

MADRAS RECORD OFFICE.

Government of Madras.

Judicial DEPARTMENT.

G.O. No.	404	Press ~~Mis~~
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Dated	2-4-	12/860.

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Not to be folded or roughly handled

*Proceedings of the Madras Government, Judicial Department,
for the month of April 1860.*

No. 8. Read the following Proceedings of Government, in the Public Works Department,
(Public,) dated 29th March 1860, No. 650.

Communicating copy of a report from the Chief
Engineer, and the Order of Government
thereon, on the subject of the daily removal
of soil and urine from the Privies of European
Barracks and Jails. (Vide Proceedings, Public Works Department,
from 21st to 31st March 1860, Nos. 105 and
106.)

No. 9. ORDER THEREON, 2nd April 1860, No. 404.

To be recorded

(Signed) T. PYCROFT,
Chief Secretary.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following letter from Colonel J. H. BELL, Chief Engineer, to the Secretary to Government, dated 28th February 1860, No. 10,742:—

Having circulated to all District Engineers and Special Executive Engineers the Order of Government noted in the margin, on the subject of the daily removal of Soil and Urine from the Privies of European Barracks and Jails, requesting them at the same time to report what means they considered best adapted to effect that object, I have now the honor to submit for the information of Government, the Replies of the Officers to my Circular, together with a summary of them for facility of reference, accompanied by a summary of the Reports addressed by Officers Commanding Divisions and Forces to the Quarter Master General of the Army on the same subject. These were prepared in communication with the Local Officers of the Department Public Works, and I have given them full consideration in my own Report, which I have now the honor to make.

2. The general question of the removal of Sewerage resolves itself, on enquiry, into two cases: 1st, The primitive method, at present to some extent in use, of daily removing the Soil and Urine to such a distance as it is supposed will render it innocuous; and 2ndly, The modern and very efficacious plan of adopting glazed earthenware Pipes and afterwards masonry Drains and Sewers, with a good supply of water.

3. Before proceeding to notice the relative advantages of these two systems, I would draw attention to the practice which prevails in some places, and for the correction of which it seems important that immediate measures should be adopted. Thus, while it is admitted by every one how very objectionable is the use of Cesspools, Sinks, and Pits, in connection with thickly inhabited buildings, and while they have much fallen into disuse, they still exist in some cases. The Privy attached to the Barracks at Vellore is a pit which is only occasionally cleaned out; and in the Jails at Masulipatam and Guntoor the still more objectionable system prevails of removing the Soil from the Privies and depositing it in large open pits in the Jail compounds. At Itchapore the places of resort for the Convicts are portions of the compound partitioned off.

4. In ordering the adoption of one general system, it will be obvious that some arrangements must be made by Government to meet the expense for Jails as well as Barracks. It does not appear that to any Jail (except for the Hospital) are there Sweepers attached; and hence ensue, in some cases, much of the nuisance and many of the bad consequences which might be avoided. In localities where there are usually Prisoners of the Sweeper caste in the Jails, there is no direct expense incurred; but where none of these men are found among the Convicts, some means should be taken for doing the work. At Cuddapah it is stated there are always 30 or 40 Sweepers among the Convicts; so that no expense is there incurred. At Chicacole it is said the work is done by the Prisoners themselves, while at Itchapore Jail, the compound is, when it becomes very offensive, cleaned by Sweepers who are actually paid by the Prisoners—from which I infer there are none of the Sweeper caste among them.

5. In the replies of the several Officers regarding the first method of disposing of Sewage, there are various suggestions for the arrangement in the Privies, the mode of removing the Sewage, and the ultimate disposal of it, each of which points I will now notice separately under the following heads:—

- I. The arrangement and nature of construction of the Privies.
- II. The mode of removing Soil and Urine.
- III. The best mode of disposing of the same ultimately.

I. For the arrangements in the Privies (the disuse of Sinks or Cesspools being assumed)—to be used, wooden tubs without seats, the handles of which being iron rings, two coolies, by running a bamboo through them, could carry away six at a time. Sheet-iron troughs, six feet long and two feet wide, to fit under the seats of the Privies by being pushed in through holes in the end wall; iron vessels (to fit into the Privies), just large enough for two men to lift by the hands, having closely-fitting covers to prevent the escape of effluvia; wooden seats with pans under them in lieu of existing low chunam walls; covered cisterns for the reception of Soil and Urine to be carried away every night; cut stone floors dressed smooth, sloping towards the drainage openings in the rear walls, these openings terminating outside in masonry tanks holding metal vessels with handles and covers.

2nd. In connection with the arrangement of Privies it is also suggested that there should be ridge ventilators throughout the length of the buildings; openings in the roof at intervals with wire cages filled with charcoal under each; ground ventilators in the front walls; that the buildings

II. In regard to removing the Soil and Urine daily, the suggestions are—the conveyance of tubs and in some cases chatties by Sweepers to what is considered a safe distance from the Barrack or Jail, the removal of the same on ordinary carts, and in some cases on carts specially constructed for the purpose, with or without the iron troughs or vessels referred to above; and the removal in large casks or barrels, or carts designed for the purpose.

III. As to the best mode of disposing of the Soil there is an equal variety of opinion. For stations on the Sea coast, the plan in use in some cases, and recommended, is the removal of the Soil at night when it is thrown into the Sea, and the conveyance of the Urine, and water from the wash-houses, by drains into the Sea. In inland stations the most prevalent system is to bury the Soil in pits at a distance varying from 400 yards to two miles from the Jail or Barrack, while the Urine is, in some instances, disposed of in the same way, and in others it is conveyed away by drains. From the Nellore Jail the Urine and surface drainage of the premises, are conveyed by brick and chunam channels into an irrigation channel. From the Madura Jail all the Soil and Urine is washed into channels, and conveyed eventually by a main drain of the Town into an irrigation channel. At Kurnool it is disposed of to the benefit of the Jail by removal to a distant spot, which, however, being near the river, is more or less injurious to some other community. At Chittoor the Soil and Urine are very properly removed by the Prisoners to a distance of a mile, but there they are buried in the bed of the river. At Ranipet the Sweepers remove the Soil to the fields and sell it for manure, and this is the course recommended in several cases.

6. I now proceed to the

6. I now proceed to note the course which I would recommend for general adoption in the event of Government ruling that the Soil and Urine shall be daily removed to a distance both from Barracks and Jails, &c. in accordance with the letter from the Government of India, No. 5,149, 30th July 1859.

I. That, assuming all new Privies are to be built according to the standard plan from Bengal, to all existing Privies ridge ventilators and flues for the escape of effluvium with wire liable to come in contact with Soil or Urine, shall be introduced; that the floors and troughs, in fact all parts have a fall to one end discharging through an opening in the end wall into an iron cistern having a close fitting cover; that cast iron-seats and lids be substituted for wooden ones in the Barrack Privies, while those attached to Jails should have simply the open stone trough, which in both cases will be constantly washed out and flushed—in the case of Barracks by water from the wash-houses, in the case of Jails by water drawn for the purpose by the Prisoners.

II. That carts with large casks, on the plan proposed by the Officer Commanding Hyderabad Subsidiary Force, shall be provided for the removal of the Soil and all other Sewerage matter, including refuse of cook-rooms and water from wash-houses, the latter having been first used in washing out the Urinals and Privies; that baskets of charcoal be also hung from the roof of the building, and that to purify the charcoal it shall be made *red hot* each morning. The flues now proposed, I have, at the request of the Commander-in-Chief, ordered to be introduced at once; the suggestion having emanated with the Inspector General of Hospitals.

III. In regard to the ultimate disposal of the Sewerage in general, it should at places on the Coast be conveyed into the Sea as far as can conveniently be done beyond low-water mark; and in other places it should be conveyed in that direction, which, for the greater portion of the year, is to leeward, and as the experience of Trichinopoly has proved (vide Report of the Officer Commanding Southern Division), that even at a distance of a mile and a half, it was so offensive on being spread out on the surface of the ground as to require pits to be dug for its reception, it would appear that that course should be adopted in every case; and I must say that unless Sewerage is to be utilized, I see no other satisfactory mode of disposing of it. There will be, however, a difference in the present arrangement from that which formerly existed at Trichinopoly. It is now intended that Urine shall be removed as well as the Soil, and I conclude as a natural consequence, that the Sewerage of cook-rooms and the water from wash-houses must be got rid of also. The Sewerage will then all be in a very liquid state and will be less offensive than has hitherto been experienced. It will be in such a state, that covering in the pits daily will be unnecessary, and so far the system of depositing it in pits will be unobjectionable; but there are other reasons against this plan even at a distance of two miles from the Cantonment, or Civil Stations where the Jail is, for these pits may affect the wells from which the community obtain water for domestic purposes; and I, therefore, incline to the suggestion that the experiment should be made of using this Sewerage as manure. Its fertilizing properties are generally well known elsewhere than in India. In China there is no loss allowed of so valuable a manure for the cultivation of Rice. In the neighbourhood of Edinburgh the Sewerage after leaving the precincts of the city is conveyed in open drains (and being in a very

on is comparatively inodorous), and on being distributed over meadows raises the soil from £3 or £4 to £20 and upwards an acre. The sale by the Sweepers at Arcot, from the Privies there, shows that its value is beginning to be known in this country; for experiment, I would recommend that at any Cantonment or Civil Station where Government is removing the Sewerage, it should be to a distance of about two miles, to be sold as arable land conveniently situated. If requisite, it would be desirable even to offer it during the first year; the second year it should be given to the same party free of all rent afterwards put up to annual auction, where there can be little doubt that as the system became known, the amount realized would be of value to meet the expenses incurred by the manure.

of the above system will lead to a large monthly

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any system of this kind should, however, be arranged with the view to its combination with one general system of Drainage and Sewerage for the whole of the Station. In circumstances, the discharge of Drains, Pipes, or Sewers, or the conveyance of any Soil into tidal Rivers, Back-waters, flowing Streams or Rivers, River-beds or Irrigation if the water is used for domestic purposes by even a small community, should be forbidden, and a severe penalty attached to a breach of the Regulation.

CIRCULAR No. CXII, 29TH SEPTEMBER 1859.

CIRCULAR NO. 10, 1859.

ORDER OF GOVERNMENT, No. 2,163, DATED 9TH SEPTEMBER 1859.

f Replies from District Engineers to the enquiry as to what means are best adapted for the daily removal of Urine and solid filth from Barracks and Jails.

JAIL.—All filth and Urine should be regularly removed from Privies attached to Barracks by Sweepers employed for that special purpose, and made to do it daily by responsible persons. There are no Sweepers paid by Government for the Chicacole Jail, the work is done by the Prisoners, but there is one Sweeper for the Jail Hospital. There is no Sweeper for the Chicacole Jail, and the whole system is offensive and pernicious, the places of resort for the Prisoners are portions of the Jail compound partitioned off; when the compound becomes very filthy, the Prisoners pay for its being cleaned. Jails should have properly built Privies, with latrine vessels constantly cleaned and removed by paid Sweepers to any available open ground, to be deposited or buried in pits. There are no European Barracks in the

VIZAGAPATAM.—Urine from the Veteran Barracks is daily removed and thrown into the Privies being unprovided with Drains; a like system prevails in the Jail, while for other of nature the Prisoners are marched out under a Guard to the same place; the only which passes into the Drains at the Jail are from the eating and cooking shed which discharges into the Back-water; the fall is ample, and the Drain is constantly flushed with water. I would recommend the adoption of the same plan in regard to Urine if Barracks are built. Situated as Vizagapatam is, without a command of water for flushing the filth and Urine to the Sea is preferable to burying it in pits.

AVERT.—Would prefer, where practicable, closed Sewers flushed into perennially-flowing water, but where that is not feasible, would have sheet-iron troughs, six feet by two feet by one foot, placed side by side, and covered with boards, each travelling on low iron wheels, the seats to receive the Soil, one for every two seats, each travelling on low iron wheels, and connected one to another end to end by iron hooks to allow of as many as may be required.

being placed and removed through a hole in the side wall of the building: these troughs should be removed daily (all Urine having been first emptied into them), and drawn by a horse to a distance of not less than a mile from the Barracks in that direction, which for the greater part of the year is to leeward: there should be a double set of troughs to each Privy, and after being emptied, they should be scoured out with gravel or sand and water; deposit to be left for the natural brute Scavengers of India, or the ground trenched and filled in as requisite.

KRISHNA.—The practice in the Masulipatam and Guntur Jails is to remove the filth from the Privies and deposit it in large open pits in the Jail compound; nothing is done towards disinfecting the Urine and ordure; this appears to have been the practice for many years, probably since the establishment of the Jails; thus the Soil of the compound must in a great measure be impregnated with organic matter in a state of putrefaction, and it cannot be a matter of much surprise that the inmates of the Jails suffer from cholera and other diseases severely. Would recommend an attempt being made to utilize the Soil and Urine as manure. In the Jail compounds would recommend erection of reservoirs built on the ground, lined with tin for the temporary reception of the Soil and Urine; the Soil and Urine in separate reservoirs, where they should be deodorized; metallic basins should be substituted for the chatties in Privies.

NELLORE.—No European Barracks; the arrangements in the Jails are—for carrying off the Urine there are brick and chunam channels, which serve also to drain the space within the Jail walls. These channels communicate with a catch Drain, which empties into Irrigation channels. The Jail Drains are daily flushed with water from wells. Privies are attached to the Jail wards, and the ordure of each night is deposited in wooden buckets or tubs; removed in the morning to waste ground 400 or 600 yards distant; in some cases pits have been excavated and the Soil thrown into them, but no means are taken to cover them in. For the purposes of nature in the day-time, the Prisoners are marched out to an open ground 300 yards from the Jail.

CUDDAPAH.—No Barracks in the District; there is a large Jail in the town of Cuddapah, and the measures taken for the daily removal of the Soil and Urine, though susceptible of improvement, are very judicious—the night Soil and large tubs containing Urine are every morning conveyed in carts by the Jail Sweepers to an open plain two miles outside the town. As an improvement, would suggest large pits being excavated to be gradually filled up, and, if necessary, lime thrown in once a week; no expense is incurred, as there are always 30 or 40 Sweepers among the Prisoners who do the work.

BELLARY.—Has twice reported to the Officer Commanding the Division in communication with the Officer Commanding 74th Highlanders and Officer Commanding Artillery.

KURNOOL.—There are no Privies attached to the Kurnool Jail; Urine and Soil are removed by Sweepers morning and evening to a spot not far from the bank of the river, which is objectionable; there are Urinal chatties in a corner of the Jail; the night wards are provided with a masonry sink which discharges into a Urinal chatty without; the sink is cleaned each morning with lime and water.

CHINGLEPUT.—Considers the filth and Urine should be collected during the day in covered cisterns, and removed during the night by carts to at least half a mile from any buildings. The practice of letting Urine run into drains, as at the Mount, should be stopped and that it should be removed as the Soil now is. The cisterns should be iron enamelled and the standard Urinal for European Troops should be adopted in Jails.

NORTH ARCOT.—The practice in the Jail at Chittoor is satisfactory; the Prisoners are employed daily in carrying away the filth and Urine in tubs to the bed of a River a mile off, where pits are dug and afterwards covered up.

At Vellore the Medical Officer complains that at the Barracks and Jail there are no means of removing the Urine, though the Soil is removed daily in tubs from the Jail. The Privy attached to the Barracks is a pit which is occasionally cleaned out. The Doctor recommends a proper Privy and Urinary for the Garrison Hospital. At Ranipect there are small stalls in the Privy at the upper Barracks, which are cleaned out every night by Sweepers, and removed to the fields, where they sell it for manure. Urine tubs are in use, which are emptied into a covered Cesspool, and cleaned out at night also.

SOUTH ARCOT.—The only building of the kind referred to in this District is the Jail at Cuddalore. The Privy is floored with granite, and a cistern has been built, from which the Drain is flushed several times a day; this answers well, and no complaints have been made. The Drain falls into a tidal back-water, but it is at a place not far from the outlet to the Sea; recommends that the ashes from cooking places should be thrown into the receptacles for the Soil.

TANJORE.—Is of opinion that the Soil from the Barrack should be removed by Sweepers at night, and from Jails by Sweepers during the day, as the Prisoners are employed out of doors in the day-time and then answer the calls of nature in the field near their work.

TRICHINOPOLY.—Has never observed anything disagreeable in the neighbourhood of the out buildings attached to the European Barracks in Trichinopoly, and concludes that the means used by the Commissariat Department are efficacious, viz., the removal of all Soil and Urine in large casks on carts to a distance of two miles from the Cantonment.

MADURA.—The plan in use at the Jail here is a good one as far as the Jail is concerned—the Soil is washed into a main Drain of the Town which falls into an Irrigation channel, but this Drain in common with all others requires water for flushing it. At Paumbem, there are no Privies in the Jail; the Convicts are marched out twice a day to the Sea beach. An open Drain to carry off Urine from the Jail is offensive; this should be covered and flushed twice a day with water raised by the Prisoners.

TINNEVELLY.—In the Jail the Prisoners are marched out twice a day to a distance to attend the calls of nature; Urine is removed in chatties carried away by the Prisoners themselves. In the Military Jail there are Sweepers paid by Government.

COIMBATORE.—In reference to paragraph 4 of Mr. Fraser's observations, it would be requisite that the charcoal should be made *red hot*, simply heating will not answer. The general question divides itself into two cases: first, where water is scarce; secondly, where the supply of water is not limited. The advantages of a constant supply of water are so great that if obtainable no other mode of removal should be adopted. If water cannot be had daily, removal must be resorted to; would recommend as follows: Iron vessels to fit into the Privies just large enough for two men to lift by their handles when filled; there should be two sets for each Privy with one set of closely fitting covers; these vessels to be removed once or twice in 24 hours on low carts made for the purpose with high wheels and bent axles. Vessels from the Urinaries could be removed in the same manner; one set of pans for the vessels would be enough. To bury the ordure will be very expensive; it should be deodorized and sold as manure; the whole of it might be used for Soldiers' gardens; and on Hill Stations would sell at a profit for Coffee Estates; when it cannot be deodorized, but a small quantity of water is available, it should be kept submerged in the pits from 5 to 10 feet, which would prevent any unpleasant smell being perceived. If pits are used care should be used in selecting the site; the strata should dip away from the wells, and the South-West and North-East directions should be avoided.

NORTH CANARA.—There are no Privies to Barracks in North Canara; and concerning those to the Jails and Hospital, the District Engineer is anxious to consult the Zillah Surgeon before he reports.

MALABAR.—All the European Barracks in this District being situated on the Sea coast, the contents from the Privies and Urinals can be easily and rapidly carried into the Sea. In Cannanore Barracks the ordure is conveyed away in pans during the night, and from the Urinals there are Drains to the Sea. The Hospital and other Military Buildings are arranged in the same way; the Jail at Calicut has not got Drains from the Urinals to the Sea, but vessels are placed in the wards as in the Privies. In situations on the coast Urinals should be connected with wash-houses that the surplus water may flush the Drains: Cesspools and Drains discharging into tidal Rivers and Back-waters are objectionable.

CIVIL ARCHITECT.—At Perambore Barracks there are small Privies which are daily cleaned, and the Soil removed to a dry ditch near the public Privies. The Report continues in regard to other Native Lines which do not form subject of this Report. In Her Majesty's Jail the Soil is removed in baskets by Scavengers to the ditch, near the Leper Hospital. The washings of the Privies run into Drains, which convey it to the Black Town Main Sewer. From the Penitentiary, the Soil is removed by Scavengers in baskets to the banks of the Kúam River and buried in pits dug for the purpose; would recommend that air-tight box carts be employed to convey the Soil during the nights to the plains of Vyesurpadi, where it should be buried in deep pits dug for the purpose.

EXECUTIVE ENGINEER, BANGALORE.—Recommends that all filth should be carried away from the Privies daily. Cesspools always affect any wells near them. For the daily removal of Soil recommends tubs with rings on each side through which when turned up a bamboo can be passed to carry them—two Sweepers might carry six tubs. Seats to Privies should be abolished, as these tubs would not be uncomfortable to sit on and are much cleaner; seats often get infested with bugs. Recommends a flue being constructed in the rear walls of Privies to carry off the effluvia, and proposes that the top of it should be bell-mouthed, carrying a wire basket filled with charcoal for the foul air to pass through; a Pipe communicates with the rear just below the flue to assist the drought and cause a flow of fresh air; considers that there should not be any windows in the back walls of Privies, but ridge ventilators to the roof and openings in the front walls. Regarding Urinals, the standard plans of wash-houses are good and effective, the Urinals being at the back of the wash-houses, and all the water from the latter flowing through them. At Bangalore, Urinals are lined with granite slabs, are easily kept clean and last for ever; the refuse water from wash-houses used to be carted away, but being very expensive, covered Drains were built, and now it all flows away to a considerable distance from the Barrack, and will eventually be discharged into the Sewrage Drain of the proposed system of drainage.

OFFICER COMMANDING MYSORE DIVISION.—Reports that every attention is paid to the daily removal of all offensive matter from Privies, &c., and that the Privies and Urinals are of the standard plan. States that lime and chloride of lime are used for purification in all cases.

SUPERINTENDING SURGEON AND SANITARY OFFICER, HYDERABAD SUBSIDIARY FORCE.—Deprecates a multiplication of Cesspools. Considers open Drains leading from all the buildings and terminating in a single large covered Sewer, to be desirable. Suggests that this Sewer should debouch at as great a distance from the Barracks as possible. Is of opinion that the places of deposit of the contents of the Scavenger's cart from the Barracks and Hospital should not be in the lines of natural drainage, and that trenches of considerable depth should be dug in appropriate places, as far removed as possible, for the reception of filth, into which at times, especially when epidemics prevail, deodorizing and disinfecting substances may be thrown and earth added until the trenches are filled, when fresh ones might be dug on the same spots.

OFFICER COMMANDING SOUTHERN DIVISION.—At Trichinopoly, until a few months ago, the ordure from the European Barracks was conveyed in carts and spread over the ground about a mile and half from the Barracks, but the effluvium was so offensive that pits were dug. This system was only partly carried out as no regular Establishment existed for the purpose. This, with certain subsidiary arrangements, is the system which now prevails.

The proposed system is as follows: The daily burial of all refuse matter from the Barracks should be insisted on, and a spot selected in conjunction with the Civil Authorities not nearer than two miles from Cantonments and one and a half miles from any high road, where pits should be periodically dug. These pits should be long trenches of a sufficient depth, and a portion of earth thrown over the day's deposit of ordure. The Commissariat Officer should be authorized to submit Contingent Bills for the expense of digging the pits. Does not think that the construction of Privies is adapted to the use of charcoal in the manner set forth by Government.

At Jackatalla the same system prevails as at Trichinopoly, with a slight difference; and the suggestions above detailed are stated to be applicable to this as well as all Stations in the Division where European Troops are quartered.

OFFICER COMMANDING CEDED DISTRICTS.—Reports that there are no Cesspools for Privies to the European Barracks in the Division, and that in the Artillery Barracks there are no separate Urinaries; considers this latter arrangement objectionable. Night Soil and Urine are conveyed to a distance each morning. Is of opinion that in Privies and Urinaries charcoal enclosed in a wire cage should be hung to the roof of each, and that in Barracks the use of charcoal must depend on the character of the building, for if it be spacious and roomy, nothing could more tend to keep it free from impure air than having the upper ventilators open at night.

Is of opinion that the present system of removing the deposits from Privies to a distance answers admirably. Condemns Cesspools. Believes that there is no better deodorizer than quicklime. States that the present arrangement is to place two or more of the ordinary necessary tubs into which the filth and Urine have been emptied, on carts, and to convey them to the place selected for the deposit. Adds that these tubs when filled are exceedingly weighty, and become injured from being put on the carts. Considers the carts, too, quite inefficient for the purpose. Proposes a cart of the description shown in sketch accompanying. Describes it to be a large cask or barrel placed between a framework of wood on two pins fitting into either side of the framework, so that the barrel can be turned over bottom upwards till its contents are completely discharged. Has ordered the substitution of wooden seats with pans under them for the existing low chunam walls, with a Drain through which the Urine passes into the street outside.

OFFICER COMMANDING CENTRE DIVISION.—Recommends the following arrangements: The prohibition of Cesspools. The provision of covered cisterns for the reception both of ordure and Urine to be carried away every night and buried at a distance, and the making of one or more apertures in the roof of every Privy with an iron cage of charcoal suspended under each. For the sake of privacy recommends the putting up of a canvas screen or a wooden frame about four feet high from the ground between each seat. Points out defective arrangements at Punalai, Mount and Arcot.

OFFICER COMMANDING NAGPORE FORCE.—Suggests that all Privies and Urinaries should be spacious and lofty; that there should never be two rooms in the breadth of these buildings; that there should be ventilating openings at intervals close to the floor and high up in the walls, and ridge ventilators the whole length of the roof. The floor to be of cut stone dressed smooth with a good fall towards the drainage openings, which should be terminated outside in masonry tanks holding metal vessels with handles capable of being lifted by two men, and with covers. The water in the metal vessels to be poured into the filth carts. Describes the form in which the vessels are to be made. Pits to be dug on the outskirts of Cantonments for the reception of every description of filth. Condemns Cesspools or Pits in the vicinity of Barracks. Considers that Drains for carrying away water from wash-houses and cook-rooms should always be open and carried to points removed as far as possible from the Barracks, and flushed with clear water

daily. Is of opinion that the best mode of using charcoal would be to reduce it to small irregular lumps of the size of marbles and to hang it in wire-net trays or baskets. Concludes with stating how the foregoing suggestions may be made applicable to the European Barracks and Hospital at Kamptec.

(Signed) J. H. BELL, Colonel,
Chief Engineer.

Central Office of P. W., Sépakkam,
23th February 1860.

ORDER THEREON, 29th March, 1860, No. 650.

On 30th July 1859 the Government of India communicated* a Circular on the subject of the arrangements advisable in Privies, Urinaries, and Wash-houses; this, with the plans, &c., accompanying it, was forwarded to the Chief Engineer with the Order of this Government noted in the margin.

* No. 5,149.
9th Sept. 1859, No. 2,168.

2. The Chief Engineer in consequence circulated to all his Subordinates the above Order, and desired that they would report what measures they considered best adapted to effect the daily removal of Soil and Urine from the Privies of European Barracks and Jails. With his letter above recorded, Colonel Bell forwards a Summary of Replies received as well from the District Engineers as from Officers Commanding Divisions, the latter having been forwarded through the Quarter Master General of the Army. The Chief Engineer's Report and the Summary noticed above having been printed in extenso, it is not necessary to make any lengthened remarks. Colonel Bell in paragraph 2 of his Report briefly states the question.—Shall the present primitive method of daily removal be employed, or the modern and efficacious plan of adopting glazed earthenware Pipes and afterwards masonry Drains and Sewers with a good supply of water?

3. After noticing (paragraph 5) the various suggestions which had been made for—

- (1.) The arrangement and nature of construction of the Privies;
- (2.) The mode of removing Soil and Urine;
- (3.) The best mode of disposing of the same ultimately;

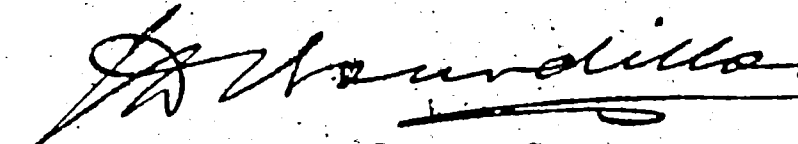
Colonel Bell proceeds (paragraph 6) to detail the course which he would recommend if the instructions of the Government of India are to be properly carried out. As regards the first part of the question Government have no remarks to offer. Colonel Bell's plan appears unexceptionable; as regards the third, they agree with the Chief Engineer that, whenever practicable, the Sewage should be used as manure; and with reference to the second they are fully of opinion that the plan proposed in paragraph 7 of the Report now before them is by far the best that can be carried into effect.

4. The system of Sewage by Pipe Drains flushed by any available water, is the one now generally adopted in England. The Government, therefore, approve of the plan now proposed by Colonel Bell. Though no immediate action can generally be taken in the matter, it will be the duty of the Chief Engineer to give effect to the system in particular cases, so far as it may be practicable, with the modifications which local circumstances require. The Governor in Council will leave it to him, in communication with Local Officers, to bring forward from time to time cases where its application may appear likely to be beneficial. Brick Drains perhaps may be necessary where the pressure upon Pipes would be too great.

5. The Report and its enclosure will be circulated to all Officers concerned, for their guidance. The Inspector General of Jails has not, it appears, been communicated with on the subject; the papers will be also sent to him, and his attention will be drawn to the objectionable practices prevailing in certain Jails,* as set forth in the letters of some of the District Engineers and he will forthwith take measures to correct the same.

* Masulipatam. Itchapora.
Guntur. Karnool.
Chicacole. Vellore.

(True Extract.)



Secretary to Government.

To the Chief Engineer.
" Inspector General of Jails.
" Military Department.
" Judicial Department.

1850

10 Chile

Special 1850 2 years

Proceedings of Govt
in the case of 1850 2 years

6129 2 3 March 1850

20 March
1850

1850 2

1850 2 1850

Commencing

Copy of a report from the
Chief of Police, and the order
of Govt. Mason, on the part
of the Society, remove
of their services from the
service of the Government
and police.

No. 104. 22 April 1850
To be recorded.

JP

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