. This no doubt materially prevented the spread of the disease". (Lieut-Col: Pemberton, I.M.S, District Sanitary officer, Bellary.).

"Bellary itself has been kept free though several imported cases occurred as they were promptly detected owing to the thorough way in which the passport system has worked". (Dr: Illingworth-Additional Medical officer, Bellary).

16. The Collector of Salem alone states the number of cases of persons who were retained under surveillance under the passport system. He shows that out of 49,777 cases only 1540 escaped observation or 3.7. per cent. From figures formerly gathered by me I know that up to 16 Dec 1898 in Bellary 16 cases had been observed, with 12.6 per cent of failures and North Arcot 10.5 per cent with These results must be considered excellent, considering the freedom allowed the persons having passports. Failures were chiefly due to those possessing passports proceeding to independent territory.

18. It would have been interesting to have secured figures showing in how many instances the passport system was instrumental in securing the first information for local authorities of the importation of plague. None of the reporting officers enter into this point, but it may be assumed that practically all cases stated to have been imported were really discovered by this method, or by the " circle observation system " of which it is but a corollary. The Collector of Bellary shows that there were 4 cases of plague imported to the Municipality of Bellary and the same number to the Municipality of Adoni. In other localities in his district there were 21 imported cases. But in only 9 out of 20 affected villages in this district did plague become indigenous. The Collector of Salem shows that 8 cases occurred in the Municipality of Vaniyambadi and 9 in that of Tirupatur, with one indigenous case as a result (a contact). In all, 165 imported cases in the Salem District were traced by this system and promptly dealt with.

The following is an extract from my Annual Report for 1898, which gives a cursory statement of the facts bearing on this point upto the end of December of that year :-

" Following the heavy incidence of plague in the Mysore territory, during the last five months of the year, plague was imported in 96 separate localities, in a total of eleven districts. In 91 localities plague was imported 325 times. In 11 of these, importation was repeated from four times to over thrice that number of times. Thus, in Madras 12 separate instances of importation were detected. Yet, the City of Madras remained free from plague, and in only 20 localities of 5 districts was it reported as indigenous up to the end of the year. It is fair to argue that the progress of plague, so long at least as it is confined to human beings, can be absolutely checked by a correctly worked " surevillance system ", backed up by isolation of the sick, and the prompt application of sanitary measures. This is, of course, nothing but what might be expected. But it is possible to argue that we are not acquainted with how many instances of plague may have been imported and yet no indigenous plague has followed. This argument is tenable; but having regard to the certainty with which plague slowly but surely spreads where concealment has been effected, the chances are greatly in favour of the supposition that the system really effectively kept touch of all arrivals from infected areas. I refer to this subject, as the natural tendency is to point to the heavy expenditure necessary for the support of the staff required to work such a method, and, secondly, to show that of so many thousands of cases that were inspected, so few really turned out to be plague. But it seems to me that the chances would have been 100 to 1, that each case detected would, if it had been undiscovered, have led to indigenous plague in the locality concerned, and that, consequently, not only have the people in these places been spared an.

18.

an unnecessarily early visitation from the disease, but they have been spared the loss of lives and money that must follow its appearance, compared to which the expenditure necessary for the staff must be insignificant. It is apt to be felt too that perhaps this escape of localities was not so much due to the precautions taken as to some fortuitous circumstances, depending upon the inability of the plague microbe to accommodate itself to its environment. This factor undoubtedly does modify the chances of spread and, probably, the virulence of the microbe; but it obviously is very methodical and persevering in its efforts to overcome all difficulties, and it seems to me that, given time and season, there is no place in this Presidency that can be regarded as safe from the possibility of the plague importation and subsequent spread."

19. The staff of Observation Circles. Praise is usually forthcoming for the work effected by Supervisors. But the District Medical and Sanitary officer of Anantapur dismisses the subject with the remark that they were a "very mixed lot", although he finds room for praise that I know personally was well deserved for two (one being a Certificated Sanitary Inspector). This officer (Major Robertson I.M.S.) joins the hue and cry lately raised by Collectors against Temporary Sanitary Inspectors, but carefully requires it to be understood that he considers the Certificated Sanitary Inspectors efficient-a fact to which I invited the attention of Government in vain. (G.O.No. 578 P dated 12th June 1899 Lib. I must

1788

As to the assertion that "they could not speak the truth",
I am not prepared to deal with so general a statement . It
was hardly possible to attend to idiosyncrasies of this des-
cription in a fortnight's training ! But ,if the "lying "
only occurred about distances from village to village , as
solely suggested by Major Robertson , I think there was in men
but recently imported into a district and unprovided with
maps ,room for misapprehension which might have been charitably
taken into account . In the absence of specific instances,
it seems to me Major Robertson's opinion may likewise on
this point be due to misapprehension . That he is not removed
from operation of this cause in his arriving at his opinions,
I may point out that there is no foundation whatsoever for his
statement as to Temporary Sanitary Inspectors ,"that some could
not speak English or write it " . On my asking him for his
instances , he quotes ----- Patcha Sahib as the only case
he can remember ,and referred me to MRry Runga Rao .B.A., late
Plague Supervisor, as his authority . This Supervisor having been addressed by me, through the Collector of Cuddapah,
has sent me the reply attached (No-1) from which it will be
seen that Major Ronertson relied upon hearsay , andnot upon
personal acquaintance withthe qualifications of the Sanitary
Inspectors . His statement is completely refuted.

20 In regard to his assertion that his three mahomedan Inspectors
were an "exceptionally bad lot " ,I would state that two of the

three were exceptionally well connected -being relations of the Delhi family. A statement of the educational status of these is attached (No.2) It will be seen that they were well fitted for the position they held . The third man Syed Qader Khan -which is the man Major Robertson probably really meant to refer to -passed his examination in plague matters creditably beofre before me creditably ,and was , according to the Supervisor a really "useful " man in plague work and , notwithstanding Major Robertson 's statement ,was sufficiently well versed in English to write his reports in useful if not ornamental language . He is a school-- master teaching English ,and this alone should afford a priori grounds as to his knowledge of the language .

The obtaining of mahomedans as Sanitary Inspectors for plague work was a desirable point in administration , and I considered myself fortunate in obtaining these men as Temporary hands for service in the District of Anantapur - having regard to the unsatisfactory attitude of their co- religionists at Guntakul. Major Robertson's cutting generalization that", some could not speak English or write it " is,therefore, absolutely a misapprehension on his part .

21. To say the last word on this subject ,I maintain that against Certificated Sanitary Inspectors not a word has been said .

On the opposite ,I have heard nothing but praise, and , in some instances,very high praise,of them from those immediately in contact with them ,and even from those who would supplant them by Revenue Inspectors ignorant of sanitation. Of one man ,Dragwidge , who lost his life from plague contracted on duty ,I was assured personally by the Collector

Collector of North Arcot that he was of the very greatest value, and that he greatly regretted his loss. As to Temporary Sanitary Inspectors, they were doubtless not all that could be desired, still they were selected with care as to respectability, educational status, and particularly as to caste, with the object of securing no embarasment on this point. In the next campaign against plague, it will remain for Collectors to show that, with Revenue Inspectors of frequently not so good an educational class as the men I supplied, and devoid of even so short a training as I gave them, they can secure as good results as they have done with the men they have attempted to displace. In the meantime, it is noteworthy that the first specimen of a Revenue Inspector supplied as a Supervisor in Anantapur does not seem to have impressed Major Robertson favorably, as he held him "useless"!

D. Preventive measures. Within certain limits, the nature of action taken necessarily differed with the amenability of the people and, possibly, somewhat with the individual peculiarities of the District officers responsible.

In only one instance was any attempt made at securing a cordon round an affected village. This was by Mr. Elwin, Collector of Bellary. The village happened to be surrounded with rocks and other obstructions that rendered the place not one typical for the kind of treatment. Notwithstanding the " pinprick" allusion by the Collector of Anantapur

pur to the fact that a man escaped from the cordon, the action at this village was one of the best features of the campaign against plague in this corner of the Presidency. To attempt to cordon village after village would be ridiculous, but I certainly think that the method is both justifiable and likely to be of great advantage when applied to small villages at the first entrance of the disease into an hitherto unaffected area. The promptitude with which the villagers of Chippagiri were prevented from infecting their neighbours contrasts strongly with conditions round Guntakal, where not only was no effort made on the first appearance of the disease to restrain the movements of contacts (owing apparently to misconception of its nature) but where, subsequently, full freedom was knowingly permitted to the population to wander to neighbouring villages without surveillance. It was from this focus that the disease spread to the villages of the Bellary and Kurnool Districts. Indeed, no other result could have been expected. I trust I may not be mistaken as to the utility of cordons. I by no means favor their use, but think no good reason exists because it happens that this method has been strained in its application to an absurdity as a protection against spread of disease that, within the limits I have defined, it may not be advantageous. The escape from the cordon to which the Collector of Anantapur alludes was in the case of members of a family possessed of "agricultural passes". The existence of " Observation Circles " outside the affected village, however, secured the early detection of the case at Uravakonda.

Unless

23. Unless it be at Chippagiri, no efforts appears to 208p have been made to prevent persons from infected villages going to those adjoining for market supplies. This can best be seen to by arranging that supplies from healthy villages shall be sold at selected cleanly spots outside the infected village. Within infected areas also, it would seem but a desirable precaution, even in the case of healthy villages, to shift the usual market side to some little distance from the inhabited portion of the village.

24. Although the formation of " preventive Circles" was sanctioned by Government (Plague Commissioner's Proceedings NO. 98 dated 7th Oct. 1898) there was hesitation in employing them. On this point, there ought to exist a distinct understanding, that an infected town or village should at once have thrown round it preventive Circles. In the case of the Guntakal epidemic, the necessity for careful searching for cases round an infected village was so loosely interpreted that the outbreak occurred at Kotalla close to Guntakal without its being recognized at its origin. The village had been given in charge of no Plague Inspector.

25. In Bellary, full advantage was taken of the Regulation 6 allowing Assistant Sanitary Inspectors in Unions. 21 Plague found Gooty and Uravakonda of the Anantapur District unprovided with them. This is a matter that required attention

tion in future. The Plague Regulations are framed on the understanding that towns of 10,000 inhabitants and upwards, not being Municipalities, requires/ ~~besides the~~ inspection by a man stationed on the spot, charged with effecting the necessary sanitary and passport duties of a population of a size unmanageable by the ordinary village organization and observation circles.

26. As a result of not instituting the arrangement referred to in the following para , the evacuation of most villages was accomplished without securing disinfection of the property of persons before proceeding to camp. Prevention of return to infected villages before completion of disinfection was also incompletely enforced. These are important points in the prevention of spread of infection. Their neglect seem largely to have minimized the influence of evacuation.

27. In only two places-Kuppam and Hospet-was, according to the reports, any effort made to place persons leaving an infected village under surveillance, until on leaving the limits of a large area of country defined as "infected", they became involved in the "Observation System" of an unaffected area, and were then required to accept passports. That is to say, a villager in an affected village might proceed to healthy villages without hindrance, and without being required to come under any system of surveillance. In Kuppam, a police cordon was arranged for securing the names of those leaving the village. This however need by no means be regarded as an essential part of the system, as shown by the result of Hospet. The use of cordon in aid of this method had doubtless become necessary at Kuppam, because it was delayed to a late stage. Here "house segregation" had been adopted, with the usual sequel of the disease gradually obtaining such a hold upon the village that the inhabitants fled in terror. In Hospet, in Bellary District, on the opposite, the system was introduced under my advice by the Collector at the commencement of the second outbreak or general epidemic. That its operation was effectual, I can testify from my having whilst in the town required the most careful watching of the approaches to Bellary by the Municipality, and from special enquiries made by the passport staff in the town. The necessity for obtaining a passport before leaving an infected area undoubtedly exercises a restraining effect upon the movements of the population notwithstanding the absence of police or troops, whilst, should emigration be decided upon by them, they are placed under surveillance that does not trammel their freedom. The Collector of Bellary specially notes the fact that the disease did not spread to the village near Hospet, and although the timely aiding of the people to proceed to camp in the neighbourhood of the town must have had much to do with it, I regard the enforcement of the passport system as having greatly aided the total result. I have already pointed out (para 8 of my letter 1401-S, dated 4th May 1899 ~~para 7 of my letter No.~~ dated embodied in G.O. No. 878 P dated 12th June 1899 bodied in Plague Commissioner's Proceedings No. dated

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dated ~~_____~~) that the enforcement of this method is essential, and is but a logical corollary of the existing passport system. By omitting the necessity for undergoing observation in the apparently healthy - Regulation 34 (Addl.) this requirement would be sufficiently met.

26. The general resort of the population of a village to their fields for camping purposes is a desirable and cheap method, but there was far too much timidity as to interfering with the people when they had gone there, under the impression they might be frightened away. I particularly pressed this matter on notice both verbally and by letter (Vide also ~~here~~ Plague Commissioner's Proceedings No. 321/2C dated 3rd Feb. 1899.). Opinions were all against me, and I gave particular room for criticism in the trivial suggestion that when camps are spread over fields in crop a bamboo pole with a red rag attached - I do not wish to dignify it with the name of a flag - plus a black board to show the number of persons in the single camp concerned, might be usefully used to identify their whereabouts. One officer styled the suggestion a " sumptuary arrangement ", another felt sure it would frighten the people. Yet, I still venture to say that a field of jowari is as good a place to miss finding a human being or a black buck as can be found in this country, and that an expenditure of four to six annas to identify a spot would be well spent. It seems to me a curious trait in official correspondence that this trivial and almost irrelevant suggestion of a flag should have overshadowed the important

P. Comm's Proc. No 1130, 25th April 1899

important question of sanitary observation of camps which was that really at stake. I do not believe that with the most ordinary care such a result as frightening the people from their camps need be anticipated, provided action were strictly limited to their sanitary care. I consider that the staff should always be such as to secure complete sanitary inspection of these camps and to take necessary action founded thereon. An approach to this system seems ultimately to have been adopted in the Bellary District.

29. Methods of disinfection. There can, I think, be no doubt from the reports and from my own experience, that no disinfectors are so efficient as sepoys, and wherever possible they certainly should be employed in preference to daily labourers.

30. In the early stages of the plague, the solution of the mercury combined with hydrochloric acid advised in the Plague Regulations was not uniformly used. Later on attention was given to this matter. Uniformity in the use of disinfectants should be insisted upon. The matter of lime-washing referred to by Major Robertson has already been settled (Plague Commissioner's Proceedings No. 370/40 dated 1st March 1899).

The use of Lieut Col Lawrie's method of floor burning was ordered by Government, without this office being consulted. Personally, I think its use has a sphere of utility, but that to burn floors indiscriminately is unnecessary and wasteful. As to modes of distributing the perchloride of mercury solution

solution, the matter has been discussed ~~in Plague Commissioners' Proceedings NO. dated~~ (G.O. NO. 852 P. dated 23rd June 1899 Lon). Major Robertson maintains the uselessness of chinese pumps. Dr: Beach declares that if this be so, a prayerless form of chinese pump has been used. There may be force in Dr: Beach's statements, but nothing can get rid of the fact that a great deal of physical energy is necessary for their use, and if men be required to labour hour after hour in squirting the solution upon walls with these pumps perfunctory work results. I think my "gravitation disinfector" (Plague Commissioners' Proceedings NO. 308/24 dated 1st February 1899) will sufficiently well meet requirement. Major Robertson favours the use of tin watering cans. I think these objectionable not only on account of the inimical action of the solution on the tin, but by bringing about a reduction of strength of the solution. Moreover, it seems to me an impossible feat to arrange that water from a can shall meet a wall at a height and at an angle at which disinfectants can be delivered without much waste. (G.O. 1262 dated 16th Aug 1899)

31. The question of dealing with roofs has lately been fully dealt with (G.O.NO. 1005 P. dated 29th June 1899 Lon). I think the suggestion of Major Robertson that walls should be disinfected only four feet high should not be adopted. As a fact contamination of the walls may not have occurred at all, but so long as it is considered necessary to disinfect walls the method should be thorough and leave nothing to chance. Burning of roofs

of houses was rarely employed on the ground that it alarmed the population. Such alarm, however, I have constantly maintained need not occur when the owner is paid on the spot before the public instead of his having to wait for weeks till the bill is passed, during which he has had time to dilate on the "Zoolum" practised. It is undoubtedly a mode that requires discretion in use, and I think this has been duly observed. 238P

32. The behaviour of Village officers. I think the reports show clearly that it is impossible to trust to the Village Heads to give prompt information ~~of~~ attacks with certain exceptions. I hold it as certain that any system which ignores the "Observation Circle" method, and trusts to Village Heads and Revenue Inspectors who have had local dealings with them and as a result have gained "influence", will end in a hopeless muddle. This is a statement that with the present tendency of official opinion, may carry little weight; but I have not spent a good part of my life in ascertaining the history of epidemics without gauging how far Revenue agency of the character stated, without special supervision to keep it up to the required standard, may be trusted for prompt reports. It will be noted that Dr: Power, Plague officer, Kurnool, considers such agency "obstructive". Without going so far as this, I believe that experience will reveal that no reports will be made till repeated deaths render concealment impossible, and that the natural good feeling which exists between

tween Village Heads and the Revenue Inspectors will not facilitate the ascertaining previous facts when, under such circumstances, deaths are reported.

33. Buildings. I think experience gathered by District officers showed that in rural areas, no attempt should in future be made to build hospitals on the type laid down in the Additional Regulations. It is better that an uniform pattern of small hut be used for all purposes-treatment of the sick, segregation of the healthy and accommodation for relations and of servants. The number of persons placed in such huts would alone vary with the requirements. It is of course understood that suitable relative positions would be provided. For hospital accommodation for towns, and for private caste hospital purposes, I think the pattern given in Plague Commissioners Proceedings NO. 220-A dated 18th October 1898 should be adopted uniformly.

34. In certain instances, reluctance to enter Government Hospitals may have been contributed to by the want of accommodation for relatives of patients although required by the Regulations-a result of hurry in construction. In the case of Muhamadan populations also the absence of provision of a Ghosa ward must have acted adversely. These objections would be met over by the separate hut system in rural areas; but in towns it should be looked upon as essential that in erecting hospital camps before the arrival of the epidemic ~~the~~ they should be complete in all respects. No advertisement could be worse than the knowledge that in sheds not ready

ready in a town for plague cases, no separate accommodation has been provided for relatives, and that no arrangement exists for preserving "gosha". Such structures having been seen and deliberately criticised before the arrival of plague; their unsuitability is recognized by the people, with the result that their being boycotted is pre-determined. 24 Sep

35. Observation Circles in Municipalities. The Collector of North Arcot draws attention to the too great size of observation circles in Municipalities. The original intention was that these circles should not include more than from 7000 to 10000 inhabitants. The attempt, however, to reconcile this condition with Municipal wards has doubtless not been of advantage, in that in certain Municipalities the wards are really larger than these numbers would imply. I think it would suffice if it be held in mind that the staff laid down in G.O.NO. 93 P dated 26th February 1898 is merely the minimum necessary, and presupposes the existence of a permanent sanitary staff correctly proportional to requirements, on the spot.. As a part of the observation system preparatory to invasion, the latter condition should especially be demanded by Collectors of Municipalities.

36. Isolation of the Sick. With the exception of the Collector of North Arcot, all reporting officers agree that in early removal of the sick and evacuation of infected houses lies the best sanitary measure for prompt stamping out of the disease. To 25

To him it is evident that no detriment occurred to the population by permitting this erroneous method indiscriminately "home segregation"-a method that I consider was conducted in the North Arcot district without the care desirable (vide my inspection notes on Walajapet,Ranipett and Vellore dated 17th March 1899). He gives no facts to support his opinion. It is also necessary for me to add that in respect of what may be regarded as the complementary measures to the "home segregation" system for prevention of spread,the absence of any chronological statement showing in what order action was taken,in the arrangements detailed from para 3 to para 5 of his report,renders it impossible to correctly gauge their influence. Before it were possible to express such an opinion so opposed to general experience,it would be necessary to carefully compare results in respect to populations where evacuation and isolation had been correctly carried out,and the method he favours had been pursued,respectively. For example,from my own enquiries at Vellore,it would seem that the town affords no exception to the rule that locking up the healthy with the sick was fraught with danger to the latter. Experience on this point was sufficiently well gathered 200 years ago. This is the opinion formed by a physician who had gone through the Great Plague of London on the subject of " home segregation ":-

" But if Hereafter again a Plague should break out (which God forbid) with submission to Superiors,I should think it not improper to appoint proper accommodation out of the City,for such

such as are yet untouched in infected families; and who should continue there for a certain time; the sick,in the meantime,to be removed to convenient apartments provided on purpose for them: for by this means,that Practice so abhorrent to religion and humanity,even in the opinion of a Mahomedan,of shutting up the sick and well together,would be avoided".

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Also Defoe states " As soon as any house is infected,all the sound people should be had out of it,and not shut up therein to be murdered" 1

37. The method of introduction of plague in Vellore is assumed as shrouded in mystery; but it ought not to have been forgotten that " home segregation" of contacts and incomplete disinfection was adopted in the imported case of plague which was discovered on the 25th October 1898 in the case of a sepoy's wife. It occurred in the part of Vellore town where indigenous plague was first subsequently ascertained(on the 3rd January 1899) namely Saidapet.

That effectual measures were not carried out in respect to this imported case in no way reflects upon the local administration. Every effort except actual force was used to secure correct segregation of contacts and disinfection of the house. But when confronted with the Collector's conviction that indiscriminate-I use this word advisedly- "home segregation" was not injurious, I am bound to point out that the chances are greatly that to the ineffectual action in the first case, must be ascribed the imasion of Vellore. It is true that no case was officially reported as of plague until the 5rd January; but the Collector in his reports states that ho history of importation in this instance could be discovered-that is, the disease was already indigenous-whilst it was suspected that "recent deaths" had been due to plague. Equally true is it that the chances are that the continuance of this system permitted of the subsequent spread of the infection from house to house. To this fact the accompanying map seem to me to testify. It will be seen that escape of infection in the main street of Sydapett where it established itself is rare. This map was prepared by Captain French (special Plague officer) before the Baker's street epidemic, and therefore this cannot be shown. It however followed the same course. Now, what occurred in the Bakers street epidemic was that, after the disease had been allowed, by the hopeless, bad method of "home segregation" to get a complete hold of the place, it was evacuated an bloc. In the case of the Sydapett epidemic, also, the people ultimately fled from the area in number sufficient to secure a decided thinning of the population. Can it be said, therefore, that the stamping out of this epidemic was effected, notwithstanding the use of "home segregation"? It is evident that it ceased as soon as home segregation was no longer practised. What occurred in Vellore was no exception to the rule that if when the disease becomes indigenous in an area it be not evacuated by an official order, the time must come when the people will evacuate it voluntarily, after useless destruction of life and danger to trade and property has resulted.

38. Method of spread of the disease. Except so far as the introduction of cases into a community by human beings is concerned, the evidence forthcoming is of not a very definite nature as to mode of spread. The inference that when the inhabitants took away with them to their camps in the fields their infected property subsequent spread occurred is repeatedly affirmed, and is in all probability perfectly correct; but no attempt has been made to show that cases arose in families encamped beyond ten days without contact with fresh cases, showing that the full period of incubation had been passed. The Collector of Anantapur suggests importation by rats, but it will be seen from his letter NO. 1071 dated 19th June 1899 (attached No 3) that on my bringing to his notice certain facts that were within my own observations as to the incidence of plague in his district, he no longer passes this theory, nor does he support his theory that the greater the absence

absence of sanitation the less the incidence of the disease. In this connection, I think it would be well if Government would call attention to the desirability of officers on plague duty recording all facts of a nature that will bear investigation in the Collector's plague diary suggested by me (Vide Plague Commissioner's Proceedings NO. 951, dated 12th April 1899). In this way, reliable data might be gathered.

39. Ambulance staff. Attention is called in certain of the reports to the uselessness of attempting to give medical attendance to the people, and the desirability of getting rid of the hospital section of that staff is recommended. The matter is one with which the Surgeon-General will doubtless deal, and I therefore shall not enlarge upon it. But it seems to me whilst one officer (Major Robertson) complains of embarrassede riches, in respect to having no less than twenty persons at his disposal for medical purposes, that he has not allowed himself to picture a state of affairs in which these are not present. Above all things, rapidity of action is essential in plague. It may occur that in a village attacked, not a soul will come forward to help in such material points as removing of filth, disinfection of clothing, removal of bodies and of the sick. Moreover, granted the people do not accept medical treatment, it cannot but be recognized that the presence of female toties is of great advantage in dealing with houses where females are attacked, and that where gosha women are to be removed the presence of female ward attendants to accompany those would be of the greatest

greatest benefit. As to the presence of trained nurses whatever their functions as to nursing may be, they must be invaluable in dealing with diagnosis of female plague cases. 2786

Moreover, it does not follow that although in one district medical attendance is refused that it need be so in others. Thus, in Salem evidently the people really appreciated medical efforts. In Maddikera, Kurnool District, to my knowledge, it was gratefully accepted from Dr: Power by certain of the patients. Although I consider it a most important point of policy that medical treatment should not be thrust upon the people, it would seem to most persons callous not to at least make provision for it. That the Additional Medical officers primarily imported for treatment of plague cases should stand aside and have little or no occupation, because the patients will not go to them for treatment, is quite another matter. I have maintained that the existing organization gives to the medical profession an erroneous place, and that hence their efforts are wasted- a matter which has however been duly considered by Government (G.O.No. 878 P dated 12th June 1899). Under these circumstances, it would seem desirable that at least the first two ambulance staffs should be strictly in accordance with the Regulations, and that, subsequently, the District Medical officer, in consultation with the Collector, should reduce if considered essential that part of the staff intended solely for medical

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purposes.

purposes. For this end, the ambulance staff should in future be divided into two sections that can be detached complete- the medical and sanitary.

10. Inoculation. Inoculation would probably have been more widely accepted than the reports show, were it not that the people could not be made to understand that attacks of the disease occurring within ten days of the prophylactic operation were really due to the fact that incubation from previously acquired infection had been proceeding-a condition that inoculation is (—so far as yet ascertained—) powerless against. Thus, matters usually progressed well enough in villages, till some cases of this description unluckily fell into the operator's hands. The people then either judged the operation incapable of affording them protection, or concluded that the similar rumours that they had temporarily distrusted were, after all, correct. This was the experience in the Salem district round Guntakal, Molagavalli and at Hospet. Whilst the masses were thus easily deterred from accepting the operation, the educated classes were open to conviction, until the publication of Lt:Col: Lawries evidence before the Plague Commission. I had received special invitations to inoculate numbers of influential native gentlemen during the Christmas holidays; but, after hearing this evidence, they concluded that a certain risk from the "putrescent fluid" did exist, and that it would be wiser to defer the operation till their towns were actually attacked. But, misinterpretation of the effects of inoculation is by no means confined to the "masses". It will be seen that I am ingenuously charged

charged by the District Medical and Sanitary officer of Bellary with having been instrumental in introducing plague into Hospet. He ascribes the outbreak to the "quality of the serum" used by me - an euphemism for stating that in M. Haffkines anti-plague vaccine, with which solely the operation was performed, there existed living plague microbes. The facts of the case are that I arrived at Hospet at a time when I knew it was "imminently threatened" by invasion from Kopbal. No inoculations had previously been made, but nineteen operations were performed-several amongst leading men. Of these one, a child ten years of age, was attacked by plague, on the seventh day after the operation. Being a puny child for its age, it had received one half the standard dose for its age. This however sufficed, as I judged it would, to cause it to have a normal fever reaction of three days duration. Under the circumstances that reaction did take place was certainly fortunate, as an important lay official did not scruple to criticise the insufficiency of my dosage- holding that I ought to have given 1½ C.C. (or ½ C.C. more than the maximum prescribed by M. Haffkine for the age of that strength of the serum) obvious of the discretion essential as to size and constitutional condition of the individual; whilst another suggested to me that had I given the full dose the child would not have been attacked-forgetful of such a condition as incubation, and of the hopelessness of attempting

P.C 1

30 Ref Total 1182 10 1 22 2 2 2

ing to check it. After the three days of inoculation fever reaction, there was a complete interval of freedom from fever, during which the child played about as usual but was attacked with plague on the seventh day. On the third day after the development of plague symptoms in the child, the mother was also attacked with genuine plague. Having regard to the usual period of incubation of plague, it is extremely unlikely-especially if the periods were reduced to hours-that the source of infection in this second case was from the child. In short, they must have been subjected to the same common source of infection-the attack of the mother being within the ten days of my operation on the child. The mother had not been inoculated by me. None of the 18 others inoculated (several being from the same bottle) developed plague. Nor any of the 60 inoculated by me shortly after, Bellary from the same consignment of serum. The father of the child was a Station-master, and in the habit of receiving into his house various members of the Southern Mahratta Railway staff from Hubli, Dharwar, Gadag-all infected places. The child was, to my personal knowledge, in the habit of playing in a shed with an earthen floor, where passengers from the affected localities must often have slept side by side with their baggage waiting for the next days train, or before removal to the observation camp. Here was certainly room for infection. But the outbreak which occurred in the town-removed about 1½ miles from the station-within 29 days subsequent to the occurrence of these cases (which of indigenous plague - showing cases had been excluded previously

were carefully segregated) showed that probably no more extraordinary means of infection had existed than had prompted my orginal visit to the town, namely, plague in the Hopbal District of the Nizam's Dominions within 16 miles, and whence coolies had arrived for work in the Hospet fields-as was customary. I need hardly add that the occurrence of plague within the period of incubation from natural infection, subsequent to inoculation, is a common experience. (vide para 42)

41. Mattigiri may be regarded as a fair attempt to cut short a plague epidemic once started, by means of inoculation. The moment the outbreak took place Lt. Col. Harrison Dr. Noble commenced operations, and performed 146 cases. I immediately also despatched there Major Bannerman who added to them to the extent of 236 cases. Of the total of 2893 cases inoculated, 29 were subsequently attacked and 16 died. The result of the effort, although started under favourable circumstances, was that inoculation was not held sufficiently long in favour owing to the people not understanding the difference between complete and partial immunity gained.

42. The dates of inoculation and attack were as follows :-

NO.	Date of inoculation.	Date of attack.	Date of death.	Duration of immunity. Months---	days.
I.	14-12-98	24-12-98		"	10
2.	14-12-98	15-12-98	18-12-98	"	1
3.	15-12-98	19-12-98	19-12-98	"	4
4.	8-12-98	20-12-98	20-12-98	"	12
5.	19-12-98	25-12-98	29-12-98	"	7
6.	15-12-98	28-12-98	8- 1-99	"	13
7.	14-12-98	6- 1-99	8- 1-99	"	22
8.	15-10-98	6- 1-99		2	22
9.	15-12-98	3- 1-99	5- 1-99	"	19
10.	19-12-98	9- 1-99		"	21
11	17-12-98	4- 1-99		"	18
12	17-12-98	8- 1-99		"	22
13	12-12-98	30- 1-99		1	19
14	17-12-98	6- 2-99	13- 2-99	1	20
15	15-12-98	1- 2-99		1	17
16	12-12-98	2- 2-99	6- 2-99	1	21
17	1-12-98	2- 2-99		2	1
18	8-12-98	12- 2-99		2	5
19	17-12-98	6- 2-99	10- 2-99	1	20
20	13-12-98	6- 2-99	10- 2-99	1	24
21	15-12-98	8- 2-99	13- 2-99	1	24
22	14-12-98	9- 2-99		1	26
23	19-12-98	11- 2-99		1	23
24	21-12-98	9- 2-99		1	19
25	14-12-98	11- 2-99		1	28
26	Inoculated in Bangalore	14- 2-99	17- 2-99		
27	15-12-98	10- 2-99	10- 2-99	1	26
28	19-12-98	9- 2-99	9- 2-99	1	21
29	15-12-98	8- 2-99	8- 2-99	1	24

Owing to the rush of work at Cuntalmi, it does not seem to have been possible for Major Robertson to secure full details of results amongst the inoculated. All that can be said is that in the cases that came under his own notice there were 5 deaths and 3 recoveries amongst the inoculated. Amongst the deaths one was inoculated 21 days previous, another 5, another 7, and another 10, and one at Hindupur 2 months and 21 days. In the Matigiri outbreak the proportion of deaths (55 per cent) to total attacks in the inoculated, shows that a valuable grade of protection against death had been acquired by the inoculated.

43. Although for reasons stated the advance of inoculation has not been so rapid in this Presidency as was hoped, I have no doubt that a reaction will yet occur in its favour, as soon as the educated classes are able to weigh more fully the pros and cons. of the operation than the newspaper reports of the evidence before the Plague Commission would allow, to do them. I have always urged, and still believe, it would have been better policy on the part of the special advocates of inoculation in their attempts to popularize the operation, to have placed more stress upon its affording protection against death than against attack. This fact would soon have appealed forcibly to the uneducated, and proofs would have been soon forthcoming. The grade of protection against attack is a refinement of statistics that none but the educated can grasp. I also think that the ~~move for em~~ployment of qualified female inoculators is desirable. 31.

I have the honour to be

Sir ,

Your most obedient servant ,

W G King

Lt Col. I. M. S.

Sanitary Commissioner for Madras.

14/2848

[500—5-11-98.]

No. 61 P / J.

Office of Sanitary Commissioner,
Camp Ootacamund 26 August 1899.
~~Madras,~~

PLAGUE.

From

Lieut-Colonel W. G. King, M.B., C.M., D.P.H.,
Sanitary Commissioner for Madras,

To

The Surgeon-General
with the Govt of Madras

Enclosure 9

(1) No 1824 dy 26.7.99 from Collector of Salem √
(2) do No 1824 dy 3.6.99 — of North Arcot √
(3) — No A dy 28.5.99 — of Chingleput √
(4) — No 2885/72.6.99 — do — of Bellary √
(5) — No 2304 dy 14.6.99 — do — of Kurnool √
(6) — No 2304/72.6.99 — do — of Kurnool √
(7) — No 1017 dy 20.6.99 — do — of Kurnool √
(8) — No 1211 dy 18.6.99 — do — of Kurnool √
(9) — No 1060 dy 26.8.99 from Sanitary Commissioner √

Sir,

With reference to Office Memorandum Ref on C. No 4608 dated 3rd instant, I have the honour to forward herewith my remarks on the Report furnished by the Collector of [illegible] on the measures taken to combat the outbreak and other prevalences of the epidemic of plague.

Reports are enclosed.

I have the honour to be

Sir

Your most obedient servant

W G King

Lt Col. I. M. S.

Sanitary Commissioner for Madras.

30

Net Total 1162 10 1 22 2 2 240 30 5

Plague Enquiry

From

The Sanitary Commissioner.

Recd 26th August 1899.

Rep'd. 28 "

No. 61 P
7

Enclosed

Subject

Forwarding Remarks on the Report & Statements of Karachi Collectorate on the measures adopted to combat the recent outbreak of plague in that District

Enclosure No 1 to Letter No 5573 dated 25/8/99

the last three years.

	1896-97 Rs	As	P	1897-98 Rs	As	P	1898-99 Rs	As	P
Salaries of Officers				15685	15	10	15129	14	2
Exchange Compensation Allowance				571	15	4	2051	2	11
Apothecaries and Hospital Assistants	502	14	1	462	7	7			
Other temporary Establishments	5	2	4	475	6	7	4350	1	4
Famine Batta							79	11	
Local allowance of Officers							1720	"	"
Travelling allowance of Officers				1285	3	"	11248	9	1
Travelling allowance of Establishments	14	8	"	18	2	"	649	9	5
Servants allowance of Officers							216	10	6
Plague allowance of Officers				1010	"	"	3509	4	7
Plague allowance of Hospital Assistants &c				426	9	7	246	7	7
House rent allowance				8	3	7	457	15	"
Hospital Equipment	280	2	6				5715	11	11
Hospital Clothing and Bedding	52	"	"				21		
Petty Works of construction & Repairs	298	"	"	1677	11	2			
Cost of Maintenance of Anti Plague Hospitals							617		
Purchase of Country and European Articles							985		
Purchase of Boats							2		
Purchase, repair and Carriage of Tents							3225		
Peons Belts & Badges							5		
Subscriptions to Newspapers							21		
Cost of Europe Stores including							455		
Liveries and Clothing of Servants							93	15	
Rattan mats							46	6	
Purchase and repair of Furniture							118		
Purchase of Periodicals							1	10	6
Cost of Stationery							27	11	
Cost of Medicines							7	14	
Cloth for Records							11		
Carriage of Stationery							67	13	
Petty Carriage & Cartage							58	15	8
Railway Passages				270	12				
Contribution to Civil Hospitals							775	"	
Inoculation Charges							1347	1	"
Dhobi Charges							"	6	"
Cooking Charges							58	"	
Lighting Charges							257	6	
Postage Charges				29	4	6	1246	3	11
Telegraph Charges				869	11	"	1315	5	"
Petty Expenses				10	15	6	88	15	11
Miscellaneous			10	"	"	238	9	6	2626	9	10
Other purposes						61	3		1800	"	"
Total	1162	10	11	22995	11	2	54661	12	3
Deduct amount recovered & credited				581	9	"	1227	7	3
Net Total	1162	10	11	22413	2	2	53434	5	

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C. No 2885 P.

No. 18573

OFFICE OF SURGEON-GENERAL
WITH THE GOVERNMENT OF MADRAS,
Camp, Ootacamund, the 9th September 1899

From

SURGEON-~~MAJOR~~-GENERAL C. SIBTHORPE, C.B., F.R.C.P.I.,
SURGEON-GENERAL WITH THE
GOVERNMENT OF MADRAS,

To

THE ~~HON'BLE THE CHIEF~~ SECRETARY TO GOVERNMENT,
Local & Municipal DEPARTMENT.

SIR,

I have the honor to transmit the accompanying letter No. 60- dated the 26th August 1899 from the Sanitary [illegible], Madras, submitting along with [illegible] the reports furnished by the Collector [illegible] measures adopted to combat the [illegible] plague in this Presidency.

2. [illegible] Colonel Sharp to prove an interesting and [illegible] with the principles.

3. As regards his paragraph 33 I concur with him that a uniform pattern of hut should be used for all purposes both in towns and rural areas.

4. His paragraph 39 is based on the result of experience in other parts of India. I quite agree with him that the ambulance staff as proposed by him is by no means excessive if any number of cases have to be dealt with. The employment of trained European or Eurasian nurses is most [illegible]

valuable. Although in paragraph 7 of GO. No 878P. dated 12th June 1899, Government has decided that trained native nurses should replace European and Eurasian nurses on the ambulance staff except for the treatment of European patients, I know of no native women who can be called qualified nurses. There are native midwives but they could not be obtained in any number and would not be trustworthy as they generally come from very low classes of natives. I also agree with him that the staff be separated into medical and sanitary.

5. I now beg to supplement the Sanitary Commissioner's report with my own remarks regarding the medical administration of the plague.

6. Owing to the advent of the plague in Bombay, Poona and other places in the Presidency, the Government with commendable foresight and expedition ordered early in May the inspection of all Railway passengers at Athonam, Guntakal, Hondapalle and Podanur vide GOs quoted in the margin. Temporary regulations for combating the disease were issued with GO No 219H, M., Local, dated 15th February 1897 and special care was established at Mangalore, Southern ports of Malabar and Cannanore vide GO No 1811H dated 5th February 1897

No 181H, Local	5 Feb	1897
" 211 " "	12 "	1897
" 219 " "	15 "	1897
" 777 " "	2 "	1897

7. The staff at each of the stations of Athonam, Guntakal and Hondapalli consisted of a Commissioned Medical Officer, a few Hospital Assistants according to the importance of the station and a European or Eurasian nurse - the latter being intended for the examination of gosha female passengers so as not to wound the religious susceptibilities of those natives and Muhammadans who observe the gosha system. There were also temporary civil or retired Military Assistant Surgeons posted to Athonam and Tungabhadra to assist the Medical Officer owing to the inspection work at those stations being very heavy. At Podanur, a Civil Apothecary and a Hospital Assistant were originally posted and the former was subsequently replaced by a retired Military Assistant Surgeon. Owing to paucity of Officers, the District Medical and Sanitary Officer of Coimbatore was allowed to change his headquarters to Podanur so as to be in charge of the inspection station and also of the District.

8. An additional inspection station was opened at Hospet in the latter part of 1897 (vide GO No 2393 H. M., Local dated 1st November 1897) to prevent plague being brought into this Presidency from Hubli and it was placed in charge of a Commissioned Medical Officer with a retired Military Assistant Surgeon, a nurse and a few Hospital Assistants to assist him.

9. Medical subordinates were also employed on the frontier of the Ceded and other Districts

which augmented the affected districts for the inspection of those passengers who travelled by roads and did not make use of railways to avoid inspection.

10. To enable this Department to provide medical men for these demands Government, in G.O.s marginally quoted, sanctioned the employment by me of Temporary Civil Assistant Surgeons, Retired Military Assistant Surgeons and even Uncovenanted Medical Officers on a liberal scale of pay. This sanction was largely availed of both in 1897 and in 1898

No. 1467 Pub. dt 28-4-97
" 683 " " 1-7-97
" 1494 " " 16-11-97

Temporary Civil Asst Surgeons	Retired Semi-Military Assistant Surgeons (Contd)	Temporary Civil Asst Surgeons (Contd)
Mr Taylor	McDermott	Krishnaswamy Iyer
Mr Spittler	Watts	Subba Aiyer
Mr Curran	Judd	Gurdit Singh
Mr Dodd		Vittal Rao
Mr Stanton		Pinto
Retired Semi-Military Assistant Surgeons		Ramanjulu Naidu
Smithson	Gyan Singh	Sundara Murti
Gibbons	Bonnet	Civil Apothecaries
Shathe	Copland	Parthasarathy
Menaud		Rodrigues
Everard		

will be seen
the list
in the
Punjab
N. Bengal
the middle of
1897 when all
possible ar-
rangements to
were being
made by us
to meet demands for plague duty, there came a
requisition for Commissioned Medical Officers who
were required for field service
on the frontier. Thirteen such
officers had to be withdrawn
from Civil duty and placed
at the disposal of the Mili-
tary Department. This

Lt Col Lumsden	Captain Wright
Major Thompson	Captain Curran
Major Sanjana	Captain Hutton
Major Ozzard	Captain Jarrett
Major Robertson	Captain Wynne
Captain Vickers	Captain Browne
Captain Ellington	

completely crippled their resources and the Secretary of State for the Home Government being requested to send out Temporary European Doctors both for Plague and general duties vide G.O. No 1481 Public, dated 12th November 1897. The first batch of 5 officers sent out for Madras were—

Dr Dalal
" Winter
" Jameson
" Stevens
and " Knapp.

vide G.O. No 94 Public, dated 17th January 1898 but on arrival in Bombay in December 1897, they were sent to Poona for three weeks' plague duty. Subsequently only Dr Dalal and Knapp reported themselves for duty at Madras but had again to be sent back to Bombay. Vide G.O. No 1 Public, dated 1st February 1898 and G.O. No 250 Public dated 4th February 1898

12. The remaining Plague Doctors engaged and sent out from England for duty on this Presidency and whose names are given in the margin (vide G.O. No 167 Public, dated 19th March 1898) arrived in Madras in March 1898 with the exception of Dr Thomas, who was detained in Bombay. Of the remaining nine, Dr Battiscombe died immediately after while a patient in the General Hospital and the rest were posted to plague and general duties

Dr Bajt
Dr Kendle
Dr Lee
Dr Nightingale
Dr Myles
Dr D'Thomas
Dr Langley
Dr Battiscombe
Dr Illingworth
Dr Charlesworth

13. The plague having subsequently spread to the Ceded Districts and the Nilgiris

Coorg

opened in August 1898 viz at Jalarpet, Pakala, Kindupur, and Guntakal, which was abolished in April 1898 on the transfer of the inspection to Erragadda (vide GO. No 337 Public, dated 16th April 1898) had also to be re-opened. Another inspection station was opened at Chinglepet in October 1898 - vide GO. No 1246 L.Dm. dated 5th October 1898. To meet this additional strain on the Department, it became necessary to import more Doctors from England - vide GO No 1290 Public, dated 20th October 1898 and their names are given in the margin. The first 8 arrived in Madras in October & Monday on 1st November and the others in December 1898. Dr. J. Thomas of the first batch, who was detained in Bombay arrived in September 1898. Dr Nightingale, who belonged to the first batch was allowed to exchange with Dr. Power of Bombay who joined at Bimlipatam on 8th November 1898. Three Doctors were employed as Additional Medical Officers in each of the Districts of Anantapur and South Arcot which were at one time threatened with a serious attack of the disease and one additional Medical Officer in each of the Districts of Bellary, Cuddapah, Nellore and Salem. The rest were employed at Plague Inspection Stations and on general duties.

14. Three more inspection stations were opened in January this year, viz Kalpatri,

GOs. 841 P. & Lm. 9-8-98
" 884 P. " " 24-8-98
" 892 P. " " 24-8-98.

Dr Woodward
Dr Anderson
Dr Noble
Dr J. Thomas
Dr Edwards
Dr Worthington
Dr Costello
Dr Hunter
Dr Way
Dr Thomson
Dr McLean
Dr Roberts
Dr Murray
Dr Lukeeks
Dr Fortescue
Dr Kayna
Dr Beach
Dr Low
Dr Page.

GOs. 11 P. & Lm. 4-3-99
Plague Pm. & Receipts
No. 112 & 13-1-99.
GO. No. 127 P. 99 & Lm. 7-24-1-99

Tumkur and Chittaldrug - also Honnavar - the first in charge a retired Military Assistant Surgeon, the second under a temporary Civil Assistant Surgeon and Honnavar under a Hospital Assistant. There was also a Hospital Assistant at each of the first two stations to assist the Medical Officer, also a nurse.

15. The demands for Hospital Assistants were most heavy and beyond the scope of this Department to meet. They were required not only for Railway Plague Inspection Stations but also for ambulance, staff and frontier road stations and the number of men employed on such duties in the Ceded Districts and especially in Bellary was very considerable. Private Hospital Assistants were unwilling to apply as they were afraid of plague duty and this considerably added to our difficulties. It therefore became necessary, in addition to a few retired Hospital Assistants who had been entertained, to close several dispensaries in Districts where there was no plague and withdraw the Hospital Assistants thus withdrawn from them in plague-stricken Districts. This course was adopted in consultation with the Plague Commissioner and with the consent of the various Local Bodies. Although about 40 Hospital Assistants were thus secured, they were not however sufficient to meet the demands in full and had to be supplemented by a supply of 12 Military Hospital Assistants from the Military Department.

absence [illegible] of 1898 viz at Ja[illegible]

16. Most of our Dist[illegible] Medical and Sanitary Officers and especially those of Anantapur, Cuddapah Kurnool Bellary, North Arcot and Salem had very hard and trying duties during the whole time that plague lingered in their Districts.

17. Plague in the City of Madras.

(i) Four plague hospitals and four segregation Camps were organised and opened by the Madras Municipality. Thirteen imported and 2 indigenous Cases of plague occurred up to the end of the year 1898. Precautions against the spread of infection were strictly carried out.

(ii) In accordance with the rules published by the Port Commissioners, arrivals from Bombay and [illegible] up to the end of the preceding year were inspected when between two and three miles distant from the port and all persons were inspected on shore prior to [illegible] No plague Cases were detected.

18. Plague in the Presidency. In all the Railway Inspection stations opened up to the end of 1898, 1,792,603 passengers were examined. Of these 9,633 were detained for observation up to date 443 imported and 2279 indigenous cases of plague occurred. The district which was affected most was Anantapur (67 imported and 625 indigenous) then came Salem (156 and 522) which is not far off free,

[illegible]

3.8.98
24.8.98.
24.8.98.

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Surnul (4 and 170). The precautionary measures taken as to segregation and disinfection were on the whole satisfactory.

19. Type-plan of plague hospitals. The plan embodied in G.O. No. 256 L. Local and Municipal dated 25th March 1898 was directed to be followed so far as the general disposition of the hospital, servants' quarters, latrines and the amount of the accommodation to be provided in each building were concerned, but the details of construction were left to be settled by the local authorities according to the material available in each district. Where sufficient land was available the spaces between different buildings were ordered to be increased.

20. Anti-plague Prophylactic. Early in September 1898 orders were issued in G.O. No. 699 L. Local and Municipal dated 3rd September 1898 to start volunteering in each [illegible] Anti-plague prophylactic to the in the town of Madras and the Presidency where there are Commissioned Medical Officers. Up to December 1898, 5,085 inoculations were performed in the city and 10,532 in the Presidency making a total of 16,217.

21. Equipment. The Equipment laid down in page 109 of the Plague Regulations as modified by the Plague Commissioner in his Proceedings No. 785/49 dated 20th March 1899 was ordered to be maintained in all the plague inspection stations.

22. Medical Stores. The Medical Store

Depot

stock of medicines and disinfectants to meet the demands of the various plague-infected areas in the Madras Presidency. As the Storekeeper to Government anticipated the extent and [illegible] likely advent of the plague and lost no opportunity in submitting indents on the Secretary of State for such of the drugs as were not available and had run short in the Depôt. These drugs were received in time and with the interval, acids (hydrochloric and sulphuric) the stock of which was out, were also obtained locally from Messrs Waldie & Co, Calcutta, as per G.O. No 1189 P. Mis and 35 P. Mis dated 27th September 1898 and 6th January 1899 respectively. The cost of stores obtained from England including freight amounted to Rs 45573-7-6 while that of the stores obtained locally stood at Rs 16209-11. Besides these articles of local manufacture were also obtained to suit necessity and purpose.

23. All the requisitions received from the local authorities were promptly attended to and generally complied with. There was no cause for complaint or delay.

24. The following statement shows the number of indents received and disposed of by the Medical Stores Depot during the last three years.

1896-97	———	2
1897-98	———	9
1898-99	———	94
	Total	105.

25. The work of the depôt in this connection on the [illegible] has been highly satisfactory and entirely due to the [illegible] Carruthers maintained order and discipline.

26. Finance. The total outlay on account of plague from Provincial funds amounted to—

Rs 1162-10-11 in 1896-97,
Rs 22394-2-2 in 1897-98, and
Rs 240434-5-0 in 1898-99.

while under Local Funds the expenditure for the corresponding period remained as follows:—

1896-97 ——— Rs nil.
1897-98 ——— Rs 41,112
1898-99 ——— Rs Not known.

27. The details of expenditure debited to Provincial during the last three years is shown in the appended statement. It will be seen from the statement that the expenditure under "Salaries of Officers" has been unusually large during the year 1898-99 when compared with that of the previous one. The increase under this head is mainly due to the special Medical Officers employed and drawing from the Fund as per G.O. noted in the margin for the entertainment of Retired Military Assistant Surgeons, Uncovenanted Medical Officers and Temporary Civil Assistant Surgeons from time to time and to the enhanced rate of pay offered to some of the above officers as will be seen from G.O. No 683 Public dated 1st June 1897 and G.O. No 64 Public dated 17th January 1899.

1245/Pub/3.19.3.98
1290 " " 20.10.98

28. Exchange Compensation Allowance.—Some of the Commissioned Medical Officers have

[illegible] adequate stock [illegible] to meet the demands of the [illegible] allowance in accordance with the rules [illegible] of service which accounts for the increase under [illegible] head.

29. Temporary Establishment:- The gradual increase under this head represents the cost of Establishment both superior and inferior entertained from time to time when the number of passengers from plague-infected areas was considerable.

30. The grant of travelling allowance to officers and subordinates for joining their first appointments as per G.O. No. 941 Fin. C. dated 16th November 1897, the deputation, local, tentage, rent, house rent allowances sanctioned in the Code of Government not [illegible] in the margin for the market [illegible] under these heads while the charges [illegible] are chiefly attributable to the [illegible] in reporting the cases of plague to the [illegible] authorities [illegible] the increase. [illegible] correspondence noticed in connection herewith.

31. The increase under other items some of which are trivial and call for no comments represent the actual charges incurred in connection with the construction of sheds and the purchase of materials required for the formation and maintenance of Camps and institutions for Plague purposes.

32. The decrease under other items on the Statement is due to the more [illegible] method [illegible] of adjustment of the charges sanctioned in G.O. No. 615 Financial dated 17th May 1899. This has to a small extent minimised the expenditure on the Provincial side.

33. The expenditure under Local Funds embraces the cost of medical establishments, nurses, etc. I have not the figures and facts before me to dwell upon the subject in detail as it would be a matter of time and delay.

34. General remarks:- I may add that on the whole the financial measures are sufficiently satisfactory.

I have the honor to be,

Sir,

Your most obedient Servant

[illegible]

Lieutenant

General

[illegible] Legislative Council with the Govt

Extra Ordinary Expenditure

Est. 797 M.	from 7-5-4-97		
" 153 P.	" 23-9-98		
Plague Proceedings			
No. 907	" 13-12-98		
" 7665	" 18-3-99		
Go. No. 7 Pub.	" 3-1-99		
" 618	" " 5-6-99		