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MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

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*Proceedings of the Madras Government, Public Works Department,
20th June 1863.*

No. 471. Read the following Proceedings of the Madras Government in the Military Department, dated 10th June 1863, No. 1,890:—

Concurring with his Excellency the Commander-in-Chief in the opinion that steps be not taken at present towards the introduction of Grant's Tatty Apparatus into this Presidency. (Vide Military Proceedings, 10th June 1863, Nos. 201-202.)

No. 472. ORDER THEREON, 20th June 1863, No. 1,613.

Communicated to the Superintending Engineers of Divisions.

(Signed) W. I. BIRDWOOD, Colonel, R. E.,
Secretary to Government.

MILITARY DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following papers:—

Memorandum from the Quarter Master General, Fort Saint George, 27th May 1863, No. 4307; to the Secretary to Government, Military Department.

Forwarded to Government, in reference to Order of Government, No. 601, dated 17th February 1862. His Excellency the Commander-in-Chief would not at present recommend that steps be taken towards the introduction of Grant's Tatty Apparatus into this Presidency.

Reports on trial of Grant's Tatty Apparatus.

PRESIDENCY DIVISION.—The Apparatus has not been tried in this Division.

BENARES DIVISION.—*Report by the Executive Engineer at Benares, Captain Priestley.*—Grant's Patent Tilt Troughs are perfectly efficient in keeping Tatties properly wet, and the means adopted in this Station for supplying them with water seems completely successful.

As to the comparative expense of the Tatties of No. 2 (old style) Barrack for one Company at Secrole, can be kept wet all day by half a pair of Bullocks, *i. e.*, at a cost of 3 Annas a day. A Cooly at 4 Rupees per mensem should also be kept to turn off and on the water, which would amount to Rupees 9-10 a month. If Coolies are entertained to fix and take down the Apparatus, of course there will be some additional expense.

Report by Captain Nedham, Deputy Assistant Quarter Master General.—The Establishment required under the old style for the Barrack referred to, was eight Coolies and six Bheasties, amounting to Rupees 58 per mensem, now the saving is Rupees 48-6 monthly, and if a Cooly be employed to take down and fix the Apparatus, Rupees 44-6 will be saved. No. 2 Barrack accommodates one Company.

Report by the Major General Commanding.—Benares is the only Station at which the experiment has been tried. The Apparatus for raising the water to the Cisterns by means of Bullock draught, not having been finished last season, no saving of any importance has been effected, as Bheasties and Coolies had to be employed; but there is no doubt, whatever, that the Troughs are perfectly efficient, and this season the means for raising water at an economical rate, have been completed.

SAUGOR DISTRICT.—No trial has been made in this District.

GWALIOR DISTRICT.—*Report by Major Watson, Executive Engineer.*—There is no doubt that if the water can be brought fairly to the Troughs, the simple tilting Machine acts well enough, the difficulty experienced in this Station was the setting up of the Pipes with sand, the leakage in the Pipes requiring constant repair, and the lifting the water from the Well level, to the height of the Verandah roof, which could not be done by one Cooly, I have no doubt if a Cistern was constructed at the top of each Wash-house and proper piping laid down, the plan would answer well; but to erect exclusively for watering Tatties, pucca tanks and requisite conduits, would cost for a two months' occupation more than the economy of labor saved on the old plan is worth. Large Cisterns on the top of Wash-houses, filled by pumps which the Europeans might work themselves, would be of great convenience for the Wash-houses for cleansing the out-offices near, for laying in water to the filters at the Barracks, for filling the Engines in cases of fire, and their usefulness might then be extended to Grant's Apparatus during the two months the hot winds last.

OUDE DIVISION.—No trial made in this Division.

ROHILCUND DISTRICT.—No trial made in this District.

MEERUT DIVISION, AGRA STATION.—*Report by Lieutenant Watts, Executive Engineer Agra.*—Grant's Tatty Apparatus has been attached to, and, during the latter part of the season, has been in use in No. 4 new Barrack, European Infantry Lines. The Barrack to receive the full benefit of the prevailing winds is faced to the North West. A Reservoir was built in the North East Verandah, a little above the level of the heads of the doors: the Reservoir was supplied with water by Bheasties, a small pair of steps having been made for them to ascend by. From the Reservoir Zinc piping was led along the heads of the doors in the North East and North West Verandahs. The Zinc piping was received from Mr. Fox in Calcutta, two and half inches in diameter and in six feet lengths: the first instalment sent had iron flanges attached, which were to be rivetted together, with a washer between them; this was found not to answer at all, in the first instance the tubing arrived in a very damaged state, the flanges in

the jolting during the transmission, cut the tubing as cleanly as if it had been sawn, which caused a great loss of time and expense in fixing,—also the least jar to the tubing caused it to open at the flange joints and leak; in the more recent instalments from Calcutta, the flanges were omitted when it was found that the pieces could easily be joined together by a Tin-man, and all leakage avoided. The door ways being very wide, five feet Tatty Troughs had to be provided, they were only in use about a fortnight, so they were hardly long enough on trial to form an opinion, whether they were really adapted to Barrack use,—also this season there has been so much easterly wind that half of the time the Tatties were removed to the other side of the Barrack, where there was no tubing, consequently there could have been no saving in labor as the full Tatty Establishment had to be kept up. To guard against this contingency in future, the tubing should be carried completely round the Barrack, and a double set of Troughs being provided to screw into the chowkuts on S. E. and S. W. sides of the Barrack, in order that the Trough may be removed to the other side of the Barrack at will, and the Establishment reduced. The Troughs as a rule answered very fairly, some of them from their great length and lightness of their construction began to bend a little, and from this drooping in the centre, the water was only thrown on the middle part of the Tatty, the two side parts were perfectly dry, and allowed the hot wind to enter the Barrack freely—invariably only the inner side of the Tatty was wet, on the water being discharged from the Trough, it passed through the Tatty, and ran down inside. I fancy this was caused in this manner—in the first two or three discharges, the Tatty would be wet equally all over, but directly the hot wind commenced acting on it, the outside would become partially dry, whilst the inside remaining wet, would afford the quickest descent for the water,—the discharge being always in the same spot, where the water once formed for itself a course, it retained it. I found that the Troughs never discharged half the water they contained: the Troughs supplied to me had two kinds of recovering balances, one a leaden plummet attached to the middle which had a guide to keep the string always at the same distance from the Axis of the Trough, so that its weight or power should not be lost, when the Troughs had tilted over, and the shank to which it is attached, becoming nearly perpendicular to the Axis. The second kind had shanks at both ends of the Troughs, with nuts working on a screw, which could be regulated at will: this latter is by far the best, and has many advantages over the plummet which, in the first instance, is liable to be stolen, on account of its value, being of lead,—secondly, it adds weight to the middle of the Trough and causes it to droop, and lastly it can only be regulated by increasing or diminishing the weight, which is a tedious process—no two five feet Troughs require exactly the same recovering weight. I think generally that Troughs might be much better made, those supplied to me were very indifferently put together, and considering 6 Rupees were given for each, they should have been of very good workmanship. I also think, to be lasting, they should be made of Zinc: even for the short time they have been in use, the paint has mostly disappeared, and they were fast corroding with the brackish water at this Station. I certainly do not think a Trough would last more than two seasons.

It appears to me very doubtful if they could be kept in proper working order without an Establishment of Maistries to look after them, which must be charged to the cost of the Tatties, so I doubt, taking into consideration the cost of the Machine, and the skilled labor to look after it, if there would be much saving on the cost of the Cooly sprinkling the Tatties. This year my men were constantly at work fixing these Troughs, consequently those that were working could always be attended to; but when the fixing of the whole of them is completed, and the charge made over to the Barrack Master, that without some skilled labor continually at hand, they will be very frequently getting out of order. I think they are admirably adapted for private houses, as they always ensure a supply of water, and free you from the annoyance of having continually to call out to have the Tatty wet, but in private houses they are sure to be properly looked after.

MEERUT STATION.—Report by Major Alexander, Executive Engineer.—At Meerut the experiment has been made in No. 1 Barrack in the Dragoon Lines,—the level of the Wash-house Cisterns admits of water being raised at one end of this Barrack Verandah, to a height 5' 7½" from the floor. This has been effected by siphon pottery pipes, about two feet under the surface of the ground, so that the supply of water to the Zinc pipes over Tatties, can be easily maintained by two Coolies during the day.

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The supply has hitherto proved quite adequate to feed the Troughs of the whole Barracks numbering thirty, and so far the experiment may be considered successful. The expense of conveying the water, will of course vary according to the distance of Barracks; in the case of the Barracks in which the experiment has been tried, it amounts to... Rupees 135 0 0 which added to cost of Troughs..... " 199 0 0 and Zinc piping..... " 169 0 0

gives a total of..... " 503 0 0

It is stated by the Quarter Master that Rupees 40 per month is saved in the Tatty watering Establishment for each Barrack, and assuming this to be correct, it would be about five years before the cost of the Apparatus would be recovered, by which time it is probable that it would have to be renewed.

ROORKEE.—At Roorkee the experiment has been tried in the upper Barracks, iron pipes have been used, and a separate supply Reservoir constructed, from which the water is led to the level of the top of the Barrack doors. The expense incurred in thus fitting the Apparatus was very heavy; principally owing to the use of the iron pipes. Captain Owen, Executive Engineer at Roorkee, reports that up to the 29th May, the Apparatus had not had a fair trial, owing to the prevalence of Easterly and South-Easterly winds; but there can be little doubt as to the success of the plan for conveying the water. It can hardly be recommended on the score of economy, as it must be years before the cost of fitting the Apparatus, can be compensated by any saving in the Establishment of Coolies. I would, in conclusion, venture to offer an opinion that these Tatties with the Troughs on Mr. Grant's plan, are ill-adapted for use in Barracks. They have advantages over the ordinary Tatties, but they are, I think, scarcely of such importance as to render it advisable to change the system, especially when it is considered that Tatties are in use for little more than two months in each year, during which months, the steady prevalence of Westerly winds cannot be relied on, with any certainty. This year Easterly winds have been much more common, and Tatties and Troughs consequently of very little use. Under any circumstances, it appears very necessary that the Troughs and supply pipes should be under strict and careful supervision to guard against wilful damage by the men, who are in the habit of moving the Tatties suddenly to effect an exit from the Barrack, and have thus occasionally put the Troughs out of proper gear.

SIRHIND DIVISION.—No trial made in this Division.

LAHORE DIVISION.—No trial made in this Division.

PESHAWAR DIVISION.—No trial made in this Division.

No. 942B.

Forwarded to the Quarter Master General, Madras Presidency, in continuation of this Office letter, No. 872B, dated 27th ultimo.

BARRACK DEPT. Q.R. MR. GENL.'S OFFICE, } (Signed) A. M. BECHER, Major-General,
HEAD QRS. SIMLA, 8th May 1863. } Quarter Master General.

ORDER, No. 1890, 10th June 1863.

The Governor in Council concurs with His Excellency the Commander-in-Chief.
(True Extract.)

A. M. Becher
Deputy Secretary to Government.

To the Quarter Master General.

" Barrack Master.

" Public Works Department. *With separate Office*

Exd. T. Stubbs.

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