9-393

M.R.O. 1—77,000—8-6-37.

(1) Number of pages 82

(2) Date of repair 13-2-43

(3) Initials of the Referencer

MADRAS RECORD OFFICE.

Government of Madras.

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PUBLIC WORKS DEPARTMENT.

Public.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following letter from Colonel W. I. BIRDWOOD, R. E., Chief Engineer, to the Secretary to Government, Public Works Department, dated Chepauk, 11th September 1862, No. 3,089 :—

SIR,

Order of Government No. 1,758, dated 22nd July 1862.
Order of Government No. 1,571, dated 5th July 1862.
* 1 Original letter No. 63, dated 4th August 1862, with five enclosures.

1. In continuation of the correspondence noted in the margin, I have now the honor to forward another letter* received from the Deputy Chief Engineer, Southern Circle, on the subject of the Kalputty bridge which was lately destroyed by a flood in the Ponany river near Palghaut. Lieutenant-Colonel Ouchterlony has enclosed a letter from the District Engineer of Malabar, in which the latter Officer has maintained that the causes of the disaster are in no way attributable to the fifth pier having been built on wells. Government are already aware of the views on this subject which Colonel Ouchterlony holds.

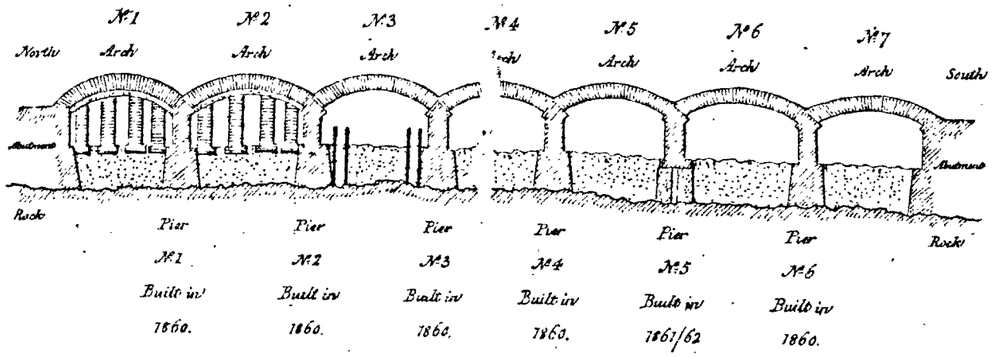
2. As there is no plan of the bridge in the Central Office, it is difficult to convey in writing a sufficiently clear idea of the structure. But it is necessary that all that can be gathered from the correspondence, which has passed on this subject, should be laid before Government.

The Bridge.

3. The Kalputty bridge, intended to connect Palghaut with the Railway station, consists of seven elliptical arches, each of 50 feet span, supported on masonry piers 12 feet high. All the piers excepting one (fifth) had been completed before May 1861. During the year 1861-62, the foundations of this last pier were laid down and all the arches turned. The following is an ideal section of the bridge immediately before the flood came down. It has been prepared from the letters of the District Engineer and Second Assistant District Engineer.

It will be seen that the centerings of the two northernmost arches were left standing when the flood descended.

Ideal Section of the Bridge previous to the flood.

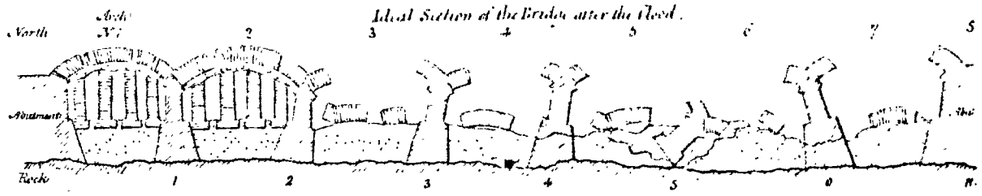


Cause of its fall.

4. There is no doubt expressed by Captain Bean or Mr. Brosnahan as to the immediate cause of the destruction of the bridge. They both attribute it to the fifth pier having been undermined by the scouring action of the water. On a careful perusal of the correspondence I do not hesitate for a moment to concur in this view. It will be noticed that this is the only pier built on a well foundation. For this Captain Bean alone is responsible.

The Bridge after the flood.

5. I now give an ideal section of the bridge after the flood.



From this it will be seen that the seven arches have been totally destroyed, and that the two to the north have not fallen down only because they were prevented by the centerings beneath them. No. 5 pier has not only been thrown down, but apparently a portion of its foundation is not to be discovered. No. 6 pier inclines to the north towards the fifth and sixth arches, and Nos. 3, 4 and 5, slope the reverse way. It is not certain whether No. 1 pier remains secure or not, but it would not be prudent to assume this in the event of another bridge being constructed on the same site. Indeed I am disposed to think that not even the *foundations* of a single pier can a second time be depended upon.

The Flood.

6. The Ponany river has a very rapid current, and is subjected to floods which appear to come down often without the least warning. On the present occasion the flood appears to have been expected. On the night of the 10th May the river rose six feet high, bringing down with it large quantities of brushwood, debris, &c. The two northernmost centerings having been left standing that portion of the stream which ought to have passed under the arches impinged against the centerings, which diverted its course to the south. A much larger body of water, therefore, than could well find its way under the bridge was forced under the southern arches. Nor was this all: the current of the stream flowing down the south side of the river, immediately before it reached the piers, met the diverted portion of the northern current which struggled with it to force a passage in the same direction. The natural consequence of this was a violent eddying action which produced a strong scour about the piers. No. 5 pier, the one built on wells, was the first to yield. It was seen to totter, and then fell right over on its side. This brought down No. 5 arch, and as a matter of course all the other arches tumbled over one after another till the work of destruction was complete.

The Water-way.

7. The first question which should be answered satisfactorily is this. Could not the northern stream have been kept on its proper course? It is natural to suppose that the water-way had been calculated for an even discharge under every arch. If, therefore, the passage under two arches were kept blocked up by their centerings, the southern portion of the bridge was doing more than could be expected of it, more than its fair portion of work. Any bridge under the same circumstances would be liable to destruction. It was, therefore, of paramount importance that every means should have been adopted to remove from the bed of such a dangerous river which was subject to a flood at any time, the centering of each arch *immediately* after it had been struck, and to strike each centering not an hour later than it was safe to do so.

No. 3 centering.

8. It is clear, now, that the centering of No. 3 arch had been struck long before the flood, but it is very questionable whether it had been removed. Captain Bean says, "the third arch from the northern side was clear of its centering "which had been removed with the exception of the footing piles supporting the masonry piers." The latter expression does not convey a sufficiently clear meaning. Mr. Brosnahan states that on the 8th May, only *two* days before the flood, the fourth, fifth and sixth centerings, numbered, I presume, from the south, which would be the second, third and fourth, as marked in the sketch,

had not been cleared away, that "he himself took coolies on that day to clear the fourth arch, and "that he ordered Mr. Carter to remove the fifth centre." Yet after the destruction of the bridge he writes "I am informed that he did not even clear out the fourth arch," thus leading me to suppose that not even half the bridge had been left unobstructed.

No 2 centering.

9. Captain Bean admits that the centering of the second arch had been struck long before the flood, and that it was intended to remove it on the *5th* of May. Yet on the 8th May it was found by Mr. Brosnahan still standing, and what is most inexcusable, this Officer deliberately left it in that state. His subsequent attempt to throw all the blame on the Overseer is most discreditable to Mr. Brosnahan.

No. 1 centering.

We now come to the first arch. This had been "closed" according to Mr. Brosnahan on the 7th May. Captain Bean in his Administration Report for 1861-62, dated 8th May writes, "we have succeeded in turning all the arches." There were therefore three clear days at least between the striking of the arch and the descent of the flood. Considering the character of the river it would have been far better to strike the centering 24 hours after the arch had been turned than to keep it standing. In the former case the only risk (in good work there would have been none) was a crack in the arch, but in the latter case the safety of the entire bridge was concerned. *Vide* Note.*

* Note.—Captain Bean says, "he anticipated freshes in the river," and Mr. Brosnahan says "a flood was expected." There is, therefore, all the more reason that the centerings should have been removed and that both the District Engineer and his 2nd Assistant should have satisfied themselves that they had been so.

10. There is, however, no excuse whatever that any arch except the northern one should have been obstructed, an energetic Officer would no doubt have had even that one clear. It is impossible to speak in too strong terms of the gross neglect of both Second Assistant District Engineer Mr. Brosnahan and Overseer Mr. Carter. It was the duty of the former to have stopped at the bridge, and to have himself cleared the water-way. He knew the character of Mr. Carter, that he habitually neglected his duty, and that he had not carried out orders previously given to him. It was, therefore, doubly necessary on his part, considering the importance of the work at stake, that he should himself have acted in the matter, and have removed the centerings. I most cordially concur with Colonel Ouchterlony where he writes that Mr. Brosnahan's endeavour "to lay the whole blame of the disaster upon the Subordinate "Carter appears to defeat itself." The loss of the bridge has been in a great measure due to the lamentable neglect of duty on the part of these Officers.

Error in constructing No. 5. pier.

11. It is unfortunate that the fall of the bridge should be in any way connected with a professional error made in its construction, but it was a most imprudent step on the part of Captain Bean to deviate from the original plan and to build the fifth pier on wells. Colonel Ouchterlony has already pointed out this error to Government, and I agree with him in toto. Wells built of brick in chunam but set in clay and filled in the manner described by Colonel Ouchterlony could not possibly stand against the scouring action of any river. I could wish that this were all that could be said on the subject, but unfortunately both the District Engineer and his Second Assistant appear themselves to throw doubts on the *stability* of this pier. It is even questionable whether all the wells under it had been built, that they had not been properly so is quite certain. Captain Bean says "I do not believe from Mr. Brosnahan's "and my own inspection that the well foundations were carefully built." Mr. Brosnahan writing after the flood, says "it is plain therefore that for 8 feet deep there is no well, no "foundation, nor nothing else but the Pier itself." It can hardly be supposed that the entire foundation would have been bodily carried away, and yet no trace of it could be found. This is most unsatisfactory. Captain Bean did wrong to use a well foundation at all in this instance, and having used it he did wrong again in setting the cubes in clay. Against a scour no clay could possibly hold the cubes together, he ought to have pumped the wells dry, and then either to have built *in* the rock, or else to have filled the wells with the best hydraulic concrete.

The necessity of providing stone revetments and aprons.

12. The character of the river having been known to Captan Bean as "dangerous," it is surprising that he did not provide against the scouring action of such a stream by building stone revetments to the piers and under the arches, and by throwing out aprons to protect the foundations of the bridge from being undermined.

With whom the blame rests.

13. Upon consideration of all the circumstances connected with this calamity, it is impossible to come to any other conclusion than that the entire blame rests equally on the District Engineer, the Second Assistant District Engineer and the Overseer. Captain Bean's attempt to palm off the responsibility of the well foundation on the Central Office is very far from successful. His having stated that the fifth pier must be built on wells cannot certainly be constituted into authority given him to do so. The remarks to which he alludes as having made in his Administration Report of the 11th May 1861 are "the sixth pier must be sunk on "wells next year." No reasons are given. If the same reasoning were to hold good in all parallel cases, there would be an end to all responsibility on the part of District Engineers, and the Central Office would have to bear the onus of every professional error made by the Department.

Carelessness in building the bridge.

14. Captain Bean in May 1861 wrote, "as the arches "are 50 feet and the river the most dangerous one in the "District for floods, great care is required." Do the proceedings connected with the construction of the bridge betoken even ordinary care? I think not. One of the piers is admitted to have been built on bad foundations; centerings which had been struck many days previous to the flood are allowed to stand, the water-way of the bridge is left obstructed, Mr. Brosnahan visits the works only two days before the flood, he sees the obstructions but does nothing to remove them (for the miserable effort he makes is not worth mention), he even *leaves* the bridge well knowing its state and that a flood might come down the river at any moment. And what is the consequence. Two days after a flood descends, the Overseer absents himself from the work without leave, and in the course of a single night, the work of two years is undone, and a most valuable bridge totally lost to Government. And yet surprise is affected that such a disaster should have occurred by those who should have foreseen and provided against it.

The accounts.

15. The accounts connected with the work appear to be quite in keeping with the whole transaction. Captain Bean says "the measurements and accounts of the bridge received by him from the Second Assistant District Engineer did not tally with the Overseer's own accounts;" again "the accounts, I regret to say, will prove unsatisfactory." The total expenditure moreover has far exceeded the estimated account. All this is most unsatisfactory.

Proposals for a new bridge.

16. In the event of a new bridge being constructed on the old site, no better plan than that suggested by Colonel Ouchterlony could be adopted. The Ponany river is not suited to the construction of masonry arches. Iron girders laid across from pier to pier would form the best support for a road-way. I trust that early sanction will be given for the preparation of an estimate for a work of this character.

ORDER THEREON, 7th October 1862, No. 2,393.

1. The foregoing is the Chief Engineer's report on the fall of the Kalputty bridge in the Malabar District.

2. There seems to be no doubt that the primary cause of the destruction of the bridge was the failure of No. 5 pier.

3. The causes of the failure were, first, the faulty foundation of the pier, faulty both as regards plan and execution, and second, the increased action of the water upon it caused by the stoppage of two if not three of the arches by the centering. The blame on account of the faulty foundation must rest altogether upon the District Engineer who took upon himself to modify the plan, and who having altered that, did not take common and ordinary precaution to secure the wells used, against the action of the water. The Deputy Chief Engineer, Southern Circle, is requested to express to Captain Bean the displeasure of Government at such carelessness, and to warn him, that a similar fault will not again be passed over so leniently. The blame for omitting to remove the centerings must rest upon the Executive Officer, Mr. Brosnahan, and the Overseer, Mr. Carter. The latter will be forthwith dismissed. Mr. Brosnahan has the

excuse that he had another important work under his charge. Nevertheless he was evidently neglectful of the work at the bridge. The Deputy Chief Engineer will be good enough to reprimand him for his neglect, and warn him that similar misconduct will ensure his dismissal.

(True Extract.)

Colonel, R. E.,

Secretary to Government.

To the Chief Engineer.
" Deputy Chief Engineer, Southern Circle.
" Civil Paymaster.

Exd. S. T. Augustin.

Central Office of Public Works
Chepauk
11th September 1862

No 3089

From,

Colonel H. I. Birdwood R.E.
Chief Engineer D.P.W.

To,

The Secretary to Government
Public Works Department

Sir,

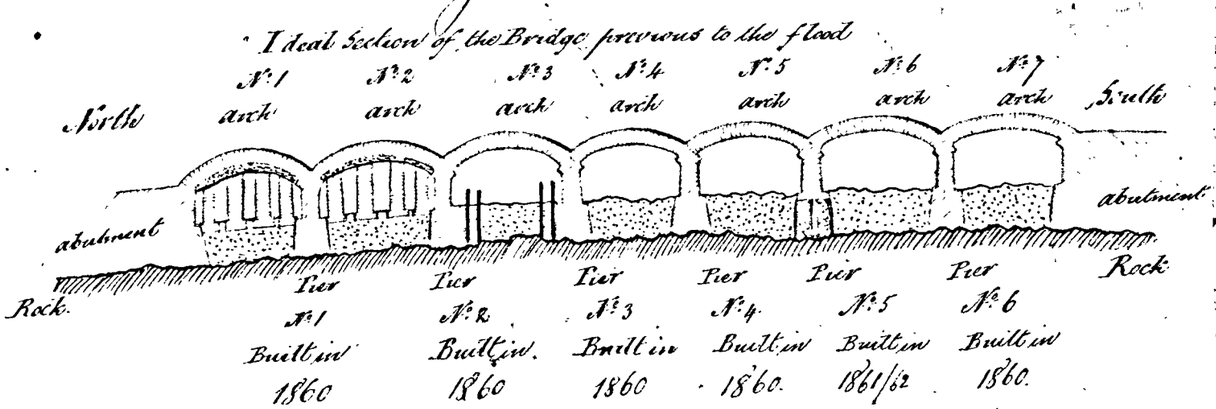
In continuation of the
Correspondence noted in the margin
I have now the honor to forward
another letter received from
the Deputy Chief Engineer Southern
Circle, on the subject of the
Kalyutti Bridge which was
lately destroyed by a flood in the
Ponany River near Palghaut.
Lieutenant Colonel Ouchterlony
has enclosed a letter from the
District

District Engineer of Bialaban — in which the latter Officer has maintained, that the causes of the disaster, are in no way attributable to the 5th Pier having been built on wells. — Government are already aware of the views on this subject — which Colonel Crichterlony holds.

2. As there is no Plan of the Bridge in the Central Office, it is difficult to convey in writing, a sufficiently clear idea of the structure. But this is necessary that all that can be gathered from the Correspondence which has passed on this subject should be laid before Government.

3. The Kalpitti Bridge, intended to connect Palghaut with the Railway Station, consists of 7 elliptical arches, each of 50 feet Span, supported on masonry Piers 12 feet high. All the Piers excepting the (5th) one, had been completed before May 1861. During the years 1861/62 the foundations of the last Pier, ~~[illegible]~~ 7th, were laid down, and all the arches turned. The following is an ideal Section of the Bridge immediately before the flood came down. It has been prepared from the letters of the District Engineer and 2d Assistant District Engineer.

The Bridge

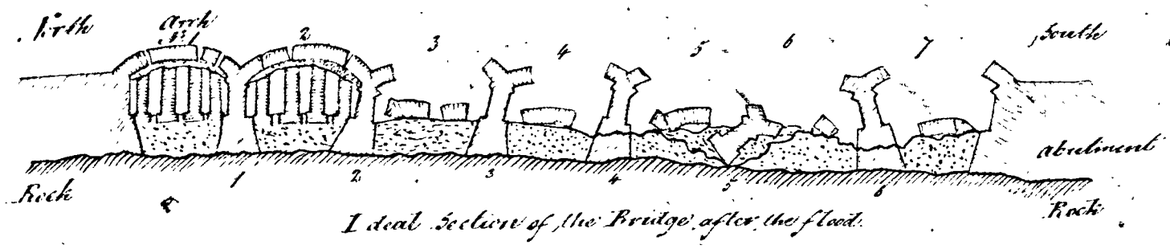


It will be seen that the centering of the two northernmost Arches were left standing, when the flood descended.

4. There is no doubt, Cause of its fall.
expressed by Captain Beam or Mr. Bosmahan as to the immediate cause of the destruction of the Bridge. They both attribute it to the 5th Pier having been undermined by the scouring action of the water. On a careful perusal of the Correspondence I do not hesitate for a moment to concur in this View. It will be noticed that this is the only Pier built on a Bell foundation. For this Captain Beam alone is responsible.

5. I now give an Ideal Section of the Bridge after the flood

The Bridge after the Flood.



Ideal Section of the Bridge after the flood.

From this it will be seen that the Arches have been totally destroyed, and that the two to the North have not fallen down only because they were sustained by the Centerings beneath them. No 5 Pier has not only been thrown down, but apparently a portion of its foundation is not to be discovered. No 6 Pier inclines to the north towards the 5 & 6th Arches, and at No 3, 4 & 5 Slopes the reverse way. It is not Certain whether No 1 Pier remains secure or not, but it would not be

be prudent to assume this in the event of another Bridge being Constructed on the same Site, Indeed I am disposed to think that not even the foundations of a Single Pier can a Second time be depended upon.

6. The Pomany River has a very rapid Current, and is subject to floods in which it appear to come down often without the least warning. On the present occasion the flood appears to have been very sudden. On the night of the 10th. May the river rose 6 feet high, bringing down with it large quantities of brushwood debris &c. The two northernmost Centerings having been left standing the whole portion of the Stream which ought to have suspended under the arches impinged against the centerings, which diverted its course to the South. A much larger body of water, therefore than could well find its way under the Bridge was forced under the Southern Arches. This was also all. The current of the Stream flowing down the South Side of the river, immediately before it reached the piers, met the diverted portion of the northern current which struggled with it to free a passage in the same direction. The natural consequence of this was a violent eddying action which produced a strong scour about the Piers. Nos Piers the one built on wells, was the first

The Flood

night

first to yield. It was seen to totter, and then fell right over on its side. This brought down No 5 arch, and as a matter of course all the other arches tumbled over one after another till the work of destruction was complete.

The Water-way

7. The first question which should be answered satisfactorily is this. Could not the northern Stream have been kept in its proper Course? It is natural to suppose that the waterway had been calculated for an even discharge under every arch. If therefore, the passage under two arches more liable affected up by their Centerings, the Southern portion of the Bridge was doing more than could be expected of it- more than its

proper portion of work. Any Bridge under the same circumstances would be liable to destruction. It was, therefore, of paramount importance that every means should have been adopted to remove from the bed of such a dangerous river as this subject to a flood at any time, the centering of each arch immediately after it had been struck, and to strike each centering not an hour later than it was safe to do so.

No 3 Centering

8. It is clear, now, that the Centering of No 3 arch had been struck long before the flood, but it is very questionable whether it had been removed. Captain Beaumont says, the 3rd Arch from the northern side was clear of its Centering which had been removed with the exception of the footing

footing piles supporting the masonry piers". The latter expression does not convey a sufficiently clear meaning. Lt. Brownlow states that on the 8th May, only two days before the flood, the 1st, 5th & 6th Centerings, remained, I presume, from the South, which would be the 2nd 3rd & 4th as marked in the Sketch, had not been cleared away, - that "he himself took axes on that day to clear the 1st Arch, and that he ordered Lt. Carter to remove the 5th Centre". Yet after the destruction of the Bridge he writes "I am informed that he did not even clear out the 4th Arch," thus leading one to suppose that not even half the Bridge had been left unobstructed.

No. 1 Centering

7. Captain Brownlow admits that the Centering of the 2nd Arch had been struck long before the flood, and that it was intended to remain in the 5th of May. Yet on the 8th May it was found by Lt. Brownlow still standing, and what is most inexcusable, this Officer deliberately left it in that state. His subsequent attempt to throw all the blame on the Engineer is most discreditable to Lt. Brownlow.

No. 2 Centering

He now comes to the 1st Arch. This had been "closed" according to Lt. Brownlow on the 7th May. Captain Beaumont in his Administration Report for 1861/62 dated 8th May writes, "We have succeeded in turning all the Arches." Whatever strength

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23 clear days at least between the Meeting of the arch and the descent of the Jetty. Considering the character of this river it would require clear days after the work has been finished to keep it standing. In the present case the only risk (in good work there would have been none) was a crack in the Arch, but in the latter case the safety of the entire Bridge was concerned.

10. There is however, no excuse whatever that any such expedient should not have been adopted, and one or the other would no doubt have had such clear. This unfortunate No Specification use strong terms of the gross neglect of both

P. 2nd

* Lieut. Capt. Brandreth says he was principally employed in the Inner part of the Bason but says he does not think that any part of the centering should have been removed and that both the Resident Engineer and the 2nd Assistant should have satisfied themselves that such had been done.

2nd Assistant District Engineer Mr. Brassington and Conductor Mr. Carter. Since the duty of the former to have stopped the Bridge, and to have ascertained the materials. The character of Mr. Carter, who had habitually neglected his duty, and shall be dealt carried out previously known to him. Since, therefore, clearly necessary on his part, considering the circumstance of the most attentive, shall be should himself have selected in the matter, and have removed the Centerings. I most cordially concur with the Colonel Auchterlony where he says that Mr. Brassington and Carter by the wholesale blame of the disaster upon the Subordinate Corps appears to defeat itself.

The

The loss of the Bridge has been in a great measure due to the lamentable neglect of duty on the part of these Officers.

II. His unfortunate that the fall of the Bridge should be in any way connected with a professional Error made in its construction, but it was a most unpardonable Mistake on the part of Captain Beaumont to deviate from the original plan and to build the 5th Pier on wells. Colonel Duchesbery has already pointed out this error to Government, and charged with him in detail. Wells built of bricks in chunam but set in Clay, and filled in the manner described by Colonel Duchesbery could not possibly stand against the scouring action of any river. I conclude that this mere well

Error in Construction of 5. Pier.

that could be said on the subject, but unfortunately both the District Engineer and his 2nd Assistant appear themselves to throw doubts on the stability of this pier. It is even questionable whether all the wells under it had been built that they had not been properly. It is quite certain. Captain Beaumont says "I never believe from Mr Brasyhaw I and my own inspection that the wells found below were carefully built." Mr Brasyhaw writing after the flood, says "this opinion therefore that for 8 feet deep there is no well, no foundation" nor nothing else but the Pier itself. It can hardly be supposed that the entire foundation could have been hastily carried away, and yet no trace of it could be found. This is most unsatisfactory. Captain Beaumont did

did wrong to use a well foundation
at all in this instance, and having
used it he did wrong again in setting
the Cubes in Clay. Against a
Stream no Clay could possibly hold
the Cubes together, Strength to be gained
from piers & Abutments dry, and then
either to have built in the Rock,
or else to have filled the wells
with the best hydraulic concrete.

12. The character of the River having been misunderstood by Captain Beaumont as "dangerous," it is surprising that he did not provide against the recurrence of such a disaster by building stone revetments to the piers and under the arches, or by throwing out spurs to protect the foundations of the bridge from being undermined.

The necessity of providing Stone revetments and spurs

Upon

With whom the blame rests

Rules 5

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13. Upon Consideration of all the Circumstances connected with this Calamity, it is impossible to come to any other Conclusion than that the entire blame rests equally on the District Engineer the 2nd Assistant District Engineer and the Overseer. Captain Beaumont attempts to weaken off the responsibility of the well foundations on the Central Office is very far from successful. His having stated that the 5th Pier was the best on wells cannot certainly be constituted into authority given him to do so. The Memorandum to which he alludes as having made in his Administration Report of the 11th May 1861 viz "the 6th Pier must be sunk on wells next year." No reasons are given. If the

the same reasoning were to hold good in all parallel cases, there would be provided to all responsibility on the part of District Engineers, and the Central Office would have to bear the onus of every professional error made by the Department.

14. Captain Beaumont May 1861, wrote as the arches are 50 feet span and the River the most dangerous one in the District for floods, great care is required. Do the proceedings connected with the construction of the Bridge betoken even ordinary care? I think not.— One of the Piers is admitted to have been built on bad foundations, centerings which had been struck many days previous to the flood are allowed to stand, the water way of the Bridge is kept obstructed.

Carelessness in building the Bridge

Inst. Broadwaham visits the works only two days before the flood— he sees the obstructions but does nothing to remove them (for the miserable effort the matter is not worth mentioning)— he even leaves the Bridge well knowing its state and that a flood might come down the river at any moment. Under what is the consequence. Two days after a flood descends, the Overseer absents himself from the work without leave, and in the course of a single night, the work of 2 years is undone, and a most valuable Bridge totaly lost to Government. And yet the surprise is affected that such a disaster should have occurred by those who should have foreseen, and provided against it.

The Accounts connected with

The Accounts 15.

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in keeping with the whole transaction.
Captain Beaw says "the measurements
and Accounts of the Bridge received
by him from the 2nd Assistant
District Engineer did not tally
with the Overseers own Accounts."
Again "the Accounts, I regret to say,
will prove unsatisfactory." The
total Expenditure moreover has
far exceeded the Estimated Account.
All this is most unsatisfactory.

16. In the event of a new Bridge being constructed on the old site, no better plan than that suggested by Colonel Buckle[illegible] could be adopted. The Ponany Rivers is not suited to the construction of masonry arches. Iron girders laid across from pier to pier would form the best support for a roadway. I trust that early directions

Proposals for a New Bridge

Sanction will be given for the preparation of an Estimate for a work of this Character.—

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

Central Office P.W.D.
Cheyenne
11th Sept.r 1862.

P. Dodd Colonel R.E.
Chief Engineer D.P.W.

To
The Secretary to Government
P.W.D.

Compd. J.R.Reeves

Proceedings of the Madras Government
Received date 7th October 1862
No 2393

Report on the destruction of Kalpalli Bridge on the Malabar Division —

Read the following letter
from the Chief Engineer
Malabar Division —
dated 11th October 1862 No 3089

Submitting Report on the destruction of Kalpalli Bridge on the Malabar Division —

Read also Despatch from Govt of India
No 2766.
dated 4th Sept 1862
with Copy of Letter to England
dated 18th December No 113 of 62

5th Pub Cy 1862 Nos 100-101
22nd Pub Cy —"— 1183-1184

No 98.

1st October 62

No 2393-7 October.

must rest altogether upon the District Engineer who took upon himself to modify the Plan, and who having altered it, did not take common and ordinary precaution to secure the walls used against the action of the water. The Deputy Chairman & Co to request the Chairman to express to Captain Beaumont their sense of his careless conduct, & to warn him, that a similar fault will not again be passed over so leniently. The blame for omitting to remove the Centerings much rests upon the Executive officer, Mr Brownshaw, & the Overseer, Mr Carter. The latter will be dismissed. Mr Brownshaw has the excuse that he had another important work under his charge. Somerset he was evidently neglectful of the work at the Bridges. The Dy Chief Engineer will be spoken to & reprimanded for his neglect, & warned that

that similar neglect misconduct will ensure his dismissal.

[illegible]

7 Copies.

J.

The Chief Engineer with Encls. Dispt 13th

The Chief Engineer & Cashier

Dy Chief Engineer

Civil Engineer

Copy pin a Letter to England
D/ 18th December No 113 of 1862

Public Works 1862 Dept.
Proc: of Govt for October

CV: 2393.

Proc: of the Albert
D/ 30 October /62

From the Officer in Charge of the
Queen's Harbour Department
11 February /63 Answd

Requesting D/ Chief
Chief Engr & Circle to express
to Captain Dean and Mr
Drinkwater the displeasure
of Govt for their neglect in the
discharge of their duties with
respect to the Delphicity of
Ledge to give them warn-
ing that a similar fault
will subject the former to be
dealt with severity and the
latter to his misdeeds and
to dismiss forthwith Albt
Carter the Overseer.

No: 98. 99.

Encr October 62