

MADRAS RECORD OFFICE.

Government of Madras.

Revenue DEPARTMENT.

G.O. No. 132

Press

~~Mis.~~

258-259

Dated

17-1-1866.

Not to be folded or roughly handled

*Proceedings of the Madras Government, Revenue Department,
17th January 1866.*

No. 258. Read the following Proceedings of the Madras Government in the
Military Department:—

Forwarding copy of a Report by the Bengal }
Sanitary Commission on Latrines for Native } (Here enter 8th January 1866, No. 83.)
Towns.

No. 259. ORDER THEREON, 17th January 1866, No. 132.

Miscellaneous.

Ordered to be recorded.

(True Extract.)

(Signed) J. GROSE,
Acting Under Secretary to Government.

Exd. S. T. Augustin.

REPORT

BY

THE SANITARY COMMISSION FOR BENGAL

ON

LATRINES FOR NATIVE TOWNS.

Many of the cities and most of the villages of India are filthy beyond description, and their inhabitants live in open defiance of all sanitary laws. To any one who is familiar with their condition, or who has paid such places even a casual visit, it is needless to describe the indecent sights which so often meet the eye. And around the city, the state of things is not much better than that within. The city ditch, if there is one, the numerous excavations which always abound in the outskirts, all form usual places of resort and are always filthy. The sides of the roads, the margins of tanks and rivers, the surface of the fields—all are studded over with human ordure; droves of pigs are to be seen feeding on this fresh human excrement, and, although almost too revolting to be credited, sheep are not unfrequently engaged in the same disgusting occupation. On every side, both within the city and in its environs, noxious effluvia arise, the senses of sight and smell are alike offended, and decency itself too often altogether set at naught.

The conservancy of some places is doubtless better cared for than that of others, and to the main streets of bazaars of most cities the above description in all its force hardly applies; but, as a whole, the picture cannot be regarded as exaggerated, nor is it easy to over-estimate the ill effects which must arise in a sanitary point of view; and when it is remembered that mutton fed as has been described, and pork also, in spite of all orders to the contrary, may probably form part of the food of our European Soldiers, it is high time that active steps were taken to remedy the evil.

The Commission has for some time had this important question under consideration. Commissioners of Divisions, District Officers, and Civil Surgeons, have all been invited to express their opinions. All agree that public latrines of some kind are indispensably necessary, but the plans proposed vary from a substantial ornamental building to a simple enclosure.

Native usage and prejudices are no doubt opposed to public privies, and tact and firmness are required in their introduction. But in every case where judicious measures have been adopted, they have been attended with success, and the inhabitants are now glad of the conveniences which they at first were unwilling to resort to. Natives of the better class will not frequent

them; but if they keep their own private necessities clean and have the contents carried outside the city, if there are no fetid drains from their houses and no cesspools within their enclosures, then it is not necessary that they should use the public privies. But cleanliness in all private privies is indispensable, and to secure this thoroughly, effectual measures should be taken. The details of the system to be followed must be left to the judgment of the city authorities; but whatever system be adopted, some penalty should attach to any want of cleanliness in a private privy. The dry earth method of conservancy which should be insisted on in all privies whether public or private, and also the best mode of removing and disposing of the soil, will be explained hereafter.

But for the poor and for those who are unwilling to go to the expense of a private necessary, public latrines should be provided. For the former, they are specially necessary, and the Commission would therefore strongly recommend that no charge whatever be made for admission. In some cities the privies are let to Contractors who levy a small fee for each visit; but, although this system has been well reported of in some places, it seems very desirable that the use of public necessities should, wherever practicable, be gratuitous. The people should be encouraged by every means to resort to them, and every obstacle to their use, no matter how trivial, should be removed. When public latrines are established, measures ought also to be adopted for informing the inhabitants of the new arrangements. For this purpose, at Lucknow, a number of men distinguished by yellow flags were employed, and in a short time their services were no longer required.

But it will not be sufficient to acquaint the inhabitants of the position of the privies and to encourage their use by granting admission gratis. To use either a public or private necessary must be compulsory, and any one performing the offices of nature elsewhere must be punished. If this rule for a time be rigorously enforced, the inhabitants will soon give up their former habits and resort to the places which have been erected for their convenience. Such is the experience of many who have devoted attention to the subject; but as the use of these necessities must be compulsory, it is all the more desirable that it should be free, and that no one may be able to complain of any hardship. Nor is the system of payment necessary. A well-conducted latrine should be self-supporting. It should, indeed, be more, and prove a source of profit to the local authorities.

Some natives, it would appear, besides having a marked disinclination to deviate from the custom of their forefathers, object to public latrines further, on the ground that in using such places, they render themselves liable to contract syphilitic disease. But with a well-kept latrine, especially one constructed as the Commission recommends, a contingency of this nature is impossible. In its use, the person touches no part of the privy, except the stones or bricks on which the feet rest, and can therefore contract no such disease.

In planning any public latrines suitable for natives, there are several points which ought to be taken into consideration.

First.—The building and all its arrangements must be simple,—the simpler the more chance of success. If complicated, they are certain to fail. In successfully carrying out even the simplest plan which can be devised, constant supervision will be required. A filthy privy, it must be remembered, is in reality a greater nuisance than the evils which already exist, and which it is proposed to remedy. All parts of the building and arrangements must therefore be open and easily cleaned. All such contrivances as pipes, turn-cocks, under-ground drains, and the like, are most objectionable. Hereafter, desirable improvements will no doubt be suggested, but in all cases the extremest simplicity is indispensable. The water closets, drains, and all the similar appliances of Europe, cannot be carried out in the cities of India. The simple addition of dry earth to all feculent matter, the removal of the sewage, and its utilization in agriculture, form, however, an admirable system of conservancy.

Secondly.—The building and all its arrangements should be as economical as can be, consistent with efficiency.

The necessity of any considerable outlay would in many towns prove an altogether insuperable obstacle—but no great expense need ever be incurred, nor would any thing ever be gained by erecting an ornamental or substantial building. On the contrary, an airy shed, with partitions to secure privacy, plenty of ventilation, and a light roof to afford protection from the weather, will answer the purpose just as well, and in some respects much better than the most pretentious structure. The cost of such a shed, which can best be built of sun-dried bricks, will be trifling.

Thirdly.—The latrines must, as far as possible, be in every respect adapted to the peculiar habits of those who are to use them. In this point of view, there ought to be no seat; a native never uses one, and nothing would be gained by its introduction. Indeed, its absence simplifies arrangements and renders it easier to keep the place clean. On the same principle, it is necessary to provide means for washing after evacuation. This is a difficulty, because more space is thereby taken up, and the water of ablution, if not specially provided for renders the sewage much more fluid, and the quantity of dry earth required for its absorption all the greater. In the annexed plan, arrangements have been made in order to meet this difficulty. For males and females, distinct privies must be provided. For the former, separate compartments are necessary; for the latter, it is usually just as essential, in Northern India at least, that there should be no division, but that the whole interior of the building should be open from end to end. The women in most parts of Northern India will not visit a privy divided off for the use of a single individual.

Fourthly.—The privies must be sufficiently numerous to meet the wants of the inhabitants. The proportion to the population in which they ought to be provided is a point to be decided by experience, and will depend in great measure on the number of private necessities kept. The regularity of the natives' morning visit must, however, be borne in mind, as no calculation founded on European experience will form a safe guide. The relative accommodation required for males and females is also a point on which no general rule can be laid down.

Fifthly.—It is indispensable that the public places of resort be conveniently situated. In small towns and villages this will best be secured by placing one or two, as may be necessary, in the vicinity of each of the entrances. They are better outside than within whenever convenience can be so provided for, and the cost of the removal of the sewage and of other arrangements will be thereby greatly diminished. In so far, therefore, as can be, public privies should be without the walls, but for large towns, outside privies alone will not meet the wants of the people. At least a few will be needed inside, so that no one may have to go any long distance, in order to obey the calls of nature. It would be unreasonable and unjust to insist on the use of public privies, and yet not to place them where they can be easily accessible to all. In every sense of the word, they ought to be conveniences.

Sixthly.—Except for the coping, where a few courses of pucca masonry will assist in protecting the roof from the ravages of white ants, no lime in any form ought to be used in the building. Pucca plaster, pucca drains, pucca floors, are all most objectionable, and ought to be strictly prohibited.

Seventhly.—The arrangements should be such as will admit of carrying out the dry earth system of sewage, which ought to be strictly insisted on, at least as regards all feculent matter, both in public and private privies.

The virtues of dry earth as a deodorizer are undoubted. They have been largely tested, and the result has been marked with such success, that the dry earth system of sewage may be regarded as the most efficient with which we are acquainted in this part of India. But in order that it may be effectually carried out, certain points must be carefully attended to—

1st.—The earth must be thoroughly dry.

2nd.—It must be in a state of fine division.

3rd.—Its application must be immediate.

4th.—It must be applied in sufficient quantity.

How are these essentials to be secured? Dry earth is easily procured during every season except the rains. Being dug a day or two before required for use, and spread in the sun, perfect dryness can be obtained during the greater part of the year. But in the wet season how can this be done? It has been generally recommended that provision for this season should be made by storing a large quantity of earth beforehand; for this purpose sheds would be requisite, and the erection and repair of these would add materially to the expense of public privies. But the plan would not only be expensive, it would be ineffectual—earth so stored would not be really dry—it would not be drier than earth dug a few feet beneath the surface of the ground. To be really dry and efficient as a deodorizer the quantity of earth daily needed must be heated. If it were spread on a large plate of sheet iron and placed over a fire, the expenditure of fuel, sufficient to remove all moisture during the rains and casual wet days in other seasons of the year, would be but trifling—not much, if at all, more than the interest of the money spent originally on the shed, added to the cost of the annual repairs which it would require. But even if the plan of heating be more expensive, it ought still to be adopted. It is effectual, which no other method can be.

In order to prepare the earth in a sufficiently fine state of powder, the sweepers must be provided with small mallets and sieves.

The immediate application of the earth is a difficulty. This may hereafter be met by some simple mechanical contrivance, but in the mean time much will depend on the attention of the sweeper. When the pan is placed for use, a small quantity of earth should be placed in it, and each time it is used, the visitor ought to add another small quantity. Where through ignorance or negligence he fails to do so, the sweeper in attendance must supply the want. But if the advantages of the system are pointed out, the rule will in time be generally observed, and in order to inform visitors what they are expected to do, full directions, such as are given in the Appendix, should be translated into the vernacular and hung up in each compartment.

The quantity of dry earth required to deodorize an ordinary evacuation of both faeces and urine has been calculated at from $2\frac{1}{2}$ to 3 lbs. In the plan of privy suggested for adoption, the solid and fluid evacuations are kept separated, so that the earth system may be fully carried out either as regards both urine and faeces, or only as regards the latter.

Should it be intended to absorb the fluid evacuations, 2 lbs. of dry earth should be placed in the urinal for each use, and 1 lb. allowed for the pan, half of this quantity being spread in it before use, and half after the visitor rises. It is important to adhere to these quantities as nearly as possible, for, if the earth be used without measure, much larger quantity will be expended, and unnecessary difficulties created. A scoop, to contain exactly half a pound of dry earth, should therefore be supplied for each earth receptacle. One scoopful before and another after each use of the pan would give 1 lb., and four scoopfuls for the urinal 2 lbs., or a total of 3 lbs. At the same time it must be remembered that evacuations vary in quantity and in solidity, and that the amount of urine passed differs greatly in different people, and even in the same people at different times. These quantities must then be regarded only as a guide to what will generally be required, and the sweeper must be instructed accordingly.

Such is the procedure where it is intended to carry out the dry earth system to the full as regards both urine and faeces, and where the funds admit of this, the Commission would strongly recommend its being done. But the immense increase of sewage caused by absorbing the urine is a great difficulty, because it adds largely to the expense. Wherever, therefore, the cost of deodorizing both urine and faeces cannot be met, the dry earth system ought not, on that account, to be abandoned, but the following modified plan adopted. The solid evacuations should be deodorized, as above described by 1 lb. of dry earth added in two instalments, but no earth added to the urinal. Its contents should be taken away frequently and emptied into a receptacle to be daily removed. Each time the urinal is replaced, it should be rubbed thoroughly dry with earth. Such a plan secures the greatest portion of the benefits of the dry earth system, while it obviates the difficulty and expense of increased carriage. Under it the sewage to be removed will not only be no greater than were water employed, but somewhat less.

Adopting these general principles, the annexed plans are recommended for adoption. The buildings are very much the same as those designed by the

late Mr. Gubbins at Agra, and are the models which have been followed in many of the cities of the North-Western Provinces. Drawing No. 1 represents the ground plan of a public latrine for males, with thirty-six compartments, six separate urinaries near the entrances to the enclosure, and two collecting rooms in which the soil should be gathered preparatory to its final removal. The building can be made throughout of sun-dried bricks. The coping of the walls wherever it meets the roof had better be of pucca masonry. Immediately around the floor of each compartment, sun-dried bricks are apt to become saturated with moisture and cannot be removed. In these situations, therefore, the wall should be faced with two or three courses of well burnt bricks. With these exceptions, sun-dried bricks and mud cement form the best material that can be employed. A roof is indispensable, but what kind of roof will depend on the peculiar facilities as regards material which exist in different localities. But whatever material be adopted for the purpose, the roof should be arranged as shown in the accompanying Section No. II, to give as free ventilation as possible.

Each compartment consists of a closet 4' by 4' 6", and the various arrangements of each are shown on a larger scale in Drawing No. III. At the entrance is the receptacle for the dry earth placed for daily use. This should be deep and narrow and not broad, otherwise the earth will be unnecessarily exposed to the air in damp weather and become moist. For each receptacle a scoop should be provided. It ought to hold, when full, exactly half a pound of earth, and the bowl should be at right angles to the handle. The receptacle need not be larger than just to admit of the convenient use of this instrument. Within each closet are a pan, a urinal, and a naund for receiving the water of ablution. All these should, if possible, be of glazed earthenware, but even when not glazed, earthen vessels are much preferable to those of any other material. They do not corrode, and when they become offensive from saturation, they can be broken up, thrown away, and replaced by others at little expense. The shape and size of these vessels are given in the plans. The pan and urinal should be arranged as shown in the drawing, so that the solid will fall into the one, and the fluid evacuations into the other. This is the natural order of things in native practice, and to secure it requires no precaution beyond the placing of the dishes in their proper places. To European ideas such an arrangement would appear altogether impracticable, but it is quite adapted to the native's ordinary habits, and has been carried out in Jails and in some public privies without any difficulty. None of the vessels ought on any account to be buried or sunk in the ground, but simply placed on a layer of dry earth which should be renewed from time to time. This provides for the absorption and deodorization of any matter that accidentally may not be properly received. On each side should be a stone pedestal about 6" square firmly fixed in the ground, and of such a height that the top may be on a level with the tops of the pan and urinal.

This is the arrangement which the Commission considers the best, and which, if properly looked after, should secure the best results. But another method of receiving the evacuations is shown in one portion of the drawing of a latrine for females. In it the pans are placed over a longitudinal drain. In the former, the solid evacuation is received, and in the latter both the urine and the water of ablution, which run together until they fall into a vessel

placed at the end of the drain for their reception. If asphalt or native dammer can be procured for lining the drain, then the plan can be adopted with some chance of success; but it will be necessary to see that no *water* is employed to cleanse the drain, and that great attention is paid to the receiver. If this be allowed to overflow and the surrounding soil become saturated with urine, the results will be most offensive. If asphalt or dammer cannot be had, then the plan of a drain ought to be altogether abandoned, and the separate earthen vessels adopted.

The latrine for females (Drawings Nos. V and VI), having no separate compartments, occupies less space than that for males, although the accommodation is the same in both.

The plans of these buildings are given with the view of showing the general principles on which public latrines ought to be constructed. It is not intended that they should be followed in every particular. In erecting any structure, much depends on the extent and nature of the ground available. In some cases it may be more convenient to build the two latrines—one for males and one for females—in one block, thereby saving an extra wall. In others there may not be room for so large a building as one of them alone. Again, to suit a particular site, the shape of the whole may with convenience be altered, or if a large space be available, the authorities may be inclined to provide more accommodation than is proposed in the plan; but as regards this point, the Commission recommends that the dimensions given in the annexed drawing be not exceeded. It would be better to build more privies than to erect huge places which, with increased size, would become more difficult of supervision.

The successful working of a public privy will depend both on the visitors and on the sweepers in charge, and the duties which are expected from each will be found detailed in the Appendix.

The question of separate urinaries for the use of the people has been discussed by several of the Officers consulted, but nearly all seem to regard their establishment and successful working as attended with peculiar difficulties. A urinary well kept, even under the modified dry earth system, should be perfectly free from all offensive odours. In the latrines, separate places for this purpose have been placed near the entrances. In each there should be a urinal of the same shape and size as that in each compartment of the privy. If funds admit of the use of the quantity of earth required for the absorption of the whole, then the earth sewage system ought to be adopted in full. A small quantity of earth should be placed in each urinal when prepared for use, and each visitor should add four scoops or 2 lbs after micturition. But if the resultant sewage is more than can be removed with the funds at the disposal of the authorities, then the modified plan ought to be followed. No earth need be placed in the vessel and none added by visitors. The fluid contents should frequently be poured into the collecting receptacle, and each time the urinal is replaced for use, it should be rubbed thoroughly dry with earth, and fresh earth sprinkled on the floor.

But urinaries in each latrine will not be sufficient. They must be more numerous than the latrines and particularly convenient, otherwise they will not be used. How many will be required, and where they should be placed, are

points for individual Magistrates and Municipalities to decide. The plan of those shown in the latrines is suitable for any locality.

The next point for consideration is, how is the sewage from these various privies and urinaries to be disposed of? This is a matter of great importance. At present it appears to be a common practice to bury the soil in pits dug within the city and in the immediate vicinity of the latrines; such a proceeding ought never to be allowed. Unless very carefully protected from rain and fresh dry earth added from time to time, such cesspools must emit most noxious exhalations, and even if the escape of the gaseous products of fermentation be completely prevented, the water supply of the city must become contaminated. At Meean Meer a well was found to have been polluted by a cesspool five hundred feet distant. Care must also be taken that the solid products are not employed to feed pigs and other animals. The presence of herds of swine was found at Agra to be one of the greatest obstacles to the introduction of public latrines. "So

* N. W. P. Gazette, August 10th, 1858.

long," writes Mr. Gubbins,* "as droves of pigs were allowed to roam at large over the suburbs, it was impossible wholly to put down public indecency and nuisance." "With the cessation of the nuisance, the food of these disgusting animals also ceased, and in consequence, all the sweepers were interested in opposing the reform. It was found necessary, therefore, that the swine should be confined in pens, and to enforce this order by fines where necessary. Perseverance was successful, many pigs were sent away, and the reduced number were confined in piggeries. It is now rare to see one of them outside." Wherever the soil cannot be sold as manure or as fuel for brick kilns, the products of all public and private necessities should be collected, carried outside the city, and buried in a deep pit at least one thousand feet distant from any well the water of which is used for drinking. In order to effect this, large baskets should be placed in the collecting rooms of each privy, into which the soil from pans and urinals could be frequently emptied. If dry earth is not employed to absorb the fluid evacuations, then the urine must be poured into an air-tight receptacle or other vessel, and removed in its liquid state. A plan

* Drawing No. VII. of the latest improved air-tight receptacle is appended.* It can be made Up-country for Rs. 10, and will be found in the end perhaps the most economical kind of vessel, as it certainly is the most efficient. To carry off baskets and receptacles, men, donkies, or carts may be used as found most convenient and economical in the particular locality. The night appears to be the time best suited for removal, as in the early morning the privies will be most frequented, and the presence of the sweepers most required. The same means employed for carrying out the soil could, in returning, bring the daily quantity of earth required.

As the privies will generally be outside the city, the distances to be traversed and the expense attendant on these operations need not be great. In several parts of the country the soil is in great demand as manure, and these conservancy arrangements prove a source of profit instead of expense. In time it will doubtless be greatly valued everywhere, and the main difficulty thereby removed. In order to teach the native farmers that manure even if paid for will largely increase their profits, they might for a time be supplied without any charge. But in the mean time, wherever the cultivators are less enlightened, the

Municipality or other Local Authorities should be content to bear the cost. Local income can be devoted to no more legitimate or proper use than to carry out effective conservancy and sanitary measures.

For Establishment, two male and two female sweepers would be needed for each privy. At Rs. 4 per mensem, this would amount to Rs. 16, and allowing an extra Rupee to the head man, and a contingent charge of Rs. 3 for sieves, mallets, &c., we have a total monthly expenditure of Rs. 20.

If the dry earth system were carried out in full, the sewage from each privy would be somewhat as follows. Say 500 visitors attended daily, and each evacuation equalled one pound, viz.,* 5 ounces of faeces and 11 of urine, we have a total of 500 lbs. of evacuation; add 3 lbs. of earth to each, and the total amounts to 2,000 lbs. Say the urinaries in the latrines were visited by 500 more and at each visit an average of 12 ounces of urine passed, and $2\frac{1}{2}$ lbs. of earth used each time, the total will be 3 lbs. each visit, or 1,500 lbs. per diem, or a grand total of 3,500 lbs. of sewage to be daily removed from each privy, equal to 43 maunds and 30 seers, while the quantity of dry earth to be brought in will amount to 32 maunds and 32 seers.

If the modified plan of earth sewage be adopted, the results would stand thus—

500 evacuations	@ 1 lb=500 lbs.
1 lb earth to each	=500 "
500 uses of urinaries @ 12 ozs.	=375 "
Total	1,375 lbs.

equal to 17 maunds and 8 seers of sewage to be removed daily, and the dry earth required would amount to only about 8 maunds.

These figures are given merely to form some guide in calculation, and to show how the quantity of the resultant mass of sewage, and the consequent carriage required for its removal, would be affected by the two different plans.

Where there is a market for the soil, the urine should be wholly absorbed. It is rich in nitrogen and particularly valuable as manure.

Where the water of ablution is kept distinct from the urine, it can be utilized in any neighbouring garden or buried outside.

The questions of the sources of original outlay to be incurred in constructing latrines, of the expenses of their maintenance and management, are hardly points for the Commission to discuss. They all seem fair charges on local income. In some cities the contract system is adopted, and to it there is no objection so long as the contractor does his work well and is punished whenever his privy is found unclean. If no charge is made for admission, so much the better. The contract may include all that is required—the digging, bringing in and drying, when necessary, of the earth, the keeping of the privy, the removal and burying of the sewage, or one or more portions of the work as is found most convenient.

In some few cases it has been stated that the local funds are altogether inadequate to provide for either the erection, or maintenance of public privies.

* Some experiments are required to show the weight of the ordinary evacuation of a native.

Where this is the case, and the Local Government can render no assistance, they cannot be put in force. But this can never occur in any populous town, and wherever it does happen, the present system ought nevertheless on no account to be allowed to continue. To such cases the plan enjoined on the Israelites seems peculiarly adapted—the digging of a hole in the fields and covering over again with earth. This is in fact the dry earth system, only that instead of the earth being taken to the privies, the evacuations take place on the earth. To secure such a plan being carried out, all that is necessary is to have a convenient piece of ground allotted for the purpose, and one or two sweepers, constantly in attendance. It would be their duty to dig holes 8 or 10 inches deep, and to fill them up as soon as they had been used. The natives would not, it is feared, dig them for themselves.

Whenever cholera threatens to become epidemic, it would be matter for serious consideration whether the privies ought not to be closed, and the plan which has just been described adopted, for it must be remembered that the dejecta of those suffering from the disease, or even from only Choleraic Diarrhoea, have been supposed by high authority to form the foci for the spread of the epidemic. Should this suggestion be adopted, the public necessities ought not to be re-opened before the disease has for fourteen days completely disappeared, and then only after the privies have been thoroughly purified by some disinfectant.

While discussing such an important part of city conservancy, it may not be out of place to recommend that dry earth be employed not only in privies but in cleansing slaughter-houses and in absorbing all other kinds of liquid filth.

The recommendations of the Sanitary Commission may, in conclusion, be thus briefly summarized :—

1. That public latrines be introduced in all cities, towns, and villages, wherever the requisite funds can be obtained.
2. That wherever they may be established, performing the offices of nature except in a public or private privy, in so far as the law may allow, be considered a public nuisance and a punishable offence.
3. That privies be allowed in the private dwellings of all who are willing to keep them clean and make proper arrangements for the removal of their contents.
4. That if any public or private privy be allowed to be in an unclean state, the party responsible be punishable for a public nuisance.
5. That public privies, wherever practicable, be free to all who choose to use them.
6. That they be sufficiently numerous, and placed so as to be convenient to the inhabitants.
7. That wherever such convenience can be so attained, they be placed outside the city or place, but that where need be, the requisite number in addition be erected inside.
8. That a plan, such as the accompanying, based on simplicity, economy, and its adaptation to the peculiar habits of the natives, be adopted, the system of

separate vessels being followed where practicable, and the drain for urine in no case adopted unless constructed with asphalt or country dammer.

9. That if the dry earth system cannot be carried out to the full, it ought to be strictly adhered to as regards the solid evacuations.

10. That according to the plan adopted, visitors and sweepers should be instructed to carry out the rules appended, the latter being provided with the various appliances detailed.

11. That separate urinaries be established for the convenience of the inhabitants according to the plan annexed.

12. That no sewage from any public or private necessary be allowed to be buried within the city, nor nearer than 1,000 feet to any well the water of which is used for drinking.

13. That, where practicable, the sewage be sold for manure or fuel, but where there is no sale for either purpose, that it be buried.

14. That in any town or village where public privies cannot be erected and maintained, the plan recommended in the preceding page be adopted.

15. In order to carry out these recommendations, intelligent and active supervision is indispensable. It is of no use to frame rules unless at the same time means are taken to ensure their being carefully observed.

Difficulties will doubtless arise in introducing the system of public privies; other difficulties will follow in carrying it out, but with proper firmness, constant attention and tact, they may, it is believed, be all easily overcome.

In conclusion, it is hardly necessary to add that legal authority for carrying out the rules required for the enforcement of the system must be provided. In this there can be no difficulty in all the larger towns of this Presidency. Municipalities of some kind or other either exist already or may easily be established, and the law under which they are constituted will give the means of laying down bye-laws for enforcing all the measures which are necessary.

J. M. CUNINGHAM, M. D., *Surgeon,*
Offg. Secretary, Sanitary Commission for Bengal.

APPENDIX A.

Rules to be observed by Persons visiting Public Privies.

1. He should be careful that no portion of his evacuations falls on the floor, the solid part being received in the pan and the fluid in the *(urinal.*)*
2. After rising he is on no account to wash over the pan which received the fœces, but over the *(vessel† provided for the purpose,)* and he should be careful that none falls on the floor.
3. The amount of water used for ablution must be no more than what is actually requisite.
4. After evacuation he should add *one scoopful* of earth to the pan which received the evacuations† and *four scoopfuls* to the *urinal.*

Rules to the above effect should be printed in the vernacular, and a copy hung up in each compartment.

APPENDIX B.

Rules to be observed by the Sweeper in charge of a Public Privy.

1. He shall have a supply of earth sufficient for two days' consumption always in store.
2. He shall by pounding and sifting through a sieve prepare it for use in a state of fine powder.
3. He shall see that it is thoroughly dry. To secure this in the rainy season and on any wet day, he must heat it on an iron plate. At other times it should be dug a day or two before required and spread in the sun.
4. Before placing the pan§ and *urinal* for use, he shall sprinkle a small quantity of dry earth on the floor of the compartment, and place in the pan *one scoopful* of earth|| *four scoopfuls* being added to the *urinal.*
5. He shall endeavour to explain to visitors that they are on no account to wash except over the¶ *ablution vessel* and that the quantity so employed be as little as possible; also that after evacuation they are to add *one scoopful* of earth to the pan (and *four scoopfuls* to the *urinal.* ‡)
6. If visitors fail to add the proper quantity of earth, the sweeper must add it from time to time.
7. The sweeper shall frequently remove the contents of (both) pans** and *urinals*, and empty them into the receptacles provided in the side-rooms for their collection.
8. †† He shall see that the *vessel* placed at the end of the *drain* to receive the urine does not overflow, and that its contents are frequently removed.

* If the drain be adopted, read "drain."

† If the drain be adopted, read "drain."

‡ If the drain be adopted or the modified earth system followed, these words should be omitted.

§ If the drain be adopted, the words in italics should be omitted.

|| If the drain be adopted or modified earth system followed, omit these words.

¶ If the drain be adopted, read "drain."

** If the drain be adopted, omit these words.

†† If the drain be not adopted, this rule will be omitted.

9. The pans and urinals should be thoroughly cleaned with dry earth before being re-placed.
10. No water is on any account to be employed in cleansing either the *vessels* or the drain*; all cleansing must be done with dry earth.
11. The contents of the collecting receptacles shall be removed at least once daily, the carriage which takes away the sewage being employed to bring the required quantity of earth.
12. The sweeper shall see that the whole of the latrine under his care is thoroughly clean and free from offensive odour. The walls should be smeared with a fresh solution of clay, and the roof swept once a week.
13. If any solid or fluid evacuation touch the ground, it must be immediately removed along with such portion of the floor as has been moistened by it.
14. Vessels becoming saturated with urine or fœces must be broken up and buried.
15. If air-tight receptacles are employed to remove urine, they should be daily well rubbed with dry earth.

APPENDIX C.

Appliances with which Sweepers should be provided.

1. One or two short mallets for beating the earth.
 2. One or two sieves for sifting it.
 3. An iron plate 6 x 4 for heating it when required.
 4. A scoop for each earth-receptacle to hold exactly $\frac{1}{2}$ a pound.
 5. Baskets and† *air-tight-receptacles* for collecting the *solid and fluid* soil.
- The sewage accumulated in these should not be disturbed for removal, but carried away in them direct. Their shape and size ought therefore to be adapted to the mode of conveyance employed.
6. To facilitate the cleansing of the pans, each sweeper should be provided with an iron scraper.

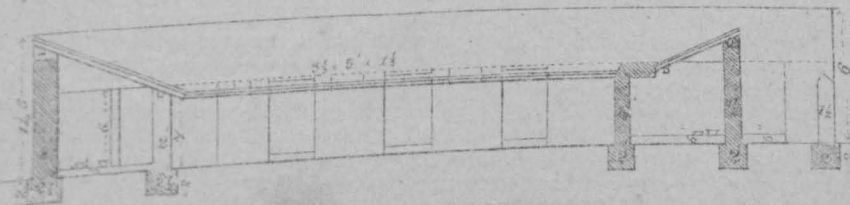
* If the drain be not adopted, omit these words.

† If earth system be carried out in full, omit these words in italics.

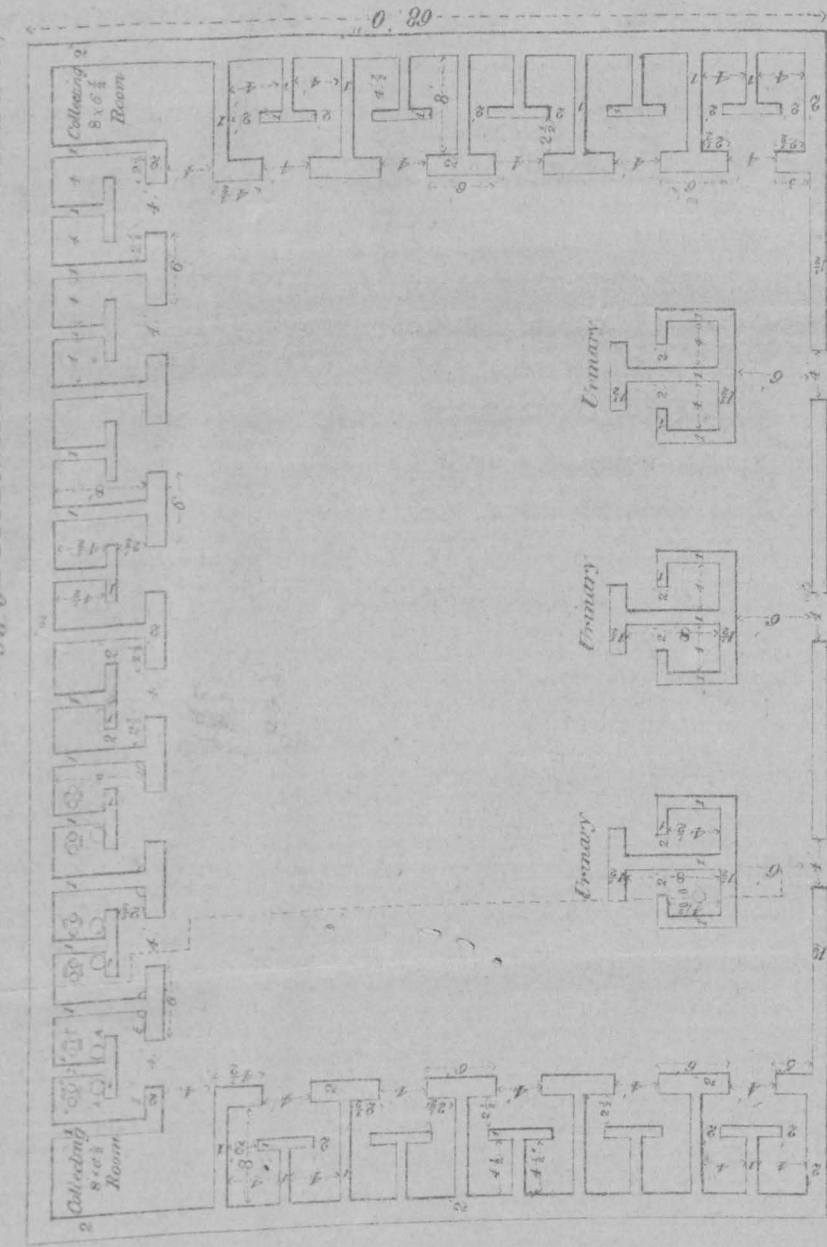
Plans to accompany Report by Sanitary Commission for Bengal on Latrines for Natives.

LATRINE
for
56 MALES

No. II



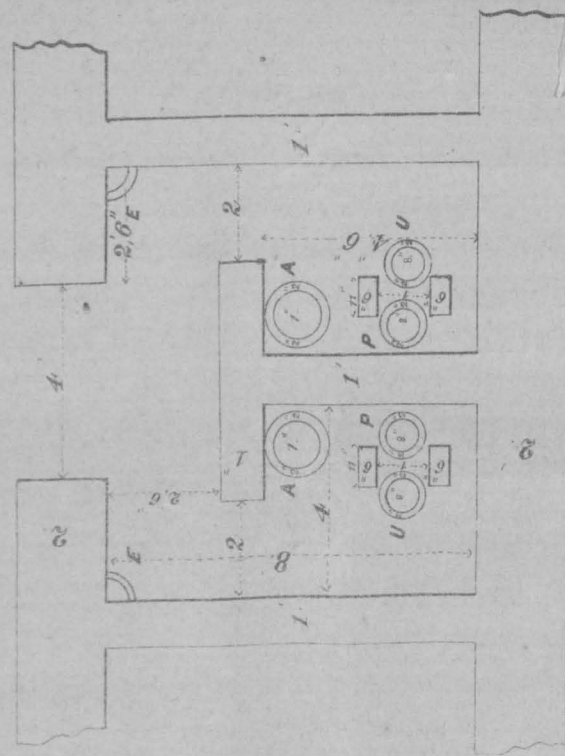
No. I



Scale 16 Feet = 1 inch or 192
Scale for detail 4 feet = 1 inch or 48

No. III

Plan of two Compartments

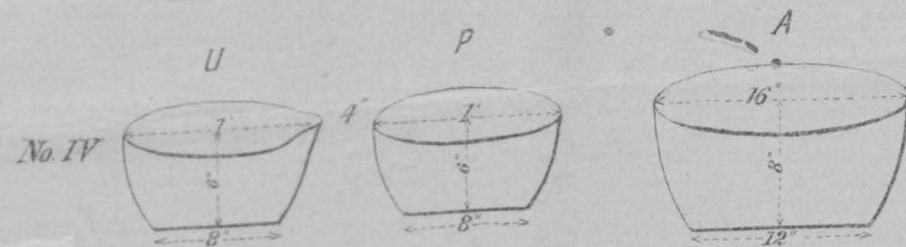


REFERENCES

- A Receptacle for ablation water
- E " " " " for Earth
- P Pan for sores
- U " " " " Urine

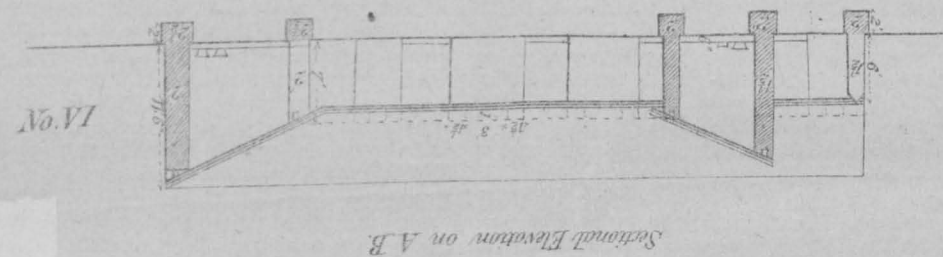
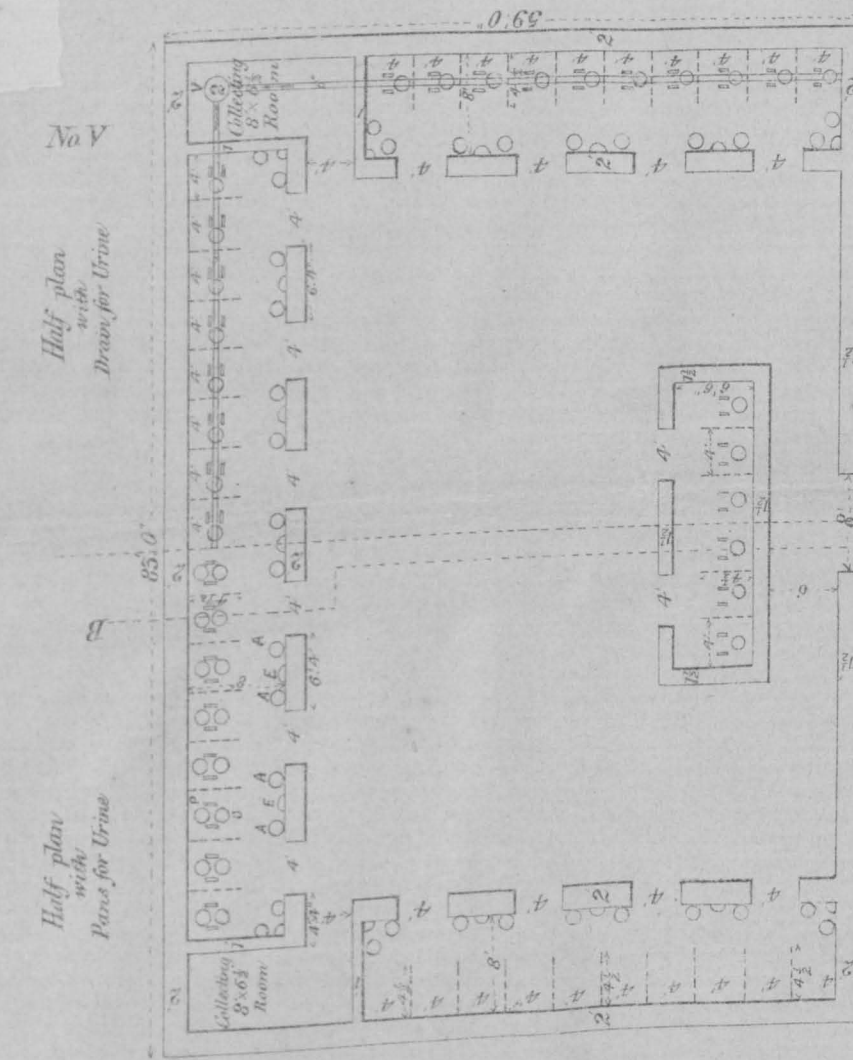
An asphalted lined drain may be substituted for the urine pans and ablation stands shown in Plan for Penials which also see details of pans. The drain should be saucer shaped.

Latrine for 36 Females.



Scale 1 foot = 1 inch or $\frac{1}{12}$

12 9 6 3 0 1 2 3 Feet



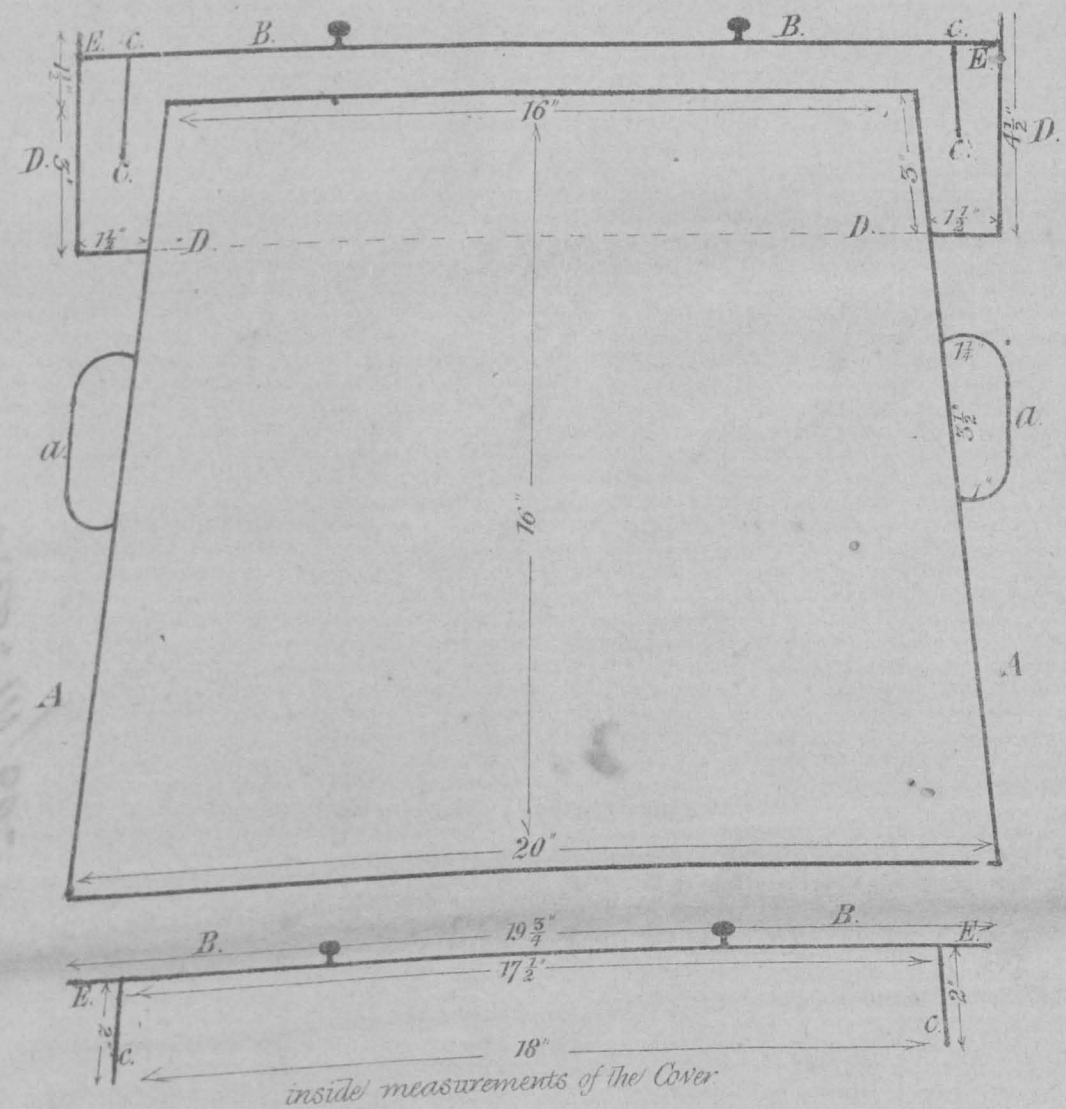
A. Receptacle for ablation water
 E. Pan for Earth
 P. Pan for Faces
 U. Urine
 V. Movable receptacle for Urine, if drawn be used.
 In this case the ablation stands A might also be done away with. But the drains should only be used when it can be made of brick or stone laid in mud, or asphalt, and completely lined with asphalt or if that be not obtainable good country stoneware. The drain should be saucer shaped.

Scale 16 Feet = 1 inch or $\frac{1}{192}$

10 5 0 10 20 30 40 50 60 Feet

Scale $\frac{1}{4}'' = 1'$

20th December, 1867



- A.A. Receptacle (round) of sheet iron. Height (inside measurements) 16"
a. a. handles for lifting. Top Diameter do. do. 16"
Bottom do. do. do. 20"

- Weights about 50 lbs. Contains 4088 Cub. Inch. or 117.95 pints.
B.B. Cover with edges c.c. turned down. Handles.
The upper surface of the cover is prolonged at E.E. all round, so as to approach closely the rim D.D. The escape of fluid is thus prevented, when jolted in a Cart.
Cover shown, in Section, raised 1" above top of receptacle.
D.D. Rim to contain water 1 1/2" wide at base. Sides perpendicular to allow of the proper fitting of the Cover. The rim encircles the top Diameter, outer side (or edge) 4 1/2" high. 1 1/2" of it to stand above the top surface of the cover when it is fitted down.
c.c. The edges of cover 2" deep descend into the rim, allowing about 3/4" of water on either side, made on a slant so as to be parallel with the sides of the receptacle. The extremity of the edge when the cover fits down reaches to 1" of the bottom of the Rim.

Secretary's Office, 11th Dec. 1865.

30.11.1865
10 253 259

Recd. 11/12/65

M. O. No 214 of 1865

MILITARY DEPARTMENT.
PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following letter:—
From the President of the Sanitary Commission for Bengal, Calcutta, 28th November 1865, No. 433; to the Secretary to Government, Military Department, Fort Saint George.

I have the honor to submit, for the information of the Government of Madras, six copies of a Report by this Commission on Latrines for Native towns.

ORDER, No. 83, 8th January 1866.

Ordered that a copy of the Report referred to in the foregoing letter, be forwarded to each of the Departments furnished with the previous Proceedings of the Bengal Sanitary Commission.

(True Extract.)

W. Marshall Major General.

Secretary to Government.

To the President Sanitary Commission, with a Report.	do.
" Quarter Master General,	do.
" Revenue Department,	do.
" Judicial Department,	do.
" Municipal Commissioners for the Town of Madras, ..	do.

45 spare copies.

Exd. J. E. Cashart

Proceedings of the Madras
Govt. in the Military
Department.

Dated 8th 3 January
Received 10th 3 1866.
No. 83.

To forwarding copy
of a Report by the Bengal
Sanitary Commⁿ on Le-
prosy for Native Towns.

132

RECORDED.

L.S.
17 Jan'y

L

No 258 + 259.