

(1) Number of pages \_\_\_\_\_

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# MADRAS RECORD OFFICE.

Government of Madras.

*Public Works* DEPARTMENT.

G.O. No.

301

(W)

Press

Mis.

Dated

26-6-

1877.

Not to be folded or roughly handled

GOVERNMENT OF MADRAS

PUBLIC WORKS DEPARTMENT

26th June 1877, No. 301 W

Buildings and Roads

Civil Works

Read the following paper —

No 238. From Major ROSS THOMPSON, R E, District Engineer, Presidency, to the Chief Engineer, Public Works Department, Buildings and Roads, dated Fort St George, 19th June 1877, No 1.611

With reference to G O, No 182 W, of 1st June 1877, Public Works Department, received 13th June 1877, I have the honor

One copy of testimonials  
„ Government Order

to request that you will be so good as to lay before Government the following

statement of what has been done in the matter of bridge roadway and Government compound road repairs

2. G O, No 2,690, of 5th October 1876, transferring charge of roads over Government bridges and in Government compounds from the Municipality to the Public Works Department from April 1st, 1877, was received by Major Montgomerie, R E, then Officiating Presidency District Engineer, on 24th October 1876.

3 Major Montgomerie, R E, in a memorandum, dated 26th October 1876, called on the District Range Officers to prepare and submit estimates for the repairs of all Government bridge roadways and Government compound roads in their charge.

4. Up to the commencement of April 1877 none of these estimates had been submitted

5. On the 7th April 1877 I called upon the Range Officers to submit them as soon as possible

6 On the 14th April 1877 I called upon the Range Officers again for their early submission.

7. On the 21st April 1877 I received from the Northern Range Officer fourteen estimates for repairs of bridge roadways and Government compound roads in his charge amounting to Rupees 8,924

8 On the 23rd April I received eighteen estimates from the Southern Range Officer for bridge roadways in his charge amounting to Rupees 6,128.

9 On the 9th May I received twenty more estimates from the Southern Range Officer for Government compound roadways amounting to Rupees 21,825

10 All Government bridge roadways and roads in Government compounds in the district had then been estimated for.

11 The number of estimates submitted was fifty-two, aggregating in amount Rupees 36,877, and were all examined and checked in my office.

12 On the morning of the 7th April 1877, when arranging for the repairs of the bridge roadways through the medium of the Range Officers, a Mr John Hall called at my office and presented me with a printed copy (herewith enclosed) of a number of testimonials in favor of his method of making and repairing roads with burnt clay "Adamantine Macadam" He produced some of the material which seemed, and in fact is, excellent for roadways, pointed to the excellent testimonials he had received from Major Hasted, R E, Mr W. B Leggatt, A I C E, Mr M R Weld, M C S, Lieutenant-Colonel Vertue, R E, undertook to manufacture material; convey it to the sites of various works, to spread and consolidate, and to charge the very reasonable rate of Rupees 2 only per cubic yard for every thing

13 I thought over Mr Hall's tender until 10th April, and accepted it on that date—

I—Because the rate was lower than for ordinary laterite roadway laid down by the Public Works Department

II—Because the material appeared better than ordinary laterite

III—Because the establishment at my disposal for supervision was, and is already, miserably inadequate numerically to cope satisfactorily with even the ordinary work of the district

IV—Because the testimonials above referred to were granted to Mr Hall by officers whose opinions on such subjects were worthy of respect

14 Mr Hall promised to set to work forthwith, to prepare material, and to repair at once the roadways of the following bridges —

|                         |                             |
|-------------------------|-----------------------------|
| General Hospital Bridge | Commander-in-Chief's Bridge |
| Government House "      | Elephant Gate Bridge        |
| Victoria Bridge         | Basin Bridge                |

15 Seeing no signs of work being commenced, and having heard that Mr. Hall had left Madras, I went in person to the Union Hotel, Mount Road, on the 18th April, to make inquiries regarding him and his work I was informed that he had gone to Trichinopoly for his family and would return in a day or two He did so, but as nothing was being done I again called upon him to commence work In reply he said that he was ready to commence and that Government House Bridge would at once be taken in hand Nothing was done, however, up to the 5th of May, when I again wrote to him to the effect that if work was not commenced at once and pushed on vigorously I must undertake it with the Range Officers and throw him over

16 On the 7th of May he informed me that he was then in a position to go on, that he had made a sufficient stock of material, that he was turning out given a list above would be commenced and completed in the course of a few days, to inconvenience the public he would carry out the work at night.

17. A small amount of material was then conveyed to the Government House Bridge and thrown down anywhere—some on the footways, some on the roadway, and some at the side of it.

18. On the 12th May, Saturday, I again wrote to Mr Hall informing him that, in the event of the repairs at Government House Bridge and the other bridges in the list not being well in hand by Monday, 14th, he must give up.

19. On Sunday, 13th May, he replied that the work would be well in hand next day (Monday) From the 13th to the 21st May he merely played with the work So on the 21st I wrote to him to say that he must consider his agreement at an end, and that the Range Officers had been instructed to take up his work. He begged that he might have twenty-four hours' grace given him to complete Government House Bridge. This was granted, but he made no use of his opportunity. Nothing was done, and I had finally to throw him over.

20. On the 22nd May I directed the Range Officers to have such bridges as are most out of repair put in order at once

21. The Government House Bridge has since been repaired by the Southern Range Officer, but the portion partly repaired by Mr Hall gives much trouble, and will take time and attention to bring it up to the mark.

22 The Elephant Gate Basin and General Hospital Bridge roadways have also been thoroughly repaired by the Northern Range Officer

23 The Elephant Gate Bridge roadway was repaired on the night of the 7th instant in about ten hours—a rapid, thorough, and workmanlike performance, and a credit to the Range Officer and his subordinates who were hard at work all night

24 The Government in their Order, No 182 W, dated 1st June 1877, Public Works Department, say \* \* "It appears that the Presidency District Engineer has failed to give the work the attention he should have done The Government can from personal knowledge corroborate Mr Burrows' statement that the roadways over the bridges named in his letter are out of repair"

25 I most respectfully submit that the subject was one to which I gave considerable attention—one which I could not do otherwise than think very seriously about Estimates had been carefully drawn up by my Range Officers and examined and checked in my office Estimates, amounting to Rupees 36,877, for fifty-two works handed over to my charge, and which I am expected to maintain in good condition for Rupees 9,395—a sum only a little more than one-fourth of the amount which I have estimated it would cost to put all these works in thoroughly good order, and maintain in that condition for twelve months

26 This problem of how to make nine thousand odd rupees do the duty of thirty-six thousand rupees is a difficult one to solve, and attracted my very serious attention Had I thought no further about the matter than to hand over a certain proportion of the Rupees 9,395 to each of the Range Officers on the 1st of April last with orders to see to the bridge, roadway, &c, repairs, everything would have gone smoothly, and I would not have incurred the censure which Government have been pleased to pass upon me, viz, "That the Presidency District Engineer has failed to give the work the attention he should have done" But I would have felt that the effort to do better had not been made

27 I cannot think that it is quite realized how painfully the "attention" of Public Works Officers is frequently taken up in trying to get work well and cheaply carried out with inadequate funds amidst trials and difficulties of many kinds only known to, and appreciated by, those whose lot it is to struggle constantly against them

28. Mr Burrows' solemn statement that the roadways over the bridges named in his letter were out of repair, though unquestionably correct and needing no confirmation, has a certain tinge of humour about it The fact must have been well known to him considerably before the 1st of April last, on which date his responsibility ceased, and mine began It was officially admitted as early as the 12th of April, on which date I commenced to receive a series of communications from the Municipal office drawing my attention to the bad state of the bridge roadways

29 These communications were undoubtedly made with every good intention, in the interests of the public, and were equally unquestionably so many official admissions that the bridge, roadways, &c, had not been handed over by the Municipality on the 1st of April, in the best possible condition

No 239. ORDER THEREON, 26th June 1877, No 301 W.

FROM the letter above recorded Government are glad to learn that the condition of the roads over bridges in the Presidency received the District Engineer's timely earnest attention, and the censure conveyed in G O, No 182 W, of the 1st June, is modified accordingly

2 The state in which these sections must have been handed over to the District Engineer by the Municipality on the 1st April 1877 necessitates apparently a larger sum than the sanctioned maintenance grant to now bring them into proper order

(True Extract)

(Signed) E. A. FOORD, Colonel, R.E.,  
Secretary to Government, P.W.D.

To the District Engineer, Presidency  
" Financial Department

## PUBLIC WORKS DEPARTMENT.

1st June 1877, No. 182 W.

Buildings and Roads.

Civil Works

Read the following paper —

No 11. Endorsement of the Under Secretary to Government, Financial Department, dated 12th May 1877, No 1,026.

From L. R. BURROWS, Esq., Acting President of the Municipal Commission, to the Officiating Chief Secretary to Government, dated Madras, 9th May 1877, No. 217 E

THE roadways over the following bridges, viz —

Government House Bridge,  
Commander-in-Chief's Bridge,  
College Bridge,  
General Hospital Bridge,  
Elephant Gate Bridge,

being out of repair the attention of the Presidency District Engineer has on several occasions been drawn to them, as these portions of roadway have now been transferred to the Public Works Department under G.O., 5th October 1876, No 2,690, Public Works Department, in which the annual grant for their maintenance was withdrawn from the Municipality and they were transferred to the Public Works Department.

2 As the Municipality are in a better position than the Public Works Department for keeping these roadways in good order, I have the honor to suggest, for the consideration of Government, whether it would not be advisable to revert to the old system of placing them under the Municipality and continuing the annual grant for their maintenance.

TRANSFERRED to the Public Works Department.

(Signed) J. STURROCK,  
Under Secretary.

No. 12 ORDER THEREON, 1st June 1877, No. 182 W

THE Government are not prepared to rescind their former decision that the District Engineer should keep in repair the roads over Government bridges and through Government compounds. It appears that the Presidency District Engineer has failed to give the work the attention he should have done. The Government can from personal knowledge corroborate Mr Burrows' statement that the roadways over the bridges named in his letter are out of repair; the Napier Bridge might, it is observed, be added to the list

2 There will be no objection to the District Engineer arranging for the work being undertaken by contract, which would possibly secure its better execution.

(True Extract)

(Signed) E. A. FOORD, Colonel, R.E.,  
Secretary to Government, P.W.D.

To the District Engineer, Presidency  
" Financial Department

Exd E C Shunker  
Spare Copies

7 APR 77

*Record*

## ADAMANTINE MACADUM.

This road material can be manufactured out of any kind of soil except pure sand or gravel. The best kinds are clay, silt from tank beds, the upper surface of paddy fields, or black cotton soil.

The process of manufacture is very simple, any native maistry could do it after being shown a few times, and no plant is required.

The best fuel is cowdung cakes with wood, but either by itself will do.

It can be manufactured in any quantity from 1 to 1,000 cubic yards at one time.

It is laid in the same manner as ordinary gravel, but forms a good road of itself.

The cost varies with the price of fuel.

## THE ADVANTAGES OF THE ADAMANTINE MACADUM OVER OTHERS

It can be manufactured generally beside the road, hence a saving of cartage.

It stands well under water.

It is better in rainy weather than in dry.

In dry weather if it turns to dust, the dust does not rise much with the wind.

During rain, or if under water, there is no adhesive matter to adhere to wheels or the feet of animals.

It forms an elastic surface, hence traffic goes over it without much noise.

Cattle can travel over it without shoes, as there is no grit to cut their feet.

## COPIES OF TESTIMONIALS

I have seen a small piece of road metalled by Mr Sub Engineer Hall with burnt clay. The surface was very good, and it had then been introduced for, I think, two months.

TANJORE,  
17th December, 1872 }

(Signed) J O HASTED, Major, R E  
District Engineer.

I have much pleasure in giving my opinion of the quality of Mr Hall's newly invented road material (burnt clay). For more than a year I have observed portions of roads No 1—65 and 85 in my Taluq repaired with this material.

I have also seen a portion of a street in this town repaired with the above material.

The material is, in my opinion, far better than laterite. It is cheaper than laterite. After heavy rains there is no signs of mud and water collecting together.

NEGAPATAM,  
6th September, 1873 }

(Signed) R VENCATRAYALOO,  
Thasildar.

*Sp 676: June 11/1873: 238*

*Extract from Inspection Report of W B LEGGATT, Esq, Executive Engineer in charge  
No 4, or Negapatam Range, Tanjore Dist, for the month of August 1874*

I have seen a part of Road No 65 which has been metalled with burnt earth by Mr Hall (about a mile), it is said to have been done two years ago, and that portion has never been repaired since that time. I found it in very good order indeed, and it speaks well for the metal used and the manner in which the work has been carried out.

|                                                          |   |                                                                              |
|----------------------------------------------------------|---|------------------------------------------------------------------------------|
| No 4 Range Office,<br>NEGAPATAM,<br>16th September, 1874 | } | (True Extract)<br>(Signed) W B LEGGATT, A I C E<br><i>Executive Engineer</i> |
|----------------------------------------------------------|---|------------------------------------------------------------------------------|

*Foot note on a letter referring to Road No 65*

I saw it the other day and thought it was lateite

|              |                                                     |
|--------------|-----------------------------------------------------|
| 1st May 1876 | (Signed) M R WELD,<br><i>Collector of Negapatam</i> |
|--------------|-----------------------------------------------------|

I have been driving my cart without springs duly on the part of the Cavery bridge metalled by Mr Hall with his newly invented material (burnt earth), and have found it not at all affected by heavy downpours of rain, the material used is indeed very good, as it is elastic and the cart goes quietly over it.

|                                      |   |                                                                                   |
|--------------------------------------|---|-----------------------------------------------------------------------------------|
| TRICHINOPOLY,<br>12th December, 1876 | } | (Signed) S V AUNASWAMIENGAR,<br><i>Head Writer Central Jail,<br/>Trichinopoly</i> |
|--------------------------------------|---|-----------------------------------------------------------------------------------|

Mr Hall, formerly belonging to the P W Department, has asked me to give my opinion of the value of his calcined brick earth as a road material.

The roadway of the Cavery bridge for a length of 60 yards was laid with this material in September last, the thickness being 4½ inches. Six months have elapsed, the surface has had no repair, the season has been singularly unfavorable to the success of the experiment owing to the absence of rain, under which a road formed with this material improves, and yet the road is in excellent condition, so far as I can judge the material brought forward by Mr Hall, and certainly first introduced by him in this country, is most valuable for the purpose to which it has been here put.

The proper amount of calcination, and the method of best effecting it, require practice, but can be readily taught.

The material is laid and consolidated very quickly and easily, and has, in its homogeneity, an overwhelming advantage over our present treatment of roads with stone and gravel. I shall be very glad to have it in my power to make a much more extensive trial of it.

Mr Hall, I understand, proposes to try it at Ootacamund, and if he can find earth suited to the purpose, I think he will succeed there, but I cannot help thinking he would have a more suitable field at Madras, making use of the clayey soil taken from the bed of the Cooum. It is well known that a certain amount of saline matter is no bar to the manufacture of excellent bricks, for which purpose, as also for the preparation of this road material, I think the Cooum soil may prove well suited.

|                                   |   |                                                                          |
|-----------------------------------|---|--------------------------------------------------------------------------|
| TRICHINOPOLY,<br>20th March 1877. | } | (Signed) JAMES VIRTUE, Lt-Col,<br><i>District Engineer, Trichinopoly</i> |
|-----------------------------------|---|--------------------------------------------------------------------------|

(True Copies)

(Signed) JOHN HALL, C. E.

P.W.D.

01177  
5065

Immediate No. 1611.

Sir,

The District Engineer,  
Presidency

To,

The Chief Engineer  
Buildings and Roads  
D.P.W.

Sir,

With reference to G.O No. 182 W of 1 June 1877 P.W.D. received 13 June 1877, I have the honor to request that you will be so good as to lay before Govt the following statement of what has been done in the matter of bridge roadway and Govt compound road repairs.

Encls 2

1 Copy of Testimonials  
1 G.O

2—G.O No 2690 of 5 Oct. 1876 transferring charge of roads over Govt Bridges, and in Govt compounds from the Municipality to the P.W.D. from April 1<sup>st</sup> 1877 was received by Major Montgomerie W.E. then Offg. Presidency District Engineer, on 24 Oct. 1876.

3—Major Montgomerie W.E. in a Memorandum of 26 Oct 1876 called on the District Range Officers to prepare and submit estimates for the repairs of all Govt Bridge Roadways and Govt compound roads in their charge.

4—Up to the commencement of April 1877

G.O. 26<sup>th</sup> June 77 No. 238

1877 none of these estimates had been submitted

5.—On the 7 April 1877 I called upon the Range Officers to submit them as soon as possible.

6.—On the 14<sup>th</sup> of April 1877 I called upon the Range Officers again for their early submission

7.—On the 21 April 1877 I received from the Northern Range Officer 14 estimates for repairs of bridge roadways, and for compound roads in his charge amounting to Rs 8924.

8.—On the 23<sup>rd</sup> April I received 18 estimates from the Southern Range Officer for bridge roadways in his charge amounting to Rs 6128.

9.—On the 9 of May I received 20 more estimates from the Southern Range Officer for compound roadways, amounting to Rs 21825.

10.—Slight Bridge Roadways and Roads in <sup>the</sup> compound roads in the District had <sup>been</sup> estimated for.

11.—The number of estimates submitted was 52. Aggregating in amount Rs 36877 and were all examined and checked in my office

12.—On the morning of the 7 April 1877

when arranging for the repairs of the bridge roadways, through the medium of the Range Officers, a Mr John Hall called at my office, and presented me with a <sup>printed</sup> copy (herewith enclosed) of a number of testimonials in favor of his method of making and repairing roads with burnt clay "Adamantine Macadam". He produced some of the material which proved, and in fact is excellent for roadways. I lent to the excellent testimonials he had received from

Major Hasted RE

Mr W B Leggall A.S.C.

Mr H K Field M.C.

Lt Col Verheul RE

undertook to manufacture material, convey it to the sites of various works, to spread and consolidate, and to charge the very reasonable rate of Rs 2 only per cubic yard for every thing

13.—I thought over Mr Hall's tender until 10 April, and accepted it on that date. I—Because the rate was lower than for ordinary laterite roadway laid down by the P. W. D.

II—Because the material appeared better than ordinary laterite

III—Because the Establishment at my disposal

disposal for supervision was, and as already miserably inadequate numerically, to cope satisfactorily with even the ordinary work of the District.

IV — Because the testimonials above referred to were granted to Mr Hall by Officers whose opinions on such subjects were worthy of respect

14 — Mr Hall promised to set to work forthwith, to prepare material, and to repair at once the roadways of the following Bridges

General Hospital Bridge

Fort House — do —

Victoria — do —

Comdr-in-Chief's — do —

Elephant Gate — do —

Basin Bridge

15 — Seeing no signs of work being commenced and having heard that Mr Hall had left Madras I went in person to the Union Hotel, Mount Road, on the 18<sup>th</sup> April, to make inquiries regarding him and his work. I was informed that he had gone to Trichinopoly for his family and would return in a day or two. He did so but as nothing was being done I again called upon him to commence work. In reply he said that he was ready to commence but that Fort House Bridge

would at once be taken in hand. Nothing was done however up to the 5<sup>th</sup> of May, when I again wrote to him to the effect that if work was not commenced at once and pushed on vigorously I must undertake it with the Bridge Officers and throw him over

16 — On the 7<sup>th</sup> of May he informed me that he was then in a position to go on. That he had made a sufficient stock of material that he was turning out material at the rate of 100 cubic Yards per day, and that the bridges of which I have given a list above, would be commenced and completed in the course of a few days. That he had arranged to undertake them in the order indicated by me, and so as not to inconvenience the public, he would carry out the work at night.

17 — A small amount of material was then conveyed to the Fort House Bridge, and thrown down anywhere, some on the footways, some on the roadway, and some at the side of it.

18 — On the 12 May Saturday, I again wrote to Mr Hall informing him that in the event of the repairs at Fort House Bridge, and the other bridges in the list, not being well in hand, by Monday

14<sup>th</sup> he must give up

19—On Sunday 13 May he replied that the work would be well in hand next day (Monday) From the 13 to the 21 May he merely played with the work &c. on the 21<sup>st</sup> I wrote to him, to say that he must consider his appointment at an end and that the Range Officers had been instructed to take up his work. He begged that he might have 24 hours grace given him to complete Gt House Bridge - this was granted - but he made no use of his opportunity. Nothing was done, and I had finally to throw him over.

20—On the 22<sup>nd</sup> May I directed the Range Officers to have such bridges as are most out of repair, put in order at once.

21—The Gt House Bridge has since been repaired by the Southern Range Officer, but the portion partly repaired by Mr Hall gives much trouble, and will take time, and attention to bring it up to the mark.

22—The Elephant Gate Basin and General Hospital Bridge roadways have also been thoroughly repaired, by the Northern Range Officer.

23—The Elephant Gate Bridge roadway was repaired on the night of the 7<sup>th</sup> instant, in about ten hours. A rapid, thorough

and workmanlike performance, and a credit to the Range Officer, and his subordinates who were hard at work all night.

24—The Gt in their order No 152 W of 1 June 1877 say "It appears that the Presidency District Engineer has failed to give the work the attention he should have done. The Gt. can from personal knowledge corroborate Mr Burrows' statement that the roadways over the bridges named in his letter are out of repair."

25—I must respectfully submit that the subject was one to which I gave considerable attention one which I could not do otherwise than think very seriously about. Estimates had been carefully drawn up by my Range Officers and examined and checked in my office. Estimates amounting to Rs 36,877 for 52 works handed over to my charge and which I am expected to maintain in good condition for Rs 9,395. I sum only a little more than one fourth of the amount which I have estimated it would cost to put all these works in thoroughly good order, and maintain in that condition for 12 months.

26—This problem of how to make nine thousand odd rupees do the duty of thirty six

six thousand rupees is a difficult one to solve, and attracted my very serious attention. Had I thought no further about the matter, than to hand over a certain proportion of Rs 9,395 to each of the Plunge Officers, on the 1<sup>st</sup> of April last, with orders to see to the Bridge roadway & repairs - everything would have gone smoothly, and I would not have incurred the censure which Government have been pleased to pass upon me, viz. "That the Presidency District Engineer has failed to give the work the attention he should have done." But I would have felt that the effort to do better had not been made.

27—I cannot think that it is quite realized how painfully the "attention" of Public Works Officers is frequently taken up in trying to get work well and cheaply carried out with inadequate funds amidst trials and difficulties of many kinds, only known to, and appreciated by those whose lot it is to struggle constantly against them.

28—Mr. Burrows' solemn statement that the roadways over the Bridges named in his letter were out of repair though unquestionably correct and needing no confirmation, has a certain touch of humour

humour about it. The fact must have been well known to him considerably before the first of April last, on which date his responsibility ceased, and mine began. It was officially admitted as early as the 12 of April, on which date

I commenced to receive a series of communications from the Municipal Office drawing my attention to the bad state of the Bridge roadways.

29—These communications were undoubtedly made with every good intention, in the interests of the public, and were equally unquestionably so many official admissions that the Bridge roadways &c had not been handed over by the Municipality on the 1<sup>st</sup> of April in the best possible condition.

I have the honor to be

Sir,  
Your most obedient servant,

*R. P. Thompson* Esq. M.A. B.E.

District Engineer  
Presidency.

Fort St George  
19<sup>th</sup> June 1877  
Cooli.  
W.

been handed over to the  
District Engineer by the  
Municipality on the 1<sup>st</sup> April  
1877 necessitates appa-  
rently a larger sum than  
the sanctioned main-ten-  
ance grant to now  
bring them into proper  
order.

£47 2/8

D. E. Presidency  
F. M. S. P. S.  
No. 6. 7. 11

W. L. S.

1877  
Govt. of 1877 India.

PUBLIC WORKS.

To

Dated

Issued

Recd.

Encl

21/6  
G. O. 26<sup>th</sup> June 1877, No 301W

Nos. 238-239

Handover Bridges.

Residency, expressing  
satisfaction with the  
condition of the — and  
acknowledging the concurrence  
conveyed to the D. R. in No 1824 of the 7<sup>th</sup> June in  
connection with the P. D.

Entered in Register