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*Proceedings of the Madras Government, Public Works Department,
23rd August 1875.*

No. 391. Read the following letter from Major J. BEATTY, R.E., Acting Superintending Engineer, Godavery District, to Lieutenant-Colonel J. MULLINS, R.E., Officiating Secretary to Government, Public Works Department, dated Camp at Ralli, 3rd August 1875, No. 1,394 :—

IN continuation of my letter of 30th instant, regarding the late fresh of 13 feet on the anicut, I have the honor to report the further particulars that have since reached me.

2. The damage done in the Central Delta is much less than the accounts first received led me to expect.

3. The Gunnaram Aqueduct has not been injured. On the afternoon of the 29th, the water above the aqueduct was up to the level of the towing paths, and in the centre of the current about an inch flowing over; on the lower side the water surface was, at the same time, about 2 feet below the level of the towing paths, i.e., the level of the towing paths being $22\frac{1}{2}$ feet above mean sea level, the water above the aqueduct was at 22 feet 7 inches in the centre and 1 inch spilling over into the aqueduct, while below the surface level of the river was 20 feet 6 inches.

4. The new embankments of the Polaram Island, of which 17 miles had been constructed, were not breached, though the water rose to within 18 inches of the top. The inhabitants of the island, knowing there was much reason to fear some of the people from villages higher up the river coming down and breaching the Polaram Island embankment, in a vain attempt to lower the river above, kept constant watch upon it during the fresh; and to this its safety is most probably attributable.

5. The three principal breaches in the Central Delta occurred in the eastern embankment of the Vasista Godavery.

The largest of these was within the limits of the village of Rajaveram, about one mile below the Muddoor Anicut. It was about 260 yards long and inundated several miles of country lying between the river and the West Bank Canal.

It was caused by a great erosion, which first carried away the narrow berm of the river and then the bank itself. I shall have a ring-bund constructed to keep out the freshes, and as soon as the river falls to summer level I purpose having the whole face of the bank sloped and revetted with lunka-grass rollers. A plan and estimate of this work will be submitted as soon as possible.

The other two breaches are each about 50 yards long. They are in the limits of the village of Ralli, 13 miles from the head of the canal. The bank was low and weak, and the river having risen to within a foot or 18 inches of the top must have found some cracks or holes through which it poured and soon breached the embankment.

6. Owing to these breaches the banks of the West Bank Canal were breached in several places between the Ralli and Ramachendrapur Locks; the water rose above the berms of the canal, overtopped the left bank, and flooded the country beyond. At Ramachendrapur the lock and weir were completely submerged, but fortunately these works escaped without any injury, though the water rose to the top of the balance beams of the upper gates, and to the roadway of the foot-bridge over the weir. Mr. Ellis saw the water at the lock at that extraordinary level, and I inspected the works yesterday and found them, much to my surprise, uninjured.

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There was a breach into the main duct, about 40 yards long, about 2 miles above the Ralli and Lolla Locks, and the water spilled over the tops of the upper gates of those locks, but did no injury, the shutters of the head sluices at Bobberlunka having been closed before the river had risen too high to work them.

7. And here I may remark on the great advantage that will be gained in times of high flood by having the new shutters and gearing to the head sluices. During the fresh for some days all control over the head sluices was lost, they were completely submerged, with the exception of the four vents fitted with the new pipe-screw muster of gearing and 4 inch shutters.

While the old shutters of only 3 inches were leaking greatly and one was broken by the pressure, the new shutters scarcely leaked at all and the screw gearing was worked with ease when the fresh was at its highest.

8. The Amlapur and East Bank Canals, the eastern embankment, and all masonry works of the Central Delta are safe.

Mr. Ellis will furnish a full report as soon as he has inspected all the works.

9. There were several breaches in the west bank of the Vasista Godavery, but apparently no great damage done. I shall now proceed there and report further after ascertaining on the spot what actually happened.

10. The river embankment in No. 4 range from Vejaishweram to Polaram stood the fresh well; the water stood up against this portion of the embankment, and boats moored alongside it. Water rose high in the streets of the villages outside the embankment, many houses fell, and boats went about the streets. Only one breach is reported and this was at the very head, in the 50 yards or so of bank between the wings of the last sluice and the hill upon which the end of the embankment abuts. The water seems to have risen to about 25 feet on the floor of the sluice and overtopped the bank.

11. From Dumagudiem I have heard up to the 28th, at which time the river had begun to fall there, i.e., about 24 hours before it began to fall at Dowlaishweram. It rose to 22 feet on the anicut. Colonel Haig estimated that a maximum flood would rise to 30 feet on the anicut. It seems to have stood at 22 feet for about 24 hours and then began to fall slowly. Up to the 28th all the works were safe; the tail-locks many feet under water, which had risen to the level of the lower parts of the village of Dumagudiem, and entered some of the houses.

No. 392.

ORDER THEREON, 23rd August 1875, No. 2,420.

IRRIGATION, No. 23.

THE foregoing report, which is a continuation of that recorded in G. O., No. 2,280, dated 6th August, is clear and of much interest, and on the whole the damage sustained in and above the delta from the recent high fresh is not as great as was expected. Attention should be given to the removal of all causes of danger before the occurrence of another high fresh.

*Proceedings of the Madras Government, Public Works Department,
23rd August 1875.*

2. The account of the working of an improved pattern of head sluice shutter, designed by Captain Brockman, is very satisfactory.

(True Extract.)

Major-General, R.E.,
Secretary to Government.

To the District Engineer, Godavery.
,, Chief Engineer for Irrigation.

Exd. S. T. Austin.

Spare Copies

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No. 1394 *Asst. Supt. Engineer's Office, Godav.*
Camp Rallee 3rd August 1875.
Disp. 4th do

From,

The *Asst.* Superintending Engineer
Godavery District.

To,

The Secretary to Government
Public Works Department.

Sir,

In continuation of my letter of 30th instant, regarding the late fresh of 13 feet on the annicut, I have the honor to report the further particulars that have since reached me.

2. The damage done in the Central Delta is much less than the accounts first received led me to expect.

3. The Gummaram Aqueduct has not been injured. On the afternoon of the 29th the water above the aqueduct was up to the level of the towing paths and in the centre of the current about an inch flowing over; on the lower side the water surface was, at the same time, about 2.5 below the level of the towing paths; i.e., the level of the towing paths being

being $22\frac{1}{2}$ feet above mean sea level, the water above the aqueduct was at $22'-7"$ in the centre and one inch spilling over into the aqueduct, while below the surface level of the river was $20'-6"$.

4. The new embankments of the Polaram Island, of which seventeen miles had been constructed, were not breached, though the water rose to within eighteen inches of the top. The inhabitants of the island, knowing there was much reason to fear some of the people from villages higher up the river coming down and breaching the Polaram island embankment, in a vain attempt to lower the river above, kept constant watch upon it during the fresh; and to this its safety is most probably attributable.

5. The three principal breaches in the Central Delta occurred in the eastern embankment of the Vasista Godavery.

The largest of these was within the limits of the village of Rajaveram about one mile below the Muddoor Anicut. It was about 260 yards long and inundated several miles of country lying between the river and the West Bank Canal.

It was caused by a great erosion which first carried

carried away the narrow berm of the river and then the bank itself. I shall have a ring bund constructed to keep out the freshes, and as soon as the river falls to summer level, I purpose having the whole face of the bank sloped and revetted with lunka grass rollers. A plan and estimate of this work will be submitted as soon as possible.

The other two breaches are each about 50 yards long. They are in the limits of the village of Ralli 13 miles from the head of the canal. The bank was low and weak, and the river having risen to within a foot or eighteen inches of the top must have found some cracks or holes through which it poured and soon breached the embankment.

6. Owing to these breaches the banks of the West Bank Canal were breached in several places between the Ralli and Ramachendrapur Locks; the water rose above the berms of the canal, overtopped the left bank, and flooded the country beyond. At Ramachendrapur the Lock and Weir were completely submerged, but fortunately these works escaped without any injury, though the water rose to the top of the balance beams of the upper gates, and to the roadway

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7. And here I may remark on the great advantage that will be gained in times of high flood by having the new shutters and gearing to the head sluices. During the fresh for some days all control over the head sluices was lost, they were completely submerged, with the exception of the four vents fitted with the new pipe-screw master of gearing and 4 inch shutters.

While the old shutters of only 3 inches were leaking greatly and one was broken by the pressure, the new shutters scarcely leaked at all and the screw gearing was worked

This is very satisfactory. The new shutters were made experimentally to ascertain what change of design if any was needed with Captain Buchanan designed them.

with ease when the fresh was at its highest.

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I have the honor to be,

Sir,

Your Most obedient Serv^t.

R. Beatty Major R.E.

M. Superintendent Engineer G. D.

Engr'd
Public Works Dept.
No. 2420

Proceedings of the Madras Government
Under date the 23^d Aug 1875
Read the following

From
The A. G. Supp. Eng. } (H. E. No. 1394 of 3rd Augt/75)
Godavery Dist.

The foregoing report, which is a continuation of that recorded in G.O. No. 2280 dated 6th August, is clear and of much interest and on the whole the damage sustained in and above the Delta from the recent high fresh is not as great as was expected

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The H. G. Light Surgeon
Godavery Dist.
Do
The Secretary to Gov-
-ernment P. W. S.

Dated 3 } August 1875
 Recd 10 }

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Reporting further
particulars regard-
ing the great loss
of 13 feet on the
Cinnicut-

J. J. 2420. 22-8-95

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 23/8/75
 10-8-75

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should be given to the
removal of all causes
of danger before the
recurrence of another
high fresh

2. The account of
the working of an im-
proved pattern of head
shut shutter designed
by Captain Brockman
is very satisfactory.

Aug. 12/8

No 391/2 32/5

Shrug God away
Chief Engr. for Dr. R.

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4-9-75

X. Att.

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Govt. of Madras
PUBLIC WORKS.

W. E. S.
Gardner

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22 Aug 1873 2420

No. 391-392

Best Fresh in the Codanary.
Passing orders on letter
from the Acting Super:
Eng. Codanary, giving the
further particulars of the