

Report on the sanitary state of the city of Poona / by A.H. Leith ; with rough notes by T. Martin.

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SELECTIONS FROM THE RECORDS OF THE BOMBAY
GOVERNMENT.

No. LXXIX.—NEW SERIES.

R E P O R T

ON THE

SANITARY STATE OF THE CITY OF POONA,

BY

A. H. LEITH, Esq., M.D.,

DEPUTY INSPECTOR GENERAL OF HOSPITALS S. M. CIRCLE;

WITH

R O U G H N O T E S

BY

MAJOR T. MARTIN,

4TH (KING'S OWN) REGIMENT OF FOOT.

Bombay:

PRINTED FOR GOVERNMENT

AT THE EDUCATION SOCIETY'S PRESS, BYCULLA.

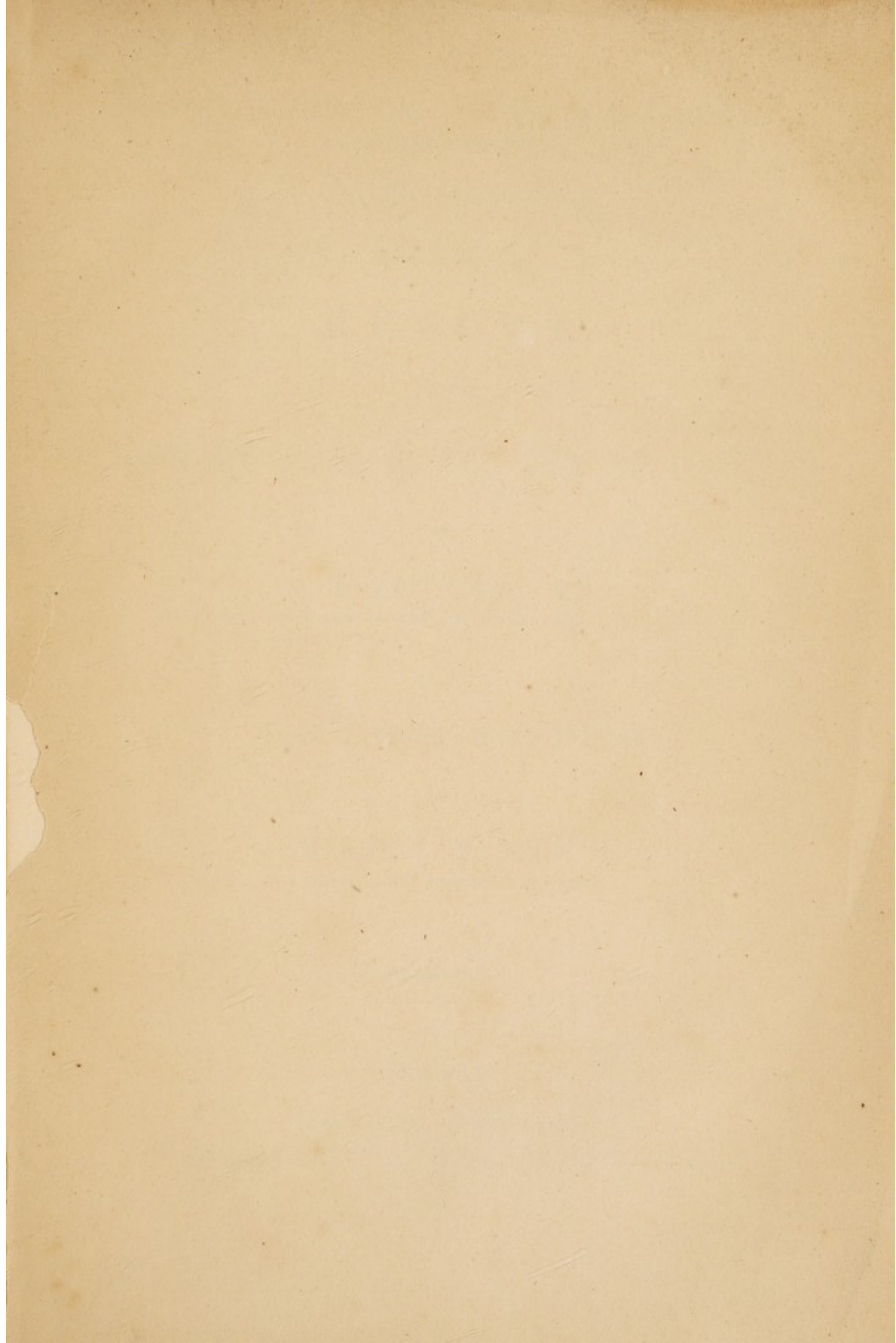
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REPORT

ON THE

SANITARY STATE OF THE CITY OF POONA.

IN my endeavour to carry out the instructions of His Excellency the Governor in Council, I had communications and interviews with the gentlemen mentioned in Government letter No. 1286 of 1863, and was favoured by them with their opinions and suggestions; and I met various of the Municipal Commissioners in the city, and was likewise aided in my inquiries by the Municipality affording me access to its records; while by very frequent visits to the city and conversation with the inhabitants I gained a personal knowledge of its localities and their condition. Owing to the irregularity of the streets and the large number of its alleys, the acquisition of this knowledge occupied more time than would have been required in a town laid out with regularity.

2. Poona, at sixty-three miles from the sea in direct line, and at an elevation of eighteen hundred and fifty feet above it, stands on a plain that stretches eastward about twenty miles along the course of the Moota Moola River; near the city this plain is about twelve or thirteen miles broad from north to south, but on the south-west and west the low hills, in which the spurs of the not very distant mountains end, are but a mile or two from the city. It is built on the Moota River, of the right bank of which it occupies a mile and a-half, extending downwards to within quarter of a mile of the *Sungum* or confluence of the Moota with the Moola. The river-bed has a mean breadth of five hundred and fifty feet, but, excepting at the Bund, it is full only for a short time after heavy rain, and in the last few months before the south-west monsoon it is mostly in pools, there being then but little running water in it.

3. The rock is amygdaloidal dolerite, the beds of which vary a good deal; in some of them the rock disintegrates into a light soil that dries quickly, while in others it gives a more retentive earth or a clay; and as the beds are nearly level, the undulations of the ground bring rock of these different qualities to the surface, but the most prevalent is a slightly reddish trap, porous and rich in zeolites. The foundations of the town are in many places raised on the accumulated rubbish of former ruined buildings.

4. The highest part of the city is estimated to be above seventy feet above the level of the river, and the whole surface of the ground is favourable to natural drainage, having a fall towards the river and also towards two watercourses, named Manik Nullah and Nagjeree, that rise in the low hills about a mile and a-half on the south and south-west, and traverse its middle and eastern portions. The ground on the south-west of the city has its natural drainage by the *Umbi Nullah* that runs near the conical hill on which the temple of Purbuttee stands, and which, as well as the two watercourses already mentioned, joins the Moota River. These *nullahs* have flowing water only after heavy rain, but, as may be seen from the following table, the average (twenty-five inches) rainfall is distributed over two-thirds of the year, and there are few months in which there is not rain enough to fill any pools there may be in the watercourses, even if not sufficient to produce a stream:—

Average monthly rainfall, the result of observations at the Civil Hospital, Poona, during the eighteen years 1845 to 1862.

January.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
·02	·00	·11	·44	1·05	3·96	6·85	3·51	3·91	3·75	0·90	·02

5. The prevailing winds are westerly, and from the subjoined results of two years' observations in the neighbouring military cantonment, it may be seen that of the whole three hundred and sixty-five days of the year there were more than two-thirds on which the wind blew from the westward of north and south. The greatest number is opposite the west point, and the four highest numbers correspond with the points from W.S.W. to N.W., amounting in all to one

hundred and seventy-seven days, while in the corresponding azimuths the breeze blew seventy-five and a-half days, or, altogether from those opposite eight points, two-thirds of the year :—

N.N.E.	8	S.S.W.....	3½
N.E	10	S.W.	30½
E.N.E.	21	W.S.W.	44
East	31	West.	63½
E.S.E.	13	W.N.W.	35
S.E	10½	N.W	34½
S.S.E.	8½	N.N.W.	19
South	8	North	25

6. The temperature of the air as deduced from the records of two years at the Observatory in the cantonment was for the year Fahr. 76·5, and distributed in months it was—

	Jan.	Feb.	Mar.	Apr.	May	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Mean	70·3	75·1	79·0	85·4	85·1	79·5	76·1	74·7	75·5	75·7	72·5	69·6
Maximum . .	85·8	91·7	95·1	101·5	100·9	94·7	83·2	83·4	84·6	84·7	83·5	84·1

7. The city, as before mentioned, has the Moota River on one side ; on the other sides it is nearly surrounded by cultivation, excepting on the south-east, where a prolongation of Bhowanee *peth* abuts on the Sudder Bazar of the Military cantonment. The crops raised are chiefly *Joaree*, *Bajree*, vegetables, sugarcane, and some oil-seed. The fields are hedged with milk-bush (*Euphorbia tirucalli*), *Agave vivipara*, and with prickly-pear (*Opuntia Dillenii*), which also largely occupies waste places, and is encroaching on both fields and roads. There are many trees also on the borders of the fields and around temples and musjids both on the outskirts and in the interior of the city. On the bank of the river and along the edges of the Nagjeree and Manik Nullah there are numerous brick-kilns with huge mounds of waste produce and dust, which have been accumulating for years.

8. Poona extends two miles east and west, and a mile and three-quarters north and south. It is divided into sections called *peth* ; this division is of ancient origin, and is maintained for Police or other purposes. The sections are of irregular shape, and vary much in

size. There are eighteen miles of modern made-road with side gutters; there are many other roads and lanes which have their ancient stone pavements, now out of repair, and most of these are impassable for wheeled vehicles, and a considerable number are altogether unmade and are unfit for traffic, being uneven, stony, and in the dry weather dusty, and in the rainy weather having their numerous hollows filled with water, or with mud, or tenacious clay.

9. The chief streets run north and south, and in some parts they are sufficiently wide; they are all more or less crooked, and none afford an easy carriage-way from one end to the other. The streets and lanes running east and west are narrow, short, and interrupted, and there is not even one thoroughfare from east to west of the city.

10. The houses are mostly of more than one floor, and are generally built of wooden frames filled in with brick or mud, and all are tiled. Some are substantially built of brick and lime, others wholly of brick and mud. There are a few of the large houses or palaces of the old gentry still inhabited, but many are ruinous or fallen, and especially so in Somwar, Kusba, and Sunwar *peth*. Within the blocks of houses that are bounded by the streets and alleys there are often large yards, to which the entrance is by a small doorway, and in these there are numerous huts and hovels.

11. The population of Poona is chiefly Hindoo, and according to the census of 1851 it amounted then to 73,209, and it is by some thought to have increased, until it is now about 80,000; the newly-built houses do not, however, appear to exceed those that are becoming ruinous by so much as to render so large an increase likely. The number of inhabited houses in 1851 was 10,245, so that there were seven persons to a house. The density of the population varies much, but it is greatest in the central and northern parts, where, in seven contiguous *peth* or sections, there is but an average of fifty and a-half square yards of ground to each person: in Boodwar and Gunesh *peth* each individual has an area of but thirty-eight square yards. The cattle at the census amounted to 9,692 head, or nearly one to each house; they are often kept in the verandahs of the small, confined houses of their owners, and they add largely to the uncleanness of the town.

12. The trades that, as carried on in the city, are especially hurtful to health, are the tanners', the brick and tilemakers', and the butchers'. One tannery of about fifty houses is in Gunj peth, near Gusetee bridge. There is no attempt made to maintain cleauliness in it, and it is without drains, the refuse liquids being allowed to run over the ground and to form pools of foul mud, while the solid refuse is scattered about, or is thrown into the Nagjeree close by.

13. In the city there are no slaughter-houses, and the butchers kill the animals beside their houses, and in Katik Alee, in Aditwar peth, pools of blood may be seen daily beside a butcher's shop.

14. The brick-kilns are along the Nagjeree and the river side, and besides having their hoards of street-sweepings to be used as fuel, they are the resort of the people of the neighbourhood, who have no necessaries, and often of sweepers also to empty their baskets of night-soil. The fictile clay is obtained chiefly from the river-bed beside Mungulwar peth, where every season it is sold by auction on account of Government. Some is got from the watercourses, where, being washed down from the decomposing trap-rock, it is deposited in the rains, and for the sake of this, but chiefly it is thought for the convenience of getting refuse straw and street-sweepings with short carriage, these kilns have grown in their present localities to be a great nuisance to the town at all times, and especially when the filthy fuel is burning. According to information given to the Municipal Commissioners by the City Mamlutdar, there are one hundred and thirty-seven kilns, distributed in clusters among ten of the outside sections of the city : sixteen of these are on ground which is the property of the brickmakers, seventy are on Government ground, and fifty-one are rented from private proprietors.

15. The natural flow of the monsoon waters from the city is into the river and into the two great nullahs that have been mentioned : these latter are in their present state in a great measure inefficient, from having irregular banks and from their beds being uneven, owing to protruding rock and to pits and hollows recklessly made by persons digging for gravel and for clay. The pools thus formed are replenished after every heavy shower of rain, and as the sides and beds of the watercourses are the resort of the people who

have not conveniences at their houses, and also of night men, and as foul drains discharge their contents into them, they are most objectionable in a sanitary point of view.

16. In various places around the city, through imprudence or want of care, quarry-holes to obtain stone and gravel are being made without method, so that they become receptacles of filth, and after rain unwholesome and offensive pools, instead of being shaped under proper supervision into useful tanks or reservoirs of clean water.

17. In the artificial drainage there are along the sides of the made-roads gutters which are intended to carry off the rain-water, but being generally without covering they are turned into cesspools, and being either altogether unbuilt, or being lined with stone without mortar or cement, much of the filthy liquid they receive sinks into the earth, which is thus kept moist, and becomes a source of unwholesome exhalations. Some of these side-drains are from their size and unfenced condition dangerous to wheeled vehicles.

18. There is a system of underground drains, but it is confined to parts of the Somwar, Kusba, Boodwar, Aditwar, Sookurwar, and Sudaseo sections, and it is very faulty and imperfect. The drains discharge by three sewers, one of which falls into the Nagjeree, while the other two join the main-drain that runs along the bank of the river from the beginning of Narain peth to the old bund. Below the bund the main-drain discharges its contents into the water of the river when this is high, or in the hot season these flow out on the river-bed, where they lie until the next rains, when the accumulation is carried on to the Moota Moola River. A portion of one only of these sewers is of perfect masonry: it is that running from Boodwarwara to Apteghat. The branch drains are described as either mere unbuilt rectangular cuts in the ground, or, at most, channels of that kind, and which are lined with stone without mortar, and they are covered with loose slabs or irregular blocks of stone. Many house-drains communicate with these drains, and carry into them both foul water and night-soil. At the last inspection of the street drains by the overseer of the works, it was reported that of twelve there were only two that were efficient, while two were half choked, and the rest were

altogether obstructed. The attempts that have been made to keep these drains clear have failed, and they are in reality a most objectionable form of cesspool, allowing the ground to be impregnated with the poisonous matters conveyed into and retained in them.

19. A large portion of the houses on the outskirts of the town and the huts of the poor have no privy accommodation, and even in the densest parts there is want of proper provisions of this kind in many of the courts or yards, and the inhabitants resort to fields, gardens, watercourses, and deserted ruins, and very commonly even to the streets. Some of the wealthy inhabitants of Gossainpoor in Somwar peth have necessaries for themselves and their households overhanging the bank of the Nagjeree, the soil falling into the watercourse, which is usually dry, without any provision whatever being made for its removal. In the denser parts of the city many houses in the neighbourhood of the underground drains have filth-sinks, by which the night-soil gravitates into these channels; but by far the greater number of the large houses have privies, of which the seats are over flat plaster or stone pavement, or a mere earthen flooring, and many of these are on the ground-floor of the habitation, and have behind the seat a shuttered aperture to admit of their being cleaned, while to avoid the pollution of a sweeper entering their premises these apertures are very often in the public streets.

20. Even when there is the daily attendance of a sweeper these privies are most disgusting, and not to the sense of smell only, as from their construction what is fluid runs out on the wall and on the road, but some of the owners call the nightmen only occasionally, and it is not unfrequent that the shutter gives way from the pressure behind it, and the accumulation bursts out on the street. This state of things has come under my personal observation, and in one instance it was within about twenty yards of a Police station, where there were a naique and several sepoys, who had seemingly done nothing to avert such an occurrence, and who, when it had occurred, were taking no notice of it.

21. The better houses are along the sides of the clean-swept streets, while, hidden in the interior of the blocks of building, the huts of the poorer people are surrounded by filth. The courts are often unprovided with privies, or, if provided with them, the people do not

use them; and I have known it to be difficult to direct one's horse in some of these enclosures so as to avoid having his feet soiled. A most revolting want of decency in such matter is prevalent, and although I was aware of the usual state of Dukhun villages, I was quite unprepared to meet with so disgraceful a state of things as I found in this populous city, where civilisation and education are supposed to have made some progress, and in which there is a regular and numerous police on duty day and night. The construction and way of emptying the necessaries of the jail, and the way of disposing of the contents of its urinaries, are most objectionable as regards the neighbourhood, whatever may be the experience of the interior of the prison.

22. There are many wells about Poona, but, excepting those in some gardens and fields, there are but one or two that afford water fit for men to drink. This might be expected in an old and populous city, where the surface-drainage is so badly provided for as here, and where much of the house-drainage is conducted into unbuilt underground channels with obstructed outlets. The waters of some of the wells, however, would doubtless be less impregnated with saline matters than they now are were they more largely drawn, but while good water is to be got from the aqueducts, the wells are but little resorted to.

23. The chief supply of good drinking-water is brought by the Katruj aqueduct, which is fed along its course by springs and reservoirs some miles south of the city, and in the last three or four months of the dry season principally or solely by the embanked reservoir at Katruj. Towards the end of the hot season the delivery becomes less, but it has not yet failed. The water of this aqueduct is delivered in thirty-two public cisterns at twenty-one localities in nine of the most populous sections of the town.

24. There are likewise twenty-one private cisterns in twenty-one localities that derive water from the same aqueduct, and to some of them certain classes of the people have access. There is the Nana Phudnavi's aqueduct from Ambegam which supplies a few private fountains in Sudaseo peth during all the year, and there are two from Kondwa which give water from June to February; they were built respectively by a person called the Chowdree, and by Rastia,

the latter aqueduct supplying the Artillery lines at Wanouree and a Soldiers' bath in the cantonment, Rastia's house, and a public cistern in its neighbourhood. The water of the Chowdree conduit has been sold by its owner to private individuals, but to some of the cisterns supplied by it the public have access.

25. The sections of Poona as yet not supplied with public fountains are Narain, Sunwar, Vital, Gorpuree, Muzufurjung, Gunj, Mungulwar, and Nehal. The people of the Mungulwar, Sunwar, and Narain sections, and the northern part of the Kusba section, draw water from the river, which at all seasons is foul, its banks and even its waters being the receptacle of the contents of sweepers' baskets, the dead being burnt on its margin and their ashes thrown into it, a large portion of the inhabitants bathing and washing their clothes in it, and its being the receptacle of the sewers and of the surface-filth that heavy rain washes from the streets and gutters and from the foul Nagjeree.

26. The Chemical Analyser to Government found in 10,000 parts of the water in the month of March 9·46 solid matter, of which 3·51 were organic; and in May of the same year, when the water was low, he found so much as 22·88, and of this 15·98 were organic matter. The use of such water even for bathing only is highly objectionable.

27. The Brahmins generally burn their dead at the Lela Ghaut of the river, the other Hindoos burn or bury their dead at any vacant spot by a brick-kiln, in the bed or on the bank of the Nagjeree, or at the side of a field, and there is no enclosed cemetery appropriated for their use. The Mussulmans have very numerous burial-places, and there are many *Durga*, or tombs of saints, in the town that have graves around them. There is no restriction as to the locality of burials, or the depth of graves. There are in all 73 funeral-places.

28. Between the city and the Military cantonment and the Civil lines there is a tract of land called Munjeree Malee, on which there are comparatively few buildings, and which is in great part occupied by fields and vegetable gardens. This is not under the control of either the Municipality or the Military authority, and its sanitary Police seems to be very little cared for. There is a tannery on the bank

of the Manik Nullah close to the cantonment Sudder Bazar of extent sufficient to employ fifteen families. The foul liquid is allowed to flow out on the neighbouring ground or down into the nullah, and after a shower the stench, always bad, becomes almost overpowering.

29. In this neighbourhood there is the Sudder Bazar slaughter-house, and beside it the bed of the Manik Nullah has pools in which water lodges, and from the water being mixed with the fluid that is spilt beside or escapes from the slaughter-house these pools are in a putrid and highly offensive state.

30. The fields and grounds beyond the Military limits are the resort of the inhabitants of the Military lines or bazar, who have no necessaries to go to, and who, by the stringent rules of the authorities, are driven thus to transgress.

31. The part of the Munjeree land lying south of Bhowanee *peth* is an exceedingly filthy locality; the prickly-pear hedges are spreading unrestrained, and the Nagjeree at that place, and the fields and broken ground about, are frequented by the inhabitants of the neighbouring part of the town, but still more largely by persons from the cantonment, and here many nightmen, too, throw out filth. Immediately beyond the Military boundary are found, on the west of the Commissariat cattle-yard, deposits of filth and sweepings which have been brought from the Military lines. It is very objectionable that so foul a tract should be on the windward of European barracks, and the still nearer Native followers' lines.

32. In the Civil lines, which lie on the east of the Munjeree Malee and north of the cantonment, there are overgrown prickly-pear hedges, foul quarry-holes, foul lanes, and now, close to the Railway station, there has sprung up a collection of huts of a disreputable character, forming the nucleus of a filthy village, and an unfinished dhurumsala already calls for the exercise of a controlling power.

33. The inquiry into the sanitary state of Poona, of which the above is a summary, discloses evils of such magnitude that the present income derived from the city toll, the fines, and the permits for music and feasts on the public thoroughfares, will go but a little way to meet the outlay of money that will be involved in their removal; but in circumstances so urgent as the present, and in which the lives,

health, and comfort of so many are concerned, a loan of money might be granted, to be paid off by instalments from funds raised by assessment or otherwise.

34. The measures that in my opinion ought to be adopted by the Municipality in the order of their apparent urgency, beginning with the most important, are :—

(a.) That four public necessaries be constructed along the banks of the Nagjeree, beginning at Mungulwar *peth*, and placing them at intervals of quarter of a mile, so that the poor of the neighbourhood, not having in any case more than a furlong to walk, may be without excuse for continuing to resort to the *nullah*, or the fields, as they now do. These necessaries ought to be built sufficiently high to allow the soil at once to fall into tanks on wheels, which, when full, may be taken away to be cleaned, while empty ones are put in their place.

(b.) That a cart, with an appropriate tank for the reception of ordure, be stationed beside each of those necessaries, and also at intervals of three furlongs all round the city. The probable total number required for this purpose would be twelve. These might be deodorised with Macdougall's powder, or by means of a lid, formed of a double grating enclosing fresh charcoal, laid over its mouth. Sheet-iron tanks, unless galvanised, or otherwise protected, are to be avoided, as they are very perishable when put to this use.

(c.) That the carts should be driven away to be emptied and cleaned to at least a mile to the south of the city, as from that direction the breeze least frequently blows; and that pits be there prepared, away from any watercourse, for the deposit, unless an agreement can be made with the agriculturists for its disposal as manure, beyond the city, civil lines, and cantonment limits.

(d.) That these arrangements having been made, the Municipality, in virtue of the power it has by Clauses 1 and 3, Section V., of its rules, at once stop the influx of night-soil into the public drains, and enforce the penalties on all committing nuisance in and around the city.

(e.) That according to Clause 3, Section V., the owners of the courts and yards in the city occupied by the huts of poor people be constrained to construct and keep in order privies for their use.

(*f.*) That, according to the same clause, no filth nor street-sweepings be allowed to be hoarded within the city limits, and that none be allowed to be deposited in any place but that appropriated for the purpose on the south of the city; and that the possessors of stables and cow-houses be made to keep them clean.

(*g.*) That the owners of the privies on the public roads at the side of the Nagjeree in Gossainpoor and elsewhere be constrained at once to remove them.

(*h.*) That henceforth no privy be allowed to be constructed with the aperture for the removal of its filth opening on a common thoroughfare, and that existing privies of this construction be, where practicable, altered or suppressed.

(*i.*) That as by the use of iron or earthenware pans by householders greater cleanliness may easily be maintained, the strict enforcement of penalties be at once begun in all cases where any leakage from privies is detected.

(*j.*) That cisterns or fountains of good drinking-water be erected in Narain, Sunwar, Vetal, Gorpuree, Gunj, and Mungulwar sections, and in other localities where the present number may be found insufficient; and that immediate measures be taken to increase the present too scanty supply of good water.

(*k.*) That the brick and tile-kilns within the Municipal limits be suppressed by the Commissioners where possible, and that in all cases the street-sweepings and other refuse at the disposal of the Municipality be withheld from such brick-kilns.

(*l.*) That the tanners in the city be constrained to construct of masonry laid in cement appropriate receptacles for their liquid refuse, and to make adequate provision for the removal of all refuse, both liquid and solid, beyond the southern limits of the town; and that they be made to maintain cleanliness about their work-places and habitations.

(*m.*) That a slaughter-house be provided in an appropriate locality, and that the present practice of slaughtering animals beside the public roads be stopped.

(*n.*) That burial and burning-grounds be allotted on the south of the city for Hindoos and Moosulmans; that burials in the city,

where practicable, be at once forbidden, and where this cannot be enforced, that by restricting the right of sepulture there to those now living, such burials may eventually altogether cease.

(*o.*) That the new burial and burning-grounds, and such of the present ones as it may be absolutely necessary to sanction, be registered, and that in the registered cemeteries alone interments be permitted.

(*p.*) That all graves be dug to the minimum depth of six feet.

(*q.*) That the daily reports of burial and cremations (to be furnished by the Police) be regularly tabulated in English according to the appended form (B) in the meantime, with a view to detect the localities where excessive sickness prevails, and that subsequently the other information contained in the register be also reduced to tables.

(*r.*) That the streets and alleys be named.

(*s.*) That the beds of the Manik Nullah and Nagjeree be made even, so as to ensure the flow of the water and to prevent it from lodging in pools.

(*t.*) That quarrying and digging for gravel be allowed only under intelligent control, so that they may be economically and not hurtfully carried on.

(*u.*) That the gutters at the sides of the streets for the monsoon drainage be made of cemented masonry, and that they be all covered to prevent their continuing to be used as the receptacles of filth.

(*v.*) That, according to Clause 3, Section V., of the rules, the owners or occupiers of the land in Mungulwar peth, Narain peth, and Gorpuree peth, and elsewhere, be compelled at once to remove or trim the prickly-pear fences and thickets, cutting down such as cannot be altogether removed to a maximum height of three feet and a breadth of two feet, and destroying the prunings so that they may not be propagated; and that the planting of prickly-pear be for the future absolutely prohibited within the Municipal limits.

(*w.*) That the owners of the ruinous houses and walls throughout the city, and especially in the Sunwar, Kusba, and Somwar sections, be required either to rebuild or remove them, under Clause 13 of Section V.

(x.) That to ventilate the dense parts of the city, two wide streets be carried quite through it from east to west, one to extend from Rastia Wara by Nehal peth, across the Nagjeree and onwards by Kasar Alee, through Oomburkur Wara to the Sunwar palace and then beyond it, still westward, by Marotee street to the neighbourhood of Onkarishwur temple by the river side. The other proposed street to be from Boorood Alee to Khasgeewala Wara and on westward. On looking at the large lithographed plan of the city, the obstructions in the way of these lines appear great, but on personally examining the localities they are seen to be much less formidable, as the blocks of building that are represented on the plan as solid are in reality hollow, and in their middle are either vacant or are occupied with mean huts.

The sanitary advantage expected from making these streets is that they will open out to ventilation by the most prevalent winds the most densely-peopled sections of the city, part of which afford a superficies of only thirty-eight square yards to each person, which area, with so much uncleanness as here is habitual, and with a temperature of the air so high as that recorded, is from its deficiency likely to occasion and foster disease. These streets will likewise afford clear thoroughfares for traffic where none as yet exist, and they will increase the facilities of drainage and in many ways add to the convenience of the inhabitants.

(y.) The widening and straightening of many other streets are required, but the improvement of one called the Motee Chouk may be especially mentioned as being of urgency. At present the road becomes tortuous, narrow, and unfit for the passage of carriages, immediately on the north of the police station beside Phurke Wara ; and as the population is dense, it would be conducive to healthful ventilation, as well as to convenience of traffic, were the angles cut off, and were the Motee Chouk with its present breadth prolonged by Kasar Bowree to form an avenue to the centre of the city from the north-east.

(z.) The existing streets and alleys that are at present ruinous or unmade ought to be constructed or repaired, and with a view to purify and keep clean the soil on which it stands, the whole city ought to be furnished with a systematic underground drainage for

water, but from which all night-soil and filth ought to be rigorously excluded, seeing that the river, into which of necessity the sewage must be discharged, will still furnish water to the inhabitants of many villages in its onward course, even when the populous Military cantonment has ceased to depend on it, as it now does, for its chief supply.

35. The aid of the Commissioner of Police is of the greatest importance in any plan for bringing about a thorough improvement in the sanitary state of Poona.

(a.) The native Policemen, like most of the inhabitants, being accustomed to the present condition of the place, seem to see nothing wrong in the most outrageous derelictions of cleanliness, and fail to bring the nuisances to the notice of the proper authorities. It is, therefore, desirable that a strict European oversight be organised and be continued for some time, or until the Native Officers of the corps are trained to the due performance of the sanitary part of their duties.

(b.) That daily reports, according to appended form (A), be made to the Municipality of all burials and cremations, from information carefully collected at the registered funeral-places by the Policemen, under whose supervision they will be.

36. The measures that it seems desirable the Magistrate should enforce or adopt are :—

(a.) The direct suppression, where practicable, of the brick and tile-kilns within the city limits, and where the summary suppression of them is impracticable, it is desirable that, at the annual auction of the clay from the river-bed, the sale should be under the stipulation that it be not used within those limits.

(b.) The removal of the tannery on the Manik Nullah close to the Military Sudder Bazar.

(c.) The prohibition of planting prickly-pear, and the removal, so far as possible, of prickly-pear from the Munjeree Malee and the Civil lines, and where the utter removal is impracticable, it is desirable that the Magistrate should at once enforce the cutting of the prickly-pear fences to a maximum height of three feet and a maximum breadth of two feet, the uprooted plants and the prunings

being so disposed of that their vitality may be destroyed so as to prevent their propagation. Also that he should order the pruning of milk-bush and other hedges to a maximum height of four feet.

(*d.*) The regulating of the quarrying for stone and the excavating for gravel, so as to make useful tanks of the present unsightly and unclean quarry-holes, and filling up the present, and the preventing for the future the formation of other hollows where useless and hurtful collections of water may gather.

(*e.*) The checking the nuisance that is rapidly growing from the location of disreputable persons in and around the still unfinished dhurumsala at the Railway station.

37. It is desirable that the Judicial authority of Poona should order such change in the present practice as regards the conservancy of the jail as may stop the nuisance it now causes to the neighbourhood.

38. The measures that it is desirable the Military authorities should take for the improvement of the sanitary state of the neighbourhood of the city are—

(*a.*) That necessaries be provided for the use of the inhabitants of the cantonment, who at present trespass on the fields and water-courses of the city.

(*b.*) That the present practice of depositing filth beyond the cantonment limits on the westward of the Commissariat cattle-yard be prevented for the sake both of the city and of those parts of the cantonment, embracing, among others, the European Barracks that are to the leeward of the spot now indicated.

(*c.*) That the removal of the slaughter-house of the Sudder Bazar, which it is said has been ordered, be carried out.

(*d.*) That the part of the bed of the Manik Nullah in Military limits which has not already been made even, be smoothed, so as to allow of a free current, and to prevent the formation of pools. This work also, it is said, has already been ordered to be carried out.

39. It may here be stated that the Moota Moola, a river on which at present a large portion of the cantonment is dependent for water in the dry season, is so largely contaminated by the filth

which the Moota River brings from the city, that even after dilution by the confluence of the Moola there were found on analysis of 10,000 parts of water drawn at the Jamsetjee Bund in May to be four parts of solid matter, of which 1·9 were organic, and even after passing through the filter at the river side, the water when delivered at the Jamsetjee fountain, still had ·82 parts of organic matter, or 5·74 grains in a gallon. This analysis, as well as that mentioned above in para. 26, was made in the year 1856, and since then there has certainly been no change for the better in the condition of the water of the river.

40. Although some amelioration of the quality of the river water may be expected when the proposed restrictions in the use of the drains and watercourses of the city are enforced, yet there is no ground for expectation that the water will at any time be sufficiently pure and wholesome for drinking, and it is highly desirable that the Military and the followers in the cantonment be furnished with good water from the hills on the south or south-west of Poona.

41. To Government in the Revenue Department I would beg to recommend—

(a.) That the city limits, now apparently unsettled, be clearly defined, and that, at least for sanitary purposes, for which alone I can presume now to plead, the authority of the Municipality be acknowledged from the Umbil Nullah on the south-west to the boundaries of the Civil lines and the Military cantonment on the east and south-east.

(b.) That the Civil lines, for the purposes of sanitary police, be placed under the control of a European resident Magistrate, if such be available, who, from his constant presence, may reasonably be held to be solely and fully responsible for the maintenance of due order and cleanliness.

(c.) That a census of the city be obtained at an early date, to afford a basis on which to estimate the effect of local causes on health and mortality.

42. To Government in the Railway Department I would respectfully submit the advisability of suppressing the use of prickly-pear (*Opuntia Dillenii*) as a fence, and this suggestion seems called for,

as in the neighbourhood of the city, the Civil lines, and the cantonment, it has lately been planted along the Railway.

43. It is a most pernicious plant, and (unless perhaps in a cantonment where under military authority it may be kept under control) it ought to be forbidden. Notwithstanding even the stringency of military rule, where the greatest care is taken to destroy the vitality of the prunings, the seeds of this baneful plant are liable to be carried by birds and scattered over the country; and where no such strict watchfulness is bestowed, it grows to be a harbouring place for noxious animals, and a troublesome receptacle for filth, as it offers impediments to its removal too great to be overcome by any ordinary attempts at cleanliness. It is a plant difficult to prune, and is, perhaps, on that account generally left to grow unrestrainedly, and to attain to a size so great as hurtfully to interfere with ventilation and concentrate miasms; its prunings strike root spontaneously, and by means of these and its seeds it encroaches on paths and fields and renders them waste, and forms thickets that shelter all uncleanness, as may be seen in the precincts of Poona.

44. To Government in the Public Works Department I venture to submit the proposal that, with a view to improve the ventilation of the city of Poona, the walls of the Sunwar palace be thrown down, so as to give a large open square, through which one of the proposed east and the west roads would run, and which might be planted with trees and used as a place of recreation by the citizens.

A. H. LEITH.

Poona, 8th October 1863.

No. 2478.

FROM the QUARTERMASTER GENERAL of the ARMY,
TO the SECRETARY to GOVERNMENT Military Department.

HEAD QUARTERS,

Poona, 20th October 1863.

SIR,—Referring to the Resolution of Government quoted in the margin, I am desired by the Commander-in-Chief to submit, for the information of His Excellency in Council, the accompanying Rough Notes by Major Martin, of the 4th (King's Own) Regiment of Foot, upon the sanitary condition of the City of Poona and its environs.

General Department No.
1287, dated 27th August
1863.

2. With the exception, perhaps, of the recommendations made in regard to the reorganisation of the Native agency by which the sanitary and other reforms mentioned are to be carried out, His Excellency considers that Major Martin's remarks are of much practical value, and well worthy of consideration.

3. Having understood that it was the wish of His Excellency the Governor that Dr. Leith should report upon this subject separately, Major Martin has adopted a similar course, and I am to draw particular attention to that part of his report which advocates a similar system of conservancy for the City of Poona to that proposed for the Army generally and its stations in the accompaniments to my letter No. 925, of the 4th June last, which you will remember involved daily removal of all ordure and filth to a distance, when it would be disposed of in filth-pits, if not already deodorised and disinfected by the use of "carbolic acid," or any other chemical preparation, so as to enable its being carted away direct to the fields for agricultural purposes.

4. The great value of such a system for the City of Poona lies in the fact that it would save the waters of the Moota Moola

from contamination by the sewer which now empties itself into them at a point between the City and the Railway viaduct at the Sungum.

5. This sewer or main-drain runs along the right bank of the river from a point near the main market, and receives in its course the contents of the city cross-drains for about a quarter of a mile.

6. To close this sewer and its tributaries, substituting public necessaries for the poorer classes, and private ones for the richer (all of them subject to a strict system of public conservancy), is in outline the object of Major Martin's scheme; a scheme which, witnessing as I have done the filthy condition of the back alleys and obscure parts of the city, and in some instances more public and prominent spots, is, I think, a better basis for future measures of conservancy than that of maintaining and improving that sewer, and reconstructing its tributaries so as to carry off the filth which now stagnates in every lineal foot of them.

7. Should the main-sewer be continued, it will have to be prolonged at great expense along the bank of the river to a point far below the Jamsetjee Bund, a work of immense cost and questionable efficiency; for to permit that sewer to empty itself, as now, at the upper end of what Major Martin calls "the Pool," formed by the Jamsetjee Bund, would be to perpetuate the defective system under which that invaluable sheet of water is now polluted.

8. His Excellency the Commander-in-Chief will feel obliged by this letter and its accompaniment being considered in conjunction with any report which Dr. Leith may have forwarded to Government on the subject.

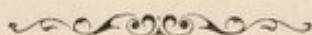
I have the honour to be, &c.

R. PHAYRE, Lieut. Colonel,
Quartermaster General.

P.S.—No copy of Major Martin's Notes has been kept in this office, as, perhaps, it might be thought useful to print them, in which case I should feel obliged by a copy or two.

R. P.

ROUGH NOTES ON THE CITY OF POONA.

*Evil.*

There are no public conservancy arrangements in the City.

Each tenant is supposed to cause his household ordure to be carried away daily, but the Municipality regulations on this head are only very partially obeyed and seldom enforced.

The privies attached to houses are in such an offensive state as to justify the belief that they have never been thoroughly cleansed.

At No. 50 Nana Peit there is much accumulation of filth; a visit to this place will afford a fair idea of the state of many such localities I visited. Opposite No. 50 is No. 29, a bakery kept by a respectable-looking Portuguese; the accumulation of stagnant liquid mire is here very considerable, the noxious emanations from which are, in my opinion, sufficient to pestify the whole neighbourhood.

The appearance of the main street and the front entrances into houses would induce a belief that

Remedy proposed.

A general subscription to be made to realise funds for present emergent conservancy purposes.

A conservancy rate to be levied according to the value of property.

All existing privies to be immediately deodorised and filled in.

Each landlord to provide a small air-tight ordure box (according to approved pattern), instead of the present privy, for the use of his tenants.

Every fifteen houses to provide also three iron receptacles according to pattern, *one* being always kept in reserve to replace either of the other two when nearly filled.

On each privy being emptied into the receiver, it must be washed and deodorised before being replaced in the closet attached to each house.

A system of donkey-carts and sweepers to be organised by the Municipality to remove the receivers to certain pits prepared

Evil.

the rest of the City was tolerably clean, and to arrive at a contrary opinion it is necessary to inspect the back premises, where the want of proper conservancy measures becomes painfully manifest, more particularly so in closes and in the centre of blocks of buildings, where there are generally throughout the City narrow spaces, yards, or lanes, between the rows of houses; on each side of these lanes or yards are all the backs of the privies, cesspools, and dirt-heaps; here every other indescribable rubbish, filth, and drainage are either thrown, deposited, or emptied; and it is remarkable that whereas evident attention is paid to cleanliness in the interior of houses, there is a perfect disregard to this essential of life in the yards and in the lanes already referred to; the filth outside is a strange contradiction to the apparent cleanliness within.

On investigation I found that marketable filth, such as cowdung, refuse straw or litter, and ashes, was eagerly sought after; these are carried away in baskets by women and children, and also in bags on donkeys.

Remedy proposed.

for the reception of their contents; these pits should be dug to leeward of the city, and the ordure deodorised and sold for agricultural purposes.

A penalty of Rs. 20 to be levied on landlords who disobey the conservancy laws, and Rs. 30 on tenants who neglect to conform to them. If it be proved by the tenant that the landlord has not afforded him the means of complying with the regulations, the landlord should be held amenable for *both* penalties.

Iron air-tight latrines should be placed in certain parts of each district for the use of the poorer classes. These latrines to be of the pattern proposed for barracks; they should be deodorised twice a day, and replaced by the clean ones every morning and evening.

Public urinals on the same principle as the latrines should also be established.

Each refuse-producing factory should provide extra receptacles, and pay a much higher conservancy rate.

All the iron receptacles might be kept in the lanes between houses, and a heavy penalty inflicted on any person throwing

Evil.

I entered several houses in the City where the manufacture of cowdung and straw into "fire-cakes" was extensively carried on—an evident nuisance, but the natives do not seem to consider it is so.

The ashes are valuable for pottery purposes, and are sold by householders when a sufficient quantity has been accumulated to realise a price.

There are several drains which empty themselves into the "Pool." In many of the houses there are drains which emit exceedingly foul smells. These cannot be flushed for want of outlets even were water procurable in sufficient quantity; the result is that the drainage soaks into the earth beneath the house and generates disease.

On each side of the main thoroughfares are deep gutters, evidently for the purpose of carrying off the rain during the wet season; these are often converted into receptacles for all kinds of filth and sweepings.

Remedy proposed.

or depositing any ordure on the ground.

Ashes should become the property of the Municipality, and used for cleaning receptacles, urinals, &c.

No cowdung fire-cakes should be allowed to be manufactured in the City without the payment of a heavy licence: this would soon drive all the present factories out of the City.

Such ashes as are not required might be sold by the Municipality for the benefit of the conservancy fund.

These drains should be filled in at once, and thoroughly deodorised.

Those in houses should be abolished, and portable iron cess-pools used instead.

Any person found emptying filth of any description into these gutters should be liable to imprisonment and fine. All these gutters should be cleaned out, and closely paved with granite slabs to prevent the

Evil.

I am informed that orders exist requiring these gutters to be opened and cleaned out *once* a year, but I regret to say the order is only very partially carried out, for I can point out many places which appear not to have been opened for a very considerable time.

All the refuse sweepings, ordure, &c. of that portion of the City nearest the river is thrown by the lazy sweepers on to the bank of the river or into the water, and the benevolent intention which induced Sir Jamsetjee Jejeebhoy to build the Bund is thus completely neutralised ; for the Bund prevents all this foul matter being carried away from the immediate vicinity of the City ; it consequently decays in the water and along the city bank of the river, and when rain causes the water to rise, the festering filth of an enormous population accumulated at low-water time is carried into the river, and sinks before arriving at the Bund. The water thus rendered partially stagnant by its interception at the Bund, becomes loaded and impregnated with the very essence of all the abominations it is possible to conceive, and is used in this state by thousands of people in the City and in the Sunder Bazar for drinking and for

Remedy proposed.

nuisance, and ventilators with iron gratings should be built at certain intervals.

The most stringent measures should be taken to bring this evil to a term. No ordure of any sort should be permitted to be thrown into or near the river. All ordure, sweepings, &c. should be thrown into receivers and emptied into pits as already described.

Dredging-machines should be established in the " Pool " ; these might be easily worked by prisoners, and the refuse carried away in boats to the opposite bank, deodorised, and sold as manure ; this would be a source of much profit to the conservancy fund and to the jail, as the prisoners' labour would be paid for. An advantage would accrue from the extra depth the Pool would acquire in course of time, for it must have filled in considerably since the Bund was built.

Dredging-machines of the simplest construction might be used

Evil.

other household purposes—an evident oversight when the present plan of supplying the city and the bazar with water was being carried out.

At the Bund is a force-pump worked by sixteen pairs of bullocks. This pump forces water from the Pool at the Bund to the Sudder Bazar, and also to the Government Bakery at the Commissariat and to the Arsenal; it consequently follows that all the bread issued to the troops or made in the bazar is mixed with this foul water, and I have no doubt much of the sodawater, gingerbeer, and lemonade sold in the bazar are manufactured with it.

The impurity of the water in the *Pool*, which extends from near the Sungum to the bund, is greatly increased by the want of proper dhobie arrangements; the system which obtains at present tends considerably to poison the water.

Remedy proposed.

on floating platforms, and the refuse collected in iron receivers and run on shore by means of a truck, and emptied into pits and deodorised.

This force-pump might be worked by a simple water-mill during about eight months of the year, and all this expense saved; during the other four months the cattle might be used. By building Bunds at the junction of the streams above the City, water-mills might be made to work there all the year round by means of the *fresh* water passing into the Pool.

Chiefly during the summer months the Soldiers in garrison complain that the ration bread turns bad before evening meal time; might not this be caused by the greater impurity of the water pumped up to the bakery at that particular season?

If the precautionary measures I have ventured to suggest for purifying the Pool be adopted, the water it contains would in course of time become fit for domestic purposes. *At present it is not so.*

Evil.

On steps leading down to the water hundreds of people wash their persons and filthy clothes; women more particularly resort to these steps; and it can hardly be believed that castes who look with loathing upon the sweeper and his calling actually wash themselves and their clothes in water into which the sweeper has just emptied his basket, much of the contents of which falls on the bank close to them, or on the steps they are standing on.

Higher up the Pool may be seen as far as the eye can reach numbers of men and women performing their daily ablutions, and it is not difficult therefore to conceive that the water in the "Pool" serves to wash many a diseased body.

The Pool is the receptacle for dead dogs, cats, rats, &c. I ascertained the fact.

The regular dhobies wash their clothes on the opposite bank of the Pool. It is impossible to estimate the quantity of clothes washed daily; but when we consider that

Remedy proposed.

Extensive washing-places should be built on the opposite bank of the river, and the water of the Pool, when purified of its present filth, might be pumped up, and the soiled water run off into the adjacent country for irrigation purposes, and not allowed to return to the Pool; a causeway already exists leading to the Kirkee side.

A penalty should be attached to washing clothes of any description in the Pool. All dhobies should be required to pay a licence fee for washing; this would render the establishment self-supporting.

Public baths should be erected and well supplied with water from the Pool (when purified), or from the public tanks, by means of hand-pumps, which would prevent undue waste. Bath-rooms might be made for the use of the higher classes, and styled 1st and 2nd classes; payment should be required for the use of these, but 3rd class bath-places should be free.

The floors of the bath-rooms should be about three feet above the terreplein to allow the water to run off into cisterns, and *at* the cistern there should be a

Evil.

the washing of the whole European community and that of the hospitals and barracks of the entire cantonment is done *in* the Pool, we may form an idea of the *extra* impurity this horrid practice imparts to the water.

In order to observe these malpractices it is necessary to visit the City at about 5½ o'clock A.M. After 8 A.M. the banks of the "Pool" are less frequented, but the women wash clothes *in* and carry water *from* it all day.

Towards evening the sweeper again adds his contributions to the Pool, and the European little imagines that early next morning his own and his family's linen will be washed in it! A few dhobies have small tanks into which *they say* the water filters: this is a mere nominal contrivance to deceive their employers.

Remedy proposed.

slope down which to back water-carts to receive the water wherewith to irrigate the roads.

As soon as these public baths are established, any person found bathing in the "Pool" should be fined.

Of course, public baths should be also set apart for females.

The Pool should be well stocked with fish, and considered a Government preserve; "net fishing" should be strictly prohibited, and no other fishing allowed *without licence*. Washing-machines would be a valuable introduction: they not only save labour and wash clothes better, but they cause much less damage. The system is a much cleaner one, for the soiled water is run off, and each batch of clothes is rinsed in fresh supplies of pure water pumped into the trough. At present the foulest linen and the most delicate fabrics are washed in the same water.

Places for washing clothes should be erected on the City side also. Women might be allowed to take the water they require from the Pool, but the soiled water should be run off towards the country.

Evil.

Were this a tidal river, or a constantly flowing one, the evil would be greatly lessened; but unfortunately the water in the "Pool" may be said to be *nearly* stagnant from the level of the Bund to its bed; and during about four months of the year, when the water ceases to overflow, it becomes *perfectly* stagnant, and *that* at a time when from excessive heat water is most required.

The houses in the City are generally out of repair; very many are in a dangerous state of decay. Numbers of upper-storied houses have their roofs partially fallen in; in other instances whole gables have given way. The backs of houses are in worse repair than the frontage, and there is scarcely a back yard I entered which does not exhibit a mass of ruins.

No attention seems to have been paid to ventilation: the only tolerable air which enters a house is from the street front. Many houses situated in the windings of streets are shut out from even this advantage. When a change of wind causes the air to enter through the back apertures, it carries with it the fumes of the

Remedy proposed.

A City Architect should be appointed to visit and report upon every house in the City. Those condemned by him should be pulled down, and those ordered to be repaired should be so within a given time. Any one failing to comply with the orders of the City Architect, conveyed through the Municipality, should be liable to a heavy penalty, or to confiscation of his property.

The prisoners should be employed levelling the present ruins, each proprietor being required to pay a certain rate for the service.

Ventilators on the plan of those in the town of Kurrachee might be adopted with advantage to houses in Poona.

Districts should be more defined, and the streets (*gradually*) made as *straight* and as *wide* as possible, and should also be made to run parallel and at right-angles to each other. No projections should be allowed beyond a certain limit; and in fixing the *run* of streets, the prevailing winds *during the*

Evil.

accumulated filth in the back premises and poisons the atmosphere in the house.

I cannot imagine how human beings can exist for any length of time in the City, and it would be interesting to ascertain the average length of life in it as compared with the rural districts in its neighbourhood.

The overcrowded state of many of the houses is another serious evil; the natives seem to be aware of this, for they endeavour to conceal the actual number of inmates their house shelters. It is therefore very difficult to ascertain the exact cubical space per individual under each roof. The houses are naturally more crowded at night than during the day.

The City has no regular market-place fitted, as it should be, *with stalls.*

The market is held in the open space in front of the Old Palace, now the Police barracks. The confusion of materials tendered for sale renders it difficult for pur-

Remedy proposed.

hottest months should be the guide.

When four streets meet, there should be ample space allowed for "cross traffic," and the corner houses rounded.

All future buildings should be constructed with a view to stability, regularity, health, and ornament. Houses should be independent of each other—that is, the roof-beams of one house should not be allowed to rest upon the gables of another; this precaution would lessen the danger of fire spreading. Wooden houses and thatched roofs or sheds should be prohibited, even near the City.

All these sanitary reforms should be impressed upon the people by means of public lectures; and if the office of City Architect be entrusted to a painstaking person, the city of Poona would be remodelled in three years, for there are few houses which would not be legally condemned before the expiration of that time.

Level the high walls surrounding the present Police barracks, and with the materials build market-sheds on pillars. The market conservancy could be

Evil.

chasers to find what they require ; there is consequently much unnecessary noise and want of order and regularity.

The Police barracks and huts are tolerably clean, but the latrines are as badly regulated as those in other parts of the City.

There are tanneries in several parts of the City, a nuisance which should not be tolerated.

There are many oil-factories in the City which are extremely objectionable because worked by cattle. These are worked in small dingy rooms, where the bullocks are kept, worked, and fed!! the floors are consequently saturated with urine.

The City is tolerably well supplied with water, but of a very indifferent description. It has a bad smell, a greenish tint, and a *VERY mawkish* taste ; it is conveyed to tanks by aqueducts. All the water required by the people living near the river is taken from the Pool ; those who can afford to do

Remedy proposed.

maintained by a small fee levied on persons occupying stalls.

The gate-way of the Old Palace would form a suitable entrance into the market ; and if the allotted space for the market were fenced in by a wall 1' 6" in height supporting iron rails, *thorough* ventilation would be secured.

Each side of the market should have an entrance, and a suitable place told off for carts and cattle.

A *heavy* licence fee would soon drive these tanneries beyond the precincts of the City.

These and every other factory requiring animal labour should also be expelled from the City.

There would be no difficulty, and little expense, in making suitable public baths *also* at each of the present fountain tanks.

Each tank has now a stone platform about 18 inches wide surrounding it, and a small ledge to prevent water returning to it. Here numbers of people may be seen washing themselves and their clothes all day, and as they splash the water over themselves and dash

Evil.

so get water from above the Pool (at least I was so informed).

Remedy proposed.

the dirty water out of their clothes, much of it returns to the tank, and the ledge becomes useless.

It is really disgusting to see naked men washing their persons publicly before women and girls who come here for their daily supply of water. This disregard of all modesty must have a demoralising tendency. I am sure we have not paid sufficient attention to this point in India. Had it been otherwise, Englishwomen would not be exposed to all the disgusting sights of tolerated nakedness so constantly forced upon them in even the most public thoroughfares of civilised Bombay. I am convinced that if natives were subject to a fine for not appearing decently clothed in public, the evil would soon be remedied. Sometime ago I tried this in our Cantonment, and it was remarkable how soon the followers, sweepers, &c. procured decent clothing, and I had not cause to inflict a single fine.

The same roof shelters human beings and cattle. It will, I am told, be difficult to induce the natives to forego this custom.

What may be *questionably* endurable in a village becomes an inconceivable source of infection in a crowded city.

Evil.

I inspected many butchers' shops in and near the City, and found that all the cattle required were slaughtered on the premises. The ground is consequently saturated with putrified blood, &c., and emits the foulest effluvia.

I have not seen a slaughter-house in the City; if one exists, its use is evidently not insisted upon.

There are several timber and bamboo yards in the City.

Remedy proposed.

Every head of horse and cattle used and kept in the City should be taxed, and its owner compelled to build mews, and provide extra receptacles for carrying away stable refuse: there is ample space for this in the ruined parts of the City.

A regular slaughter-yard and shed should be established at once outside the City, and all cattle required for use should be there prepared for sale, and a charge made for each animal slaughtered. In order to show the public that the meat is wholesome, each carcase should receive the Municipal Stamp on each quarter. A severe penalty should be attached to selling meat not bearing the Municipal Stamp.

The same arrangements for collecting blood, offal, &c. as proposed for the bazar and Commissariat slaughter-yards should be attended to.

All timber, bamboo, and grass yards should be removed to a safe distance to leeward of the City. They should be fenced in on all sides.

To ensure proper circulation of air, all prickly-pear and milk-hedges should be removed from

Evil.

The Social evil, as it exists in the City, is an open violation of all that is decent. All the bamboo gypsy-looking sheds should be removed forthwith. I saw as many as sixteen of these sheds in one place. On inquiry I was *informed* that three females occupied each shed. I am *convinced* that as many as five live in each, and I should say that the sixteen I refer to accommodated about fifty women!

Where these unfortunate wretches obey the calls of nature is but too plainly visible along the walls, &c.

Remedy proposed.

within a circle of 100 yards all round the City. Compounds within that distance should be fenced by means of palings.

A locality should be told off for this evil, or lock-hospitals established. Each public woman should be registered and taxed to support the institution. Of all plans yet tried, the lock-hospital is not only the most effective in preventing disease and its fearful ravages, but tends also to reduce the evil (which cannot be abolished) to at least a minimum.

With a view to carrying out all these reforms and ensure proper supervision, I do not see why *an endeavour* should not be made to establish in this City the Municipality system common to the whole empire. The plan works well at Port Louis.

I would divide the City into Wards, smaller than the present

*Evil.**Remedy proposed.*

Districts—say two Wards in each District.

Each Ward to have its own responsible representative.

The City to be given a Mayor, appointed by Government. Two Sheriffs also to be appointed by Government.

The Mayor, Sheriffs, and representatives to be termed the Corporation.

The Corporation to be held responsible for the cleanliness of the City and its suburbs.

All the streets should be named and lighted, and the houses numbered and registered. All males in the City should be compelled to belong to a Ward, and be thus accounted for.

A new system of licence should be levied from the merchant to the sweeper.

There should be a tax on fire-arms, swords, daggers, &c. ; the only persons exempt from this tax should be those holding Office under the Crown.

THE PRISON.

This establishment contains at present (October) 364 prisoners, but can accommodate 500 or thereabouts.

Evil.

It has four large sheds which can lodge about 300, and there are also twelve wards which can contain from sixteen to nineteen prisoners each.

The Conservancy, which was the principal object of my visit, is extremely defective and *objectionable* in every way.

In the Debtors' Prison pans are allowed; these are taken away and emptied daily into pits about 16 feet wide by about 18 feet deep, dug by the prisoners within the walls of the new portion of the Prison. The ordure is covered with straw or other sweepings, and left thus to accumulate for about three months, when the pit is covered over with earth for a time, and the contents used for manuring the Prison gardens.

To the bulk of the prisoners there are only two latrines with seven places in each. The ordure falls by means of sloping gutters of stone-work into stone-built square receivers *outside the walls* of the Prison, from whence it is scooped up and carried in an "iron pot with handles" by the prisoners along the side of the *public thoroughfare*, but near the Prison walls, through the Prison gate, and past the Prison garden into the walled

Remedy proposed.

I do not think that there is sufficient latrine accommodation for the number of prisoners.

By adopting the plan I propose for barracks, and keeping a few portable latrines on hand, the number in use might be regulated according to the number of inmates.

Fill in and abolish the present latrines, and use portable iron ones. Cause the contents to be deodorised while they are being

Evil.

enclosure above referred to, where it is emptied into a pit.

At 8 o'clock A.M. I saw some prisoners employed at this *horribly* filthy work.

The urinals of the Prison are as objectionable as its latrines. One communicates with a cesspool outside the back of the Prison, and must be a great nuisance in summer, for the urine soaks into the earth.

In other respects the Prison appears extremely clean; but the prisoners are far from being so.

The only useful indoor occupation the prisoners are put to is gardening.

Remedy proposed.

filled. The contents might *then* be thrown in the pit; the ordure should be covered each day with a layer of earth and some carbolic disinfecting powder.

These portable latrines can be easily carried by prisoners by means of a pole to the pits, and there thoroughly cleaned and deodorised, and washed out with water and carbolic mixture. The water so *used* might be run off into the "urine pit" (which should be separate from the other), and would help to deodorise and purify it.

Portable urinals, or receivers, should be used, and the contents deodorised and buried in separate pits from the latrine ordure, or sent to a distance outside the City and emptied into the Municipal pits dug for the purpose.

The prisoners should be employed in all works required by the Corporation.

THE SUDDER BAZAR.

This Bazar is situated eastward of the City, and extends due north and south from the Bazar fountain to near the Commissariat, and skirts the Cantonment.

The conservancy arrangements are nearly as objectionable as those

All that has been recommended for the improvement of the City applies equally to the Bazar.

All idlers living in the Bazar should be immediately expelled,

Evil.

in the City : the filth is thrown into the broken ground southwest of the Bazar, and is left there to rot : the accumulation of filth is excessive, and the stench great.

The Bazar slaughter-yard is a pest in itself : the arrangements for carrying away offal, blood, &c. is extremely bad.

The blood is collected in a chunam tank, and, together with the washings of the yard, are scooped out and carried away in leather bags on bullocks ; the blood constantly drips out, and the ground for some distance is saturated with putrified matter.

There are many houses which should be condemned and pulled down, and there are huts which should never have been allowed to exist.

The back-slums are in a filthy state.

The streets, excepting the main street, are too narrow.

The houses are extremely crowded, and not sufficiently ventilated.

There are too many *idlers* in the bazar.

Remedy proposed.

and very few native huts should be allowed to exist.

The Bazar should not be allowed to increase : it is far too large at present, and is an increasing nuisance to the Cantonment. All houses found in great disrepair should be levelled to the ground.

The blood should be collected in an iron receptacle, carried away and emptied into deep pits, deodorised, and if not sold as manure, covered with earth. This plan should also be adopted by the Commissariat and by the Municipality of the City.

Evil.

Some enterprising natives are building upper-storied houses, but they should not be allowed to build higher than two stories, or they will obstruct the ventilation of houses to leeward of them : such property would consequently deteriorate in value, and give rise to *just* complaints.

Dogs are a great nuisance ; and some arrangement should be made to prevent goats and cattle being sheltered under verandahs.

Remedy proposed.

All dogs should be taxed, and those not provided with collars bearing their owners' name destroyed.

T. MARTIN, Major,
4th (King's Own) Regiment.

No. 1878 of 1863.

GENERAL DEPARTMENT.

RESOLUTION OF GOVERNMENT.

Bombay Castle, 8th December 1863.

THE cordial thanks of Government should be communicated to Dr. Leith for his very clear and valuable Report.

2. Copies should be sent to the Revenue and Police Commissioner S. D., for the Magistrate and his Assistants, the Superintendent of Police and Police Officers, and for the Members of the Municipal Commission; and, through the Military, Judicial, Railway, and Public Works Departments to the Military Authorities of the Cantonment, to the Judge, and Engineer Officers of the Railway and Public Works Departments, with an expression of the earnest desire of Government that all the Authorities concerned should coöperate to give the fullest effect, with as little delay as possible, to Dr. Leith's well-considered suggestions for the improvement of the City of Poona.

3. All Dr. Leith's proposals may be considered as generally and fully approved by Government, and as requiring no further specific sanction from Government to authorise any Officer of Government to carry them out, except in cases where an expenditure of Government money is required to an amount beyond the powers of the Local Authorities to grant. Sanction for such expenditure will be readily given by Government on its being shown that such expenditure is necessary to give effect to Dr. Leith's suggestions.

4. The size and importance of Poona, and its close connection with the largest Military Station in Western India, render the condition of the City a matter of more than local or municipal importance, and the Governor in Council will give all the aid which can be reasonably looked for from Government towards its improvement.

5. But the immediate responsibility for doing all that the law requires and authorises for the attainment of this object must

remain, where the law has placed it, with the Municipality of the City, and the first thing therefore to be done is to strengthen the hands of the Municipality to any extent required, to enable that body efficiently to discharge its duties.

6. The Governor in Council believes that the Municipality is now fully alive to the importance of those duties, and willing to do its best to discharge them, and Government would therefore in the first instance call on that body, through the Magistrate and Police Commissioner, for a statement of any addition to its powers or numbers, or of any enlargement of its sphere of control, which may be required to enable it to perform the task assigned to it.

7. Of these questions that of funds, discussed in paragraph 33 of Dr. Leith's report, is obviously the most important. The Governor in Council will view favourably any application for a loan such as is suggested by Dr. Leith, on being assured that effectual steps will be taken to secure such additional permanent Municipal income as will be necessary to repay the loan, and to provide for the expenditure which Dr. Leith shows to be absolutely necessary.

8. The Civil Surgeon in Poona will be constituted *ex-officio* Sanitary Reporter to the Municipality. It will be his duty to advise the Municipality on all sanitary questions, and to submit annually to Government, through the Magistrate, as an Appendix to the Annual Report of the Municipal Commissioners, a Memorandum on the general Sanitary condition of the Town, and on the measures required for its improvement.

9. For some time to come this Memorandum at Poona will be mainly a record of what has been done, or what is still required, to give effect to Dr. Leith's suggestions.

10. As remuneration for this additional duty, the Government of India will be applied to to sanction an additional allowance of Rupees 100 per mensem to the salary of the Civil Surgeon at Poona, and at any other Civil Stations where the performance of such duties may require such additional labour as to justify the appointment of a similar Officer.

11. Government will await any suggestions which the Revenue and Police Commissioner Southern Division may submit from the Collector and Magistrate or Police Authorities for giving effect to the recommendations in the 35th and remaining paragraphs of the Report.

12. His Excellency the Commander-in-Chief should be requested to express to Major Martin, Her Majesty's 4th (King's Own) Regiment, the acknowledgments of Government for his very practically useful Memorandum.

13. Government are now awaiting a Report from Captain Close and Mr. Fabey (Civil Engineer) on the measures necessary for carrying out Captain (now Colonel) Philip Hart's scheme for supplying the Camp of Poona with good water. This will only in part obviate the evils which are the subject of paragraphs 39 and 40 of Dr. Leith's Report, and which are so forcibly depicted by Major Martin in his Memorandum when describing the "Pool" between the City and the Jamsetjee Bund.

14. To ensure the water in this part of the river, which is to windward of the Camp, being kept as pure as possible, it will be necessary to intercept the drainage which now finds its way into the river from the City and the banks of the river above the Bund.

15. The Executive Engineer should employ Mr. Fabey on the surveys, &c. necessary to enable him to submit a plan for effecting this object as soon as his duties connected with the water-supply will allow of the leisure necessary for the field-work.

16. His Excellency the Commander-in-Chief may be assured of the earnest desire of Government to give effect to all suggestions for the improvement of the sanitary condition of the Cantonments which it may be beyond the power of the Local Military Authorities to carry out unaided.

17. The Commissioner of Revenue and Police may be requested to draw the particular attention of the Magistrate and Civil Departments to Major Martin's proposed remedies for the evils he describes; some of his proposals are of a very practical character, and all are suggestive.

18. These papers should be printed in a permanent form as volumes of Government Selections.

19. If there are in store any copies of the large plan of Poona lithographed some years ago, they would form a useful addition to the volumes. But a better and more detailed plan of the City and environs is much wanted, and Major Francis may be asked to suggest the means for having the requisite surveys made for a plan on a scale calculated to be practically useful in carrying out the measures of reform indicated in these papers.

20. Twenty-five copies of this report to be sent to the Quartermaster General, for circulation among the several Divisions and Brigades of the Army.

21. It is valuable as showing to all Administrative Officers, Civil and Military, what are the points to which they should direct their observation with respect to sanitary reform. Similar reports should be required from all the principal Cities and Military Stations in the Presidency.

22. The necessary Committee for this purpose will be found in Collectors, Adjutants, Quartermasters General, Brigade Majors, and Superintending, Staff, and Civil Surgeons.

A. D. ROBERTSON,
Officiating Chief Secretary to Government.



