M.R.O. 1—77,000—8-6-37.

(1) Number of pages 54

(2) Date of repair

(3) Initials of the Referencer:

MADRAS RECORD OFFICE.

# Government of Madras.

Public Works DEPARTMENT.

G.O. No. 872 (IV) Press ~~Mis.~~

Dated 15 . 3 . 1877.

Not to be folded or roughly handled

Read the following:—

No. 354. From Suptg. Engineer, Chingleput, dated 3rd July 1876, No. 1,186.
No. 354-A. From " " " " 23rd Aug. " " 1, 857.
No. 354-B. From District Engineer, Presidency, " 12th Oct. " " 3,812.
No. 354-C. From Dy. Chief Engineer, P.W.D., " 17th " "

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No. 355. ORDER THEREON, 15th March 1877, No. 872.

MILITARY WORKS, No. 9.

(e) *Heads of Service.*—Imperial.
*Fund.*—Ordinary.
*Class.*—Original Works.
*Main-head.*—Military.
*Sub-head.*—Military Buildings.
*Section.*—Accommodation for European Artillery.
*Name of Work.*—Setting up a force-pump at the Garrison Hospital, St. Thomas' Mount.
*Amount.*—Rupees 856.
To be carried out by the Public Works Department.

FROM these papers the conclusion arrived at by His Grace in Council is that the work generally of fitting up hand-pumps and pipes at the Garrison Hospital and new Royal Artillery Barracks at St. Thomas' Mount has proved a failure, and it is evidently most desirable that the pumps be at once replaced by some more simple appliance, and returned into the Public Works Stores, their value being recredited to the work.

2. The Superintending Engineer will lose no time in submitting plans and estimates for fitting the wells of the Garrison Hospital and new Royal Artillery Barracks at St. Thomas' Mount with ordinary pullies, ropes, and leather baskets, with timber staging, &c., at such a height as to allow of the water being delivered by gravitation into the lower-story bath-rooms and wash-houses. In the upper-story wash-house of the Garrison Hospital a small iron delivery tank connected with the taps over the basins should be fixed inside the wash-house itself, and the tank filled by hand labor. In addition to good parapet walls for further security against possible accident the wells should be guarded by stout timber gratings, the bucket ways being provided with trap-doors firmly hinged and so arranged as to prevent there being more than opened flat on to the gratings while water is being drawn, and securely closed while the well is not in use.

3. The delay which has taken place in the adjustment of these accounts and the explanations given are very unsatisfactory.

4. It should be a standing rule that the General Superintendent of Public Works Workshops and Stores is not to supply any article from the Workshops when such article is available from the stores free of charge.

5. With these remarks the revised estimate of Rupees 856 for setting up a force pump at the Garrison Hospital at St. Thomas' Mount is sanctioned. The Superintending Engineer will report the expenditure on the work during the current year, the value of the pump, &c., returned to stores, and the sum, if any, which may be required to adjust outlay in 1876-77.

*Proceedings of the Madras Government, Public Works Department,*
*15th March* 1877. *No.* 872.

6. This sanction has been registered as Imperial No. 147—W of 1876-77.

(True Extract.)

(Signed) W. FAREWELL, Colonel,
Acting Joint Secy. to Govt., P.W.D.,
Buildings and Roads Branch.

No. 1857.

CHINGLEPUT SUPERINTENDING ENGINEER'S OFFICE,
Camp Karumbakam
SAINT THOMAS' MOUNT, 23rd August 1876.
Despd 25th "

FROM

THE SUPERINTENDING ENGINEER,

Chingleput.

TO

The Secretary to Government
Department Public Works

SIR,

Encs 2
1 Comparative Statement.
1 Copy of a letter from the Superintendent of P.W. Stores & Workshops No. 680 dt 15th Augt 1876

I have the honor to submit a comparative statement shewing items of excess in the putting up of a pump to the Garrison hospital at the Mount.

2. The principal amount is caused by charges from the Public Works Workshops. When I ordered the estimate to be prepared I applied to the General Superintendent for prices, and he informed me that no charge would be made. no provision therefore was made in the estimate.

Letter from Govt No 1607 of 13th Oct 1873—

3. Some time passed before the estimate was sanctioned and the pump was indented for and since that again a bill has been sent. on my protesting against

this charge the General Superintendent sent me No 680 dated 15th instant (Copy enclosed).

4. I submit that the incident ipso facto shewed that I was drawing on the stores not the workshop.

5. The pumps &c supplied, I would further observe is the one regarding which I addressed you in my No 1186 of 3rd July 1876. I was not aware at that time that it had been made expressly for the hospital.

I have the honor to be
Sir
Your most obedient Servt

F. Lindsay Colonel R.E.
Superintending Engineer
Chirgaon

P.W.D.
28 AUG 1876
No. 6118 L

The Supt. Engineer
Chief Distrct

To,

The Secy. to Govt.
P. W. Deptt.

Dated 23rd
Despd 25th } Augt 1876.
Recd

2-E-P.W. No. 1857

Submits a Comparative Statement shewing items of excess in the putting up of a pump to the Garrison Hospital at the Mount.

S. C. 15 Rmds 17 Lbs 872

G821-4-76 Lbs 1024.
Items: 2 8/17/76.

3574

Rec'd 3.77

Comparative Statement Shewing the amount required for providing Hand-pumps & Pipes in the well at Garrison Hospital at St. Thomas

Original Estimate was framed by W S Blarney Executive Engr & Sanctioned by G.O No. 1024-21-4-74.

| Description of Work | Original Estimate Quantity | Original Estimate Rate | Original Estimate Amount | Quantity | Revised Estimate Rate | Revised Estimate Amount | Increase | Decrease | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| Brick in Cheeam ——— Cyds | 12½ | 3 12 - | 46 14 - | 12½ | 4 6 - | 54 11 - | 7 13 - | - - - | Excess caused by insufficient Rate in the Original Estimate. |
| Removing Masonry ——— " | 1 | " 8 - | 3 8 - | 1 | " 8 - | 3 8 - | - - - | - - - | |
| Plastering ——— Squares | 3 | 2 4 - | 6 12 - | 3 | 2 4 - | 6 12 - | - - - | - - - | |
| Earth work ——— Cyds | 15 | " 1 6 | 1 6 6 | 15 | 0 1 6 | 1 6 6 | - - - | - - - | |
| Teak wood ——— Cfs | 27¾ | 3 - - | 83 4 - | 22 | 3 2 - | 68 12 - | - - - | 14 8 - | 5¾ Cfs is unnecessary |
| Circular wooden Flap & towell No | 8 | 6 - - | 48 - - | 8 | 6 - - | 48 - - | - - - | - - - | |
| Zinc Sheets ——— Sq. Fs | 54 | " 8 - | 27 - - | 54 | " 8 - | 27 - - | - - - | - - - | |
| 1½ Iron pipes ——— Rl. Fs | 240¾ | " 8 - | 105 6 - | 210¾ | " - - | 101 6 9 | - - - | 3 15 3 | Saving by Public W. Store Bill |
| 1¾ " ——— " | 33¾ | " 6 - | 12 10 6 | 33¾ | " - - | 8 2 - | - - - | 4 8 6 | Excess by P.W. Store Bill. |
| 1½ Elbows ——— No | 9 | " 8 - | 4 8 - | 9 | " - - | 12 7 3 | 7 15 3 | - - - | |
| ¾ " ——— " | 3 | " 3 - | - 9 - | 3 | " - - | 2 3 - | 1 10 - | - - - | |
| 1½ T.S. ——— " | 1 | " 6 - | - 6 - | 1 | " - - | 1 6 - | 1 - - | - - - | |
| ¾ " Brass Cocks ——— " | 8 | 4 - - | 32 - - | 8 | " - - | 39 10 9 | 7 10 9 | - - - | |
| 1½ " ——— " | 1 | 6 - - | 6 - - | 1 | " - - | 11 8 - | 5 8 - | 4 - - | |
| Copper basins Complete | 7 | 7 - - | 49 - - | 7 | 7 - - | 49 - - | - - - | - - - | |
| Removing & Refixing wooden Cover | " | " - - | 5 - - | " | " - - | 5 - - | - - - | - - - | |
| Wooden Butts large for bottle rooms upper story | 2 | 14 - - | 28 - - | 2 | 14 - - | 28 - - | - - - | - - - | Not provided in the Original Est. |
| ¾ " T.S | " | " - - | - - - | 1 | " - - | 5 16 | 5 16 | - - - | |
| Refixing Fixing charges to pumps & elbows T.S & brass cocks & Complete | " | " - - | - - - | " | " - - | 40 - - | 40 - - | - - - | |
| Altering a single force Pump by P.W. Shop. which was provided by them | " | " - - | - - - | " | " - - | 28 4 - | 28 4 - | - - - | |
| One Pump with a Suction pipe of 40 Fs to force water supplied by P.W. Store as per bill No 981 of 18th March /76 | 1 | " - - | - - - | 1 | " - - | 270 14 - | 270 14 - | - - - | This item was provided for but we could not fix the rate |
| Contingencies ——— | " | " - - | 19 12 - | " | " - - | 42 15 3 | 23 3 3 | - - - | |
| Total | | | 480 - - | | | 866 - - | 398 15 9 | 22 15 9 | |

Mount Kaura
18th June 1876

A Smith Capt RE
Executive Engineer

Sd/ C. Sashabala Row
Overseer

No 680.

Public Works Store Departt.
Madras 15th August 1876.

From

The General Superintendent
Public Works Stores & Workshops

To

The Superintending Engineer
Chingleput

Sir,

In reply to your letter No 1646 of 7th instant, I have the honor to state that the Pump alluded to in my letter 1607 of 13th October 1873 Stores Department would have been supplied, if the Indent, received about six or nine months after, had specified that the pump required was the one alluded to in my letter noted above.

2. The indent for pumps and piping for the Garrison Hospital at the Mount was supplied by the Workshops and must therefore be paid for.

I have &c

(Signed) L. B. Granger
General Supdt P.W. Stores

(True copy)

J. Theobald Coll R.E.
Supt Engr Chingleput

Countersigned 16 Aug 1876.

Compensation Stat
=ement for Pumping
Plant Pump & Fitti
=ngs for Pumping
water for Garrison
Hospital at Mount
Rs As P

No. 3812.

From

Immediate.

The District Engineer
Presidency

To

The Deputy Chief Engr.
D.P.W.

Sir

I'm returning the documents as per margin which accompanied your memo No. 7/586 dated 15 July/76. I have the honor to inform you that the General Supte. of the Dr. Workshop &c. and myself will be ready to meet tomorrow morning at 6-30 A.M. at the Marmalong Bridge for the purpose of inspecting the Mount Pump &c. as arranged by you.

I have the honor to be
Sir
Your most Obedt. Servt.

Encls 5
1 Letter from the Supte. Chief Engr. with Chief Engr's Endorsement No 1063 dd 12 July 1876.
1 Letter from the Mount Range Officer No 778 dd 14 June/76.
2 Copies of letters D. Inspn. of Supplies &c. & Dr. Stores &c.
1 Copy of letter No. 780 dd 1 June/76 to the Dockyard Manager

P. Martin Major R.E.
Offg Dy Chief Engr

12 Oct. 76

P.W.D.
1 DEC 76
No. 7328

No. 1186.

Supt Engrs office Chingleput
Camp Chingleput 5th July 1876
Despd — 5 — 7 —

From

The Superintending Engineer
Chingleput

To

The Secretary to Government
Department Public Works.

Sir,

I have the honor to enclose a letter from the Executive Engineer Mount Range and his copies of correspondence with the General Superintendent Public Works Workshops as I cannot obtain any satisfactory reply from him.

Enc:
1 Letter from the Executive Engr Mount Range to the Supt Engr Chingl No. 778 dd 14th June 76 with 3 enclosures (to be returned)

2. Lr G.O. No. 1024 of 21st April 1874 an estimate was sanctioned for erecting a pump in the Royal Artillery hospital at the Mount, & enable me to close the well on the premises, in which a gunner had lately committed suicide.

3. The Range Officer Mr Harington indented for a pump and pipes to raise water from a well 25 feet deep & the cistern 48 feet above ground. The quantity of water required was so small that it did not matter whether it occupied 2 or 3 hours to lift it. So details were left to the General

No. 3814 Dated 12 Dec 1876
Received 15 Dec 1876

The Superintending Engineer
Chingleput

The Secretary to Government
Department Public Works

Sir,

I have the honor to forward herewith a letter from the Executive Engineer Mount Range and his copies of correspondence with the General Superintendent Public Works Workshops as I cannot obtain any satisfactory reply from him.

Enc:
1 Letter from the Executive Engr Mount Range to the Supt Engr Chingl No. 778 dd 14th June 76 with 3 enclosures (to be returned)

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No. 354 B.

Cr 2.3.77

Lr G.O. No. 1024 of 21st April 1874

Lr Superintending Engineer Chingleput No. 1186 dd 5th July 1876

Lr Executive Engr Mount Range No. 778 dd 14th June 1876 with 3 enclosures

Lr Executive Engr Mount Range No. 1 dd 1st July 1876 with 1 enclosure

Lr Executive Engr Mount Range No. 2 dd 1st July 1876

Lr Executive Engr Mount Range No. 3 dd 1st July 1876

Lr Executive Engr Mount Range No. 4 dd 1st July 1876

Lr Executive Engr Mount Range No. 5 dd 1st July 1876

Lr Executive Engr Mount Range No. 6 dd 1st July 1876

Lr Executive Engr Mount Range No. 7 dd 1st July 1876

Lr Executive Engr Mount Range No. 8 dd 1st July 1876

Lr Executive Engr Mount Range No. 9 dd 1st July 1876

Lr Executive Engr Mount Range No. 10 dd 1st July 1876

Lr Executive Engr Mount Range No. 11 dd 1st July 1876

Lr Executive Engr Mount Range No. 12 dd 1st July 1876

Lr Executive Engr Mount Range No. 13 dd 1st July 1876

Lr Executive Engr Mount Range No. 14 dd 1st July 1876

Lr Executive Engr Mount Range No. 15 dd 1st July 1876

Lr Executive Engr Mount Range No. 16 dd 1st July 1876

Lr Executive Engr Mount Range No. 17 dd 1st July 1876

Lr Executive Engr Mount Range No. 18 dd 1st July 1876

Lr Executive Engr Mount Range No. 19 dd 1st July 1876

Lr Executive Engr Mount Range No. 20 dd 1st July 1876

Lr Executive Engr Mount Range No. 21 dd 1st July 1876

Lr Executive Engr Mount Range No. 22 dd 1st July 1876

Lr Executive Engr Mount Range No. 23 dd 1st July 1876

Lr Executive Engr Mount Range No. 24 dd 1st July 1876

Lr Executive Engr Mount Range No. 25 dd 1st July 1876

Lr Executive Engr Mount Range No. 26 dd 1st July 1876

Lr Executive Engr Mount Range No. 27 dd 1st July 1876

Lr Executive Engr Mount Range No. 28 dd 1st July 1876

Lr Executive Engr Mount Range No. 29 dd 1st July 1876

Lr Executive Engr Mount Range No. 30 dd 1st July 1876

Lr Executive Engr Mount Range No. 31 dd 1st July 1876

Lr Executive Engr Mount Range No. 32 dd 1st July 1876

Lr Executive Engr Mount Range No. 33 dd 1st July 1876

Lr Executive Engr Mount Range No. 34 dd 1st July 1876

Lr Executive Engr Mount Range No. 35 dd 1st July 1876

Lr Executive Engr Mount Range No. 36 dd 1st July 1876

Lr Executive Engr Mount Range No. 37 dd 1st July 1876

Lr Executive Engr Mount Range No. 38 dd 1st July 1876

Lr Executive Engr Mount Range No. 39 dd 1st July 1876

Lr Executive Engr Mount Range No. 40 dd 1st July 1876

Lr Executive Engr Mount Range No. 41 dd 1st July 1876

Lr Executive Engr Mount Range No. 42 dd 1st July 1876

Lr Executive Engr Mount Range No. 43 dd 1st July 1876

Lr Executive Engr Mount Range No. 44 dd 1st July 1876

Lr Executive Engr Mount Range No. 45 dd 1st July 1876

Lr Executive Engr Mount Range No. 46 dd 1st July 1876

Lr Executive Engr Mount Range No. 47 dd 1st July 1876

Lr Executive Engr Mount Range No. 48 dd 1st July 1876

Lr Executive Engr Mount Range No. 49 dd 1st July 1876

Lr Executive Engr Mount Range No. 50 dd 1st July 1876

Lr Executive Engr Mount Range No. 51 dd 1st July 1876

Lr Executive Engr Mount Range No. 52 dd 1st July 1876

Lr Executive Engr Mount Range No. 53 dd 1st July 1876

Lr Executive Engr Mount Range No. 54 dd 1st July 1876

Lr Executive Engr Mount Range No. 55 dd 1st July 1876

Lr Executive Engr Mount Range No. 56 dd 1st July 1876

Lr Executive Engr Mount Range No. 57 dd 1st July 1876

Lr Executive Engr Mount Range No. 58 dd 1st July 1876

Lr Executive Engr Mount Range No. 59 dd 1st July 1876

Lr Executive Engr Mount Range No. 60 dd 1st July 1876

Lr Executive Engr Mount Range No. 61 dd 1st July 1876

Lr Executive Engr Mount Range No. 62 dd 1st July 1876

Lr Executive Engr Mount Range No. 63 dd 1st July 1876

Lr Executive Engr Mount Range No. 64 dd 1st July 1876

Lr Executive Engr Mount Range No. 65 dd 1st July 1876

Lr Executive Engr Mount Range No. 66 dd 1st July 1876

Lr Executive Engr Mount Range No. 67 dd 1st July 1876

Lr Executive Engr Mount Range No. 68 dd 1st July 1876

Lr Executive Engr Mount Range No. 69 dd 1st July 1876

Lr Executive Engr Mount Range No. 70 dd 1st July 1876

Lr Executive Engr Mount Range No. 71 dd 1st July 1876

Lr Executive Engr Mount Range No. 72 dd 1st July 1876

Lr Executive Engr Mount Range No. 73 dd 1st July 1876

Lr Executive Engr Mount Range No. 74 dd 1st July 1876

Lr Executive Engr Mount Range No. 75 dd 1st July 1876

Lr Executive Engr Mount Range No. 76 dd 1st July 1876

Lr Executive Engr Mount Range No. 77 dd 1st July 1876

Lr Executive Engr Mount Range No. 78 dd 1st July 1876

Lr Executive Engr Mount Range No. 79 dd 1st July 1876

Lr Executive Engr Mount Range No. 80 dd 1st July 1876

Lr Executive Engr Mount Range No. 81 dd 1st July 1876

Lr Executive Engr Mount Range No. 82 dd 1st July 1876

Lr Executive Engr Mount Range No. 83 dd 1st July 1876

Lr Executive Engr Mount Range No. 84 dd 1st July 1876

Lr Executive Engr Mount Range No. 85 dd 1st July 1876

Lr Executive Engr Mount Range No. 86 dd 1st July 1876

Lr Executive Engr Mount Range No. 87 dd 1st July 1876

Lr Executive Engr Mount Range No. 88 dd 1st July 1876

Lr Executive Engr Mount Range No. 89 dd 1st July 1876

Lr Executive Engr Mount Range No. 90 dd 1st July 1876

Lr Executive Engr Mount Range No. 91 dd 1st July 1876

Lr Executive Engr Mount Range No. 92 dd 1st July 1876

Lr Executive Engr Mount Range No. 93 dd 1st July 1876

Lr Executive Engr Mount Range No. 94 dd 1st July 1876

Lr Executive Engr Mount Range No. 95 dd 1st July 1876

Lr Executive Engr Mount Range No. 96 dd 1st July 1876

Lr Executive Engr Mount Range No. 97 dd 1st July 1876

Lr Executive Engr Mount Range No. 98 dd 1st July 1876

Lr Executive Engr Mount Range No. 99 dd 1st July 1876

Lr Executive Engr Mount Range No. 100 dd 1st July 1876

Superintendent.

4. That officer had already supplied some pumps for the New Barracks bath rooms regarding which Captain Smith had addressed him in No 1233 dated 14th August 1875. pointing out that the support of the plump was too weak. the axle of the wheel by which the crank was worked too frail, its bearings bad, and the handle so near the axle that a man's full force could not be exerted. These defects were in some degree remedied.

5. But they have all been repeated in the pump since supplied to the Hospital, and on 21st April 1876 in his No 155 Captain Smith brought this to Mr Grainger's notice.

6. On the 11th May the Dy Asst Quarter Master General Centre District observed the defective working of the pump, and brought it to my notice, whereupon I addressed the General Superintendent and enclosed copy of his reply No 784 of 1st June.

7. The pump was furnished only on the 18th March last.

8. I beg to observe that we put up the articles sent to us by the General Superintendent. I cannot understand what it matters that 1½" piping has been used instead of 2" - that can only add a little to the amount of friction - but if it be of importance, the General Superintendent is to blame in supplying it.

9. I regret to have to bring the affair to the notice of Government but nearly all my dealings with the Public Works Workshops are very unsatisfactory; and in removing from my charge the Gundy House Water Works the Government have implied that I was to blame for shortcomings for which I respectfully submit the General Superintendent Public Works Workshops is solely responsible.

I have the honor to be
Sir
Your most obedient servant
H. Lumsden Colonel R.E.
Supt Engineer Chunglepat

PRESIDENCY WORKSHOPS, D. P. W.,

*Chepauk, Madras,* 1st June 187 .

No. 784.

From

THE GENERAL SUPERINTENDENT,

PUBLIC WORKS WORKSHOPS AND STORES,

To

THE *District Engineer*
*Presidency*
*Fort Saint George.*

SIR,

Enclosures. *With reference to your endorsement No 540 of 6th ultimo on letter from the Superintending Engineer Chingleput relative to the pumps at the Hospital & Barracks at Saint Thomas Mount, I have the honor to state that they were inspected by Mr Francis on the 2nd instant and he considers that the fixing of 1½" piping to the Pumps (by the Executive Engineer Mount) instead of 2" piping for which they were designed is the cause of the failure. This was pointed out to the Executive Engineer in August last & vide copy of letter enclosed.*

*Mr Francis now recommends that the large size force pumps similar to that supplied to Government House Madras be used instead of those now at the*

1876 Department
No 4812.

P. W. D. Secretariat
Received 4 Dec 1876
Registered

To
The Chief Engineer & Superintendent
&c. &c. &c.
The Secretary to Govt.
P. W. Dept.

Dated 3rd Dec 1876
Read 5th " "
Rec'd 7th " "
Regd No 11866

Enclosed for the
orders of Government
certain letters of Correspondence with the
Genl. Supt. P. W. Dept.
Mr. Markham's recent
application for a pump
to be supplied for the
Hospital in the Garrison
Mount

C.E. no: 1063 12.7.76.

The Chief Engineer has the honour to request that Colonel Innes will address Government in personal communication with the Director Engineer Residency, take steps for ensuring that this matter should be set to right at once by the Genl. Supt. of the Workshops; whose management of the Engines & Pumps should be entrusted to him exclusively. No. 3574 Mr. Francis may be instructed to proceed to the Mount, & settle every thing personally with the Genl. Supt.

Dated 7-12-76.

No. 3574

the Ground and I agree with him.

If the Superintending Engineer Ishinglepust will send me a Sketch shewing the arrangement of pipes &c, the actual length of Piping required, and also the quantity of water to be raised by each Pump I will fill in the rates at which the Workshops can supply, as it is not advisable to attempt altering the Present Pumps.

I have the honor &c

Signed J. N. Grainger

Genl. Supt. P.W. Workshops Stores.

No. 800

Copy to the Superintending Engineer Ishinglepust with reference to his letter No 155 of 21st April 1876.

2d June 1876.

J. N. Grainger

Genl. Supt. P.W. Workshops Stores.

P. W. 1812/76

From

The General Superintendent,

P. W. Workshops,

To

The Executive Engineer

Mount Range

No. 800

Dated 20 June 1876

Received

Enclosures.

Executive Engineer's Memo No. 1233 dated 14th June 1876 enclosing Memorandum on the Pumps sent to Mount Range for new Barracks in the Current Fortnight's Supply of New Pumps

No. 1233

2d. 2 Range Office
14th August 1876

From

The Executive Engineer
Mount Range

To

The General Supt. P.W. Store
& Workshops

Sir

I have the honor to bring to your notice that the force pumps sent to me with your printed memo No. 1299 dated 6th July 1875 for the new Barracks are by no means satisfactary

2 The principal faults are as follow

3 The plank to which the pump is attached is not thick enough

4 The axle of the wheel is too frail & the arrangement for its bearings is bad

5 The handle is too near the centre, thus a large amount of leverage is lost; the distance is only 10 inches; by as it were, prolonging one of the spokes beyond the rim of the wheel and fixing the handle there to a further leverage of 8 inches might be gained, for any man can work a wheel with an 18" radius and with practice a 2 feet one.

6 The one inch piping which I was obliged to use as a delivery pipe is much too small and cannot possibly deliver the required quantity

7 One of the pumps is defective I imagine its

ito plunger or valves are out of order & the other has a crack in one of the Spokes.

8 With regard to paras: 3, 4, 5 & 7 I should like you to send up a skilled foreman in order that you may have a mechanical opinion pronounced. I am working the pumps with a view to filling the reservoirs in order to test the various pipes, joints &c and I should like your man to come up & see the pumps at work.

9 With regard to para 6. I shall be very glad if you will bear in mind to supply me with 1½" pipe to the length of 136 feet at the first opportunity.

I have &c

(Sgd) A. C. Smith Captain R.E.
Executive Engineer

(True copy)

A Smith Captain R.E.
Executive Engineer

× The two lots of 78' one lot & 58 ft. second lot. one lot for each pump.

P. W. 4872/76
2

No 2 Range Office
21st April 1876

No 155.

From.
The Executive Engineer
Khamet Range

To
The General Superintendent
P.W. Stores & Workshops

Sir,

I have the honor to bring to your notice that in my No. 214 of 26 October 75 I requested that the pumps for the Garrison Hospital, Khamet might be exactly similar to those supplied to the new Barracks.

2. Also in my No. 1233 of 14 August 75 I pointed out the defects in these pumps which have since been altered by you.

3. Among these was the fact that the handle was only 15" from the axle whereas the radius could be much greater.

4. I now find the same fault is repeated in the pumps supplied for the Garrison Hospital.

5. The result is that as this pump has to force water to a height of about 50 feet (besides the suction of 25 feet or so) it requires to have work it easily.

6. If the radius is increased to 20 inches the pumps could be worked by 3 men—

7. The diameter of the wheels from out to out is about 30 inches, I request to be informed whether if I send the wheels to you your Cau weld a lumps on to the tires & so increase the radius to 20 inches.

8. If this Cannot be done two wheels will have to be provided at great cost.

9. I shall also be obliged if you will kindly inform me what in your opinion is the greatest radius that an average native Cooly Can work on with ease.

I have &c

Sd/- A. le. Smith Captain R.E,
Executive Engineer.

(True Copy)

A. le. Smith Captain R.E,
Executive Engineer.

P. W. 4812/76

No. 2 Range Office,
Ootacamund 14th June 1876.

NO. 778

From

THE EXECUTIVE ENGINEER
No. 2 or Mount Range
Chingleput District.

To

THE Superintending Engineer
Chingleput

Sir,

With reference to letter No 800 dated 22 Instant from the General Superintendent P.W. Works Shops and Stores, I have the honor to state that in my No 502 dated 10th June 1875 I sent a Copy of the prior Indent for the Pump and piping for the Garrison Hospital.

2. This indent was made out by my predecessor and a Pump with the 1½" piping had been framed to answer the purpose before so the same siged piping was allowed in the Indent, and a pump to make known indented for capable of forcing the water to a height of 28 feet.

3. I imagined the quantity of water depended on the size of piping allowed and on reference to the requirements of the Hospital, I found that siged piping would

the Supdg Engineer Chingleput

Encl 3
2 letters & the Genl Supdt of P.W. Stores No 4334/155
1 Copy of letter & 800 of 22nd Inst P.W.S.

would be ample supposing it only flowing full or at the rate of 8½ Gals. per minute.

4. In his No. 716 of 22d June 1875 the Superintendent of P. W. Store replied that the pumps would be made in Work Shops, no exception whatever was taken to the size of the piping which the Superintendent said could be supplied at once.

5. In due time the pumps turned up but as it was of weak Construction it was returned with my No. 2140 of 26th October with a request that it might be strengthened and altered in exactly the same manner as the pumps for the new Barracks, the defects in which had been pointed out in my No. 1233 of 14th August 1875; the pumps at the new Barracks had been altered according to my No. 1233 and worked pretty well for a time. I do not understand the argument about the smallness of the pipes, the Amount of water forced through the pipes depends upon the velocity with which the pump is worked, with the present average (which I have recommended should be increased) velocity worthy of the name is unattainable

6. With his No. 3531 of 24th November the pumps was returned altered as directed but when I came to examine it (it had then been fixed up) I found that the main alteration in the increase of power had been unattended to.

7. Upon this I wrote my No. 155 of 21st April Copy enclosed and a reminder thereto No. 511 of 24th May to neither of which had I received any reply up to date, I also enclose a Copy of my No. 1233 of 14th August 1875.

I have the honorable
Sir
Your most Obdt Servt
A. L. Smith Capt RE
Executive Engineer

Public Works Workshops
Chepauk 13th October 1873.

No. 1607

From
The General Superintendent
Public Works Workshops and Stores

To The Executive Engineer
Mounted Range
No. 110 Mount Road

Sir

Adverting to your letter No. 929 dated 6th October 1873 enquiring the price of a pump required for the well in the Hospital Compound at the Mount I have the honor to inform you that a Pump of the description given is available in the Public Works Stores and will be supplied on sanctioned Indent without payment.

The Pump when received should be accounted for under the head of Machinery in use in the Range.

I have the honor to be
Sir
Your Obedt Servt
(Signed) J. W. Grainger
Offg Supdt of P.W.
Workshops
& Stores

(True Copy)
(Signed) W. S. Harington
Executive Engineer

P. W. 4812/70
H

From
THE EXECUTIVE ENGINEER
No. 2 OR MOUNT RANGE,
Chingleput District.

To
THE Offg Supdt Chief Engineer
Chief Clerk

Dated 13th October 1873.
Despatched 15th do
Received

No. 77 8
Enclosures.

Letter from the Offg Supdt
Public Works Workshops
Chepauk ——
Dated 13th October 1873
No. 1607
Relating to the supply of a
Pump for the well in the
Public Hospital Compound
at the Mount ——

statement of Articles supplied to the undermentioned Parties at Mount Range Office during the month of December 1876.

117

Description of Articles | Quantity | Amount Total

| | | | |
|---|---|---|---|
| Coal dust Price 6" | Qrs. | 80 | 213 9 4 |
| do 1½" | Cwt. | 1 | 1 2 3 |
| do 1" | " | 19 | 12 11 2 |
| do ¾" | " | 2 | 14 4 2 |
| Brass locks 5" | " | 45 | 526 9 " |
| do 4½" | " | 20 | 362 13 " |
| Wrought Iron Pipes 1½" | Qrs. | 86 | 26 7 4 |
| do do 1" | " | 750 | 412 12 6 |
| do T. 1" | Cwt. | 8 | 7 11 4 |
| do Elbows 1" | " | 80 | 41 4 " |
| do do ½" | " | 1 | 1 2 " |
| do Pipes 1½" | Qrs. | 136 | 68 10 " |
| do T. 1½" | Cwt. | 3 | 6 " " |
| Stone Trough | No. | 2 | 320 " " |
| Fountains | " | 3. | 270 " " |
| | | | 2345 " " |
| Repairs as per Bill No 1082, 1039 and 1088 | | | 106 10 2 |
| Coal and Carting | | | 13 16 8 |
| | | | 21165 9 10 |
| Deduct amount appointed as per Bill No 1039 | | | 68 10 " |
| Total Rupees | | | 23096 15 10 |

Presidency Medical Store Keeper's Office
Bhatan 8th December 1876

Received the above mentioned Articles in good order and condition.

Dy Asst. Surgeon. Commanding Officer.

# Public Works Department

Indent on the Public Works Stores for the delivery of the following articles at the Mount Range Office

| Name of Articles | No. now in hand | Date of last issue | No. now required | For what purpose | Admitted No. | Admitted Value | Remarks |
|---|---|---|---|---|---|---|---|
| 1½" Iron pipes Running feet | " | " | 210 3/4 | For Imperial purposes | No. 4 | | |
| Do. Do. | " | " | 33 3/4 | | | | |
| ¾" Do. | " | " | 9 | | | | Similar to those required for new Barracks. |
| 1½" Elbows | No. " | " | 3 | | | | |
| ¾" Do. | " | " | 1 | | | | |
| 1½" T's | " | " | 8 | For the use of Garrison Hospital at Mount | | | |
| ¾" Brass cocks | " | " | 1 | | | | |
| 1½" Do. | " | " | 7 | | | | |
| Enamelled wash hand basins 1 ft Diameter with copper ring 3" broad with jewels Do. | " | " | 1 | | | | |
| One Pump with a suction pipe of 40 ft to force water to the height of 48 feet with a length of pipe 146 feet No. | No. 1 | " | 1 | | | | |

No. 2 Range Office
18th July 1874

Signed A.C. Smith Capt
Executive Engineer

No 586

The attention of the District Engineer of the Presidency is directed to the accompanying papers (to be returned) and with reference to the Chief Engineer's endorsement on the Superintending Engineer's letter. he will be so good as to take the requisite steps to see the Chief Engineer's wishes carried out. and report when he would wish the undersigned to inspect the completed work with him.

Sd/ W Farewell Hall
Offg: Dy: Ch: Engr.

15th July 1876.

Fort St. George
17th October 1876

To
The Chief Engineer
Public Works Department.

Sir

With reference to your endorsement on letter from the Superintending Engineer Chingleput No 1063 dated 12th July 1876, I have the honor to report that in company with the Presidency Division Engineer and the General Superintendent of Public Works I inspected the pumps set up at the Royal Artillery Hospital and Barracks at St. Thomas' Mount on the 13th Instt.

2 The Hospital pumps appeared to work fairly enough but the water is pumped unnecessarily high and the arrangement for its distribution is all out of repair and requires to be immediately attended to and

attended to- The present wooden tubs or receiving cisterns on the roof of the Hospital should be removed and replaced by a small Iron Tank in the wash house itself.

3 The other two pumps for supplying the Barracks are useless water in one of the wells being at too great a depth for suction and the pumps of the other well still out of order, some one having stolen the air plug - From my own experience of Barracks in this Country I do not think, Elaborate Force Pumps with their easily removed small brass and iron fittings should ever be used in their vicinity as the Native followers appear to be unable to resist the chance of stealing such articles thus rendering the pumps practically useless, but even

even setting this aside, the rough usage they are subjected to in the hands of Natives is speedily fatal to their continuous successful working and makes the cost of repairs excessive. For some time past the supply to the Lavatories of the Barracks has been most unsatisfactory, water being obtainable only in small quantities by a little earthen chatty and a rope. I recommend the immediate removal of the force pumps at the Barracks, indeed, I think even that at the Hospital should be removed also, and ordinary timber staging with pulley double leather buckets and rope trough and supply pipes, as used for filling Railway Tanks used at once substituted for

it

for them -

(a) Heads of Service— Suspense

Fund. Ordinary

Class. Original Works

Main-head. Military

Sub-head. Military Buildings

Section. Accommodation for European Artillery

Name of Work. Setting up a force pump at the Lunatic Hospital St Thomas' Mount

Amount. Rs 856

To be carried out by the P. W. Department.

Entered in the margin of G.O. No: 872 of 15/3/77.-

P.W.D. Madras Government

Under date the 15 March/77

PUBLIC WORKS DEPT. ORDERS.

Dated 1st March 1877

Extract para 4 G.O. 872 d/15 March 77 forwarded to all Exs.

R.I. 30/3.

Attended to 6/4/77

W872 P. R. O.

Sten Madras Government

Order dated the 15 March 77

Read the following:-

(Mil. Dep. 1186 of 3rd July 1876.)

(" " 1867 of 23rd Augt "

(" " 3812 of 12th Oct "

(Proceedings " " 17 "

From these papers the conclusion arrived at by His Grace in Council is that the work generally of fitting up hand pumps and pipes at the Garrison Hospital and New Royal Artillery Barracks at Saint Thomas' Mount has proved a failure and it is evidently most desirable that the pumps be at once replaced by some more simple appliance, and

17/10.

for and returned into the Public Works Stores their value being credited to the work.

of the 2. The Superintending Engineer will lose no time in submitting plans and estimates for filling the wells of the Garrison Hospital and New Royal Artillery Barracks at St Thomas' Mount with ordinary pulleys, ropes and leather buckets to with timber staging 18in at such a height as to allow of the water being delivered by gravitation into the lower story bath rooms and wash houses in the upper story wash houses of the Garrison Hospital, a small force [illegible] and a small iron delivery tank [illegible]

Br
pal

Pa
co
17/10

it possible that a Board Justice could be so cheaply, and there could be no inducement to set out of order, & mischief neglect. I presume the Building Committee will fix the iron tank, which price the tenders to the upper story, In some places I have seen the whole of the hole covered with a work in iron frame, only leaving sufficient space in the bucket to pass up & down - and I believe this to be a better safeguard for the protection from accident than a rule impossible in this [illegible] must be kept in force [illegible] [illegible]

[illegible]

the wash houses itself, the pumps being fixed at the cisterns on the ground level - the air admitted with security against possible accident the crest of the parapet walls of the wells should be guarded by stout timber paling four and a half feet in height

3. The delay which has taken place in the adjustment of these accounts and the explanations given are very unsatisfactory.

4. It should be a standing Rule that the General Superintendent of Public Works Kotah or his Store is not to supply any article from the Workshops

for Kolapo when such article is available from the Stores free of charge.

5. With these remarks the revised estimate of Rs866 for setting up a force pump at the Garrison Hospital at Ch. Kumar Mount is sanctioned. The Superintending Engineer will report the expenditure on the work during the current year the value of the pump &c. returned to Stores, and the sum if any, which may be required to adjust and lay in 1876-77.

W.R.

This sanction 3-77 has been registered as Imperial No 147 W. of 1876-77

Extract Para 4 forwarded to all Stores & Sub Stores 6/4/77

To the Superintending Engineer
" Dr. Surgeon Perry
" Exr. P. W. Accts
" Military Department

W.R. 28-3-77

Govt. of Madras. 1877.

PUBLIC WORKS.

To The S. E. Chanyleput

Dated

Issued

Recd. Encl.

C. O., 15th March 1877, No. 872.

Pages. 354-355.

Genl. Hospital at Chingleput

Thomas Irvine Chingleput

Or. — The revised estimate of Rs 836 for setting up a force pump at the —, sanctioned with remarks.