Local & Munl. (1898) Department.

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[Despatch Abstract.]

Bombay Plague Camps

Communicating to the Collectors for information Dr. Bannerman's report on the Plague Camps at Poona, Kalyan, & other places in the Bombay Presidency.

BACK PAPERS.

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

FURTHER PAPERS.

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

Government {1898} of Madras.

LOCAL AND MUNICIPAL.

Recd. } 1898. *Enclosures*

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G.O., No. 802 P., 12th August 1898.

AUGUST.

Bombay Plague Camps.

Communicating to all Collectors for information Dr. Bannerman's report on the plague camps at Poona, Kalyan and other places in the Bombay Presidency.

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

Read—the following paper :—

From Surgeon-Major W. B. BANNERMAN, M.D., B.Sc., Inspector of Vaccination and Deputy Sanitary Commissioner for Madras, to the Sanitary Commissioner for Madras, dated Bombay, 12th April 1898.

In continuation of my letter of the 11th March reporting on the plague camps of Bombay city, I have the honour to submit a description of the camps in the mufassal.

2. I have visited the camps and disinfection stations at the following places, viz., Bandra, Kalyan, Poona, Sholapur, Baroda and Anand, and propose to give a detailed description of the arrangements at Poona, noting at the same time any variations seen at the other places.

3. *Railway Disinfection at Poona.*—Each train is met on arrival and all the passengers examined. First-class travellers are allowed to go after writing their names and addresses in an address book kept at the exit to the station. All others are taken to the disinfection enclosure close by—*vide* plan attached. Passengers arriving by the night trains are accommodated in the waiting-rooms in the first enclosure where they remain till morning. Each individual is provided with two sets of clean clothes to wear while his own are being disinfected, and the sexes are dealt with in separate yards. There are two waiting sheds in the men's enclosure where clothes are changed and packed in *loose* bundles for the disinfector; in the women's enclosure there are no sheds, but the anteroom of the bath-house is used for a similar purpose. All wearing apparel having been tied up in loose bundles the owners are made to enter the shed attached to the bathing house and the bundles of clothes are taken to the disinfector by coolies told off for the purpose. The arrangement of the bathing house will be readily understood by reference to the plan, and it will be noticed that there are ten baths to which access is obtained from an outer waiting-room. An European soldier is told off to superintend this part of the process, and he sees that the baths are properly prepared of the requisite strength and that each individual really takes his bath. After the bath, the bathers proceed into the second waiting-room by the sloping passage and there wait till their own clothes are ready for them. The clothes they washed in are left in the bath-rooms and they come out arrayed in the second cloth provided for them. The wet clothes are collected by a clerk told off for the purpose and along with the second suit re-sterilised in the evening. Each bath-room is provided with a wooden tub and tap for hot water; the tub containing the mixture of creasotine and water, 1 to 100, and the tap being supplied with warm water from a cistern outside kept hot by steam from the disinfector boiler. When the clothes are disinfected they are restored to their owners who then cross over to the Railway detention camp where they are kept for ten days. The same performance is gone through in the women's enclosure, except that an European nurse replaces the soldier. The surrounding and dividing walls and sheds are constructed of corrugated iron with jungle wood posts, with the exception of the nurses' quarters which is of bamboo matting walls and thatch roof. The details of construction are sufficiently shown in the accompanying plan which is copied by permission from the original in the Executive Engineer's office.

Details of cost are given below :—

	Rs.
Two waiting sheds outside, 50′ × 12′	1,241
Waiting-room inner enclosure, 50′ × 12′	347
Bathing platform, men	812
Superintendent's office building	1,175
Sorting shed, 50′ × 12′	365
Bathing platform, women	491
Nurses' quarters	321
Walling and gates	603
Hot and cold water fitting for baths	250
Total	5,605

Staff required for working the disinfection arrangements and examination of passengers :—

		Per mensem. Rs.
4 European Doctors, at	Rs. 500	2,000
4 ,, Nurses	,, 175	700
3 Hospital assistants	,, 35	105
1 Supervisor	,, 75	75
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7 Ayahs, 1 at 15 and 6	,, 12	87
2 Washermen	,, 12	24
7 Hamals, 4 at 10 and 3	,, 8	64
Total		3,145

The clothing is disinfected in an apparatus erected by the railway authorities close to the disinfection yards. It consists of an old locomotive boiler to generate steam and a boiler case in which the clothes are steamed. The end of the latter is removed and an iron moveable door substituted, and the inside is provided with rails for the trolly to run in on. Outside in a line with these rails is a similar set on to which the trolly can be withdrawn for loading and unloading. The trolly itself is made of wooden spars on a framework running on small wheels and the clothes to be disinfected are loaded on to it and run in. The door is then closed and secured by means of numerous bolts and nuts and the steam turned on till a pressure of 15 lbs. has been maintained for 15 minutes. Then the steam is allowed to escape and clothes withdrawn. Experiments were made and it was found advisable to insist on the bundles being loosely made up; otherwise the heat did not penetrate quickly into the interior.

The cost as estimated by the railway officials is as follows :—

	Rs.	A.	P.
Cost of fitting up and transporting old boilers	824	0	0
Monthly hire and petty repairs	20	0	0
Daily cost of working	5	5	0
Details of daily cost :—			
Coal, 3 cwt., at Rs. 14-11-0 per ton	2	3	0
Firewood, 3 quarters, at Rs. 5 per ton	0	3	0
Oil, tallow, waste, &c.	0	2	0
1 Fireman	0	8	0
1 Cooly	0	7	0
2 Assistant fitters	1	1	0
Batta for above men	0	11	6
Water, 250 gals., at As. 8 per 1,000	0	2	0

The arrangements at Sholapur and Anand are much less elaborate, but appear to work equally well. At both places mat sheds and bath-rooms are used in place of corrugated iron, and the floors are brick paved or earthen and not of iron. At Anand the cisterns are elevated, so that a showerbath is given to each man. The Plague Commissioner has now ordered that baths are to be optional and that no disinfectants are to be used. The disinfector at Anand is made of a boiler flue about

2 feet in diameter which is too small for such a large camp. It is fitted with an ingenious door swinging out on a crane and fixed by a single motion of a sliding bolt and in this way is much more convenient to work than the numerous nuts and screws at Poona. It has also a cold-water pipe running along the top of the disinfector so that a vacuum can be formed inside, and in this way the air in the clothes drawn out which is not possible in the Poona pattern. After the boiler flue is full of steam the supply is cut off and the cold water dripped on to the top of the case so that rapid condensation takes place inside, the gauge frequently registering 20 inches of mercury. In this way the air is drawn out of the interstices of the clothes, so that when the steam is again turned on it at once penetrates to the inside of each bundle. This is precisely what happens when the steam pressure is suddenly lessened as occurs in working the patent "Equifex Stoves." The staff employed at Anand is the following :—

	Per mensem. RS.	A.	P.
1 Staff Corps, or Police Officer (allowance)	300	0	0
1 Fireman at Rs. 30 + As. 3 per diem	35	10	0
2 Lorrymen at As. 10 per diem .. } for 2 boilers	37	8	0
4 Lorry coolies at As. 4–6 per diem }	34	0	0
1 Nurse at Rs. 50	50	0	0
1 Head Karkoon at Rs. 60 + Rs. 20 plague allowance ..	80	0	0
3 Karkoons at Rs. 20 + Rs. 10	90	0	0
1 Mukadam of coolies at Rs. 8	8	0	0
11 Coolies at Rs. 7	77	0	0
1 Washerman at Rs. 7	7	0	0
Total ..	719	2	0

Value of this system of disinfection.—From the above it will be seen that the expense of this system is very considerable and it will be well here to consider whether the benefits to be derived from it are commensurate with it. As far as disinfection of the living body goes I think no one will maintain that this is at all possible at least by the means described above. Koch says that 1 per cent. carbolic will kill sporeless bacilli in five minutes, but this statement applies merely to bacilli in broth cultivations and not to the much more difficult task of killing them when growing on, or attached to, solid media. It must therefore be evident that the perfunctory bathing performed at these camps can have no possible effect on the bacilli of plague that may be on the skin of the bathers. This part of the programme may with safety then be omitted. A more difficult point to decide is whether the disinfection of clothes is necessary or not, for there can be no doubt that all living organisms are destroyed by the heat applied to the clothes in the boilers. To carry the idea to a logical conclusion, one would require not only to disinfect the clothes, but also the body covered by them, and the boxes in which they are kept. We have seen that the first is an impossibility, and the latter is not carried out in many of the disinfection stations. Again the railway carriages in which the people with infected clothes travel are not disinfected before the newly disinfected people are allowed to enter them, and it would be a truly gigantic task to attempt this, for it would imply disinfecting the whole rolling-stock of every railway in an infected district. As throwing light on this matter, the experience of the effect of disinfection in preventing plague gained at the contact camp at Wari Bandar, may be quoted. This camp is reserved for those families in which a plague case has occurred, and the people are in consequence likely to produce many more plague cases than ordinary travellers. Every one entering this camp is carefully disinfected and their clothes steamed, yet, out of 1,572 individuals admitted during January and February, there occurred 70 plague cases, or 4·4%. Ten of these cases occurred among "re-contacts," that is to say, people who had been twice disinfected after admission, on account of cases of plague having happened among their family after first disinfection. If this be compared with the results got at the camp at Anand, we find that out of 47,295 persons passing through, 70 cases of plague occurred which is =0·14%. The total mortality in Bombay city in January and February was 14,766 in a population estimated at 775,000. If we deduct from this the normal mortality at 80 per diem, for 59 days (4,720) we get 10,046 as the probable number of plague deaths

during this period. To this we must add 20% for cases ending in recovery (2,511) and we then get 12,557 as the probable number of attacks. This gives a proportion of 1·6% of attacks in the population at present in Bombay. It would appear from this that "contacts" are three times as liable to attacks as the general population. Unfortunately there is no group of contacts who have not been disinfected to contrast with the people in Wari Bandar ; but it cannot be said that any benefit is apparent from the process.

4. *Railway Detention Camp at Poona.*—This is situated close to the station on slightly sloping ground. The living rooms are tent-like mat huts, measuring 10′ × 7′ × 7′, as shown in the photo attached. At the side of each is a porous pot for drinking-water, and between each pair of huts is a large *gurrah* full of water for use in case of fire. Each hut costs Rs. 6 if made of single mats, but if of double matting and with matted floor they cost Rs. 14. The mat huts were found so hot during the day that it is necessary to have *chapper* sheds for the people to sit in during the heat of the day. These are made with grass walls, and a space of six inches is left below the walls for ventilation and as safeguard against fire. The sheds measure 30′ × 10′, corrugated iron cooking sheds are provided giving a space of 3′ × 3′ for every two families. These are arranged in rows according to requirements and are grouped separately for the various castes, as are also the sections of the camp. Drinking-water is obtained from the town supply by branch pipes which supply 18 iron cisterns placed in convenient parts of the camp. Each tank is supported on railway sleepers to a convenient height, and is supplied with two taps on each side. To prevent soakage of the surroundings a platform of corrugated iron is arranged, draining into a galvanized iron gutter which allows the water to drain away to a convenient distance. It has been found convenient to have a grass roof over the iron tanks to keep the water from becoming unbearably warm. Bathing places are made of corrugated iron sheets draining to a common gutter running through the centre of the camp, and the upper side where the taps are, is provided with a low wall to prevent splashing on to the ground. This very simple and cheap contrivance seems to answer all purposes admirably.

The latrine accommodation consists of trenches from 4 to 6 feet deep and 4 wide with a ladder-like arrangement across it for squatting on. The trenches are of course much too deep and are bound to become a great nuisance in the rains. The camp is designed to accommodate 2,000 people, and has cost Rs. 12,715. For the approaching monsoon an estimate has been prepared for erecting sheds to hold 500 at a cost of Rs. 7,428. The sheds are to be 64′ long with a 4′ verandah along the front. Each shed contains 8 rooms 10′ × 8′ to contain 4 people. Grass thatch roofs of 40 degree pitch, and 2″ thatch on the windward side of the walls. Partitions and verandah walls of matting. Floors, stones and morum 9″. Each block costs Rs. 280.

All arrivals by rail are registered at the disinfection place and the list is sent to the detention camp. Here respectable people are given a chance of proving themselves worthy of being allowed out on a surveillance pass. They are sent down to the central office in the city (white form), or to the cantonment (yellow form), and there if they can get any responsible man to vouch for them, they are allowed to go home on condition of appearing every second day for examination, for a period of ten days. If they cannot prove their fitness they are returned to the detention camp under the same escort. As each family is admitted the head member is supplied with a ticket with a number, detailing the members of his family, and date of admission. This ticket is initialled daily in token of payment of the two-anna dole that each gets. If plague breaks out the patient is sent to the hospital with a printed letter of admission, and the escort brings back a receipt. At the end of the period of detention a certificate on the attached form is given to each individual along with his railway ticket. Specimens of all these forms are attached. Individuals desirous of seeing their friends are allowed to do so at the visitor's shed. This consists of two long sheds arranged on either side of the boundary fence, but with an interval of 4 feet between them ; the people are thus enabled to speak to one another in comfort and yet cannot actually come in contact. In connection with this camp there is a band of native gentlemen volunteers, for the purpose of vouching for respectable persons ; and some of them visit the camp daily to investigate complaints among the inmates.

The camp was opened on the 13th February and up to the 30th March, 3,553 persons had passed through it and amongst these 39 cases of plague had been discovered, a much higher percentage than in the case of Anand, showing the influence of proximity to Bombay probably.

The staff required for this camp is the following:—

	Per mensem. Rs.
1 Superintendent, a Staff Corps Officer (allowance)	300
1 Assistant Superintendent, a Royal Artillery Officer (allowance)	300
1 Supervisor	80
1 Accountant	60
4 Clerks, 1 at Rs. 20 and 3 at Rs. 15	65
2 Ayahs at Rs. 12	24
5 Hamals at Rs. 10	50
1 Peon at Rs. 8	8
1 Lamp man	8
1 Mukadam of sweepers	10
5 Male sweepers at Rs. 9	45
5 Female sweepers at Rs. 8	40
Total	990

One of the station doctors and a hospital assistant look after any sick in the camp and conduct examinations of the inmates twice a day. For purposes of discipline a Native Officer and 70 men from a Native Regiment are quartered in the camp, and their pay and allowances must also be put down against the cost of the camp.

All the other detention camps are managed in a similar way, the chief difference being in the construction of the sheds. At Bandra and Kalyan the huts are mat erections 10′ square with flat roofs and costing about Rs. 16 each. At Anand the sheds are thatched with grass and the walls are of bajri straw; each shed contains four rooms for eight inmates. The latrines at most of the camps are very primitive affairs generally allowing of soakage of the ground, with the result that a bad smell is very perceptible. At the Poona disinfection place is a small latrine for the use of night passengers, which is supplied with buckets and provided with a corrugated iron floor, a cheap and efficient method. At Anand where the soil is sandy the latrines are merely large open spaces kept clean by scavengers who are always in attendance. The spot is changed periodically and the plan seems to work fairly well owing to the absorbent nature of the soil. The following particulars of the staff and actual cost of this large camp may be of use. The staff is calculated for 3,000 people, but as a matter of fact as many as 6,000 have been detained in one day. On one occasion the numbers fell to 300, owing to a cyclone which flooded the camp necessitating the employment of two special trains to remove the people to Ahmedabad. This is one of the many ways in which such a system as this is apt to break down, for the people had to be sent off whether they had finished their ten days or not.

Staff of Anand detention camp (3,000 inmates):—

	Per mensem. Rs.
1 Civilian in charge (allowance)	300
1 Assistant Surgeon Rs. 150 + Rs. 60	210
5 Hospital Assistants	135
5 Medical pupils to examine twice a day all inmates as per list	125
2 Vaccinators to examine twice a day all inmates as per list	50
1 Mukadam at Rs. 8 } for pulling down huts infected and disinfecting them.	8
4 Coolies at Rs. 7 }	28
5 Ward boys at Rs. 7 } for hospital	35
2 Corpse-bearers at Rs. 8 }	16
1 Sweeper }	5

Conservancy Establishment:—

	Per mensem.
1 Inspector at Rs. 17	17
1 Sub-Inspector	7
1 Mukadam of sweepers	5
54 Sweepers at Rs. 4	216
5 Coolies at Rs. 7 for hut cleaning. These 5 men with the Sub-Inspector go round to the huts and clean them of leaves, food, &c. Also 16 blocks of 4 rooms each are provided with clean straw daily, are soaked with perchloride, and left vacant for 4 days.	35
7 Lampmen at Rs. 7 for 233 lamps	49
1 Head Karkoon	80
1 " "	60
12 Clerks at Rs. 15 to 25	210
9 Patiwallas at Rs. 8	72
Police establishment:—	
1 Chief Constable	60
17 Head Constables at Rs. 12 to 16	232
149 Constables at Rs. 7 to 9	1,191
Total	3,146

The following was furnished to me as the total expenditure during the four months (24th November 1897 to 25th March 1898) the camp has been in existence:—

	Rs.
Construction	15,546
Disinfection	5,082
Lamp-lighting	288
Pay	2,119
Deadstock	1,159
Contingencies	132
Telegraph charges	166
Food to paupers	477
Miscellaneous charges	130
Unpaid bills about Rs. 10,000	10,000
Total	35,104

The following is interesting as showing the incidence of cases on the days after admission to camp. It will be seen that one case developed plague on the 11th day, in fact the man was detected just as he was leaving the camp after his ten days' quarantine. Of 69 cases of plague in the camp—

22	cases occurred	on the 1st	day after admission.
7	"	2nd	"
15	"	3rd	"
7	"	4th	"
4	"	5th	"
5	"	6th	"
4	"	7th	"
2	"	8th	"
1	"	9th	"
1	"	10th	"
1	"	11th	"

The cost of all these camps is at present borne by Government; but it is proposed that the municipalities should bear the greater part of the cost, the amount being regarded as a loan to be repaid with interest within a certain number of years.

Arrangements for bazaars are much the same in all camps; some shed is set apart for shops and the Bannias are allowed to occupy them on giving security of a certain amount (Rs. 250 at Poona) and are obliged to sell at a rate fixed by the

Collector. Only those without means are as a rule fed, but there is a large amount given in charity by wealthy native gentlemen in all of them. In many cases a blanket, mat, and small lamp are given to each person on entering and taken back on leaving.

The cordon, and health camps are managed on the same lines as the Bombay city ones, and need not therefore be further described here.

* * * * *

Enclosures.

I.

POONA RAILWAY STATION DETENTION CAMP.

Registered No. _____

Name of the chief member _____

Family members _____

Date of admission _____

Detained for _____

II.

To

The MEDICAL OFFICER,
Plague Hospital, Poona.

Sir,

Please admit the patient _____

Age _____ Caste _____ into your hospital

if he appears to be suffering from plague.

Dated _____ 1898.

Superintendent,
Poona Ry. Stn. Detn. Camp.

III.

POONA RAILWAY STATION DETENTION CAMP.

This is to certify that _____

was detained in the Poona Railway Station Detention Camp from _____

to _____ and is discharged this day. He has been examined

and found free from all signs of plague. He has been disinfected.

Poona, _____ 1898.

Superintendent,
Poona Ry. Stn. Detn. Camp.

IV.

SURVEILLANCE PASS.

Name and Address. | No.

The person noted in the margin must report —— self at the Head-quarter Segregation Office, 315, Sukerwar Peth, every other day between the hours of 8 a.m. and 5 p.m. for a period of ten days from the date of issue of this pass.

Poona, _____ 1898.

Superintendent,
Poona Ry. Stn. Detn. Camp.

Remarks by Medical Officer.

V.

POONA RAILWAY STATION DETENTION CAMP.

Names. | No. of 1898.

The persons noted in the margin are sent to the Officer in charge of the Head-quarter Segregation Office, No. 315, Sukerwar Peth, in order that they may be given an opportunity of proving their fitness to be admitted under the Surveillance system. If any of them is unable to prove his fitness it is requested that he be returned under escort to this camp for detention.

Poona, _____ 1898.

Superintendent,
Poona Ry. Stn. Detn. Camp.

VI.

No. _____

BANDRA OBSERVATION CAMP.

Certified that _____ has been detained under observation in this Camp for _____ days, and having been medically examined is this day permitted to proceed on his journey to _____ by the _____ train.

Medical Officer.

Superintendent;
Bandra Camp.

Dated 1898.

If you alight at any station other than the one mentioned above, you will be liable to further detention.

VII.

POONA RAILWAY STATION DETENTION CAMP.

Daily return for Tuesday the 1898.

—	Number of persons admitted during the day.	Balance from the previous day.	Total.	Died to-day.	Found free from plague and discharged.	Found to be suffering from plague and sent to hospital.	Otherwise disposed of.	Balance remaining for the next day.
				..			..	
Total number of persons admitted up to date.								
Discharged up to date.								
To be discharged on future dates.								

N.B.—Other enclosures not printed.

Order—No. 802 P., dated 12th August 1898.

Communicated to all Collectors for information.

(True Extract.)

H. TREMENHEERE,
Secretary to Government.

To all Collectors (A, F, G, H, J, K).
„ the Sanitary Commissioner.
„ the Surgeon-General.
„ the President, Municipal Commission, Madras.

Ed A. F. Eccleston.

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Govt 1/9

Government {1898} of Madras.

LOCAL AND MUNICIPAL.

S.a

Revised proof
Submitted for
approval.
MS
7/9/98

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Regd. *Spare copies*

G.O., No. 802 P., 12th August 1898.

Please omit the Statement
Kmy
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Firewood, 3 quarters, at Rs. 5 per ton	0	3	0
Oil, tallow, waste, &c.	0	2	0
1 Fireman	0	8	0
1 Cooly	0	7	0
2 Assistant fitters	1	1	0
Batta for above men	0	11	0
Water, 250 gals., at As. 8 per 1,000	0	2	0

The arrangements at Sholapur and Anand are much less elaborate, but appear to work equally well. At both places mat sheds and bath-rooms are used in place of corrugated iron, and the floors are brick paved or earthen and not of iron. At Anand the cisterns are elevated, so that a showerbath is given to each man. The Plague Commissioner has now ordered that baths are to be optional and that no disinfectants are to be used. The disinfector at Anand is made of a boiler flue about

2 feet in diameter which is too small for such a large camp. It is fitted with an ingenious door swinging out on a crane and fixed by a single motion of a sliding bolt and in this way is much more convenient to work than the numerous nuts and screws at Poona. It has also a cold-water pipe running along the top of the disinfector so that a vacuum can be formed inside, and in this way the air in the clothes drawn out which is not possible in the Poona pattern. After the boiler flue is full of steam the supply is cut off and the cold water dripped on to the top of the case so that rapid condensation takes place inside, the gauge frequently registering 20 inches of mercury. In this way the air is drawn out of the interstices of the clothes, so that when the steam is again turned on it at once penetrates to the inside of each bundle. This is precisely what happens when the steam pressure is suddenly lessened as occurs in working the patent "Equifex Stoves." The staff employed at Anand is the following :—

		Per mensem. Rs.	A.	P.
1	Staff Corps, or Police Officer (allowance)	300	0	0
1	Fireman at Rs. 30 + As. 3 per diem	35	10	0
2	Lorrymen at As. 10 per diem .. } for 2 boilers	37	8	0
4	Lorry coolies at As. 4–6 per diem } for 2 boilers	34	0	0
1	Nurse at Rs. 50	50	0	0
1	Head Karkoon at Rs. 60 + Rs. 20 plague allowance ..	80	0	0
3	Karkoons at Rs. 20 + Rs. 10	90	0	0
1	Mukadam of coolies at Rs. 8	8	0	0
11	Coolies at Rs. 7	77	0	0
1	Washerman at Rs. 7	7	0	0
	Total ..	719	2	0

Value of this system of disinfection.—From the above it will be seen that the expense of this system is very considerable and it will be well here to consider whether the benefits to be derived from it are commensurate with it. As far as disinfection of the living body goes I think no one will maintain that this is at all possible at least by the means described above. Koch says that 1 per cent. carbolic will kill sporeless bacilli in five minutes, but this statement applies merely to bacilli in broth cultivations and not to the much more difficult task of killing them when growing on, or attached to, solid media. It must therefore be evident that the perfunctory bathing performed at these camps can have no possible effect on the bacilli of plague that may be on the skin of the bathers. This part of the programme may with safety then be omitted. A more difficult point to decide is whether the disinfection of clothes is necessary or not, for there can be no doubt that all living organisms are destroyed by the heat applied to the clothes in the boilers. To carry the idea to a logical conclusion, one would require not only to disinfect the clothes, but also the body covered by them, and the boxes in which they are kept. We have seen that the first is an impossibility, and the latter is not carried out in many of the disinfection stations. Again the railway carriages in which the people with infected clothes travel are not disinfected before the newly disinfected people are allowed to enter them, and it would be a truly gigantic task to attempt this, for it would imply disinfecting the whole rolling-stock of every railway in an infected district. As throwing light on this matter, the experience of the effect of disinfection in preventing plague gained at the contact camp at Wari Bandar, may be quoted. This camp is reserved for those families in which a plague case has occurred, and the people are in consequence likely to produce many more plague cases than ordinary travellers. Every one entering this camp is carefully disinfected and their clothes steamed, yet, out of 1,572 individuals admitted during January and February, there occurred 70 plague cases, or 4·4%. Ten of these cases occurred among "re-contacts," that is to say, people who had been twice disinfected after admission, on account of cases of plague having happened among their family after first disinfection. If this be compared with the results got at the camp at Anand, we find that out of 47,295 persons passing through, 70 cases of plague occurred which is =0·14%. The total mortality in Bombay city in January and February was 14,766 in a population estimated at 775,000. If we deduct from this the normal mortality at 80 per diem, for 59 days (4,720) we get 10,046 as the probable number of plague deaths during this period. To this we must add 20% for cases ending in recovery (2,511) and we then get 12,557 as the probable number of attacks. This gives a proportion of 1·6% of attacks in the population at present in Bombay. It would appear from this that "contacts" are three times as liable to attacks as the general population. Unfortunately there is no group of contacts who have not been disinfected to contrast with the people in Wari Bandar; but it cannot be said that any benefit is apparent from the process.

4. *Railway Detention Camp at Poona.*—This is situated close to the station on slightly sloping ground. The living rooms are tent-like mat huts, measuring 10′ × 7′ × 7′, as shown in the photo attached. At the side of each is a porous pot for drinking-water, and between each pair of huts is a large *gurrah* full of water for use in case of fire. Each hut costs Rs. 6 if made of single mats, but if of double matting and with matted floor they cost Rs. 14. The mat huts were found so hot during the day that it is necessary to have *chapper* sheds for the people to sit in during the heat of the day. These are made with grass walls, and a space of six inches is left below the walls for ventilation and as safeguard against fire. The sheds measure 30′ × 10′, corrugated iron cooking sheds are provided giving a space of 3′ × 3′ for every two families. These are arranged in rows according to requirements and are grouped separately for the various castes, as are also the sections of the camp. Drinking-water is obtained from the town supply by branch pipes which supply 18 iron cisterns placed in convenient parts of the camp. Each tank is supported on railway sleepers to a convenient height, and is supplied with two taps on each side. To prevent soakage of the surroundings a platform of corrugated iron is arranged, draining into a galvanized iron gutter which allows the water to drain away to a convenient distance. It has been found convenient to have a grass roof over the iron tanks to keep the water from becoming unbearably warm. Bathing places are made of corrugated iron sheets draining to a common gutter running through the centre of the camp, and the upper side where the taps are, is provided with a low wall to prevent splashing on to the ground. This very simple and cheap contrivance seems to answer all purposes admirably.

The latrine accommodation consists of trenches from 4 to 6 feet deep and 4 wide with a ladder-like arrangement across it for squatting on. The trenches are of course much too deep and are bound to become a great nuisance in the rains. The camp is designed to accommodate 2,000 people, and has cost Rs. 12,715. For the approaching monsoon an estimate has been prepared for erecting sheds to hold 500 at a cost of Rs. 7,428. The sheds are to be 64′ long with a 4′ verandah along the front. Each shed contains 8 rooms 10′ × 8′ to contain 4 people. Grass thatch roofs of 40 degree pitch, and 2″ thatch on the windward side of the walls. Partitions and verandah walls of matting. Floors, stones and morum 9″. Each block costs Rs. 280.

All arrivals by rail are registered at the disinfection place and the list is sent to the detention camp. Here respectable people are given a chance of proving themselves worthy of being allowed out on a surveillance pass. They are sent down to the central office in the city (white form), or to the cantonment (yellow form), and there if they can get any responsible man to vouch for them, they are allowed to go home on condition of appearing every second day for examination, for a period of ten days. If they cannot prove their fitness they are returned to the detention camp under the same escort. As each family is admitted the head member is supplied with a ticket with a number, detailing the members of his family, and date of admission. This ticket is initialled daily in token of payment of the two-anna dole that each gets. If plague breaks out the patient is sent to the hospital with a printed letter of admission, and the escort brings back a receipt. At the end of the period of detention a certificate on the attached form is given to each individual along with his railway ticket. Specimens of all these forms are attached. Individuals desirous of seeing their friends are allowed to do so at the visitor's shed. This consists of two long sheds arranged on either side of the boundary fence, but with an interval of 4 feet between them; the people are thus enabled to speak to one another in comfort and yet cannot actually come in contact. In connection with this camp there is a band of native gentlemen volunteers, for the purpose of vouching for respectable persons; and some of them visit the camp daily to investigate complaints among the inmates.

The camp was opened on the 13th February and up to the 30th March, 3,553 persons had passed through it and amongst these 39 cases of plague had been discovered, a much higher percentage than in the case of Anand, showing the influence of proximity to Bombay probably.

The staff required for this camp is the following:—

	Per mensem. Rs.
1 Superintendent, a Staff Corps Officer (allowance)	300
1 Assistant Superintendent, a Royal Artillery Officer (allowance)	300
1 Supervisor	80
1 Accountant	60
4 Clerks, 1 at Rs. 20 and 3 at Rs. 15	65
2 Ayahs at Rs. 12	24
5 Hamals at Rs. 10	50
1 Peon at Rs. 8	8
1 Lamp man	8
1 Mukadam of sweepers	10
5 Male sweepers at Rs. 9	45
5 Female sweepers at Rs. 8	40
Total	990

One of the station doctors and a hospital assistant look after any sick in the camp and conduct examinations of the inmates twice a day. For purposes of discipline a Native Officer and 70 men from a Native Regiment are quartered in the camp, and their pay and allowances must also be put down against the cost of the camp.

All the other detention camps are managed in a similar way, the chief difference being in the construction of the sheds. At Bandra and Kalyan the huts are mat erections 10′ square with flat roofs and costing about Rs. 16 each. At Anand the sheds are thatched with grass and the walls are of bajri straw; each shed contains four rooms for eight inmates. The latrines at most of the camps are very primitive affairs generally allowing of soakage of the ground, with the result that a bad smell is very perceptible. At the Poona disinfection place is a small latrine for the use of night passengers, which is supplied with buckets and provided with a corrugated iron floor, a cheap and efficient method. At Anand where the soil is sandy the latrines are merely large open spaces kept clean by scavengers who are always in attendance. The spot is changed periodically and the plan seems to work fairly well owing to the absorbent nature of the soil. The following particulars of the staff and actual cost of this large camp may be of use. The staff is calculated for 3,000 people, but as a matter of fact as many as 6,000 have been detained in one day. On one occasion the numbers fell to 300, owing to a cyclone which flooded the camp necessitating the employment of two special trains to remove the people to Ahmedabad. This is one of the many ways in which such a system as this is apt to break down, for the people had to be sent off whether they had finished their ten days or not.

Staff of Anand detention camp (3,000 inmates):—

	Per mensem. Rs.
1 Civilian in charge (allowance)	300
1 Assistant Surgeon Rs. 150 + Rs. 60	210
5 Hospital Assistants	135
5 Medical pupils to examine twice a day all inmates as per list	125
2 Vaccinators to examine twice a day all inmates as per list	50
1 Mukadam at Rs. 8 for pulling down huts infected and disinfecting them.	8
4 Coolies at Rs. 7	28
5 Ward boys at Rs. 7	35
2 Corpse-bearers at Rs. 8 for hospital	16
1 Sweeper	5

Conservancy Establishment:—

	Per mensem.
1 Inspector at Rs. 17	17
1 Sub-Inspector	7
1 Mukadam of sweepers	5
54 Sweepers at Rs. 4	216
5 Coolies at Rs. 7 for hut cleaning	35
These 5 men with the Sub-Inspector go round to the huts and clean them of leaves, food, &c. Also 16 blocks of 4 rooms each are provided with clean straw daily, are soaked with perchloride, and left vacant for 4 days.	
7 Lampmen at Rs. 7 for 233 lamps	49
1 Head Karkoon	80
1 „ „	60
12 Clerks at Rs. 15 to 25	210
9 Patiwallas at Rs. 8	72

Police establishment:—

1 Chief Constable	60
17 Head Constables at Rs. 12 to 16	232
149 Constables at Rs. 7 to 9	1,191
Total	3,146

The following was furnished to me as the total expenditure during the four months (24th November 1897 to 25th March 1898) the camp has been in existence:—

	Rs.
Construction	15,546
Disinfection	5,082
Lamp-lighting	288
Pay	2,119
Deadstock	1,159
Contingencies	132
Telegraph charges	166
Food to paupers	477
Miscellaneous charges	130
Unpaid bills about Rs. 10,000	10,000
Total	35,104

The following is interesting as showing the incidence of cases on the days after admission to camp. It will be seen that one case developed plague on the 11th day, in fact the man was detected just as he was leaving the camp after his ten days' quarantine. Of 69 cases of plague in the camp—

22	cases	occurred	on the	1st	day after admission.
7	„	„	2nd	„	„
15	„	„	3rd	„	„
7	„	„	4th	„	„
4	„	„	5th	„	„
5	„	„	6th	„	„
4	„	„	7th	„	„
2	„	„	8th	„	„
1	„	„	9th	„	„
1	„	„	10th	„	„
1	„	„	11th	„	„

The cost of all these camps is at present borne by Government; but it is proposed that the municipalities should bear the greater part of the cost, the amount being regarded as a loan to be repaid with interest within a certain number of years.

Arrangements for bazaars are much the same in all camps; some shed is set apart for shops and the Bannias are allowed to occupy them on giving security of a certain amount (Rs. 250 at Poona) and are obliged to sell at a rate fixed by the

Collector. Only those without means are as a rule fed, but there is a large amount given in charity by wealthy native gentlemen in all of them. In many cases a blanket, mat, and small lamp are given to each person on entering and taken back on leaving.

The cordon, and health camps are managed on the same lines as the Bombay city ones, and need not therefore be further described here.

* * * * *

ENCLOSURE I

POONA RAILWAY STATION DETENTION CAMP.

Registered No. _____

Name of the chief member _____

Family members _____

Date of admission _____

Detained for _____

ENCLOSURE II

To

THE MEDICAL OFFICER,

Plague Hospital, Poona.

SIR,

Please admit the patient _____

Age _____ Caste _____ into your hospital if he appears to be suffering from plague.

Dated _____ 1898.

Superintendent,
Poona Ry. Stn. Detn. Camp.

ENCLOSURE III

POONA RAILWAY STATION DETENTION CAMP.

THIS is to certify that _____ was detained in the Poona Railway Station Detention Camp from _____ to _____ and is discharged this day. He has been examined and found free from all signs of plague. He has been disinfected.

POONA, _____ 1898.

Superintendent,
Poona Ry. Stn. Detn. Camp.

ENCLOSURE IV

SURVEILLANCE PASS.

NAME AND ADDRESS.

No.

THE person noted in the margin must report —— self at the Head-quarter SEGREGATION OFFICE, 315, Sukerwar Peth, every other day between the hours of 8 A.M. and 5 P.M. for a period of ten days from the date of issue of this pass.

POONA, _____ 1898.

Superintendent,
Poona Ry. Stn. Detn. Camp.

REMARKS BY MEDICAL OFFICER.

ENCLOSURE V

POONA RAILWAY STATION DETENTION CAMP.

NAMES.

No. of 1898.

THE persons noted in the margin are sent to the Officer in charge of the Head-quarter SEGREGATION OFFICE, No. 315, Sukerwar Peth, in order that they may be given an opportunity of proving their fitness to be admitted under the Surveillance system. If any of them is unable to prove his fitness it is requested that he be returned under escort to this camp for detention.

POONA, _____ 1898.

Superintendent,
Poona Ry. Stn. Detn. Camp.

No.

FORM No. 1.

BANDRA OBSERVATION CAMP.

CERTIFIED that _____ has been detained under observation in this Camp for _____ days, and having been medically examined is this day permitted to proceed on his journey to _____ by the _____ train.

Medical Officer.

Superintendent,
Bandra Camp.

Dated 1898.

If you alight at any station other than the one mentioned above, you will be liable to further detention.

POONA RAILWAY STATION DETENTION CAMP.

DAILY return for Tuesday the 29th March 1898.

—	Number of persons admitted during the day.	Balance from the previous day.	Total.	Died to-day.	Found free from plague and discharged.	Found to be suffering from plague and sent to hospital.	Otherwise disposed of.	Balance remaining for the next day.
	153	859	1,012	..	105	..	..	907
Total number of persons admitted up to date.	3,953							
Discharged up to date.	3,046							
To be discharged on future dates.	907							

ORDER—No. 802 P., dated 12th August 1898.

Communicated to all Collectors for information.

(True Extract.)

for *Secretary to Government.*

To all Collectors (A, F, G, H, J, K).
" the Sanitary Commissioner.
" the Surgeon-General.
" the President, Municipal Commission, Madras.

Exd. A. F. Eccleston.

Government {1898} of Madras.

LOCAL AND MUNICIPAL.

Recd. } 1898. *Enclosures*

Regd. *Spare copies*

G.O., No. 802 P., 12th August 1898.

AUGUST.

Bombay Plague Camps.

Communicating to all Collectors for information Dr. Bannerman's report on the plague camps at Poona, Kalyan and other places in the Bombay Presidency.

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

READ—the following paper :—

From Surgeon-Major W. B. BANNERMAN, M.D., B.Sc., Inspector of Vaccination and Deputy Sanitary Commissioner for Madras, to the Sanitary Commissioner for Madras, dated Bombay, 12th April 1898.

In continuation of my letter of the 11th March rep[illegible] on the plague camps of Bombay city, I have the honour to submit a descri[illegible]f the camps in the mufassal.

2. I have visited the camps and disinfection stations at the following places, viz., Bandra, Kalyan, Poona, Sholapur, Baroda and Anand, and propose to give a detailed description of the arrangements at Poona, noting at the same time any variations seen at the other places.

3. *Railway Disinfection at Poona.*—Each train is met on arrival and all the passengers examined. First-class travellers are allowed to go after writing their names and addresses in an address book kept at the exit to the station. All others are taken to the disinfection enclosure close by—*vide* plan attached. Passengers arriving by the night trains are accommodated in the waiting-rooms in the first enclosure where they remain till morning. Each individual is provided with two sets of clean clothes to wear while his own are being disinfected, and the sexes are dealt with in separate yards. There are two waiting sheds in the men's enclosure where clothes are changed and packed in *loose* bundles for the disinfector; in the women's enclosure there are no sheds, but the anteroom of the bath-house is used [illegible] to a similar purpose. All wearing apparel having been tied up in loose bund[illegible]es the owners are made to enter the shed attached to the bathing house and th[illegible]e bundles of clothes are taken to the disinfector by coolies told off for the purp[illegible]se. The arrangement of the bathing house will be readily understood by referenc[illegible]e to the plan, and it will be noticed that there are ten baths to which access is [illegible] obtained from an outer waiting-room. An European soldier is told off to superint[illegible]end this part of the process, and he sees that the baths are properly prepared of t[illegible]the requisite strength and that each individual really takes his bath. After the ba[illegible]th the bathers proceed into the second waiting-room by the sloping passage and th[illegible]are wait till their own clothes are ready for them. The clothes they washed in[illegible] for them. The wet clothes are collected come out arrayed in the second cloth provid[illegible] along with the second suit re-sterilised in by a clerk told off for the purpose and[illegible]ided with a wooden tub and tap for hot water; the evening. Each bath-room is prov[illegible]easotine and water, 1 to 100, and the tap being the tub containing the mixture of cr[illegible]tern outside kept hot by steam from the disin- supplied with warm water from a cis[illegible]disinfected they are restored to their owners who fector boiler. When the clothes are [illegible]ention camp where they are kept for ten days. then cross over to the Railway det[illegible]gh in the women's enclosure, except that an The same performance is gone thro[illegible] The surrounding and dividing walls and sheds European nurse replaces the soldier. [illegible]h jungle wood posts, with the exception of the are constructed of corrugated iron wi[illegible]matting walls and thatch roof. The details of nurses' quarters which is of bamboo [illegible]n the accompanying plan which is copied by construction are sufficiently shown [illegible]xecutive Engineer's office. permission from the original in the

Details of cost are given below :—

	Rs.
Two waiting sheds outside, 50′ × 12′	1,241
Waiting-room inner enclosure, 50′ × 12′	347
Bathing platform, men	812
Superintendent's office building	1,175
Sorting shed, 50′ × 12′	365
Bathing platform, women	491
Nurses' quarters	321
Walling and gates	603
Hot and cold water fitting for baths	250
Total	5,605

Staff required for working the disinfection arrangements and examination of passengers :—

		Per mensem. Rs.
4 European Doctors, at Rs.	500	2,000
4 „ Nurses „	175	700
3 Hospital assistants „	35	105
1 Supervisor „	75	75
6 Clerks „	15	90
7 Ayahs, 1 at [illegible]nd 6 „	12	87
2 Washermen „	12	24
7 Hamals, 4 at 10 and 3 „	8	64
Total		3,145

The clothing is disinfected in an apparatus erected by the railway authorities close to the disinfection yards. It consists of an old locomotive boiler to generate steam and a boiler case in which the clothes are steamed. The end of the latter is removed and an iron moveable door substituted, and the inside is provided with rails for the trolly to run in on. Outside in a line with these rails is a similar set on to which the trolly can be withdrawn for loading and unloading. The trolly itself is made of wooden spars on a framework running on small wheels and the clothes to be disinfected are loaded on to it and run in. The door is then closed and secured by means of numerous bolts and nuts and the steam turned on till a pressure of 15 lbs. has been maintained for 15 minutes. Then the steam is allowed to escape and clothes withdrawn. Experiments were made and it was found advisable to insist on the bundles being loosely made up; otherwise the heat did not penetrate quickly into the interior.

The cost as estimated by the railway officials is as follows :—

	Rs.	A.	P.
Cost of fitting up and transporting old boilers	824	0	0
Monthly hire and petty repairs	20	0	0
Daily cost of working	5	5	0
Details of daily cost :—			
Coal, 3 cwt., at Rs. 14-1′-0 per ton	2	3	0
Firewood, 3 quarters, at Rs. 5 per ton	0	3	0
Oil, tallow, waste, &c.	0	2	0
1 Fireman	0	8	0
1 Cooly	0	7	0
2 Assistant fitters	1	1	0
Batta for above men	0	11	0
Water, 250 gals., at As. 8 per 1,000	0	2	0

The arrangements at Sholapur and Anand are much less elaborate, but appear to work equally well. At both places mat sheds and bath-rooms are used in place of corrugated iron, and the floors are brick paved or earthen and not of iron. At Anand the cisterns are elevated, so that a showerbath is given to each man. The Plague Commissioner has now ordered that baths are to be optional and that no disinfectants are to be used. The disinfector at Anand is made of a boiler flue about

2 feet in diameter which is too small for such a large camp. It is fitted with an ingenious door swinging out on a crane and fixed by a single motion of a sliding bolt and in this way is much more convenient to work than the numerous nuts and screws at Poona. It has also a cold-water pipe running along the top of the disinfector so that a vacuum can be formed inside, and in this way the air in the clothes drawn out which is not possible in the Poona pattern. After the boiler flue is full of steam the supply is cut off and the cold water dripped on to the top of the case so that rapid condensation takes place inside, the gauge frequently registering 20 inches of mercury. In this way the air is drawn out of the interstices of the clothes, so that when the steam is again turned on it at once penetrates to the inside of each bundle. This is precisely what happens when the steam pressure is suddenly lessened as occurs in working the patent "Equifex Stoves." The staff employed at Anand is the following :—

	Per mensem. RS.	A.	P.
1 Staff Corps, or Police Officer (allowance)	300	0	0
1 Fireman at Rs. 30 + As. 3 per diem	35	10	0
2 Lorrymen at As. 10 per diem .. } for 2 boilers	37	8	0
4 Lorry coolies at As. 4–6 per diem } for 2 boilers	34	0	0
1 Nurse at Rs. 50	50	0	0
1 Head Karkoon at Rs. 60 + Rs. 20 plague allowance ..	80	0	0
3 Karkoons at Rs. 20 + Rs. 10	90	0	0
1 Mukadam of coolies at Rs. 8	8	0	0
11 Coolies at Rs. 7	77	0	0
1 Washerman at Rs. 7	7	0	0
Total ..	719	2	0

Value of this system of disinfection.—From the above it will be seen that the expense of this system is very considerable and it will be well here to consider whether the benefits to be derived from it are commensurate with it. As far as disinfection of the living body goes I think no one will maintain that this is at all possible at least by the means described above. Koch says that 1 per cent. carbolic will kill sporeless bacilli in five minutes, but this statement applies merely to bacilli in broth cultivations and not to the much more difficult task of killing them when growing on, or attached to, solid media. It must therefore be evident that the perfunctory bathing performed at these camps can have no possible effect on the bacilli of plague that may be on the skin of the bathers. This part of the programme may with safety then be omitted. A more difficult point to decide is whether the disinfection of clothes is necessary or not, for there can be no doubt that all living organisms are destroyed by the heat applied to the clothes in the boilers. To carry the idea to a logical conclusion, one would require not only to disinfect the clothes, but also the body covered by them, and the boxes in which they are kept. We have seen that the first is an impossibility, and the latter is not carried out in many of the disinfection stations. Again the railway carriages in which the people with infected clothes travel are not disinfected before the newly disinfected people are allowed to enter them, and it would be a truly gigantic task to attempt this, for it would imply disinfecting the whole rolling-stock of every railway in an infected district. As throwing light on this matter, the experience of the effect of disinfection in preventing plague gained at the contract camp at Wari Bandar, may be quoted. This camp is reserved for those families in which a plague case has occurred, and the people are in consequence likely to produce many more plague cases than ordinary travellers. Every one entering this camp is carefully disinfected and their clothes steamed, yet, out of 1,572 individuals admitted during January and February, there occurred 70 plague cases, or 4·4%. Ten of these cases occurred among "re-contacts," that is to say, people who had been twice disinfected after admission, on account of cases of plague having happened among their family after first disinfection. If this be compared with the results got at the camp at Anand, we find that out of 47,295 persons passing through, 70 cases of plague occurred which is =0·14%. The total mortality in Bombay city in January and February was 14,766 in a population estimated at 775,000. If we deduct from this the normal mortality at 80 per diem, for 59 days (4,720) we get 10,046 as the probable number of plague deaths

during this period. To this we must add 20% for cases ending in recovery (2,511) and we then get 12,557 as the probable number of attacks. This gives a proportion of 1·6% of attacks in the population at present in Bombay. It would appear from this that "contacts" are three times as liable to attacks as the general population. Unfortunately there is no group of contacts who have not been disinfected to contrast with the people in Wari Bandar ; but it cannot be said that any benefit is apparent from the process.

4. *Railway Detention Camp at Poona.*—This is situated close to the station on slightly sloping ground. The living rooms are tent-like mat huts, measuring 10′ × 7′ × 7′, as shown in the photo attached. At the side of each is a porous pot for drinking-water, and between each pair of huts is a large gurrah full of water for use in case of fire. Each hut costs Rs. 6 if made of single mats, but if of double matting and with matted floor they cost Rs. 14. The mat huts were found so hot during the day that it is necessary to have chapper sheds for the people to sit in during the heat of the day. These are made with grass walls, and a space of six inches is left below the walls for ventilation and as safeguard against fire. The sheds measure 30′ × 10′, corrugated iron cooking sheds are provided giving a space of 3′ × 3′ for every two families. These are arranged in rows according to requirements and are grouped separately for the various castes, as are also the sections of the camp. Drinking-water is obtained from the town supply by branch pipes which supply 18 iron cisterns placed in convenient parts of the camp. Each tank is supported on railway sleepers to a convenient height, and is supplied with two taps on each side. To prevent soakage of the surroundings a platform of corrugated iron is arranged, draining into a galvanized iron gutter which allows the water to drain away to a convenient distance. It has been found convenient to have a grass roof over the iron tanks to keep the water from becoming unbearably warm. Bathing places are made of corrugated iron sheets draining to a common gutter running through the centre of the camp, and the upper side where the taps are, is provided with a low wall to prevent splashing on to the ground. This very simple and cheap contrivance seems to answer all purposes admirably.

The latrine accommodation consists of trenches from 4 to 6 feet deep and 4 wide with a ladder-like arrangement across it for squatting on. The trenches are of course much too deep and are bound to become a great nuisance in the rains. The camp is designed to accommodate 2,000 people, and has cost Rs. 12,715. For the approaching monsoon an estimate has been prepared for erecting sheds to hold 500 at a cost of Rs. 7,428. The sheds are to be 64′ long with a 4′ verandah along the front. Each shed contains 8 rooms 10′ × 8′ to contain 4 people. Grass thatch roofs of 40 degree pitch, and 2″ thatch on the windward side of the walls. Partitions and verandah walls of matting. Floors, stones and morum 9″. Each block costs Rs. 280.

All arrivals by rail are registered at the disinfection place and the list is sent to the detention camp. Here respectable people are given a chance of proving themselves worthy of being allowed out on a surveillance pass. They are sent down to the central office in the city (white form), or to the cantonment (yellow form), and there if they can get any responsible man to vouch for them, they are allowed to go home on condition of appearing every second day for examination, for a period of ten days. If they cannot prove their fitness they are returned to the detention camp under the same escort. As each family is admitted the head member is supplied with a ticket with a number, detailing the members of his family, and date of admission. This ticket is initialled daily in token of payment of the two-anna dole that each gets. If plague breaks out the patient is sent to the hospital with a printed letter of admission, and the escort brings back a receipt. At the end of the period of detention a certificate on the attached form is given to each individual along with his railway ticket. Specimens of all these forms are attached. Individuals desirous of seeing their friends are allowed to do so at the visitor's shed. This consists of two long sheds arranged on either side of the boundary fence, but with an interval of 4 feet between them ; the people are thus enabled to speak to one another in comfort and yet cannot actually come in contact. In connection with this camp there is a band of native gentlemen volunteers, for the purpose of vouching for respectable persons ; and some of them visit the camp daily to investigate complaints among the inmates.

The camp was opened on the 13th February and up to the 30th March, 3,553 persons had passed through it and amongst these 39 cases of plague had been discovered, a much higher percentage than in the case of Anand, showing the influence of proximity to Bombay probably.

The staff required for this camp is the following:—

	Per mensem. Rs.
1 Superintendent, a Staff Corps Officer (allowance)	300
1 Assistant Superintendent, a Royal Artillery Officer (allowance)	300
1 Supervisor	80
1 Accountant	60
4 Clerks, 1 at Rs. 20 and 3 at Rs. 15	65
2 Ayahs at Rs. 12	24
5 Hamals at Rs. 10	50
1 Peon at Rs. 8	8
1 Lamp man	8
1 Mukadam of sweepers	10
5 Male sweepers at Rs. 9	45
5 Female sweepers at Rs. 8	40
Total	990

One of the station doctors and a hospital assistant look after any sick in the camp and conduct examinations of the inmates twice a day. For purposes of discipline a Native Officer and 70 men from a Native Regiment are quartered in the camp, and their pay and allowances must also be put down against the cost of the camp.

All the other detention camps are managed in a similar way, the chief difference being in the construction of the sheds. At Bandra and Kalyan the huts are mat erections 10′ square with flat roofs and costing about Rs. 16 each. At Anand the sheds are thatched with grass and the walls are of bajri straw; each shed contains four rooms for eight inmates. The latrines at most of the camps are very primitive affairs generally allowing of soakage of the ground, with the result that a bad smell is very perceptible. At the Poona disinfection place is a small latrine for the use of night passengers, which is supplied with buckets and provided with a corrugated iron floor, a cheap and efficient method. At Anand where the soil is sandy the latrines are merely large open spaces kept clean by scavengers who are always in attendance. The spot is changed periodically and the plan seems to work fairly well owing to the absorbent nature of the soil. The following particulars of the staff and actual cost of this large camp may be of use. The staff is calculated for 3,000 people, but as a matter of fact as many as 6,000 have been detained in one day. On one occasion the numbers fell to 300, owing to a cyclone which flooded the camp necessitating the employment of two special trains to remove the people to Ahmedabad. This is one of the many ways in which such a system as this is apt to break down, for the people had to be sent off whether they had finished their ten days or not.

Staff of Anand detention camp (3,000 inmates):—

	Per mensem. Rs.
1 Civilian in charge (allowance)	300
1 Assistant Surgeon Rs. 150 + Rs. 60	210
5 Hospital Assistants	135
5 Medical pupils to examine twice a day all inmates as per list	125
2 Vaccinators to examine twice a day all inmates as per list	50
1 Mukadam at Rs. 8) for pulling down huts infected and disinfect-	8
4 Coolies at Rs. 7) ing them.	28
5 Ward boys at Rs. 7)	35
2 Corpse bearers at Rs. 8) for hospital	16
1 Sweeper)	5

Conservancy Establishment:—

	Per mensem.
1 Inspector at Rs. 17	17
1 Sub-Inspector	7
1 Mukadam of sweepers	5
54 Sweepers at Rs. 4	216
5 Coolies at Rs. 7 for hut cleaning	35
These 5 men with the Sub-Inspector go round to the huts and clean them of leaves, food, &c. Also 16 blocks of 4 rooms each are provided with clean straw daily, are soaked with perchloride, and left vacant for 4 days.	
7 Lampmen at Rs. 7 for 233 lamps	49
1 Head Karkoon	80
1 „ „	60
12 Clerks at Rs. 15 to 25	210
9 Patiwallas at Rs. 8	72

Police establishment:—

1 Chief Constable	60
17 Head Constables at Rs. 12 to 16	232
149 Constables at Rs. 7 to 9	1,191
Total	3,146

The following was furnished to me as the total expenditure during the four months (24th November 1897 to 25th March 1898) the camp has been in existence:—

	Rs.
Construction	15,546
Disinfection	5,082
Lamp-lighting	288
Pay	2,119
Deadstock	1,159
Contingencies	132
Telegraph charges	166
Food to paupers	477
Miscellaneous charges	130
Unpaid bills about Rs. 10,000	10,000
Total	35,104

The following is interesting as showing the incidence of cases on the days after admission to camp. It will be seen that one case developed plague on the 11th day, in fact the man was detected just as he was leaving the camp after his ten days' quarantine. Of 69 cases of plague in the camp—

22	cases occurred	on the 1st	day after admission.
7	„ „	2nd	„ „
15	„ „	3rd	„ „
7	„ „	4th	„ „
4	„ „	5th	„ „
5	„ „	6th	„ „
4	„ „	7th	„ „
2	„ „	8th	„ „
1	„ „	9th	„ „
1	„ „	10th	„ „
1	„ „	11th	„ „

The cost of all these camps is at present borne by Government; but it is proposed that the municipalities should bear the greater part of the cost, the amount being regarded as a loan to be repaid with interest within a certain number of years.

Arrangements for bazaars are much the same in all camps; some shed is set apart for shops and the Bannias are allowed to occupy them on giving security of a certain amount (Rs. 250 at Poona) and are obliged to sell at a rate fixed by the

Collector. Only those without means are as a rule fed, but there is a large amount given in charity by wealthy native gentlemen in all of them. In many cases a blanket, mat, and small lamp are given to each person on entering and taken back on leaving.

The cordon, and health camps are managed on the same lines as the Bombay city ones, and need not therefore be further described here.

× × × × ×

Here print Enclosure

ORDER—No. 802 P., dated 12th August 1898.

Communicated to all Collectors for information.

(True Extract.)

for *Secretary to Government.*

To all Collectors. (A, F, G, H (K)
„ the Sanitary Commissioner.
„ the Surgeon-General.
„ the President, Municipal Commission, Madras.

THE MEDICAL OFFICER

Plague Hospital

POONA.

Sir

Please admit the patient

Age Caste

Into your Hospital if he appears to be suffering from Plague,

Dated 1898

Superintendent
P. Ry : Stn : Detention Camp.

POONA RAILWAY STATION DETENTION CAMP.

This is to certify that

was detained in the Poona Railway Station Detention Camp from to and is discharged this day. He has been examined and found free from all signs of plague. He has been disinfected.

Poona, 1898.

Superintendent,
Poona Ry. Station Dn. Camp.

Exd. A. F. Eccleston.

SURVEILLANCE PASS.

NAME & ADDRESS.

No.

The person noted in the margin must report _____self at the Head Quarter SEGREGATION OFFICE, 315, Sukerwar Peth, every other day between the hours of 8 A. M. and 5 P. M. for a period of ten days from the date of issue of this pass.

POONA,
_____ 1898.

Superintendent,
Poona City Health Camp.

REMARKS BY MEDICAL OFFICER.

5

POONA RAILWAY STATION DETENTION CAMP.

NAMES.

No. of 1898

The persons noted in the margin are sent to the Officer in charge of the Head quarter SEGREGATION OFFICE, No. 315, Sukerwar Peth; in order that they may be given an opportunity of proving their fitness to be admitted under the Surveillance system. If any of them is unable to prove his fitness it is requested that he be returned under escort to this camp for detention.

Poona, _____ 1898.

Superintendent,
Poona Ry. Stn. Dein. Camp.

No. 2202

Form No. 1.

Bandra Observation Camp.

CERTIFIED that

has been detained under observation in this Camp for days, and having been medically examined is this day permitted to proceed on his journey to by the train.

6

Medical Officer.

Superintendent,
Bandra Camp.

Dated 1898.

If you alight at any station other than the one mentioned above, you will be liable to further detention.

~~જો તમો ઉપર જણાવેલાં સ્ટેશન સીવાય બીજાં કોઇપણ સ્ટેશન પર ઉતરશો તો તમો ફરીથી અટકાયતમાં મુકાશો.~~

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Copy

POONA RAILWAY STATION DETENTION CAMP.

Daily return for Tuesday the 29th March 1898.

	Number of persons admitted during the day.	Balance from the previous day.	Total.	Died to-day.	Found free from plague and discharged.	Found to be suffering from plague and sent to Hospital.	Otherwise disposed of.	Balance remaining for the next day.
	153	859	1012	"	105	"	"	907

Total number of persons admitted upto date.	3,953
Discharged upto date	3,046
To be discharged on future dates	907
"	

Lt. Col. C. E. Lockart Medl Capt
Superintendent
Pq: S. D. Camp

CONFIDENTIAL.

From Surgeon-Major W. B. Bannerman, M.D., B.Sc., Inspector of Vaccination and Deputy Sanitary Commissioner for Madras, to the Sanitary Commissioner for Madras, Fort St. George, dated Bombay, 12th April 1898.

In continuation of my letter of the 11th March reporting on the plague camps of Bombay city, I have the honour to submit a description of the camps in the mufassal.

2. I have visited the camps and disinfection stations at the following places, *viz.*, Bandra, Kalyan, Poona, Sholapur, Baroda and Anand, and propose to give a detailed description of the arrangements at Poona, noting at the same time any variations seen at the other places.

3. *Railway disinfection at Poona.*—Each train is met on arrival and all the passengers examined. First class travellers are allowed to go after writing their names and addresses in an address book kept at the exit to the station. All others are taken to the disinfection enclosure close by, *vide* plan attached. Passengers arriving by the night trains are accommodated in the waiting rooms in the first enclosure, where they remain till morning. Each individual is provided with two sets of clean clothes to wear while his own are being disinfected, and the sexes are dealt with in separate yards. There are two waiting sheds in the men's enclosure where clothes are changed and packed in *loose* bundles for the disinfector; in the women's enclosure there are no sheds but the anteroom of the bath-house is used for a similar purpose. All wearing apparel having been tied up in loose bundles the owners are made to enter the shed attached to the bathing house and the bundles of clothes are taken to the disinfector by coolies told off for the purpose. The arrangement of the bathing house will be readily understood by reference to the plan, and it will be noticed that there are ten baths to which access is obtained from an outer waiting room. An European soldier is told off to superintend this part of the process, and he sees that the baths are properly prepared of the requisite strength and that each individual really takes his bath. After the bath the bathers proceed into the second waiting room by the sloping passage and there wait till their own clothes are ready for them. The clothes they washed in are left in the bath rooms and they come out arrayed in the second cloth provided for them. The wet clothes are collected by a clerk told off for the purpose and along with the second suit re-sterilised in the evening. Each bath room is provided with a wooden tub and tap for hot water; the tub containing the mixture of creasotine and water, 1 to 100, and the tap being supplied with warm water from a cistern outside kept hot by steam from the disinfector boiler. When the clothes are disinfected they are restored to their owners who then cross over to the Railway Detention Camp, where they are kept for ten days. The same performance is gone through in the women's enclosure, except that an European nurse replaces the soldier. The surrounding and dividing walls and sheds are constructed of corrugated iron with jungle wood posts, with the exception of the nurses' quarters which is of bamboo matting walls and thatch roof. The details of construction are sufficiently shown in the accompanying plan which is copied by permission from the original in the Executive Engineer's Office.

Details of cost are given below:—

Two waiting sheds outside, 50 × 12 ...	...	...	Rs. 1,241
Waiting room inner enclosure, 50 × 12	...	...	,, 347
Bathing platform, men ...	...	...	,, 812
Superintendent's office building ...	...	...	,, 1,175
Sorting shed, 50 × 12	...	...	,, 365
Bathing platform, women ...	...	...	,, 491
Nurses' quarters	...	...	,, 321
Walling and gates	...	...	,, 603
Hot and cold water fitting for baths	...	...	,, 250
		Total	Rs. 5,605

Staff required for working the Disinfection arrangements, and examination of passengers :—

4 European doctors,	at Rs.	500	...	...Rs. 2,000 per mensem.
4 „ nurses	„	175	...	... „ 700 „
3 Hospital Assistants	„	35	...	... „ 105 „
1 Supervisor	„	75	...	... „ 75 „
6 Clerks	„	15	...	.. „ 90 „
7 Ayahs, 1 at 15 and 6	„	12	...	... „ 87 „
2 Washermen	„	12	...	... „ 24 „
7 Hamals, 4 at 10 and 3	„	8	...	... „ 64 „

Total Rs. 3,145 per mensem.

The clothing is disinfected in an apparatus erected by the railway authorities close to the disinfection yards. It consists of an old locomotive boiler to generate steam and a boiler case in which the clothes are steamed. The end of the latter is removed and an iron moveable door substituted, and the inside is provided with rails for the trolly to run in on. Outside in a line with these rails is a similar set on to which the trolly can be withdrawn for loading and unloading. The trolly itself is made of wooden spars on a framework running on small wheels and the clothes to be disinfected are loaded on to it and run in. The door is then closed and secured by means of numerous bolts and nuts and the steam turned on till a pressure of lbs. 15 has been maintained for 15 minutes. Then the steam is allowed to escape and clothes withdrawn. Experiments were made and it was found advisable to insist on the bundles being loosely made up ; otherwise the heat did not penetrate quickly into the interior.

The cost as estimated by the Railway officials is as follows :—

Cost of fitting up and transporting old boilers	...	...Rs.	824	0 0
Monthly hire and petty repairs	...	... „	20	0 0
Daily cost of working...	...	... „	5	5 0

Details of daily cost :—

Coal 3 cwt. at Rs. 14-11 per ton ...	...	...Rs.	2	3 0
Firewood, 3 quarters at Rs. 5 per ton	...	.. „	0	3 0
Oil, tallow, waste, &c.	...	... „	0	2 0
1 Fireman	...	... „	0	8 0
1 Cooly	...	... „	0	7 0
2 Assistant fitters	...	... „	1	1 0
Batta for above men ...	...	... „	0	11 0
Water 250 gals. at 8 as. per 1000	...	... „	0	2 0

The arrangements at Sholapur and Anand are much less elaborate but appear to work equally well. At both places mat sheds and bath rooms are used in place of corrugated iron, and the floors are brick paved or earthen and not of iron. At Anand the cisterns are elevated so that a showerbath is given to each man. The Plague Commissioner has now ordered that baths are to be optional and that no disinfectants are to be used. The disinfector at Anand is made of a boiler flue about two feet in diameter, which is too small for such a large camp. It is fitted with an ingenious door swinging out on a crane and fixed by a single motion of a sliding bolt and in this way is much more convenient to work than the numerous nuts and screws at Poona. It has also a cold water pipe running along the top of the disinfector so that a vacuum can be formed inside and in this way the air in the clothes drawn out which is not possible in the Poona pattern. After the boiler flue is full of steam the supply is cut off and the cold water dripped on to the top of the case so that rapid condensation takes place inside, the gauge frequently registering 20 inches of mercury. In this way the air is drawn out of the interstices of the clothes, so that when the steam is again turned on it at once penetrates to the inside of each bundle. This is precisely what happens when the steam pressure is suddenly lessened as occurs in working the patent "Equifex Stove." The staff employed at Anand is the following :—

One Staff Corps, or Police Officer (allowance)	...Rs.	300	0	0	per mensem.
1 Fireman at Rs. 30 + as. 3 per diem	... „	35	10	0	„
2 Lorrymen at as. 10 per diem ... for 2 boilers	„	37	8	0	„
4 Lorry coolies at as 4-6 per diem for 2 boilers	„	34	0	0	„
1 Nurse at Rs. 50	... „	50	0	0	„
1 Head Karkoon at Rs. 60 + Rs. 20 Plague allowance	... „	80	0	0	„
3 Karkoons at Rs. 20 + Rs. 10 ...	... „	90	0	0	„
1 Mukadam of coolies at Rs. 8 ...	... „	8	0	0	„
11 Coolies at Rs. 7	... „	77	0	0	„
1 Washerman at Rs. 7	... „	7	0	0	„
Total per mensem =	Rs.	719	2	0	

Value of this system of disinfection.—From the above it will be seen that the expense of this system is very considerable and it will be well here to consider whether the benefits to be derived from it are commensurate with it. As far as disinfection of the living body goes I think no one will maintain that this is at all possible at least by the means described above. Koch says that 1 per cent. carbolic will kill sporeless bacilli in five minutes but this statement applies merely to bacilli in broth cultivations and not to the much more difficult task of killing them when growing on, or attached to, solid media. It must therefore be evident that the perfunctory bathing performed at these camps can have no possible effect on the bacilli of plague that may be on the skin of the bathers. This part of the programme may with safety then be omitted. A more difficult point to decide is whether the disinfection of clothes is necessary or not, for there can be no doubt that all living organisms are destroyed by the heat applied to the clothes in the boilers. To carry the idea to a logical conclusion one would require not only to disinfect the clothes, but also the body covered by them, and the boxes in which they are kept. We have seen that the first is an impossibility, and the latter is not carried out in many of the disinfection stations. Again the railway carriages in which the people with infected clothes travel are not disinfected before the newly disinfected people are allowed to enter them, and it would be a truly gigantic task to attempt this, for it would imply disinfecting the whole rolling stock of every railway in an infected district. As throwing light on this matter, the experience of the effect of disinfection in preventing plague gained at the contact camp at Wari Bandar, may be quoted. This camp is reserved for those families in which a plague case has occurred, and the people are in consequence likely to produce many more plague cases than ordinary travellers. Everyone entering this camp is carefully disinfected and their clothes steamed, yet, out of 1572 individuals admitted during January and February, there occurred 70 plague cases, or 4·4%. Ten of these cases occurred among "re-contacts," that is to say, people who had been twice disinfected after admission, on account of cases of plague having happened among their family after first disinfection. If this be compared with the results got at the camp at Anand, we find that out of 47,295 persons passing through, 70 cases of plague occurred which is = 0·14%. The total mortality in Bombay city in January and February was 14,766 in a population estimated at 775,000. If we deduct from this the normal mortality at 80 per diem, for 59 days (4720) we get 10,046 as the probable number of plague deaths during this period, To this we must add 20% for cases ending in recovery (2511) and we than get 12,557 as the probable number of attacks. This gives a proportion of 1·6% of attacks in the population at present in Bombay. It would appear from this that "contacts" are three times as liable to attacks as the general population. Unfortunately there is no group of contacts who have not been disinfected to contrast with the people in Wari Bandar ; but it cannot be said that any benefit is apparent from the process.

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The latrine accommodation consists of trenches from 4 to 6 feet deep and 4 wide with a ladder-like arrangement across it for squatting on. The trenches are of course much too deep and are bound to become a great nuisance in the rains. The camp is designed to accommodate 2,000 people, and has cost Rs. 12,715. For the approaching monsoon an estimate has been prepared for erecting sheds to hold 500 at a cost of 7,428 rupees. The sheds are to be 64′ long with a 4′ verandah along the front. Each shed contains 8 rooms 10′ × 8′ to contain 4 people. Grass thatch roofs of 40 degree pitch, and 2" thatch on the windward side of the walls. Partitions and verandah walls of matting. Floors, stones and morum 9". Each block costs Rs. 280.

All arrivals by rail are registered at the disinfection place and the list is sent to the detention camp. Here respectable people are given a chance of proving themselves worthy of being allowed out on a surveillance pass. They are sent down to the central office in the city, (white form), or to the cantonment, (yellow form), and there if they can get any responsible man to vouch for them, they are allowed to go home on condition of appearing every second day for examination, for a period of ten days. If they cannot prove their fitness they are returned to the detention camp under the same escort. As each family is admitted the head member is supplied with a ticket with a number, detailing the members of his family, and date of admission. This ticket is initialled daily in token of payment of the two anna dole that each gets. If plague breaks out the patient is sent to the hospital with a printed letter of admission, and the escort brings back a receipt. At the end of the period of detention a certificate on the attached form is given to each individual along with his railway ticket. Specimens of all these forms are attached. Individuals desirous of seeing their friends are allowed to do so at the visitor's shed. This consists of two long sheds arranged on either side of the boundary fence, but with an interval of 4 feet between them ; the people are thus enabled to speak to one another in comfort and yet cannot actually come in contact. In connection with this camp there is a band of native gentlemen volunteers, for the purpose of vouching for respectable persons ; and some of them visit the camp daily to investigate complaints among the inmates.

The camp was opened on the 13th February and up to the 30th March, 3,553 persons had passed through it and amongst these 39 cases of plague had been dis-

covered, a much higher percentage than in the case of Anand, showing the influence of proximity to Bombay probably.

The staff required for this camp is the following :—

1 Superintendent, a Staff Corps Officer (allowance)	...Rs.	300	per mensem.
1 Assistant Superintendent, a Royal Artillery Officer (allowance)	... ,,	300	,,
1 Supervisor	... ,,	80	,,
1 Accountant	... ,,	60	,,
4 Clerks, 1 at 20 and 3 at 15 ...	... ,,	65	,,
2 Ayahs at Rs. 12	... ,,	24	,,
5 Hamals at Rs. 10	... ,,	50	,,
1 Peon at Rs. 8	... ,,	8	,,
1 Lamp man	... ,,	8	,,
1 Mukadam of sweepers... ...	... ,,	10	,,
5 Male sweepers at Rs. 9 ...	... ,,	45	,,
5 Female sweepers at Rs. 8 ...	... ,,	40	,,
Total per mensem, Rs.		990	

One of the station doctors and a hospital assistant look after any sick in the camp and conduct examinations of the inmates twice a day. For purposes of discipline a Native Officer and 70 men from a Native Regiment are quartered in the camp, and their pay and allowances must also be put down against the cost of the camp.

All the other detention camps are managed in a similar way the chief difference being in the construction of the sheds. At Bandra and Kalyan the huts are mat erections 10 feet square with flat roofs and costing about Rs. 16 each. At Anand the sheds are thatched with grass and the walls are of bajri straw ; each shed contains 4 rooms for 8 inmates. The latrines at most of the camps are very primitive affairs generally allowing of soakage of the ground, with the result that a bad smell is very perceptible. At the Poona disinfection place is a small latrine for the use of night passengers, which is supplied with buckets and provided with a corrugated iron floor, a cheap and efficient method. At Anand where the soil is sandy the latrines are merely large open spaces kept clean by scavengers who are always in attendance. The spot is changed periodically and the plan seems to work fairly well owing to the absorbent nature of the soil. The following particulars of the staff and actual cost of this large camp may be of use. The staff is calculated for 3000 people, but as a matter of fact as many as 6000 have been detained in one day. On one occasion the numbers fell to 300, owing to a cyclone which flooded the camp necessitating the employment of two special trains to remove the people to Ahmedabad. This is one of the many ways in which such a system as this is apt to break down, for the people had to be sent off whether they had finished their ten days or not.

Staff of Anand Detention Camp (3000 inmates) :—

1 Civilian in charge (allowance)... ..	...Rs.	300	per mensem.
1 Assistant Surgeon Rs. 150 + 60 ...	... ,,	210	,,
5 Hospital Assistants	... ,,	135	,,
5 Medical pupils, to examine twice a day all inmates as per list	... ,,	125	,,
2 Vaccinators, to examine twice a day all inmates as per list	... ,,	50	,,
1 Mukadam at Rs. 8 } for pulling down huts infected,	,,	8	,,
4 Coolies at Rs. 7 ... } and disinfecting them.	,,	28	,,
5 Ward boys at Rs. 7 ... }	,,	35	,,
2 Corpse bearers at Rs 8 } for hospital	,,	16	,,
1 Sweeper ... }	,,	5	,,

Conservancy establishment :—

1 Inspector at Rs. 17	...Rs.	17 per mensem.
1 Sub-Inspector	... „	7 „
1 Mukadam of sweepers	... „	5 „
54 Sweepers at Rs. 4	... „	216 „
5 Coolies at Rs. 7 for hut cleaning	... „	35 „
These 5 men with the Sub-Inspector go round to the huts and clean them of leaves, food, &c. Also 16 blocks of 4 rooms each are provided with clean straw daily, are soaked with perchloride, and left vacant for 4 days.		
7 Lampmen at Rs. 7 for 233 lamps	... „	49 „
1 Head Karkoon	... „	80 „
1 „ „	... „	60 „
12 Clerks at Rs. 15 to 25	... „	210 „
9 Patiwallas at Rs. 8	... „	72 „

Police establishment :—

1 Chief Constable	... „	60 „
17 Head Constables at Rs. 12 to 16	... „	232 „
149 Constables at Rs. 7 to 9	... „	1,191 „
	Total per mensem, Rs.	3,146

The following was furnished to me as the total expenditure during the four months (24th November 1897 to 25th March 1898) the camp has been in existence :—

Construction	...Rs.	15,546
Disinfection	... „	5,082
Lamp-lighting	... „	288
Pay	... „	2,119
Deadstock	... „	1,159
Contingencies	... „	132
Telegraph charges	... „	166
Food to paupers	... „	477
Miscellaneous charges	... „	130
Unpaid bills about Rs. 10,000	... „	10,000
	Total Rs.	35,104

The following is interesting as showing the incidence of cases on the days after admission to camp. It will be seen that one case developed plague on the 11th day, in fact the man was detected just as he was leaving the camp after his ten days' quarantine. Of 69 cases of plague in the camp :—

22	cases occurred on the	1st	day after admission.
7	„ „	2nd	„ „
15	„ „	3rd	„ „
7	„ „	4th	„ „
4	„ „	5th	„ „
5	„ „	6th	„ „
4	„ „	7th	„ „
2	„ „	8th	„ „
1	„ „	9th	„ „
1	„ „	10th	„ „
1	„ „	11th	„ „

Fair copy sent to Press. Order complied.

LOCAL AND MUNICIPAL DEPARTMENT.

[L. & M.]
500 -16-3-98.

Papers to be read in Proceedings :—

Again G.O., No. 2057 dated 23-3-98 189 ,

Again G.O., No. 3124 dated 4-4-98 189 ,

re Bannerman's report d/12-4-98. (paras 1-4)

Current No. of 189 , dated , from

„ „ „ 189 , „ „

„ „ „ 189 , „ „

ORDER.

To all Collectors
The Sanitary Comm.r
" Superintendent
" President, Mad. Municipality

dup.d 13/7/98

Communicated to all Collectors for information.

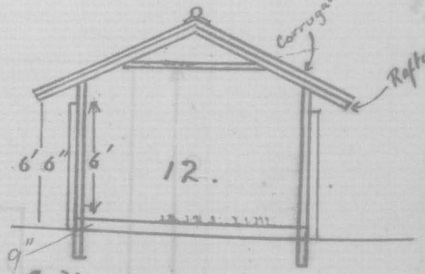
Note All the reports of Dr Bannerman except those contained in the G.O. read above have been printed & Communicated to Collrs. These may now be printed, as copies are required for reference in the Office. As regards the last report d/ 12-4-98, Govt. has noted that it should be communicated to Collrs and Municipalities. It seems enough to communicate paras 1-4, the remaining portion of the report being Controversial

Rep'd
Reply

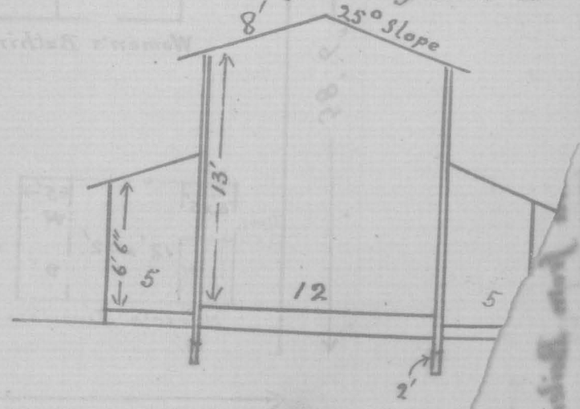
No they need be Comm.d to Coll.rs Except 1-4 of this report alone

12.8.98.

12/8/98

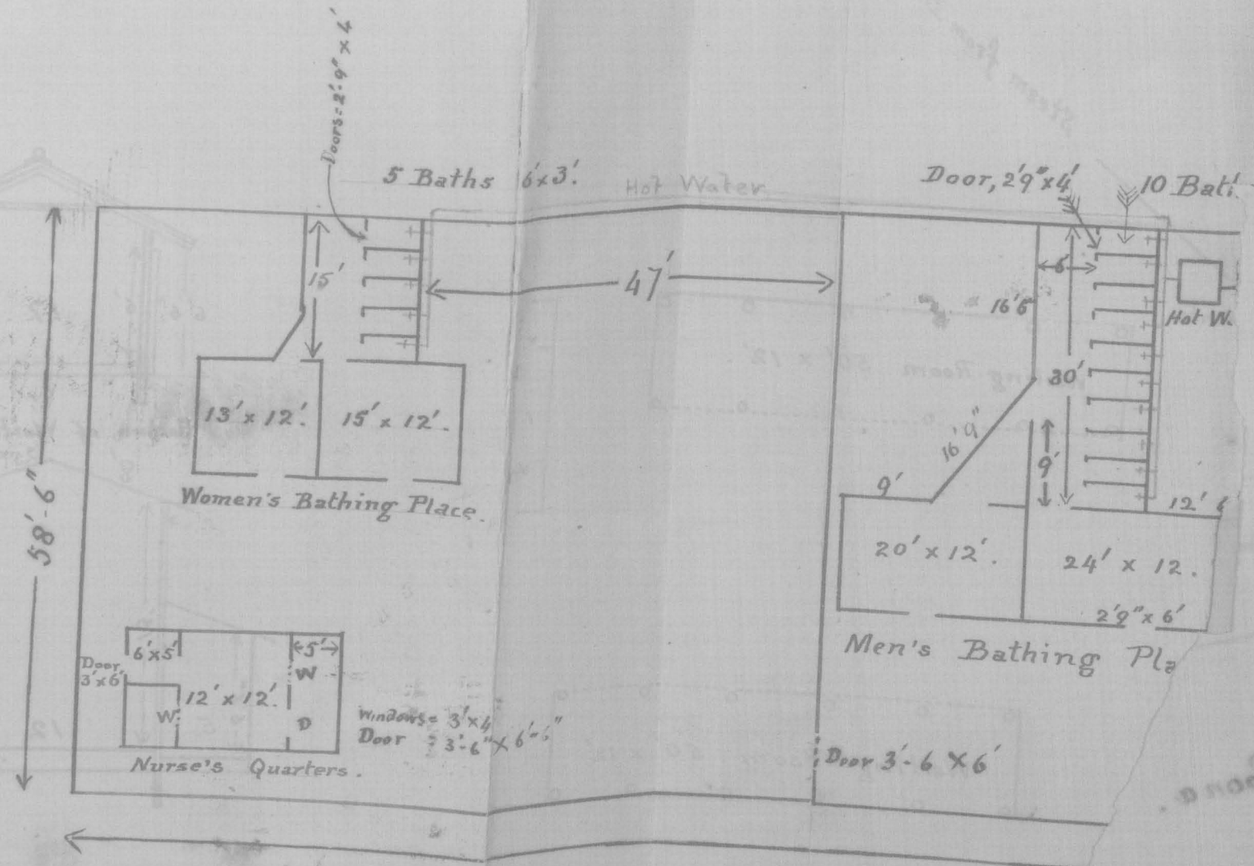


Section of Waiting Sheds etc.



Section of Nurses

Scale 8' = 1'



Pla

6'x3'.

Room. 50' x 12'.

Waiting Room. 50' x 12'.

Clerks. 13' x 12'.

Clerks. 16' x 12'.

Store. 14' x 12'.

8'6" x 5'.

Supt's Office 16' x 12'. 3'6"x6'6"

12'

Windows 3' x 4'
Doors 3'6" x 6'6".

Latrine.

91'6"

Gate 8'x4'

Gate 8'x4'

Station; Poona. Scale 16=1'

SURVEILLANCE PASS.

NAME & ADDRESS.

No.

The person noted in the margin must report _____self at the FEVER HOSPITAL, Bhowani Peth, every other day between the hours of 8 a.m. and 5 p.m. for a period of ten days from the date of issue of this pass.

POONA,
_____ 1898. } *Superintendent,*
Poona Ry. Station Detn. Camp.

REMARKS BY MEDICAL OFFICER.

POONA RAILWAY STATION DETENTION CAMP.

NAMES.

No. of 1898

The persons noted in the margin are sent to the CHIEF PLAGUE AUTHORITY, Poona Cantonment, in order that they may be given an opportunity of proving their fitness to be admitted under the Surveillance system. If any of them is unable to prove his fitness it is requested that he be returned under escort to this camp for detention.

POONA, _____ 1898.

Superintendent,
Poona Ry. Stn. Detn. Camp.

NAMES OF GUARANTORS

POONA RAILWAY STATION DETENTION CAMP.

NAMES.	
1	Shanajusha Pestonjee
2	Soonabai Nadarshaw
3	Perozza — do —
4	Mahabanoo — do —
5	Perenbai — do —
6	Khurshedbhoi — do —
7	mina — do —
8	amroja Hormasjee
9	Bamanjee
10	erupai
11	adershaw
12	achoobai

No. 248 of 1898

The persons noted in the margin are sent to the CHIEF PLAGUE AUTHORITY, Poona Cantonment, in order that they may be given an opportunity of proving their fitness to be admitted under the Surveillance system. If any of them is unable to prove his fitness it is requested that he be returned under escort to this camp for detention.

R W Jameson

Superintendent.
Poona Ry. Stn. Detn. Camp.

Poona,
17th March 1898.

NAMES OF GUARANTORS

Comparative statement showing general mortality & Plague cases for the City of Baroda with Calculation of Plague death-rate & numbers dying in hospitals and in houses.

No.	Week	General mortality: Plague deaths: In Hospital	Plague deaths: Before removal	Plague deaths: Total plague deaths	Other deaths	Total deaths	Plague cases	Death rate of 40 per mille per annum in population of 80000 = 3200 or 61.73 (say 62) a week, therefore deducting this from Col. 4 gives extra deaths	Deaths in houses not removed got by adding Columns 2 & 7.
		1	2	3	4	5	6	7	8
1	Week ending 2nd January 1898	25	14	39	149	188	52	- 62 = 87	101
2	" 9th "	33	7	40	195	235	49	" = 133	140
3	" 16th "	45	16	61	235	296	69	" = 173	189
4	" 22nd "	45	21	66	232	298	75	" = 170	191
5	" 29th "	48	22	70	276	346	110	" = 214	236
6	" 5th February *	64	51	115	221	336	136	" = 159	210
7	" 12th "	42	54	96	213	309	118	" = 151	205
8	" 19th "	43	85	128	186	314	154	" = 124	209
9	" 26th "	82	84	166	203	369	195	" = 141	225
10	" 5th March	98	43	141	127	268	162	" = 65	108
11	" 12th "	54	27	81	78	159	90	" = 16	43
12	" 19th "	44	20	64	66	130	67	" = 4	24
13	" 26th "	21	21	42	66	108	166	" = 4	25

* Ward system introduced this week.

t copy sent to Press.

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NUMBER OF COPIES REQUIRED. { Order complete. / Letter only. / Order complete with Letter.

AGAIN G.O. No. 189 , DATED

NOTE No.

ENCLOSURES TO G. No.

ERS OF GOVERNMENT .. .. ..

ERS OF GOVERNMENT.

GOVERNMENT WITH DITTO.

NOTE FILED UP, BEING MEANT FOR DESPATCH IN ORIGINAL.

N.B.—
A = Print in full.
B = Not to be printed.
P = Print abstract only.
Q = Print heading only.