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*Proceedings of the Madras Government, Public Works Department,
10th September 1875.*

No. 254. Read the following endorsement of the Chief Engineer for Irrigation, dated Ootacamund, 2nd September 1875, No. 1,012 :—
From Major J. BEATTY, R.E., Acting Superintending Engineer, Godavery District, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, and Joint Secretary to Government, dated Dowlaishweram, 19th August 1875, No. 1,529.

In continuation of my letters of 30th ultimo and 4th instant on the great fresh of last month, I have the honor to report that the total cost of repairs required is roughly calculated as follows :—

						RS.
* Vide Supervisor Harris' report.	No. 1 Range	...	...	...	...	* 1,970
† " Range Officer's report.	" 2 "	...	...	...	...	† 4,390
‡ " " " "	" 3 "	...	...	...	...	‡ 1,000
	" 4 "	...	...	...	...	100
	" 5 "	...	...	...	...	400
					Total ...	§ 7,860

§ Exclusive of the special repairs to the Local Fund roads' breaches by the inundation.

2. I shall be obliged by your informing me whether these repairs may be charged to the allotment for agricultural repairs, or the estimates sent in to you for sanction under some other head.

3. You will observe by Lieutenant Iorward's report herewith sent that, in No. III. Range, the fresh was generally within 2 feet of the top of the embankment in the first 28 miles and within $1\frac{1}{2}$ feet between that and Nursapore, but in some places it overtopped the bank.

4. In No. 5 Range the fresh overtopped the bank in the 9th mile above Rajahmundry, but the breaches were not very bad, and rupees 400 will cover the damage done.

5. The fresh rose to 82.15 feet above mean sea level at Polaveram and to 81.91 feet on the opposite bank at Purushottapatnam.
The surface slope of the fresh was the same on both banks from Polaveram to Covoor (18 miles) and Purushottapatnam to Rajahmundry (19 miles), viz., 1.23 feet per mile.

The surface slope of the fresh from Covoor to Vijaishweram (6 miles) was 1.389,|| and from Rajahmundry to Dowlaishweram (5 miles) 1.483.||

|| Per mile.
The afflux at Vijaishweram was 10 inches, and at Dowlaishweram 9 inches.
Surface fall per mile in 20 miles of Vasista-Godavery .95 feet per mile.
Surface fall in 37 miles of Gowtami-Godavery .98 feet per mile.

6. The general result is that the late fresh has shown the whole of the embankments to be much below the proper level for safety in a maximum fresh, and that the amount of raising you proposed in your Memorandum No. 207, of 20th February 1875, will not be by any means excessive, viz., $4\frac{1}{2}$ feet for masonry and 6 feet for earthwork above the freshes of 1853 and 1861, which are the greatest that have been registered, and both of which rose to about 15.25 feet on the anicut.

7. I may here mention that I have obtained some information from the old inhabitants of Rajahmundry relative to a great fresh (probably the one referred to in your No. 1,064, of 17th December 1874, paragraph 2) that occurred when they were

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young men, which rose about $1\frac{1}{2}$ to 2 feet higher than the freshes of 1853 and 1861. An old Brahmin shows the level + 62.87 above mean sea level to which the great flood in question rose near an old well still existing. He remembers the fact from having bathed in the river at that place at the time. That fresh is also remembered by an old Sudra who points out another place about + 62.12 to which it rose at the principal tank in Rajahmundry. These two places are some distance from the embankment. The freshes of 1853 and

The fresh of last month rose to 58.416 at Rajahmundry. 1861 probably rose to about 60.66 at Rajahmundry.

8. The great fresh of last month has also greatly altered many of the lunkas and sand shoals, but this is particularly observable in the neighbourhood of the anicut. The Dowlaishweram shoal has extended considerably to the west and south, and the workshop channel has been deepened and widened. A good deal of the eastern Bobber lunka head, which we had been endeavouring to strengthen and extend by means of groynes and nanul planting, was washed away. The "island to the north-east of the Muddar lunka proper" has not been visible since the fresh, and it is hoped that it has been entirely destroyed. It seems also probable that the objectionable Wadapilly shoal and Baduguvani lunka have been considerably reduced, and thereby the approach to the Vijaishweram anicut improved.

From Mr. J. W. HARRIS, Supervisor, in charge of Southern Sub-division, No. 1 Range, Godavery, to the Superintending Engineer, Godavery District, dated Camp at Venkateswara, 19th August 1875, No. 272.

In reply to Memorandum No. 1,525 of yesterday, which reached me this morning, I beg to submit the following report on the damages caused to certain works of my Sub-division by the late heavy floods:—

The main bund of bank canal, and which forms the river bank, was breached in nine places in the 34th, 35th, and 36th miles; two of these breaches measure 150 and 120 yards in length; the remainder vary in length from 80 to 8 yards. There has been no conspicuous silting in the bank canal, excepting the deposit of the displaced material from the bund, and which will be cleared in connection with the closing of breaches. The flood waters escaping through these breaches and flowing in a north-easterly direction damaged the Colunka and Pallipalem Irrigation channels to the extent shown in the accompanying list.

The inundation consequent on these breaches and the heading up of the flood in the Coringa creek caused extensive damage to the Seela Irrigation channel under the Coringa canal. The latter cause has also resulted in damaging the Pattavala Irrigation channel; also under the Coringa canal and the Neelapilly road, the extent of which damages are also detailed in the foresaid list.

LIST OF WORKS DAMAGED BY LATE HEAVY FLOODS, WITH APPROXIMATE COST OF REPAIRS EXHIBITED.
Main Canals.

I.—Bank canal—

34th mile, 1 breach, 150 yards long, with 5 feet scour.	
35th mile, 1 " 120 " with 12 feet "	
1 " 23 " little or no "	
1 " 8 " " "	
36th mile, 1 " 80 " slight scour.	
2 " 15 " each.	
1 " 40 " no scour.	

Approximate cost of repairs, Rupees 1,000.

(Signed) J. W. HARRIS,
Supervisor.

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Irrigation Channels.

Under bank canal—

I.—Colunka Irrigation channel—

From about a mile below Colunka village to its extremity, a distance of 3 miles, more or less breached and bund washed away.

Approximate cost of repairs, Rupees 300.

II.—Pallipalem Irrigation channel—

Breached along its whole length of 3 miles with scours from 3 to 5 feet deep.

Approximate cost of repairs, Rupees 300.

Under Coringa Canal—

III.—Seela Irrigation channel—

From a mile below its head to bifurcation of its branch, 6 breaches with deep scours, and lengths of from 50 to 100 yards of bund washed away.

Approximate cost of repairs, Rupees 200.

III.—Pattavala west Irrigation channel—

1 breach, 40 yards long, with scour 6 feet deep.

1 " 30 " " slight scour.

3 small breaches with bund washed away from between.

Estimated cost of repairs, Rupees 170.

Neelapilly Road—

1 breach near Tallaravoo, 9 yards long.

2 breaches below factory in 15th mile, 20 long.

1 " " in 25th " 34 "

10 " near Coringa from 20 to 2 yards long.

Estimated cost of repairs, Rupees 90.

From Lieutenant A. R. F. DORWARD, B.E., Assistant Engineer in charge No. 3 Range, Godavery District, to the District Engineer, Godavery, dated 12th August 1875, No. 225.

I HAVE the honor to report as follows on the flood of 28th and 29th ultimo:—

The river at its maximum rose to 14 feet 3 inches on Vijaishweram branch of the anicut, and, while it was at about that level, I was able to see the river bank from 13 to 35 miles. Down to the 28th mile the bank generally was about 2 feet above the water level; below that about 18 inches. There was much more leakage through the banks than I have ever before noticed. This was probably due to the small rainfall previous to the flood. At Kakrapurru the bank was in one place only 9 inches above water level. The water at the set was extraordinarily quiet, the current in shore being very slight and the greatest velocity being well out in the river. This shows a marked improvement in the circumstances of the set. About 2 miles below this I found the river setting against the bank with considerable velocity. This set is due to the re-action of the Ramachendrapuram set in the Central Delta, and has moved up the river considerably this year. At its present place it could never do much damage. There was nothing particular to notice till I reached the 22nd mile in Nadupudi limits. Here the river had risen a few inches above the bank, and laborers were working at raising the bund. About eight years ago there was a large breach at this place, and a deep hole was scoured out in the lunka. The bank across this hole was overtopped. It must have settled about 1 foot during the flood. Rat-holes now began to give a good deal of trouble, the jets of water coming out of them being by no means easy to stop. Down to Koder I noticed no signs of any undesirable set of the river other than the one mentioned above. At 29 miles I had great difficulty in closing some large rat-holes. A villager told me at Koder that he had seen a great deal of water coming through the bank at several places; and when I got there I found that for about 20 yards in length the bank was honeycombed with rat-holes. It was dark before I got away from this place. Next morning I heard that there had been a breach at

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Aberazpalem at 34 miles. On going there I found that opposite Burugapilly and Doddiputla the water had risen above the bank, and that the working party there had raised small bunds to prevent the water spilling over. I was rather astonished to find cattle straying about the bank, of course to the imminent danger of the small bunds. The names of the owners have been reported to the Deputy Collector. How the breach at Aberazpalem happened I do not know. It was surrounded by houses, and occurred in the day time. When I got there the breach was about 20 yards wide; the difference of level in the river and bank canal was about 1 foot 6 inches, the bank canal being raised about 1 foot above its proper level by the water of the breach. I had difficulty in getting labor, and so the breach was not closed till 6 p.m. The damage done was very slight. The Nakkala, of course, backed up by the river, had flooded the country south of Koder. The total cost of closing the Aberazpalem breach and of raising banks, closing rat-holes, &c., from Vijaishweram to the Nakkala was Rupees 73; for the payment of which amount I have to request sanction under "Agricultural Repairs, Miscellaneous."

Between the Nakkala and N.

Between the Nakkala and Narsapore I did not see the bank at high flood, but in several places I noticed that it had been found necessary to raise it. Taluq Overseer Mr. Mahony, who was in charge of this portion, told me that, if the river had risen 6 inches more, it would have breached the bank in several places. The Yanugavani lunka set made considerable progress toward the destruction of the village site—about 120 yards of bank fell into the river opposite the village—but not before the Overseer had been able to protect the latter by bunds run up between the houses nearest the river. No attempt has ever been made to deal with this set, and it would be very costly to do so with any probability of success. The village ought to be moved further inland, and then a breach could do but little damage. The bank between Yanugavani lunka and Narsapore was much eaten away by the river waves caused by the wind blowing from south-west. I have not yet made out the cost of damage done to the bank south-east of the Nakkala; it will probably amount to about Rupees 600. I will shortly forward an estimate for strengthening the banks at such places as were proved weak, so as to make it safe in case of a flood of similar height. This can probably be done for about Rupees 1,000. The levels for the estimate for making the banks safe against the highest known flood are nearly completed. I have since heard that a good deal of damage has been done to the banks at Narsapore and at the village of Narsapore.

I have since heard that a good deal of damage has been done to Kanur Agraharam, about 10 miles from the anicut. The village is on the river side of the bank, and should be moved to the other side.

The following are the levels the river reached at its maximum :—

What are the levels the river reached at its maximum :—					
At 5 miles (ancicut + 38-00)	...	...	...	...	...
" 10 "	...	...	...	...	+ 47-14
" 15 "	...	...	...	...	+ 42-16
" 20 "	...	...	...	...	+ 37-01
At 25th and 30th miles will shortly be	...	...	...	...	+ 31-80

" 20 "		+ 37-01
The levels at 25th and 30th miles will shortly be reported.		+ 31-80

Report on the heavy fresh of the 23rd to 29th July 1875.

THE river on the evening of the 23rd stood 11 feet 5 inches on the Bobber lunka lock upper sill, or 5 feet 5 inches on the anicut; at that place it rose to 12 feet 7 inches on the evening, 14 feet 9 inches on 25th evening, 17 feet on 26th evening, 18 feet 2 inches on 27th evening, 19 feet 7 inches on 28th evening, 19 feet 8 inches on 29th morning, and fell 1 inch during that day. It has since fallen. The water report attached (B) gives the maximum heights at different places reduced to mean sea level for each branch. The surface fall has been worked to each reach.

2. This bank forms the canal embankment to a distance of 1 mile from the delta head. In this reach it is very high and beyond the power of any flood. From the 1st mile point East bank to Vasista branch, it leaves the main duct and runs along the river margin to as far down as Lakshmi Polarum, and there joins the west bank canal whose right bank it then forms all the way to the Gunnarum aqueduct, 27 miles from head.

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3. The upper length of 13 miles of embankment was breached in three places by the heavy fresh. The first breach occurred above the village of Rajaveram, 1½ miles from head, caused by the undermining effects of the river which at that spot has formed an ugly elbow from the current setting on to it off the Muddoor island. The length of this gap is 260 yards, and it will require an inner bank of about 883 yards to cover it, costing probably Rupees 1,500. For this an estimate has been framed and plan of site prepared and submitted under the Superintending Engineer's immediate direction by me. The work has been put in hand, and will probably be completed in ten days.

4. The second and third breaches occurred within 400 yards of each other in the 13th mile, Ralli limits; the second, a length of 70 yards through the river embankment; and the third, 55 yards into the west bank canal right bank, also forming river embankment. The cause of these breaches is unknown; Ralli villagers attribute them to cracks from the late hot weather, to ant-hills, and to rats' holes. Lower villagers suspect the upper villagers of having breached with the intention thereby of reducing the height of the waters above. I cannot decide either way as the banks are not low; they appear weak and filled with cracks; these possibly helped the damage. The cost for repairs will probably amount to Rupees 890. From the 13th to the 27th mile this bank suffered nothing serious. I turned out the heads of all adjacent villagers, and kept constant watch during the high stage of the Godavery.

5. These breaches alluded to occurred on the 27th; precise time I have not been able to ascertain; some say during the day time, others assert that the river broke in at night. Mr. Delta Superintendent Jackson saw them during the night 11 P.M. and sent off intimation to me to Gunnarum, which reached at 8 A.M. next morning. I immediately repaired to the spot to Ralli village, but could not get up higher. The appearance of the river and the critical situation of the submerged villages led me to infer that the damages were more serious than they are really now. I reported accordingly, making up my mind for very disastrous results which fortunately have not happened.

6. This self-acting sluice intended for the relief of that tract between the river embankment and main duct and west bank canal has cracked in the arch, longitudinally at crown, and in left wing partially sunk. These cracks do not appear serious; they are about one-eighth of an inch wide, due to settlement of work from heavy saturation of surrounding lands. The water stood to within 2 feet of bottom of parapets.

7. Much erosion has taken place below No. 1 and all the way to No. 5 groyne. The earth-connecting bank of No. 1 has suffered seriously. The current of the Godavery leaving Ramachendrapur groynes and set. Kakerapuroo comes directly down upon the Ramachendrapur set. This current helped on by the very heavy westerly wind of the 26th was two formidable for the little embankments put up to confine such a mighty river as the Godavery. The margin below No. 1 groyne has a tendency to fall into a slope, but is very steep in all other parts.

8. This embankment from near Bobber lunka to opposite Mokultippa has in no way suffered from the flood. In some spots West bank to Gowtami. Mandapilly, Waddapollum, Inavilly Chintal lunka, and Tana lunka the fresh almost overtopped the banks. I had a batch of men looking after and raising all low places and strengthening weak parts throughout this entire distance of above 50 miles, and in consequence saved it from damage. The westerly wind alluded to does not affect this bank, and to this I mainly attribute its safety.

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various stages and dates. Maximum height of flood above stood at 22 feet 9 inches; below at 20 feet 9 inches, giving a difference of 2 feet between the two gauges. These when reduced to mean sea datum will give for upper $\times 22.5$ feet and for lower $\times 20.5$ feet.

17. This island is uninjured by the late heavy flood; some extra supply was forced into it by the great rise in the west bank canal, but prompt measures reduced it to the maximum; and my instructions to the Delta Superintendent C. Bhimiah to open out all channels and to surplus into drains gave the necessary relief and prepared the island against emergency. A very small breach at the 49th mile below Sakenatipilly through the river embankment afforded speedy supply for wet cultivation, which was taken advantage of, and breach refilled by ryots since then; some erosion has taken place in all exterior curves of sets.

18. This side of the island is seriously endangered at Kottapilli lunka village where a sharp set has been gaining on it from time immemorial. The river embankment shown on my map sent, when submitting the estimate for a new river bank, has been undermined, but every step was taken to prevent the river breaching through by the irrigation channel at that spot. Its inner bank, which was strengthened in 1874, was carefully watched and protected by means of small ring bunds.

19. The new embankment behind the village, although completed, is yet not ready for the river, being a new work requiring at least one season to consolidate. The villagers have been obliged to abandon their old site and to remove elsewhere. The whole length of this set has suffered very much; all the groynes are clean washed away, and margin very seriously eroded throughout.

20. I gave instructions, when leaving Gunnarum for Ralli on the 28th, to open out a long breach in the river embankment some $\frac{1}{2}$ mile below the aqueduct on the lower side to take off any extra supply received by the river going over the aqueduct walls. This cut was made, but fortunately was not called to work, the river not rising to fill the canal.

21. This island was in no way damaged, the embankment now completed to $17\frac{1}{2}$ miles round the head, reaching 9 miles to one side and to $8\frac{1}{2}$ to the other or Mokultippa side, was, I hear, in great danger owing to the washing effects of the strong westerly wind in various places, but the determined exertions of the villagers, who very willingly turned out to protect their island from inundation, saved it. Some parts of the embankment exposed faces are, I hear, washed into a longer slope than originally given to it, thereby weakening the bank. I have issued orders for immediate repairs. I received reports from the embankment maistry in that island who reports favorably of the ryots and their valuable assistance rendered to him in watching the embankment against suspected malpractices of upper villagers who, to reduce the river, would not hesitate to ruin the Polarum embankment. The Godavery stood up to within $1\frac{1}{2}$ feet of the top of the banks.

22. The surplus water from the inner breaches to the west bank canal spreading over the country and following the course of the Gorinkala reached the Gunti and Kottapetta road against which it rose till overtopping and busting through by fifty-four breaches of all sizes from 1 to 60 yards length it gained the low country between this road and the Amlapoor and Gunnarum road. It was here met by the Godavery water backing up the Gorinkala through its mouth. These combined waters stood up to the level of the road, and in several parts 6 inches on it. Three breaches occurred, and the water found its way as the river receded into the Godavery. The

9. The waters pouring through the first breach alluded to in the river embankment submerged the lands of Razavaram, Pulidindi Velecher, Vasantavadu Kattunga Narikidamilli, and Ankampalem. In fact, this tract between the river and canal embankments was entirely under water, which forced its way into the main duct at its 6th mile and filled it, sending down a quantity much above (1 foot) our greatest supply. The head sluices had been before then shut off by me. The extraordinary supply rushed over the locks of Ralli and Sollah and running some 6 inches over their gates, with however no bad result. Both locks and weirs received no damage, and are now as good as hitherto. The length of this breach through the right bank of the main duct is 40 yards. It will probably cost Rupees 150 to refill and make up this bank.

10. The main duct has otherwise suffered from the slipping in of its stiff sides in the 1, 2, and 3 miles below head, and also from percolation through its banks from the river branches adjoining; a large quantity of soil has by these means been thrown into the bed of the main duct.

11. This canal has suffered seriously in its both banks in miles 10, 11, 12, and 13. The water from the submerged tract between the river and canal embankments forced its way through several breaches in the right bank of the canal, and filling it went up to Ralli lock and supplied the Amlapoor canal with water to near overflowing. I opened out the Amlapoor canal right through and took off by all channels and drains. I can only roughly put down the cost of restoring the injured banks to somewhere about Rupees 1,000.

12. Breach No. 3 also poured into the west bank canal, but sent its main volume down stream to Ramachendrapur lock and weir. When I visited this work on the morning of the 28th, I saw 2 feet of water going over the chamber walls. The lock was entirely under water. The measurement on upper sill read 9 feet 6 inches, while the top of wall is only 7 feet 6 inches; 9 inches of water flowed over the weir roadway. It is a matter of the greatest astonishment to me to find that the weir (which is well known for its tower-of-Pisa-like leaning attribute) stood this extraordinary pressure. However, I am thankful both these masonry works have not suffered.

13. I cannot even approximately give the lengths of the breaches in the banks of the west bank canal, as they are so numerous and of all sizes, shapes, and depths, that I think it enough to say that 3 miles of embankments require repairs.

14. The water from these breaches escaped over the low-lying country into the Gorinkala, moving down it and submerging a very large portion of the country on both sides of this drain.

15. The west bank canal between Ramachendrapur and the Gunnarum aqueduct suffered very slightly; a few small and unimportant breaches occurred, or were cut in the limits of Gopaulpuram, Gunti, and Peddapudi. These can all be filled up at a cost of Rupees 150. The morning, materially assisted in drawing off this large body, reducing the supply to Nagarum island to 4 feet 6 inches on the aqueduct.

16. This large and important structure has stood out the heavy flood exceedingly well. A few of its upper side coping bricks have been displaced by the waves. The water on the aqueduct for about five hours on the 29th. I saw it into the canal in the middle portion of the aqueduct at 2 feet 6 inches on the morning of the 30th. There was then a heavy re-action of current on both extremities of the aqueduct on the lower side. I appended a water register (A) showing

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whole country about Naraindrapur, Mongonda, Gunnarum, Ravipad, and Bellumpudy was inundated.

23. The cost of restoring these roads will probably amount to for Gunti and Kottapetta road Rupees 1,000, Amlapoor and Gunnarum road about Rupees 250.

Cost of repairs.

24. This canal has also suffered in various ways from the direct and indirect actions of the late flood. By the former, some breaches have occurred, caused by the river flowing into the canal. The indirect action due to excess of water received from the Amlapoor canal destroyed the inner bank in twelve places. The cost for repairs will amount to Rupees 300.

Bendamur lunka canal.

25. The following statement affords at a glance the sums required for the restoration of all destroyed banks and roads, and includes probable cost of work executed so as to prevent overflow of river into the delta by sundry earth repairs to low banks:—

Summary.

Name of Works.	Amount. Rs.
1. Ringbund at Ruzaverum	1,500
2. Breaches in Ralli Limits west bank canal	800
3. Breaches through the right bank of main duct	150
4. Restoring breaches in river bank Vasista-Godavery... ..	1,000
5. Breaches to west bank canal	150
6. Gunti and Kottapetta road	1,000
7. Amlapoor and Gunnarum road	250
8. Breaches on Bendamur lunka canal	300
9. Other sundry works to embankments. Estimates not received will in all not amount to... ..	400
Total ...	5,640

26. The damage to the crops on lands swamped by the river and water through the several breaches may be roughly estimated as total destruction of all castor, cotton, gingelly, hemp, and other dry cultivation. Great benefit will be derived by the paddy cultivation, both wet and dry. General benefit to lands for at least three years is ensured from the silt deposit, from the destruction of all kinds of ants and plant-destroying vermin. Dry crops in this year for want of rain were considered as having failed; their destruction will not, therefore, be much felt by the ryot, especially seeing that paddy land was so highly enriched with the Godavery silt.

Damage to crops.

27. I came up to Ralli on the morning of the 28th, and at once sent off intimation to the Tahsildar and Deputy Tahsildar of the impending danger. I warned all interior villagers to be prepared for an inundation. I regret to have to inform that I received very little help in the way of combined co-operation to avert any danger from the Revenue authorities, who did not even do so much as enforce on the villagers the necessity of watching over embankments in their several limits. The Tahsildar, I know for a certainty, did not, up to the 30th, go about to see the effects of the flood. On that day he went to Mooktaswerum and returned to Amlapoor, more on a picnic, with the District Munsif and Police Inspector. I begged of him to proceed to Polarum island, as I believed his presence there would be of vital importance; he did not go there, but rested contented with reports from respectable ryots (so he reported to me).

Assistance afforded by Revenue Department.

The Sub-Magistrate of Kottapetta, on receipt of my express of the 28th, came up to within 4 miles of the Ralli breaches and reported he could get no nearer. Other assistance afforded by him was the detaching of a belted peon to supply me with stakes and coolies. He did not personally exert himself by going about and calling on the villagers to look to their tanks.

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I need not dwell on the aid I should expect from such a man as a Tahsildar or Deputy Tahsildar who, by his influence and power, could turn out bodies of ryots and heads of villages to help us in keeping of impending danger, by strictly watching river and canal banks, and by impressing on the inhabitants the serious consequences of a heavy break in by the river. In such a crisis who but the Magistrate can enforce labor. When this officer is either absent or neglectful, the after-effects are certain to be enhanced.

The Deputy Tahsildar of Sivakodu did his duty in the Nagarum island, and gave great assistance to the Delta Superintendent in preserving the river embankments.

(Signed) J. N. H. ELLIS,
Sub-Engineer in charge No. 2 Range, Godavery.

13th August 1875.

B.—WATER REGISTER OF BOBBER LUNKA LOCK.			A.—WATER REGISTER OF GUNNARUM AQUEDUCT.			
Month and Date.	Upper Cill or River Side.	On Anicut.	Date.	River.		Remarks.
				Upper.	Lower.	
1875.			1875.			
July 23rd ...	11 5	5 5	July 23rd ...	8 9	8 9	Due to waves
" 24th ...	12 7	6 7	" 24th ...	10 6	10 0	
" 25th ...	14 9	8 9	" 25th ...	12 8	11 6	
" 26th ...	17 0	11 0	" 26th ...	15 6	14 8	
" 27th ...	18 2	12 2	" 27th ...	20 3	18 3	
" 28th ...	19 7	13 7	" 28th ...	21 9	20 0	
" 29th ...	19 8	13 8	" 29th ...	22 9	20 9	

(Signed) J. N. H. ELLIS,
Sub-Engineer in charge No. 2 Range, Godavery.

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B.—Statement showing Particulars of Godavery Flood of 29th July 1875 on both Branches.

Place of Observation.	Distance between Stations.	Height of Maximum rise reduced to Mean Sea.	Difference between Stations.	Fall in Feet per Mile.	Remarks.
Goutami.	Miles.				
Bobber lunka...	0	51.66	...	...	Rise on upper cill = 13.66; on anicut = 51.66 = nearly— Say, 1 foot fall per mile.
Waddupurru ...	5	46.47	5.19	1.04	do.
Kottapetta ...	12	34.50	11.97	.998	Distances measured along middle line of river branches.
Yedder lunka...	22	10.14	24.36	1.107	
Vasista and Vainateyam.					
Bobber lunka...	0	51.66	...	...	
Pulidindi ...	5	46.10	5.56	1.11	
Intigapad ...	10	34.07	12.03	1.20	
Gunnarum ...	12.5	20.50	13.57	1.08	
Bendamur lunka ...	16	3.25	17.25	1.07	Gauge on aqueduct lower side; upper read 22.5.

(Signed) J. N. H. ELLIS,
Sub-Engineer in charge No. 2 Range.

13th August 1875.

Proceedings of the Madras Government, Public Works Department,
10th September 1875.

SUBMITTED for the information of Government in continuation of the report contained in Proceedings, Madras Government, 23rd August 1875, No. 2,420.

The information collected regarding the levels of the fresh at various points are not only of interest as throwing light upon the characteristics of large rivers in high fresh, but they will be of practical value in fixing the height of the flood banks. It will be seen that in this latter connection the Superintending Engineer has been making inquiries which will, it is hoped, establish the maximum flood level with sufficient accuracy.

2. The remarks of the Central Delta Range Officer on the non-recognition by the Taluq Revenue Officers of the importance of energetic action during the period of danger will doubtless be considered to require notice.

3. In all parts of the delta attention has been paid to the behaviour of the river during this fresh, and it appears to be more than probable that in some places where sets have given trouble, an improved state of the river bed will have been caused by the flood.

(Signed) JOHN MULLINS, Lieut.-Colonel, R.E.,
Chief Engineer for Irrigation.

No. 255. ORDER THEREON, 10th September 1875, No. 2,611.

IRRIGATION, No. 23.

RECORDED in continuation of G. O.,
No. 2,420, of the 23rd August 1875. The
remarks of the Central Delta Range Officer

on the want of energy displayed by the Taluq Revenue Officers during the flood will
be referred to the Revenue Department for consideration.

True Extract.)

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

No. 1012 117. 19

Submitted for the information of
Government in continuation of the
report contained in Pro. Madras Govt.
23rd August 1875, No. 2,420.

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Ex. 6
Perusal of
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Wm. L. Lusk
Chief Engineer for Irrigation

Col. Command
2nd Sept/75

To, The Secy. of Government
S. H. L.

N. 252

P. No. 1895 Sept.
No. 5894

From

The Chief Engr.
for Dringam.

Dated 2nd Sept. 1895
Recd. 13th —

E. L. No. 1012.

Submits letter
of the Ag. Engr. Mr.
Godavery reporting
further on the great
flood of the 29th July
1895.

No. 2611-10-5-25.

No 2611 O.H.K. Sept 21

Pro. of the head as Govt.

Under date the 10 Sept 1895

Read the following:

The Ch. Engr. for Dringam (H. E. No. 1012 of 2nd Sept 1895)

Recorded in continu-
-ation of G. O. No. 3420
of the 23rd August 1895.
The remarks of the Cen-
-tral Delta Range officers
on the want of energy
displayed by the Salug
Revenue Officers during
the flood will be referred
to the Revenue Depart-
-ment for consideration.

Md
7/9

M

SC Dis 7th - 4-10-75

Rev. Dept
Ch. Engr. for Dringam
O. S. Godavery

21

5 with 4 Enclosures

9

17

W. 3/9
M. R.

4

1589/1
Sd/- of 1875 Madras.
PUBLIC WORKS.

To

The Home Dept.

Dated

Issued

Recd.

Encl.

G. O., 10 Sept 75, No. 2611

Nos. 254-255

Great tree of the 29 July
1875. Godavari St. Under
note by the Ch. Insp. for Engrs
submitting letter from the Ch.
Supt. Engrs giving further par-
ticulars of the —, recorded
with remarks

254/55