(1) பக்கங்களின் எண்ணிக்கை 30
(2) புதுக்கித் திருப்பிய நாள் 28-10.88
(3) ஆதாரங்குறிப்பவர் சுருக்கொப்பம்

தமிழ்நாடு ஆவணக் காப்பகம்.

தமிழ்நாடு அரசு

பொதுப்பணித் துறை

அரசாணை எண். 3179
மு. கோப்புத் தாள் எண்.
அச்சகம்
பலவகை

நாள் : 2-12-1886 ~~19~~.

உலி.

மடிக்கவோ கண்டபடி கையாளவோ கூடாது

ஆவண. கா-1—18,006—15-6-87.

2nd December 1886, No. 3179 W., Public Works.

3179/1

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

Read again—

From Mons. A. P. deCLOSETS, C.E., Engineer in charge of the Kortalayár Borings, to the Secretary to Government, Public Works Department, dated Karani, 21st October 1886.

I have the honor to acknowledge the receipt of the Government Proceedings, No. 2670, dated 12th October 1886, and ask leave to submit, for your consideration, a few explanations upon the present boring.

2. When I entered with Government into an agreement, with the provision of Rs. 5 per diem, I was not aware that I had to reside so long on the spot. I readily agree with Government decision, my duty being not so much to make a profit upon the work, but to accomplish such work to the entire satisfaction of the Government.

3. It was, I think, rather difficult to make an exact estimate for the present work, as no previous boring could make known, except by guessing, what was the composition of the Kortalayár basin.

4. I found at 84 feet deep a bed of limestone of about 11 inches thick; the time employed to pass the pipe through this bed was 38 days of effective work; such time may seem considerable, but it must be borne in mind and considered that, so as to save the necessity of lowering another pipe of 7 inches inside the actual piping of 8 inches, it was self-expensive to enlarge the bore hole into the limestone so as to allow the 8 inches pipe to be lowered.

5. The jumping process to bore through the bed took from the 16th August to the 25th of the same month; then I had to enlarge the diameter of the bore hole to about 11 inches so as to obtain sufficient room to sink the pipe; this enlarging had to be made in two operations; 1st, to enlarge the bore hole from 8 inches to 9½ inches diameter; and 2nd, from 9½ inches to 11 inches; the first took from the 26th of August to the 23rd of September, including the time necessary for the making and repairing of the tools; the second operation for enlarging from 9½ inches to 11 inches took from the 24th of September to the 14th of October, all included.

6. The hardness of the rock, and the impossibility of boring from the upwards side of the limestone stratum downwards owing to drifting sands bearing upon the limestone, were the reasons of the delays. I can remark, in passing, that I had to make at my own expense 20 different sorts of primer hand's bits, before finishing to enlarge the bore hole.

7. The boring is now progressing favorably through a stratum of lateritic clay, rather hard, and which may be possibly a deposit of drift eroded from the laterite formation. The depth of the bore hole is at this date 104 feet.

No. 2848 W., Public Works.

Recorded, pending the receipt of a general report on the completion of the experiment. As the circumstances continue to be favorable, the Government trust that the experiment will be brought to a speedy and successful termination.

(Signed) J. O. HASTED, Colonel, R.E.,
Secy. to Govt., P.W.D.

29th October 1886.

Read also—

From Colonel W. H. BURTON, R.E., Superintending Engineer, V Circle, to the Chief Engineer, Public Works Department, dated Balu Chetty Choultry, 26th November 1886, No. 4348.

With reference to G.O., No. 2670 W., dated 12th October 1886, I have the honor to submit, for sanction, a revised estimate of Rs. 2,350 for making a boring 7½ inches to 10 inches diameter and 150 feet deep, for an artesian well in the Kortalayár valley in the Chingleput division. A sum of Rs. 500 only is provided on account of travelling allowance for Mr. deClosets.

2. The amount of Rs. 500 provided in the first estimate on account of repairs and wear and tear of articles supplied by the Public Works Stores is not entered in the present estimate as the General Superintendent, Public Works Stores, explains that tools and plant issued numerically will be taken back into stores without any charge. Rs. 71 only are now provided on account of Manilla rope supplied by the Public Works Stores, as it will be unserviceable after use on the works. It may be sold on the spot, &c., and the sale-proceeds credited to work.

3. A sum of Rs. 2,250 was appropriated for this work in G.O., No. 2914 W., dated 5th November 1886.

From Mons. A. P. deCLOSETS, C.E., Engineer in charge of the Kortalayár Borings, to the Secretary to Government, Public Works Department, dated Madras, 29th November 1886.

I have the honor of sending in the report on the artesian well trial boring made at Karani.

2. The spot where the boring was made has been selected by the Superintending Engineer, V Circle, and myself, as the most suitable; its altitude is about 70 feet above M.S. level; it is situated in the middle of the Kortalayár alluvial basin, at nearly an equal distance from the two tertiary formations outcropping eastwards and westwards; the first at 2½ miles and the other at 3 miles, and both are dipping under an angle of 1° to 2° in the direction of the east and west; the spot selected is 2½ miles east from the Kortalayár anicut at Tambrapacum.

3. Admitting the dip of the two tertiary formations continues evenly underground, and making allowance for the extra elevation which may probably exist at the meeting of the two slopes, we could deduct that the minimum depth of the Kortalayár alluvium is about 200 feet above the depression of the laterite formation.

4. This formation lay upon a stratum of shingles which itself lay upon quartzites and the quartzites upon the gneiss. This could be found by surveying the surrounding localities, and has been ascertained by the Geological Survey of India.

5. The Kortalayár alluvium consists of alternative strata formed by the deposit of particles eroded from the adjacent formations, and transported by the streams. The sloping rate of the Kortalayár from Kadambatúr, where it is crossed by the Madras Railway and the sea, is about 5 feet per mile, the distance between the railway bridge and the sea being 40 miles, and the altitude of the bridge 189·69 feet. The place where the boring has been made is distant from the Kortalayár railway bridge about 20 miles, and the Kortalayár alluvium being the result of successive deposits of *debris* from adjacent formations, it was admissible that the percolation by the rains into a catching basin of about 50 square miles would afford the possibility of tapping some water sheet interposed betwixt two impermeable strata, and produce thus an overflowing spring. Such an opinion was also that of the officers of the Geological Survey. It was therefore intended by Government to have some trial borings made at several places in the Kortalayár alluvium. The trial boring, made at Karani, if proved successful, would have been followed by the sinking of an artesian well 3 feet in diameter, the waters of which would have been delivered in the canal conducting the Kortalayár water in the Sholaveram tank. The boring is 106 feet from the canal.

3179/2

6. The boring apparatus was transported to the spot in the month of June. I had the shear legs erected and the other preparations completed by the 27th of the same month.

7. The boring was commenced on the 28th of June and the first sheet of water was found at a depth of 10 feet below the ground, and subsequently after traversing different strata of clay and sandy clay an ascending sheet of water was tapped at a depth of about 40 feet, the water rising to 5 feet below the ground, and in the rainy season it rose to 3 feet below ground, being at this date at 4 feet.

8. The stratum of sand containing this sheet of water has a thickness of about 15 feet, and it is supposed that it was at a time the bed of the Pálár or of one of its branches. This hypothesis from Mr. Bruce Foote from the Geological Survey would be thus confirmed. It is probable that the water of the ascending sheet below is supplied by water percolating an outcrop of the same layer of sand some distance west and above the level of the boring.

9. After the sand, the strata following were clays more or less indurated mixed with sand, and containing pebbles, kunker, and *debris* of primitive rock, the lower clay being traversed by thin layers of blue clay and of white clay; at the depth of 84 feet the boring came in contact with a bed of crystallized limestone one foot nearly in thickness and very hard at first; a heavy jumper was employed to make a hole through. This operation took 8 days to perform; now this hole was to be enlarged so as to allow the tubing to pass through, it was then considered whether it would not be more convenient to introduce an inner tube into the former one, but as the cost would have been greater than the enlarging of the hole already made, I decided for the last process. After having made a certain number of bits I commenced the enlarging, but owing to the sand above collected upon the limestone I experienced much difficulties; however, I completed the enlarging after 38 days of work.

10. The boring was then continued into clayey strata to the depth of 114 feet, when it came in contact with a stratum of indurated blue clay containing nodules of schistoid black clay and layers of shale and also some nodules of a metallic aspect which I believe to be pyrites of iron combined with some other metal. As the orders of the Government were to stop the boring at 150 feet, I discontinued the same after having traversed the blue clay stratum for about 40 feet. But as to satisfy myself I made 3 feet more when I found a layer of grey sand.

11. I will remark that blue clay strata indicates, generally, as it is the case in the Ponniár, Gingee and Kortalayár lower, the proximity of water-sheet, and the sand found at 153 feet tends to confirm my belief that it would be well to have the boring conducted a little more lower.

12. If the present boring was to be discontinued, the ascending sheet found at 40 feet below ground may be utilised; this water-level in the pipe has had some variation, from 6 feet to 3 feet, viz. :—

In June and July	6′ B.M.
In August and September	5′ ,,
October	4·33′ ,,
November	3′ ,,
December	4′ ,,

The bench mark upon which the levels have been taken is 10·70 feet above the level of the water surface in the canal fringing the Kortalayár waters, into the Sholaveram tank, and 13·70 feet above the bed of the same.

13. Supposing the hydrostatic level of the water in the pipe to be 5 feet below the bench mark, that is, 5·70 feet above the water surface of the canal, now supposing the pipe orifice cut at 6 feet below the bench mark, the water will overflow the pipe and could be delivered into the canal. With the present supply in the pipe, I cannot say exactly what may be the head for the delivery. This could only be ascertained by experiment, but I can suppose that such head would not be less than 0·25 inches, giving a velocity of about 12 inches per second. It would be therefore easy to make out what would be the delivery or supply of water for wells of 8 inches or 1 to 3 feet diameter.

14. The cost of the practical experiment upon the supply of the water sheet above would not be expensive, as it requires only the excavating of a ditch from the pipe to the canal, and I think it would be well to try the experiment.

15. But I think that it would be desirable to conduct the boring a little further down, as it is very probable that after the stratum of blue clay above mentioned and of the sand under it, a gushing water sheet may be obtained. In the contrary case, it would be always time to make the experiments to ascertain the probable delivery of the sheet found at 40 feet.

Order—dated 2nd December 1886, No. 3179 W., Public Works.

After a consideration of Mons. deClosets' reports above recorded, the Government are of opinion that the experiment should be continued and accordingly sanction the boring being extended to a depth of (200) two hundred feet.

2. The Superintending Engineer will inform Mons. deClosets of this decision and will submit without delay a revised estimate providing for a boring of 200 feet in depth.

3. Mons. deClosets will be requested to forward communications on this subject through the Superintending Engineer in future.

(True Extract.)

Captain, R.E.,
Under Secy. to Govt., P.W.D.

To the Superintending Engineer, V Circle,
for early communication to Mons. deClosets,
with an estimate returned for revision.

Exd. P. L. Pereira.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1886} Madras.

PUBLIC WORKS.

Dated December, 2nd.

Recd. *Encl.*

G.O., 2nd Dec. 1886, No. 3179 W.

DECEMBER.

Artesian well boring in the Kortalayar basin

The experimental — ordered to be continued to a depth of 200 feet; and a revised estimate for the boring called for accordingly.

[illegible]

Cortilyar Artesian Boring
Karanai 21st October 1886.

3179/W

From:

A. Pierres de Closett Esq. C.E.
& ~~Engineer in charge of Cortilyar boring~~ &

To

Col. Hatted R.E.
& ~~Superintending Engineer D.P.W.~~
Secretary to Govt. P.W.D.
Madras

Sir:

I have the honor to acknowledge the receipt of the Government proceedings 2690, dated 12th October 1886, and ask leave to submit for your consideration a few explanations upon the present boring.

When I entered with Govern^t^ into an agreement, with the provision of Rs. 5 p^r^ diem, I was not aware that I had to reside so long on the spot; I readily agree with Govern^t^ decision, my duty being not so much, to make a profit upon the work, but to accomplish such work to the entire satisfaction of the Government.

It was, I think, rather difficult to make an exact estimate for the present work, as no previous boring could make known, except by guessing, what was the composition of the Cortilyar basin.

I found at 84' deep a bed of Limestone of about 11 inches thick; the time employed to

pass

pass the pipe through this bed was 38 days of effective work, such time may seem considerable but it must be borne in mind and considered that so as to save the necessity of lowering another pipe of 7" inside the actual piping of 8" it was less expensive to enlarge the bore hole into the limestone so as to allow the 8" pipe to be lowered.

The jumping process to bore through the bed, took from the 16th August to the 25th of the same month.

Then I had to enlarge the diameter of the bore hole to about 11" inches so as to obtain sufficient room to sink the pipe; this enlarging had to be made in two operations 1° to enlarge the bore hole from 8" to 9" inches ½ diameter, and 2° from 9"½ to 11" inches; the first took from the 26th of August to the 23d of September, including the time necessary for the making or repairing of the tools. The second operation for enlarging from 9½ inches to 11" inches took from the 24th of September to the 14th of October, all included.

The hardness of the rock, and the impossibility of boring from the upwards side of the limestone stratum downward owing to drifting sands bearing upon the limestone, were the reasons of the delays. I can remark, in passing that I had to make to my own expense 20 different sorts of Trimmer hand's bits, before finishing to enlarge the bore hole.

The boring is now progressing favorably through a stratum of lateritic clay, rather hard, and which may be possibly a deposit of drift eroded from the laterite formation.

The depth of the bore hole is at this date, 104 feet.

I have the honor to be;

Sir;

your most obedient servant

[illegible] Molitor C.E.

Exe. Eng. in charge [illegible] boring, Camp [illegible]

3129/5

670 W 12. 10. 86.
2355 C. 29. 9. 86
2071 B C 7. 16. 86.
3846 C 7. 9. 86
1129 " 5. 5. 86

No. 2848 W d/29th Octr/86

P.W.C. No. 8383

Recorded pending the receipt of a general report on the completion of the experiment. As the circumstances continue to be favorable the Govt trust that the experiment will be brought to a speedy and successful termination.

28/10/86

28/10/86

R 27. 10. 86

No. 2848 W d/29th Octr/86

M. de Closet.
M. de Closets V
S. E. V C ✓
29/10

1/11

10/11

Dew
W

No. 4348

SUPERINTENDING ENGINEER'S OFFICE,
Balachitty Chaultry V CIRCLE, ~~Madras~~,
~~Chepauk~~, 26 Novr 1886.

3/29/6

From

THE SUPERINTENDING ENGINEER,
V CIRCLE,

To

THE Chief Engineer
P. W. Department.

SIR,

Enclosures.

1 Estimate.

With reference to G. O. No. 2670 W dated 12th October 1886, I have the honor to submit for Sanction a revised Estimate of Rs 2360 for making a boring 7½" to 10" Diameter and 80 y deep, for an Artesian Well in the Korteleyar Valley in the Chingleput Division.

A Sum of Rs 500 only is provided on account of travelling allowance for Mr De Closets.

The amount of Rs 500 provided in the first Estimate on account

of

of repairs & wear & tear of articles supplied by the P. W. Stores is not entered in the present estimate as the General Superintendent P. W. Stores explains that tools & plant issued numerically will be taken back into Stores without any charge. – Rs 71-0 only are now provided on account of Manilla rope supplied by the P. W. Stores, as it will be unserviceable after use on the works. It may be sold on the spot and the sale proceeds credited to works.

A sum of Rs 2250 was appropriated for this work in G. O. No. 2914 W dated 5th November 1886.

I have the honor to be
Sir,
Your most obdt. Servt.

W H Burton Col R.E.
Supg Engineer 6th Circle

3179/7

Offl No 2395

From

THE SUPERINTENDING ENGINEER,

V CIRCLE,

To

THE Chief Engineer,
P. W. Depte.

Dated 26 } November 1886.
Recd.

29 NOV 86

ENCLOSURES.

C No 9226

No. 4348.

Artesian Well
in the Kortalayar
Valley – Chingleput
Districts.

Submits for sanction
a revised estimate
of Rs 2350 for making
a boring 7½" to 10" dia
& 150 ft deep for an

No 5 Madras 29 November
1886.

3179/8

To

29 NOV 86
DEPARTMENT

Colonel Hasted R. E.
~~Superintending Engineer~~
Secretary to Government D. P. W.
Chepauk
~~Madras.~~

Sir:

1 – I have the honor of sending in the report on the artesian well trial boring made at Karanie.

2 – The spot where the boring was made, has been selected by the Superintdt Engineer V Circle and myself as the most suitable, its altitude is about 70' above M. S. Level. It is situated in the middle of the Cortilyar alluvial bottom, at nearly an equal distance from the two tertiary formations outcropping Eastward & Westward, the first at 2½ miles, and the other at 3 miles, and both are dipping under an angle of 1° to 2° in the direction of the East and West. The spot selected is 2½ miles East from the Cortilyar anicut at Tambrapalam.

3 Admitting the the dip of the two tertiary formations continue evenly underground, and making allowance for the extra elevation which may probably exists at the meeting of the two slopes, we could deduct that the minimum depth of the Cortilyar alluvium is about 200' above the depression of the laterite formation.

4 this formation lay upon a stratum of shingles which itself lay upon quartzites and the quartzites upon the gneiss. this could be found by surveying the surrounding localities and has been ascertained by the Geological Survey of India.

5 The Cortilyar alluvium consists of alternative strata formed by the deposit of particles eroded from the adjacent formations, and transported by the streams. The sloping rate of the Cortilyar, from Cuddumbaukum where it is crossed by the Madras Railway and

N6

the sea is about 5 feet ℘ mile, the distance between the Railway bridge and the sea being 40 miles, and the altitude of the bridge 189'.69, the place where the boring has been made is distant from the Cortilyar Railway bridge about 20 miles, ~~and~~ the Cortilyar alluvium being the result of successive deposits of debris from adjacent formations, it was admissible, that the percolation by the rains into a catching basin of about 50 square miles, would afford the possibility of tapping some water sheet interposed betwixt two impermeable strata, and produce then an overflowing spring. Such an opinion was also that of the officers of the Geological Survey. It was therefore intended by Govert to have some trial borings made at several places in the Cortilyar alluvium. The trial boring made

3179/19

at Karani if proved successful, would have been followed by the sinking of an artesian well 3 feet in Diameter the waters of which would have been delivered in the Canal conducting the Kortliar water in the Cholaveram tank. The boring is 106' from the Canal

6. The boring apparatus was transported on the spot in the month of June & had the Shear legs erected and the other preparations completed by the 27 of the same month;

7- The boring was commenced on the 28th of June and the first sheet of water was found at a depth of 10 feet below the ground and subsequently after traversing different strata of clay and sandy clay an ascending sheet of water was tapped at

a Depth of about 20 feet the water rising to 5 feet below the ground and in the rainy season it rose to 3' below ground being at this date at 4 feet.

3179/10

8 The Stratum of Sand Containing this Sheet of water, has a thickness of about 15 feet and it is supposed that it was at a time the bed of the Palar or one of its branches. This hypothesis from Mr Bruce Foote from the Geological Survey would be thus confirmed. It is probable that the water of the ascending sheet below is supplied by water percolating an outcrop of the same layer of sand some distance West and above the level of the boring.

9 After the sand the strata following were clays more or less [illegible] mixed with Sand, and

containing pebbles Kunkar and debris of primitive rocks, the lower clays being traversed by thin layers of blue clay and of White clay, at the depth of 84 feet the boring came in contact with a bed of crystallized Limestone 1 foot nearly in thickness and very hard. At first a heavy jumper was employed, to make a hole through, this operation took 8 days to perform, now this hole was to be enlarged so as to allow the tubing to pass through, it was then considered Whether it would not be more convenient to introduce an inner tube into the former one, but as the cost would have been greater than the enlarging of the hole already made, I decided for the last process. after having made a certain number of bits

I commenced the enlarging, but owing to the sands above collected upon the limestone I experienced much difficulties, however I completed the enlarging after 38 days of work.

10. The boring was then continued into clayey strata to the depth of 114 feet, when it came in contact with a stratum of indurated blue clay containing nodules of schistoid black clay and layers of shale — and also some nodules of a metallic aspect which I believe to be pyrites of Iron combined with some other metal. As the orders of the Government were to stop the boring at 150' I discontinued the same after having traversed the blue clay stratum for about 40 feet but as to satisfy myself I made 3 feet more when I found a layer of grey sand.

3179/14

11 I will remark that Blue clay strata indicates, generally, as it is the case, in the Poonear, Gingee & Cortilyar lower the proximity of water sheet, and the sand found at 153 tend to confirm my belief that it would be well to have the boring conducted a little more lower

12 If the present boring was to be discontinued the ascending sheet found at 153 below ground, may be utilized. – this water level in the pipes has had some variation, from 6' to 3' viz:

in June & July	6 ft	— B.M
in augt & September	5 ft	— B.M
october	4'.33	do
November	3'.oo	
Do end	4'.oo	

The Bench mark upon which the levels have been taken is 10 ft.70 above the Level of the

water surface in the Canal bringing the Cortilyar water into the Sholavaram tank and 13 ft.70 above the bed of the same.

3179/12

13 Supposing the hydrostatic level of the water in the pipe to be 5 ft below the bench mark, that is 5 ft.70 above the water surface of the Canal now supposing the pipe orifice cut at 6 feet below the bench mark the water will any flow the pipe and could be delivered into the Canal. With the present supply in the pipe I cannot say exactly what may be the head for the delivery this could only be ascertained by experiment, but I can suppose that such head would not be less than 0.in 25 giving a velocity of about 12 inches p second. It would be therefore only to make out what would be the delivery or supply of water for wells of 8 in or 1 to 3 feet Diam.r

14 The cost of the practical experiments upon the supply of the water sheet

above, would not be expensive, as it requires only the excavating of a ditch from the pipe to the Canal, and I think it would be well to try the experiment.

15 But I think that it would be desirable to conduct the boring a little further down as it is very probable that after the stratum of blue clay above mentioned and of the sand under it a gushing water sheet may be obtained. In the contrary case it would be always time to make the experiments to ascertain the probable delivery of the sheet found at 110.

I have the honor
To be
Sir
your most Obedient

A Closes C.E
Chf Eng of the Artesian Borings.

Enclosure

Enclosure:

One Section of Strata traversed by the boring operations giving their nature, thickness &c.

3179
1/13

2848 W 29.10.86
2914 W 5.11.86
2670 W 12.10.86.
3355 C. 29.11.86.
2071 C. 7. 6. 86
3046 C 8.9.86
1129 W 5.5.86.
1128
328 W 6.2.86
1732 W 28.7.85
1137 C 4.7.85
867 C 4.5.85
3129 W 19.12.84
351 I 2.6.80

P.W.C. No 9326

R 29-11-86

C No 9309

B & R
& works.

PUBLIC WORKS DEPARTMENT.

No 3179 B d/ 3rd Decr 1886

PROCEEDINGS OF THE MADRAS GOVERNMENT.

A/

READ again the following

From M. de Closets - dated 21st Oct. 86.
Order of Govt — No. 2848. W. d 29.10.86.
Read also
From the S. E. V. C. - 4348. d 26.11.86.
From M. de Closets - dated 29th Novr 1886.

3179/14

After a consideration of Mons. de Closets' reports above recorded the Govt are of opinion that the Experiment should be continued and accordingly sanction the boring being extended to a depth of /200/ two hundred feet.

2. The Supg Engr will inform Mons

de

de Closets of this decision, and will submit without delay a revised estimate providing for a boring of 200 feet in depth.

3. Mons: de Closets will be requested to forward communications on this subject through the Supg. Engr. in future.

1.12.56

File
2/10/56

SC Deeks
3/12/56

To The Supg Engr V.C.
for early comm: to
M. de Closets.
with an estimate
returned for revision

3179/15

9328 & c
9309

Govt. of (1886) Madras.

PUBLIC WORKS.

3/12/86

Dated

Recd. Encl.

G.O., 2nd Decr 1886, No. 3179 W.

Artesian well boring in the Kortalayar basin

≡

The experimental — ordered to be continued to a depth of 200 feet; and a revised estimate for the boring called for accordingly.

30 copies

Exe 3/12