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(2) Date of repair 19-1-63

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MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No. <u>625</u>	Press
<u>508-504</u>	Mrs.
Dated <u>22-2</u>	18 <u>66</u> .

Not to be folded or roughly handled

No. 503. Read the following letter from the Consulting Engineer for Irrigation and Canal Company, to the Secretary to Government, Department Public Works, dated Madras, 9th February 1866, No. 148 :—

1. I have the honor to submit the following Report on the progress made in the works of the Madras Irrigation and Canal Company during the Quarter ending 31st October 1865.

2. This Report has been delayed for some time in my office in the expectation of obtaining a reply, which has not been as yet received, to my Memorandum* of observations on the Agent's Progress Report for September, but as perhaps

* Dated 25th }
Despatched 29th } November 1865.

the more convenient arrangement will be to allow the Reports up to the end of the second quarter of 1865-66 to stand as they are, and to make any alterations and adjustments, that may be ultimately found requisite, in the Report for the third quarter, I have thought it better not to wait any longer for answers to the many questions which I found it necessary to ask with regard both to excess of expenditure, and to incorrect debits to particular works. Hitherto expenditure in excess of sanction has not been noticed specially, unless the total of a separate sanction had been exceeded, but the Report for September was received soon after my inspection of the upper five sections of the Main Canal in that month, and I was able consequently to compare the outlay shown with the state in which the several works were seen by me. It was found also in thus examining the Progress Report in detail that, in many cases, the entries were not so made as to give the necessary information, and that while sometimes this was due to the expenditure not being

† Under Rule XXIX.

exhibited for each item of the abstracts of estimates furnished† by this office as the basis for the preparation of the Reports, in other instances the abstracts themselves had been from the first defective, owing to two sections of the canal, which had originally been included in one sanction, having but one abstract of estimate, so that there was no possibility of comparing the progress made with the expenditure exhibited.

3. The following are some of the items of the Progress Report for September, which appeared to require explanation.

Procs. Madras Govt., No. 1,674, dated 15th April 1864.

4. The sanction of the first section Main Canal allows for earth-works cubic yards 30,15,960, Rupees 5,65,541; „ 34,51,794, „ 6,29,548.

the Report shows ... The difference is far greater than should have been the case, seeing the recent date of the last sanction, and information has been asked for as to the cause of the increase in quantity, with the miles in which it has occurred; second as to the quantity still remaining to be done; and third whether there have been any over-payments in this section and, if so, to what extent. In this same section the outlay on superintendence and sundries is Rupees 80,211† against Rupees 56,025, sanctioned.

† Up to September 1865.

*Proceedings of the Madras Government, Public Works Department,
22nd February 1866.*

Last sanction for second section. Procs. Madras Govt., No. 2,477, dated 25th August 1865.
Last sanction for third section, Procs. Madras Govt., No. 739, dated 17th March 1865.

* Up to September 1865.

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‡ Up to September 1865.

1,50,652, Rupees 2,41,166, or less than half the work, and a considerable excess of expenditure. There is probably a mistake in the quantity as entered in the report.

6. Information regarding the changes which have occasioned the great differences shown below in the quantities and cost of the rubble masonry walls has been asked for—

Up to September 1865.

<i>Estimate.</i>	ES.
Cubic yards 56,457 ...	1,67,157

Progress Report.

Cubic yards 97,978 ...	2,01,051
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7. The Kadrabagh aqueduct, on the other hand, which had been nearly finished in September, shows Rupees 12,623 only as expended,§ but the estimated cost is Rupees 46,308 and, in addition to the work provided for in this estimate, there had been sundry works found necessary, so that probably at least 35,000 Rupees have been erroneously debited to some other work.

Procs. Madras Govt., 24th October 1865, No. 3,191.

mentioned that the Ullur aqueduct had been nearly finished, and that it had cost less than the estimate, but the Progress Report shows an expenditure|| of 40 per cent. in excess of the sanction, and, besides this, Rupees 909 spent on the ingress channel, a work which should have been included in the revised estimate.

|| Expenditure up to September 1865 ...	RS.	A.	P.
Sanction, Procs. Madras Govt., No. 739, dated 17th March 1865 ...	33,802	2	3
	24,381	10	11

** Up to September 1865.

cost Rupees 6,040. Probably erroneous debits have been made, and several instead of one culvert should share the outlay.

10. The Progress Report does not show any expenditure on the new, and as yet unsanctioned, scouring sluice of six vents in the 42nd mile. This work was noticed in paragraph 30 of my letter, No. 100, referred to in paragraph 8 above.

*Proceedings of the Madras Government, Public Works Department,
22nd February 1866.*

11. The Teragopila aqueduct in the 63rd mile was estimated to cost Rupees 36,910; it was not half finished last September, yet the expenditure upon it had reached 38,196.*
In the fifth section of the Canal.
* Up to September 1865.

12. Two bridges, one at Nagatore and the other at Jupaud, have been sanctioned for the fourth section Main Canal. The former has been finished, but the latter (paragraph 38 of letter No. 100) was not more than one-third finished at the time referred to, nevertheless the expenditure exceeds, by 30 per cent., the amount, Rupees 24,909, sanctioned for both bridges.

13. The scouring sluice and channel in the 69th mile show an expenditure of Rupees 6,967 against Rupees 2,691 sanctioned, and the sluice alone had been constructed. The cost of the work done appears to me, as at present informed, much greater than was requisite.

14. The scouring sluice and channel in the 73rd mile were estimated at Rupees 2,966, and the expenditure up to September was Rupees 9,040. Explanation of this large excess has also been asked for.

15. Against a sanction of Rupees 7,463-15-7 for superintendence and sundries in the estimate of the sixth section, Rupees 52,045-9-2* are shown as spent.
* Up to September 1865.

The allowance was very small, but the expenditure under this head is very much too large, it being more than 20 per cent. on the value of the work done.

16. The channel for discharging surplus water into the Banakacherla affluent of the Caulce was estimated to cost Rupees 2,930, and the outlay is shown at Rupees 12,490. Much of the difference is no doubt due to the revetments, which have been constructed, but which were not provided for in the sanction. The details of the expenditure have been applied for.

17. The Jootoor anicut and head works, which were included in the sanction* for the seventh section of the Main Canal, had cost, up to September, Rs. 24,361-12-0, the provision for them being Rs. 10,800.
* Procs. Madras Govt., No. 134, dated 17th January 1863.

These works were not complete at the date of the Report, and so great an excess of expenditure should not have been incurred without the submission of supplemental estimates.

18. The regulating lock at the head of the seventh section was to cost Rupees 12,110. I was last there in March 1865, when the excavations only had been nearly completed; the work was stopped, and there was no intention of going on with it, but this work has been debited with expenditure to the amount of Rupees 9,114, a sum so vastly in excess of the value of work believed to have been done, that probably there is some mistake in the entry.

19. The expenditure on special superintendence and sundries in the seventh section is Rupees 30,565,* against Rupees 7,908 sanctioned. The provision was about half what was requisite, and the outlay is about twice as much as it should have been.
* Up to September 1865.

*Proceedings of the Madras Government, Public Works Department,
22nd February 1866.*

20. The Memoranda refer to many other works and items; but enough have been mentioned to show that even comparatively recent estimates have been considerably exceeded, and that further supplemental sanctions will be required for every section of the canal; I hope that some of the considerable discrepancies will be found to be due simply to erroneous debits of expenditure, and that the report for the quarter ending 31st January will contain adjustments of all such mistakes.

21. The expenditure during the second quarter of 1865-66 will now be exhibited in the form usually employed in these reports for the information of Government.

22. The expenditure on the Soonkasala anicut and head works was Rupees 3,168-6-7, consisting of Rupees 2,334-8-3 for masonry, Rupees 101-3-1 for special superintendence and sundries, Rupees 586-7-7 for stores, and Rupees 146-3-8 for proportion of store charges.

23. The expenditure on the Hindry aqueduct was Rupees 1,015-5-8, the items being—

	RS.	A.	P.
Excavation, baling, and filling	...	...	...
Rubble stone in chunam, cubic yards 214	...	...	...
Plastering	...	...	...
Concrete flooring, cubic yards 68	...	...	...
Special superintendence and sundries	...	...	...
24. Rupees 10,212-1-2 were expended on the first section, 1 to 17½ miles of the Main Canal, the work done being—	...	...	...
Excavation and embankments, cubic yards 5,933	...	...	...
Revetting interior banks with rough stone, do. 4,881	...	...	...
Culvert, No. 11.	...	...	...
Calingulabs	...	...	...
Special superintendence and sundries	...	...	...
Stores	...	...	...
Proportion of store charges	...	...	...
25. The second and third sections from the 18th to the 43rd miles, show an outlay of Rupees 1,38,887-12-4, the items being—	...	...	...
Excavation and embankment, cubic yards 1,18,335	...	...	...
Revetment, square yards 59,117	...	...	...
Masonry revetment, do. 73	...	...	...
Masonry wall,	...	...	...
Dry rubble walls,	...	...	...
Backing with dry rubble,	...	...	...
Dry filling in behind the masonry revetment,	...	...	...
Foundation to masonry walls,	...	...	...
Clay well rammed between dry rubble,	...	...	...
Dry rubble and gravel, &c.,	...	...	...
Single or stone backing	...	...	...
Covering sandy bed of the Main Canal below the Hindry aqueduct	...	...	...
Aqueduct at Kadrabagh, cubic yards 62	...	...	...
Do. at Ullūr	...	...	...

Excavation and embankment, cubic yards 5,933	7,503	14	6
Revetting interior banks with rough stone, do. 4,881	2,197	0	8
Culvert, No. 11.	69	4	4
Calingulabs	80	2	8
Special superintendence and sundries	160	8	0
Stores	211	14	5
Proportion of store charges	49	4	7
Excavation and embankment, cubic yards 1,18,335	60,236	5	0
Revetment, square yards 59,117	35,197	9	0
Masonry revetment, do. 73	224	0	0
Masonry wall,	4,691	8	0
Dry rubble walls,	5,708	6,682	7 10
Backing with dry rubble,	1,452	971	2 0
Dry filling in behind the masonry revetment,	59	49	0 0
Foundation to masonry walls,	127	112	6 8
Clay well rammed between dry rubble,	7,881	2,516	11 3
Dry rubble and gravel, &c.,	51	17	0 0
Single or stone backing	8,459	2,061	2 8
Covering sandy bed of the Main Canal below the Hindry aqueduct	75	9	9
Aqueduct at Kadrabagh, cubic yards 62	514	1	0
Do. at Ullūr	1,041	0	0

*Proceedings of the Madras Government, Public Works Department,
22nd February 1866.*

	RS.	A.	P.
Bridges	...	...	...
Calingulabs, cubic yards 192	...	...	...
Culverts do. 97	...	...	...
Discharging sluice in the tank bund at the 40th mile, cubic yards 409	...	...	...
Sultanpoor tunnel, cubic yards 44	...	...	...
Alterations of road do. 2,008	...	...	...
Tramway	...	...	...
Special superintendence and sundries	...	...	...
Stores	...	...	...
Proportion of store charges	...	...	...

26. On the fourth and fifth sections of the Main Canal, from the 44th to 72nd miles, there was an expenditure of Rupees 81,085-0-1, the details being—

Excavation and embankment, cubic yards 2,11,120	34,661	14	9
Revetment and pitching, do. 6,519	10,212	15	7
Bridges	2,191	5	6
Aqueduct in the 63rd mile	10,323	3	11
Calingulabs	2,364	13	3
Culverts, cubic yards 77	5,493	15	7
Return bund do. 11,093	1,920	7	0
Unsanctioned bridge at Nagatoor	46	3	5
Tramway	9	6	0
Catchwater drain, &c., cubic yards 340	42	8	0
Scouring channel and sluice	48	9	6
Culverts	673	8	0
Plant and contingencies	5,949	13	7
Stores	5,842	6	4
Proportion of store charges	1,303	13	8

27. On the sixth section, or miles 73rd to 91st of the Canal, Rupees 8,743-10-11, were expended on—

Excavation and embankment, cubic yards 6,613	1,166	4	2
Single and double culverts	14	6	0
Locks	3,475	2	8
Bridge	100	0	0
Scouring sluice and channel	324	11	3
Special superintendence and sundries	2,365	10	4
Stores	1,079	6	6
Proportion of store charges	218	2	0

28. The outlay on the seventh section, miles 92nd to 114th, amounts to Rupees 23,093-9-9, being for—

Excavation and embankment, cubic yards 39,726	4,930	2	3
Anicut and head works	1,313	2	5
Culverts	616	0	1
Calingulabs	14	11	11

*Proceedings of the Madras Government, Public Works Department;
22nd February 1866.*

Bridges	...	...	...	...	...	...	...	RS.	A.	P.
Special superintendence and sundries					...	...	...	715	14	7
Stores	...	...	...	...	...	...	...	2,034	1	0
Proportion of store charges...				...	...	...	...	10,917	10	4
				...	...	...	...	2,551	15	2

29. The outlay on the eighth section, miles 115th to 143rd, was Rupees 26,525-0-10, the items being—

Excavation and embankment, cubic yards	1,69,061	...	18,662	1	5
Calingulahs	...	...	...	...	...
Locks	...	...	...	...	...
Bridges	...	...	...	...	...
Culverts	...	...	...	...	...
Culvert under the approach of bridge	...	...	...	...	...
Special superintendence and sundries	...	...	...	...	...
Stores	...	...	...	...	...
Proportion of store charges	...	...	...	...	...

30. The expenditure on the Somaisweram anicut and head works was Rupees 1,462-15-2, consisting of Rupees 918-12-0 on the body of the anicut, and Rupees 544-3-2 for special superintendence and sundries.

31. The expenditure on works of distribution was Rupees 276-4-5, of which Rupees 30-1-7 were expended on the branch channel and sluices in the first section, Rupees 211-15-6 on the branch channels and sluices in the fourth section or Nagatoor Division, and the remainder Rupees 34-3-4 on the distribution works in the sixth section or Bowanassy Division.

32. The expenditure on buildings was Rupees 20,934-9-8, consisting of the following items :—

Office, Store house, and Workshop at Soonkasala	...	12	0	0
Iron and brass foundry, and room for receiving and despatching stores at Kurnool	... ..	13,532	3	10
Office store-room and Artificer's shed at Bowanassy	...	27	13	8
Improvement of the road approaches to the above building, and repairing two culverts at Bowanassy	...	272	12	2
Converting the unfinished building intended for a Gunpowder manufactory into an Hospital at Bowanassy	...	7	2	2
Workshop building at Bowanassy	... ..	6,224	9	0
Office and Store building at Valapanoor	... ..	9	13	7
Do. do. Jupaud	... ..	62	9	8
Do. do. Puggadial	... ..	771	1	10
Do. do. Chintagunta	... ..	8	4	10
Quarters for Sub-Assistant Engineers and Assistant Surveyor at Koondaur	... ..	6	2	11

33. The following abstract shows the expenditure on all works, from the commencement to the close of the quarter, compared with the sanctioned estimates.

*Proceedings of the Madras Government, Public Works Department,
22nd February 1866.*

[illegible]

*Proceedings of the Madras Government, Public Works Department,
22nd February 1866.*

Works.	Amount of the estimate.	Expenditure up to 31st July 1865.	Cost in the quarter ending 31st Oct. 1865.	Total expenditure.	Add amount transferred to this from other works.	Deduct refunds do. do.	Total net expenditure.	Amount.	
								Available.	In excess of estimate.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
<i>Buildings.—(Concluded.)</i>									
Office, Store-house, and Workshop at Soonsakala...	4,000	8,073	12	8,085	.....	8	8,077	.....	4,077
Powder Magazine, Store and Station roads at Bowanassy...	4,359	4,359	.....	4,359	.....	.....	4,359	.....	.....
Iron and Brass foundry at Kurnool ...	9,127	.....	13,532	13,532	.....	.....	13,532	.....	2,616
Room for receiving and despatching stores ...	1,795	.....	28	7,563	.....	35	7,528	.....	230
Office, Store-room, and Artificers' shed at Bowanassy ...	7,298	7,535	.....	.....	.....	.....	.....	168	.....
Repairing the above buildings at Bowanassy ...	168	.....	.....	.....	.....	.....	.....	.....	.....
Improvement of the road approaching to the above buildings, and repairing two culverts at do. ...	578	25	273	208	.....	.....	298	280	.....
Converting the unfinished building intended for a Gun Powder Manufactory into an Hospital at Bowanassy ...	427	12	7	19	.....	.....	19	408	.....
Workshop building at Bowanassy ...	5,200	.....	6,225	6,225	.....	.....	6,225	.....	1,025
Office and Store building at Valapanoor in the Bowanassy Division ...	1,970	5,251	10	5,256	.....	.....	5,261	.....	3,291
Do. do. at Jupaud in the Nagatore Division ...	2,444	5,557	63	5,620	.....	.....	5,620	.....	3,176
Do. do. at Puggydial in the do. ...	3,030	3,207	771	3,978	.....	.....	3,978	.....	918
Do. do. at Chintagoontah in Kunder ...	3,552	5,274	8	5,282	.....	.....	5,282	.....	1,730
Do. and temporary Store shed at Ayaloor in do. ...	612	67	.....	67	.....	.....	67	575	.....
Quarters for Sub-Assistant Engineers and Assistant Surveyors at do. ...	1,236	697	6	703	.....	142	561	675	.....
Hospital and Apothecary's residence at Somaishwaram ...	2,900	1,567	.....	1,567	.....	.....	1,567	1,333	.....
Office building at Somaishwaram ...	1,470	1,470	.....	1,470	.....	.....	1,470	.....	.....
Repairs to the ancient Office at Zorapoor ...	327	308	.....	308	.....	.....	308	19	.....
Overseers' quarters, Store, Workshop, Clerk and pay Office at Somaishwaram ...	4,841	.....	.....	.....	4,841	.....	4,841	.....	.....
	59,584	47,790	20,935	68,725	4,841	185	73,381	3,526	17,323
	62,21,483	53,04,723	3,15,405	56,20,128	11,365	12,470	56,19,023	8,77,489	2,75,029

*Proceedings of the Madras Government, Public Works Department,
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34. This statement shows that the expenditure of the quarter was Rs. 3,15,405, and the net total outlay up to the end of the quarter Rupees 56,19,023.

35. The subjoined statement shows the expenditure in excess of sanction at the end of the quarter to have been Rupees 1,05,925 more than that noticed in my last report, the outlay not covered by sanctioned estimates being Rs. 2,75,029 :—

Works.	Excess expenditure up to 31st July 1865.	Excess expenditure during the quarter 31st Oct. 1865.	Total.	Add amount transferred to this from other works.	Deduct refunds.	Excess net expenditure up to 31st October 1865.
	RS.	RS.	RS.	RS.	RS.	RS.
<i>Main Supply.</i>						
Aqueduct across the river Hindry at Kurnool ...	12,143	1,015	13,158	.....	.....	13,158
South Main Canal, 2nd and 3rd Sections ...	.....	49,406	49,406	.....	168	49,238
Do. 4th and 5th Sections ...	1,14,719	81,085	1,95,804	6,524	7,018	1,95,310
	1,26,862	1,31,506	2,58,368	6,524	7,186	2,57,706
<i>Buildings.</i>						
Central Hospital at Kurnool ... 1,848	200	.....	200	.....	.....	200
Deduct the amount of the supplemental sanction during the quarter ... 1,648						
Office and Store at Soonsakala ...	4,073	12	4,085	.....	.....	4,077
Do. do. and Artificers' shed at Bowanassy ...	237	28	265	.....	35	230
Office and store building at Valapanoor ...	3,281	10	3,291	.....	.....	3,291
Do. do. at Jupaud in Nagatore ...	3,113	63	3,176	.....	.....	3,176
Do. do. at Puggydial in do. ...	177	771	948	.....	.....	948
Do. do. at Chintagoontah in Kunder ...	1,722	8	1,730	.....	.....	1,730
Iron and Brass foundry and room for receiving and despatching stores at Kurnool ...	.....	2,646	2,646	.....	.....	2,646
Workshop building at Bowanassy ...	.....	1,025	1,025	.....	.....	1,025
	12,803	4,563	17,366	.....	43	17,323
	1,39,665	1,36,069	2,75,734	6,524	7,229	2,75,029

36. The Chief Engineer has applied for supplemental sanction, Rupees 26,616, for the Hindry aqueduct, on the ground that the rates in the sanctioned estimates were not intended to cover the cost of Stores and Store charges. I have asked for the particulars of the Stores issued to the work, and when this information has been received, the papers will be laid before Government. I observe, however, that all the excess is by no means due to the cause above-mentioned, for centrings, as well as masonry, have exceeded considerably the amounts allowed for these items in the last sanction given for the aqueduct.

*Proceedings of the Madras Government, Public Works Department,
22nd February 1866.*

37. The supplemental estimates for the second and third sections have not yet been received, but an advance of one lac was sanctioned in Government Order No. 2,797, dated 21st September 1865.

38. The excess on the fourth and fifth sections has been covered by the sanction for the former section given in Government Order No. 3,676 of the 4th December last.

39. The additional excess, beyond that of the previous quarter, under the head Buildings is but small, and need not be specially noticed in this report.

40. The following estimates were received from the Agent, and submitted to Government during the quarter:—

Revised estimates for the 20th mile of the Main Canal (re-submitted.)	RS.	A.	P.
Estimate for certain buildings and roads in the Bowanassy Division	43,938	0	0
Estimate for coping the Soonkasala anicut with granite	4,359	5	9
Estimate for the construction of a line of telegraph from Soonkasala to Cuddapah	59,300	0	0
all of these received the sanction of Government during the quarter, together with two estimates which were previously submitted, viz:—	41,116	0	0
Revised estimate for central Hospital at Kurnool	4,188	0	0
Estimate for an Overseer's hut at do.	1,244	13	3

41. The per-centage of cost of establishments of all kinds on the expenditure of the quarter is 29.466, of which 7.965 are for general management, 13.239 for permanent, and 2.951 for temporary establishments employed on construction, and 5.311 for establishments engaged in investigations in Bellary and Cuddapah. The cost of permanent establishments in proportion to the expenditure has increased, it will be observed, from 8.83 in the last quarter, to 13.239 in that under review. This is due to the reductions of establishment not having kept pace with the decrease of expenditure, and it is a result of the curtailment of works which was to be expected. It will probably be possible, however, in the future, to make the cost of establishments approximate more closely to the proportion which existed when the works were being urged forward to the full extent which the supply of labor rendered practicable.

No. 504. ORDER THEREON, 22nd February 1866, No. 625.

CIVIL WORKS, No. 65.

1. Ordered to be communicated to the Home Government.
2. The Manager of the Madras Irrigation and Canal Company will be requested to give his early attention to the adjustment of the excesses and discrepancies which are noticed in paragraphs 4 to 20.
(True Extract.)

(Signed) CHARLES A. ORR, Colonel, R. E.,
Secretary to Government.

To the Consulting Engineer Madras Irrigation and Canal Company.
do.
do.
Exd. S. T. Augustin.

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3

No. 543 Read the following letter from the Consulting Engineer for Irrigation and Canal Company, to the Secretary to Government, Department Public Works, dated Madras, 9th February 1866, No. 148:—

1. I have the honor to submit the following Report on the progress made in the works of the Madras Irrigation and Canal Company during the Quarter ending 31st October 1865.

2. This Report has been delayed for some time in my office in the expectation of obtaining a reply, which has not been as yet received, to my Memorandum* of observations on the Agent's Progress Report for September, but as perhaps

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Despatched 29th } November 1865.

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Up to September 1865.

Estimate.

Rs.

Cubic yards 56,457 ... 1,67,157

Progress Report.

Cubic yards 97,978 ... 2,01,051

7. The Kadraabagh aqueduct, on the other hand, which had been nearly finished in September, shows Rupees 12,623 only as expended, § but the estimated cost is Rupees 46,308 and, in addition to the work provided for in this estimate, there had been sundry works found necessary, so that probably at least 35,000 Rupees have been erroneously debited to some other work.

§ Up to September 1865.

Procs. Madras Govt., 21th October 1865, No. 3,191.

mentioned that the Ullur aqueduct had been nearly finished, and that it had cost less than the estimate, but the Progress Report shows an expenditure of 40 per cent. in excess of the sanction, and, besides this, Rupees 900 spent on the ingress channel, a work which should have been included in the revised estimate.

Expenditure up to September 1865	Rs.	A.	P.
Sanction, Procs. Madras Govt., No. 739, dated 17th March 1865	33,802	2	3
...	24,331	10	11

** Up to September 1865.

cost Rupees 6,040. Probably erroneous debits have been made, and several instead of one culvert should share the outlay.

10. The Progress Report does not show any expenditure on the new, and as yet unsanctioned, scouring sluice of six vents in the 42nd mile. This work was noticed in paragraph 30 of my letter, No. 100, referred to in paragraph 8 above.

5. In the second and third sections the estimate provision for earth-work is cubic yards 48,83,535, Rupees 10,66,810; the Progress Report shows cubic yards 57,58,077, Rupees 10,77,962.* The quantity is very largely in excess of the estimate, and there is yet a good deal of earth-work to be done. The revetments of the same sections as sanctioned† are cubic yards 3,54,547, Rupees 2,17,127; the work as executed‡ is cubic yards ... and a considerable excess of

11. The Teragopila aqueduct in the 63rd mile was estimated to cost Rupees 36,910; it was not half finished last September, yet the expenditure upon it had reached 38,196.*

In the fifth section of the Canal.

* Up to September 1865.

12. Two bridges, one at Nagatore and the other at Jupaud, have been sanctioned for the fourth section Main Canal. The former has been finished, but the latter (paragraph 38 of letter No. 100) was not more than one-third finished at the time referred to, nevertheless the expenditure exceeds, by 30 per cent., the amount, Rupees 24,909, sanctioned for both bridges.

13. The scouring sluice and channel in the 69th mile show an expenditure of Rupees 6,967 against Rupees 2,691 sanctioned, and the sluice alone had been constructed. The cost of the work done appears to me, as at present informed, much greater than was requisite.

14. The scouring sluice and channel in the 73rd mile were estimated at Rupees 2,966, and the expenditure up to September was Rupees 9,040. Explanation of this large excess has also been asked for.

15. Against a sanction of Rupees 7,463-15-7 for superintendence and sundries in the estimate of the sixth section, Rupees 52,045-9-2* are shown as spent.

* Up to September 1865.

The allowance was very small, but the

expenditure under this head is very much too large, it being more than 20 per cent. on the value of the work done.

16. The channel for discharging surplus water into the Banakacherla affluent of the Canleé was estimated to cost Rupees 2,930, and the outlay is shown at Rupees 12,490. Much of the difference is no doubt due to the revetments, which have been constructed, but which were not provided for in the sanction. The details of the expenditure have been applied for.

17. The Jootoor anicut and head works, which were included in the sanction* for the seventh section of the Main Canal, had cost, up to September, Rs. 24,361-12-0, the provision for them being Rs. 10,800.

These works were not complete at the date of the Report, and so great an excess of expenditure should not have been incurred without the submission of supplemental estimates.

18. The regulating lock at the head of the seventh section was to cost Rupees 12,110. I was last there in March 1865, when the excavations only had been nearly completed; the work was stopped, and there was no intention of going on with it, but this work has been debited with expenditure to the amount of Rupees 9,114, a sum so vastly in excess of the value of work believed to have been done, that probably there is some mistake in the entry.

* Up to September 1865.

19. The expenditure on special superintendence and sundries in the seventh section is Rupees 30,565,* against Rupees 7,908 sanctioned. The provision was about half what was requisite, and the outlay is about twice as much as it should have been.

20. The Memoranda refer to many other works and items; but enough have been mentioned to show that even comparatively recent estimates have been considerably exceeded, and that further supplemental sanctions will be required for every section of the canal; I hope that some of the considerable discrepancies will be found to be due simply to erroneous debits of expenditure, and that the report for the quarter ending 31st January will contain adjustments of all such mistakes.

21. The expenditure during the second quarter of 1865-66 will now be exhibited in the form usually employed in these reports for the information of Government.

22. The expenditure on the Soonkasala anicut and head works was Rupees 3,163-6-7, consisting of Rupees 2,334-8-3 for masonry, Rupees 101-3-1 for special superintendence and sundries, Rupees 586-7-7 for stores, and Rupees 140-3-8 for proportion of store charges.

23. The expenditure on the Hindry aqueduct was Rupees 1,015-5-3, the items being—

	RS.	A.	P.
Excavation, baling, and filling	112	0	0
Rubble stone in chunam, cubic yards 214	557	14	3
Plastering	12	6	5
Concrete flooring, cubic yards 68	187	0	0
Special superintendence and sundries	116	1	0

24. Rupees 10,212-1-2 were expended on the first section, 1 to 17½ miles of the Main Canal, the work done being—

Excavation and embankments, cubic yards 5,938	7,503	14	6
Revetting interior banks with rough stone, do. 4,881	2,137	0	8
Culvert, No. 11.	69	4	4
Calingulabs	80	2	8
Special superintendence and sundries	160	8	0
Stores	211	14	5
Proportion of store charges	49	4	7

25. The second and third sections from the 18th to the 43rd miles, show an outlay of Rupees 1,38,887-12-4, the items being—

Excavation and embankment, cubic yards 1,18,335	60,236	5	0
Revetment, square yards 59,117	35,197	9	0
Masonry revetment, do. 73	224	0	0
Masonry wall, cubic yards 5,005	4,691	8	0
Dry rubble walls, do. 5,708	6,682	7	10
Backing with dry rubble, do. 1,452	971	2	0
Dry filling in behind the masonry revetment, do. 59	49	0	0
Foundation to masonry walls, do. 127	112	6	8
Clay well rammed between dry rubble, do. 7,881	2,516	11	3
Dry rubble and gravel, &c., do. 51	17	0	0
Single or stone backing, do. 8,459	2,061	2	8
Covering sandy bed of the Main Canal below the Hindry aqueduct	75	9	9
Aqueduct at Kadrabagh, cubic yards 62	514	1	0
Do. at Ullur	1,041	0	0

	RS.	A.	P.
Bridges	20	10	0
Calingulabs, cubic yards 192	714	12	0
Culverts do. 97	334	9	9
Discharging sluice in the tank bund at the 40th mile, cubic yards 409	5,290	10	8
Sultanpoor tunnel, cubic yards 44	400	2	0
Alterations of road do. 2,008	894	10	4
Tramway	449	9	0
Special superintendence and sundries	6,917	1	10
Stores	7,820	6	0
Proportion of store charges	1,655	5	7

26. On the fourth and fifth sections of the Main Canal, from the 44th to 72nd miles, there was an expenditure of Rupees 81,085-0-1, the details being—

Excavation and embankment, cubic yards 2,11,120	34,661	14	9
Revetment and pitching, do. 6,519	10,212	15	7
Bridges	2,191	5	6
Aqueduct in the 63rd mile	10,323	3	11
Calingulabs	2,364	13	3
Culverts, cubic yards 77	5,493	15	7
Return bund do. 11,093	1,920	7	0
Unsanctioned bridge at Nagatoor	46	3	5
Tramway	9	6	0
Catchwater drain, &c., cubic yards 340	42	8	0
Scouring channel and sluice	48	9	6
Culverts	673	8	0
Plant and contingencies	5,949	13	7
Stores	5,842	6	4
Proportion of store charges	1,303	13	8

27. On the sixth section, or miles 73rd to 91st of the Canal, Rupees 8,743-10-11, were expended on—

Excavation and embankment, cubic yards 6,613	1,166	4	2
Single and double culverts	14	6	0
Locks	3,475	2	8
Bridge	100	0	0
Scouring sluice and channel	324	11	3
Special superintendence and sundries	2,365	10	4
Stores	1,079	6	6
Proportion of store charges	218	2	0

28. The outlay on the seventh section, miles 92nd to 114th, amounts to Rupees 23,093-9-9, being for—

Excavation and embankment, cubic yards 39,726	4,930	2	3
Anicut and head works	1,313	2	5
Culverts	616	0	1
Calingulabs	14	11	11

	RS.	A.	P.
Bridges	715	14	7
Special superintendence and sundries	2,034	1	0
Stores	10,917	10	4
Proportion of store charges...	2,551	15	2

29. The outlay on the eighth section, miles 115th to 143rd, was Rupees 26,525-0-10, the items being—

Excavation and embankment, cubic yards 1,69,061	18,002	1	5
Calingulals	4,760	13	0
Locks	29	5	0
Bridges	389	3	5
Culverts	4	8	1
Culvert under the approach of bridge	46	7	0
Special superintendence and sundries	2,502	6	11
Stores	99	5	2
Proportion of store charges	21	14	10

30. The expenditure on the Somaisweram anicut and head works was Rupees 1,462-15-2, consisting of Rupees 918-12-0 on the body of the anicut, and Rupees 544-3-2 for special superintendence and sundries.

31. The expenditure on works of distribution was Rupees 276-4-5, of which Rupees 30-1-7 were expended on the branch channel and sluices in the first section, Rupees 211-15-6 on the branch channels and sluices in the fourth section or Negatoor Division, and the remainder Rupees 31-3-4 on the distribution works in the sixth section or Bowanassy Division.

32. The expenditure on buildings was Rupees 20,031-0-8, consisting of the following items:—

Office, Store house, and Workshop at Soonkasala	12	0	0
Iron and brass foundry, and room for receiving and despatching stores at Kurnool	13,532	3	10
Office store-room and Artificer's shed at Bowanassy	27	13	3
Improvement of the road approaches to the above building, and repairing two culverts at Bowanassy	272	12	2
Converting the unfinished building intended for a Gun-powder manufactory into an Hospital at Bowanassy	7	2	2
Workshop building at Bowanassy	6,221	9	0
and Store building at Valapanoor	9	13	7
Do. do. Jupaad	62	9	8
Do. do. Puggadial	771	1	10
Do. do. Chintagunta	5	4	10
Quarters for Sub-Assistant Engineers and Assistant Surveyor at Koondaur	6	2	11

33. The following abstract shows the expenditure on all works, from the commencement to the close of the quarter, compared with the sanctioned estimates.

Works.	AMOUNT.		Total net expenditure.	Deduct refunds do. do.	Add amount transferred to this from other works.	Total expenditure.	Cost in the quarter ending 31st Oct. 1865.	Expenditure up to 31st July 1865.	Amount of the estimate.	
	In excess of estimate.	Available.								
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	
Main Supply.										
Anicut and head works at Kurnool	66,934	2,316,146	66,934	21	66,934	66,934	3,168	66,934	2,03,080	...
Do. do. at Soonkasala	3,774,244	32,868	3,774,244	4,858	3,774,244	3,774,244	1,463	3,74,280	4,10,292	...
Do. do. at Somaisweram	56,044	1,06,126	56,044	...	56,044	56,044	1,015	59,439	1,62,470	...
Aqueduct across the river Hindry	2,59,188	...	2,59,188	...	2,59,188	2,59,188	...	2,58,173	2,16,030	...
Canal for one mile from the head sluice of the Kurnool anicut	49,211	15,789	49,211	...	49,211	49,211	...	49,211	65,000	...
South Main Canal, 1st Section, 17½ miles	8,53,147	3,630	8,53,147	8	8,53,147	8,53,147	10,212	8,42,913	8,56,777	...
Do. do. 2nd and 3rd Sections from 18½ to 43rd miles.	20,09,893	...	20,09,893	108	20,09,893	20,10,061	1,38,888	18,71,173	19,60,655	...
Do. do. 4th and 5th do. from 44th to 72nd do....	11,48,273	...	11,48,273	7,018	11,48,273	11,48,767	61,085	10,57,682	9,52,963	...
Do. do. 6th do. from 73rd to 91st do.	2,98,760	85,674	2,98,760	85	2,98,760	2,98,845	8,744	2,50,101	3,54,434	...
Do. do. 7th do. from 92nd to 114th do.	1,91,898	43,952	1,91,898	124	1,91,898	1,92,022	23,094	1,68,928	2,35,850	...
Do. do. 8th do. from 115th to 143rd do.	2,28,485	3,30,125	2,28,485	...	2,28,485	2,28,485	26,525	2,01,960	5,54,610	...
	55,39,257	8,54,610	55,39,257	12,285	6,524	55,45,018	2,94,194	52,50,824	61,36,161	...
Distribution.										
Branch channels and sluices between the first 17½ miles of 1st Section...	4,519	1,001	4,519	...	...	4,519	30	4,489	5,50	...
Irrigation channels and sluices for irrigating about 30,000 acres, between the rivers Bowanassy and Kistna	901	9,314	901	...	...	901	212	692	10,218	...
Distribution works at 6th Section in the Bowanassy Division	962	9,038	962	...	...	962	34	928	10,000	...
	6,385	19,353	6,385	...	...	6,385	276	6,109	25,738	...
Buildings.										
Central Hospital with out-houses and compound wall at Kurnool	4,388	...	4,388	...	...	4,388	...	4,388	4,188	...
Repairs to do.	...	68	...	...	...	...	...	...	68	...

Works.	Amount of the estimate.	Expenditure up to 31st July 1865.	Cost in the quarter ending 31st Oct. 1865.	Total expenditure.	Add amount transferred to this from other works.	Deduct refunds do. do.	Total net expenditure.	Amount.	
								Available.	In excess of estimate.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
<i>Buildings.—(Concluded.)</i>									
Office, Store-house, and Workshop at Soonkasala...	4,000	8,073	12	8,085	.....	8	8,077	.....	4,077
Powder Magazine, Store and Station roads at Bowanassy...	4,359	4,359	.....	4,359	.....	.....	4,359	.....	.....
Iron and Brass foundry and do-patching stores ...	9,127	.....	.....	13,532	.....	.....	13,532	.....	2,616
Room for receiving and do-patching stores ...	1,795	.....	13,532	.....	.....	.....	7,528	.....	230
Office, Store-room, and Artificers' shed at Bowanassy ...	7,298	7,535	28	7,563	.....	35	.....	168	.....
Repairing the above buildings at Bowanassy ...	168	.....	.....	.....	.....	.....	.....	.....	.....
Improvement of the road approaching to the above buildings, and repairing two culverts at do. ...	578	25	273	298	.....	.....	298	280	.....
Converting the unfinished building intended for a Gun Powder Manufactory into an Hospital at Bowanassy ...	427	12	7	19	.....	.....	19	408	.....
Workshop building at Bowanassy ...	5,200	.....	6,225	6,225	.....	.....	6,225	.....	1,025
Office and Store building at Valapanoor in the Bowanassy Division ...	1,970	5,251	10	5,256	.....	.....	5,251	.....	8,291
Do. do. at Jupaul in the Negstore Division ...	2,411	5,357	63	5,620	.....	.....	5,620	.....	3,176
Do. do. at Puggydial in the do. ...	3,010	3,207	771	3,978	.....	.....	3,978	.....	918
Do. do. at Chinggoontah in Kundar ...	3,552	5,274	8	5,282	.....	.....	5,282	.....	1,730
Do. and temporary Store shed at Aysloor in do. ...	642	67	.....	67	.....	.....	67	575	.....
Quarters for Sub-Assistant Engineers and Assistant Surgeons at do. ...	1,235	697	6	703	.....	142	561	675	.....
Hospital and Apothecary's residence at S. maindwaram ...	2,900	1,567	.....	1,567	.....	.....	1,567	1,333	.....
Office building at S. maindwaram ...	1,170	1,470	.....	1,470	.....	.....	1,470	.....	.....
Repairs to the ancient Office at Zorapoor ...	327	305	.....	305	.....	.....	308	19	.....
Overseers' quarters, Store, Workshop, Clerk and pay Office at S. maindwaram ...	4,811	.....	.....	.....	4,811	.....	4,811	.....	.....
	59,584	47,750	20,915	68,725	4,811	185	73,381	3,526	17,323
	62,214,853	53,045,723	3,15,405	56,20,128	11,565	12,470	56,19,023	8,77,189	2,75,029

34. This statement shows that the expenditure of the quarter was Rs. 3,15,405 and the net total outlay up to the end of the quarter Rupees 56,19,023.

35. The subjoined statement shows the expenditure in excess of sanction at the end of the quarter to have been Rupees 1,05,925 more than that noticed in my last report, the outlay not covered by sanctioned estimates being Rs. 2,75,029 :—

Works.	Excess expenditure up to 31st July 1865.	Excess expenditure during the quarter 31st Oct. 1865.	Total.	Add amount transferred to this from other works.	Deduct refunds.	Excess net expenditure up to 31st October 1865.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
<i>Main Supply.</i>						
Aqueduct across the river Hindry at Kurnool ...	12,143	1,015	13,158	.....	.....	13,158
South Main Canal, 2nd and 3rd Sections ...	.....	49,406	49,406	.....	168	49,238
Do. 4th and 5th Sections ...	1,14,719	81,085	1,95,804	6,524	7,018	1,95,310
	1,26,862	1,31,506	2,58,368	6,524	7,186	2,57,706
<i>Buildings.</i>						
Central Hospital at Kurnool ... 1,848	200	.....	200	.....	.....	200
Deduct the amount of the supplemental sanction during the quarter ... 1,648						
Office and Store at Soonkasala ...	4,073	12	4,085	.....	8	4,077
Do. do. and Artificers' shed at Bowanassy ...	237	28	265	.....	35	230
Office and store building at Valapanoor ...	3,281	10	3,291	.....	.....	3,291
Do. do. at Jupaul in Nagatore ...	3,113	63	3,176	.....	.....	3,176
Do. do. at Puggydial in do. ...	177	771	948	.....	.....	948
Do. do. at Chinggoontah in Kundar ...	1,722	8	1,730	.....	.....	1,730
Iron and Brass foundry and room for receiving and despatching stores at Kurnool ...	.....	2,646	2,646	.....	.....	2,646
Workshop building at Bowanassy ...	.....	1,025	1,025	.....	.....	1,025
	12,803	4,563	17,366	.....	43	17,323
	1,39,665	1,36,069	2,75,734	6,524	7,229	2,75,029

36. The Chief Engineer has applied for supplemental sanction, Rupees 26,616, for the Hindry aqueduct, on the ground that the rates in the sanctioned estimates were not intended to cover the cost of Stores and Store charges. I have asked for the particulars of the Stores issued to the work, and when this information has been received, the papers will be laid before Government. I observe, however, that all the excess is by no means due to the cause above-mentioned, for centrings, as well as masonry, have exceeded considerably the amounts allowed for these items in the last sanction given for the aqueduct.

37. The supplemental estimates for the second and third sections have not yet been received, but an advance of one lac was sanctioned in Government Order No. 2,797, dated 21st September 1865.

38. The excess on the fourth and fifth sections has been covered by the sanction for the former section given in Government Order No. 3,676 of the 4th December last.

39. The additional excess, beyond that of the previous quarter, under the head Buildings is but small, and need not be specially noticed in this report.

40. The following estimates were received from the Agent, and submitted to Government during the quarter:—

Revised estimates for the 20th mile of the Main Canal (re-submitted.)	rs.	a.	p.
Estimate for certain buildings and roads in the Bowanassy Division	43,938	0	0
Estimate for coping the Soonkasala anicut with granito	4,359	5	9
Estimate for the construction of a line of telegraph from Soonkasala to Cuddapah	59,300	0	0
all of these received the sanction of Government during the quarter, together with two estimates which were previously submitted, viz:—	41,116	0	0
Revised estimate for central Hospital at Kurnool	4,188	0	0
Estimate for an Overseer's hut at do.	1,244	13	3

41. The per-centage of cost of establishments of all kinds on the expenditure of the quarter is 29.466, of which 7.965 are for general management, 13.239 for permanent, and 2.951 for temporary establishments employed on construction, and 5.311 for establishments engaged in investigations in Bellary and Cuddapah. The cost of permanent establishments in proportion to the expenditure has increased, it will be observed, from 8.83 in the last quarter, to 13.239 in that under review. This is due to the reductions of establishment not having kept pace with the decrease of expenditure and it is a result of the curtailment of works which was to be expected. It will probably be possible, however, in the future, to make the cost of establishments approximate more closely to the proportion which existed when the works were being urged forward to the full extent which the supply of labor rendered practicable.

N: 148.

(Consulting Engineer's Office)
Irrigation and Canal Co.
Madras 9th February 1866.

To, Captain John Mullins R.E.
Consulting Engineer for I.C.C.
The Secretary to Government.
Department of Public Works.

Sir, I have the honor to submit the following Report on the progress made in the works of the Madras Irrigation and Canal Company during the Quarter ending 31st October 1865.

2. This Report has been delayed for some time in my Office in the expectation of obtaining a reply, my Office in the expectation of obtaining a reply, observations on the Agents Progress Report for September, which has not been as yet received, to my Office of September, but as perhaps the more convenient arrangement will be to allow the Reports up to the end of the 2nd Quarter of 1865-66 to stand as they are, and to make any alterations and adjustments, that may be ultimately found requisite, in the Report for the 3rd Quarter, I have thought it better not to wait any longer for answers to the many questions which I found it necessary to ask with regard both to excess of expenditure, and to incorrect debits to particular works. Hitherto expenditure in excess of sanction has

dated 25th Nov/65.
despatched 29th Nov/65.

has not been noticed specially, unless the total of a separate sanction had been recorded, but the Report for September was received soon after, my inspection of the upper 5 Sections of the Main Canal in that Month, and I was able consequently to compare the outlay shown with the state in which the several works were seen by me. It was found also in this examining the Progress Report in detail that, in many cases, the entries were not so made as to give the necessary information, and that while sometimes this was due to the expenditure not being exhibited for each item of the Abstracts of Estimates furnished by this Office as the basis for the preparation of the Reports, in other instances the abstracts themselves had been from the first defective, - owing to two sections of the Canal, which had originally been included in one sanction, having but one abstract of Estimate, so that there was no possibility of comparing the Progress made with the expenditure exhibited.

* under Rule XXIX

3. The following are some of the items of the Progress Report for September, which appeared to require explanation:

4. The sanction of the 1st Section Main Canal allows for Earthwork Cubic yards 30,15,960 - Rupees 55,511. The Report shows - 31,51,796 - 62,9528 the difference is far greater than should have been

P.M.G. No. 10711 dated 15: April 1865

upto Sept: 1865.

1st sanction for 2nd Section
M.G. No. 2477 of 25: Aug 1865.
2nd sanction for 3rd Section
M.G. No. 739 of 7 March 1865.

upto Sept: 1865.

M.G. No. 2477 of 25: Aug 1865.

upto Sept: 1865.

upto Sept: 1865.

the case seeing the recent date of the last sanction, and information has been asked for as to the cause of the increase in quantity, with the miles in which it has occurred, 2nd as to the quantity still remaining to be done, and 3rd whether there have been any overpayments in this Section, and if so to what extent.

In this same Section the outlay on Superintendence and Sundries is Rupees 80,211 against Rupees 56,025 sanctioned.

5. In the 2nd and 3rd Sections the Estimate provision for Earthwork is Cubic yards 4,883,535 Rupees 10,66,810; the Progress Report shows Cubic yards 5,758,077 - Rs. 10,77,962. The quantity is very largely in excess of the Estimate, and there is yet a good deal of Earthwork to be done. The Sanctions of the same Sections as sanctioned are Cubic yards 3,54,547 - Rupees 2,17,127; the work as executed is Cubic yards 1,50,652, Rupees 2,11,66, or less than half the work, and a considerable excess of expenditure. There is probably a mistake in the quantity as entered in the Report.

6. Information regarding the changes which have occasioned the great differences shown below in the quantities and cost of the rubble masonry walls has been asked for.

Estimate	
Cubic yards 556,457 - Rupees 16,71,57	
Progress Report	
Cubic yards 97,978 - 2,01,057	

7. The Kadrabagh Aqueduct on the other hand, which had been nearly finished in September, - shows Rupees 12,623 only as expended, but the - upto Sept: 1865. Estimated cost is, Rupees 46,308 and, in addition to the work provided for in this Estimate, there had been sundry works found necessary, so that probably at least 35,000 Rupees have been erroneously debited to some other work.

8. In para. 27 of my letter No. 100 of the 6th P.M.G. 21: Oct: 1865 97: 3191 October last, it was mentioned that the Ullor aqueduct had been nearly finished, and that it had cost less than the Estimate, but the Progress Report shows an expenditure of 10 per cent in excess of the sanction, and, besides, this Rupees 909 spent on the ingress channel, a work which should have been included in the revised Estimate.

9. The expenditure of Rupees 33,675 is shown against a Budget estimated to cost Rupees 3240. Probably erroneous debits have been made and some (instead of a Budget) should share the

10. The Progress Report does not show any expenditure on the new, and as yet unsanctioned, scouring sluice of 6 miles in the 42nd mile. This work was noticed in para 30 of my letter No. 100 referred to in para 8 above.

* Expenditure } 33,802-2-3
upto Sept: 1865
Sanction } 24,351-10-11
P.M.G. 12739
27/17 March/65

In the 5th section of the Canal.
upto Sept: 1865.

11. The Terago¹fila Aqueduct in the 63rd mile was estimated to cost Rupees 36,910; it was not half finished last September, yet the expenditure upon it had reached 38,196.

12. Two Bridges one at Nagatoo and the other at Japand have ^{been} sanctioned for the 4th section Main Canal. The former has been finished, but the latter (para 38 of letter No. 100) was not more than $\frac{1}{3}$ finished at the time referred to, nevertheless the expenditure exceeds, by 30 per cent. The amount, Rupees 24,909, sanctioned for both Bridges.

13. The scouring sluice and channel in the 69th mile show an expenditure of Rupees 6967 against Rupees 2691 sanctioned, and the sluice alone had been constructed. The cost of the work done appears to me, as at present informed, much greater than was requisite.

14. The scouring sluice and channel in the 73rd mile were estimated at Rupees 2966 and the expenditure upto September was Rupees 9,040. Explanation of this large excess has also been asked for.

15. Against a sanction of Rupees 7463-15-7 for Superintendence and Sundries in the Estimate of the 6th Section, Rupees 52,045-9-2 are shown as spent. The allowance was very small, but

upto Sept: 1865

the expenditure under this head is very much too large, it being more than 20 per cent on the value of the work done.

16. The channel for discharging surplus water into the Banakachera affluent of the Canal was estimated to cost Rupees 2930 and the outlay is shown at Rupees 12,490. Much of the difference is no doubt due to the revetments, which have been constructed, but which were not provided for in the sanction. The details of the expenditure have been applied for.

17. The footwork Arisot and head works, which were included in the sanction for the 7th Section of the Main Canal, had cost up to September Rupees 24,361-12-0, the provision for them being Rupees 10,800. These works were not complete at the date of the Report, and so great an excess of expenditure should not have been incurred without the submission of Supplemental Estimates.

18. The regulating lock at the head of the 7th Section was to cost Rupees 12,110. I was last there in March 1865 when the excavations only had been nearly completed; the work was stopped and there was no intention of going on with it, but this work has been debited with expenditure to the amount of Rupees 9,114, a sum so nearly in excess of the value of work believed to have been

been done, that probably there is some mistake in the entry.

* up to Sept. 1865

19. The expenditure on Special Superintendence and Sundries in the 7th Section is Rupees 30,565, against Rupees 7,908 sanctioned. The provision was about half what was requisite, and the outlay is about twice as much as it should have been.

20. The Memoranda refer to many other works and items, but enough have been mentioned to show that even comparatively recent estimates have been considerably exceeded, and that further Supplemental Sanctions will be required for every Section of the Canal; I hope that some of the considerable discrepancies will be found to be due simply to erroneous debits of expenditure, and that the Report for the Quarter ending 31st January will contain adjustments of all such mistakes.

21. The expenditure during the 2nd Quarter of 1865-66 will now be exhibited in the form usually employed in these Reports for the information of Government.

22. The expenditure on the Soonhasula Arisot and head works was Rupees 3,168-6-7 consisting of Rupees 2,334-8-3 for Masonry, Rupees 101-3-1 for Special Superintendence and Sundries, Rupees 586-7-7 for Stones, and Rupees 146-3-8 for proportion of Stone charges.

23. The expenditure on the Hindry Aqueduct was
Rupees 1015-5-8, the items being:-

Excavation, baling, and filling	112	-	-
Rubble Stone in Chumam. Cubic yards 214	587	-	11-3
Plastering	12	-	6-5
Concrete flooring Cubic yards 68	187	-	-
Special Superintendence and Sundries	116	-	1-

24. Rupees 10,212-1-2 were expended on the 1st Section, 1 to 17 $\frac{1}{2}$ Miles, of the Main Canal, the work done being:-

Excavation and Embankments Cys 5938	7503	-	14-6
Revetting interior banks with rough Stone 4881	2137	-	4-8
Culvert No. 11	69	-	4-4
Calingulabs	80	-	2-8
Special Superintendence and Sundries	160	-	8-
Stores	211	-	14-5
Proportion of Stone charges	47	-	4-7

25. The 2nd and 3rd Sections from the 18th to the 43rd Miles show an outlay of Rupees 1,38,887-12-4, the items being:-

Excavation and Embankment Cys 118,335	60,236	-	8-
Revetment	59,117	-	35-17-9
Masonry Revetment	73	-	224-4-4
Masonry wall	5005	-	1,691-8-
Dry Rubble walls	5708	-	6,682-7-10
Basking with dry Rubble	1452	-	971-2-
Dry filling in behind the Masonry Revetment	59	-	49-4-4
Foundation to masonry walls	127	-	112-6-8

clay

Clay well panned between dry rubble Cys 7887	2516	-	11-3
Dry rubble and Gravel	51	-	17-4
Single or Stone backing	82,59	-	2061-2-8
Covering sandy bed of the Main Canal below the Hindry Aqueduct	75	-	9-9
Aqueduct at Hadra bagh	62	-	514-1-
29 th at Ullin	1041	-	-
Bridges	20	-	10-
Calingulabs	192	-	714-12-
Culverts	97	-	334-9-9
Discharging sluice in the tank bund at the 40 th mile	409	-	5290-10-8
Sultanpore Tunnel	44	-	1,400-2-
Alterations of road	2008	-	894-10-4
Tramway	449	-	9-
Special Superintendence and Sundries	697	-	1-10
Stores	7820	-	6-
Proportion of Stone charges	1655	-	5-7

26. On the 4th and 5th sections of the Main Canal from the 44th to 72nd Miles, there was an expenditure of Rupees 8,10,85-1-1, the details being:-

Excavation and Embankment Cys 211,120	34,661	-	14-4
Revetment and Pitching	6519	-	10,212-15-7
Bridges	2191	-	5-6
Aqueduct in the 63 rd mile	10,323	-	3-11
Calingulabs	2,364	-	13-3
Culverts	77	-	5,493-15-7
Return bund	11093	-	1920-7-4
Unsanctioned Bridge at Nagatoo	1,60	-	3-5
Tramway	9	-	6-
Catchwater drain	340	-	42-8-
Sewage channel and Sluice	48	-	9-6
Culvert	673	-	8-
Plant and Contingencies	5,949	-	13-7
Stores	5,842	-	6-1
Proportion of Stone charges	1303	-	13-8

27. On the 6th Section, or Miles 73rd to 91st of the Canal
 Rupees 8743-10-11 were expended on:-

Excavation and Embankment C. 7 th 6613	1166-4-2
Single and double Culverts:-	14-6-0
Locks	3475-2-8
Bridges	100-0-0
Scouring Sluices & Channel	321-11-3
Special Superintendence & Sundries	2365-10-1
Stores	1077-6-6
Proportion of Store Charges	218-2-0

28. The outlay on the 7th Section, Miles 92nd to 111th:-
 amounts to Rupees 23093-9-9 being for:-

Excavation and Embankment C. 7 th 39726	14930-2-3
Ancient and head works	1313-2-5
Culverts	616-0-1
Calingulabs	14-11-11
Bridges	715-14-7
Special Superintendence & Sundries	2034-1-4
Stores	10917-10-1
Proportion of Store charges	2551-15-2

29. The outlay on the 8th Section, Miles
 115th to 143rd was Rupees 26525-4-10,
 the items being:-

Excavation and Embankment C. 7 th 16901	18662-1-5
Calingulabs	4767-13-0
Locks	29-5-0
Bridges	387-3-5
Culverts	48-1-0
	culvert

Culvert under the approach of Bridge — 46-7-0
 Special Superintendence and Sundries — 2502-6-11
 Stones — 99-5-2

Proportion of Store Charges — 21-14-10

30. The expenditure on the Sonaiswarani
 Ancient and head works was Rupees
 1462-15-2, consisting of Rupees 918-12-0
 on the body of the Ancient, and Rupees
 544-3-2 for Special Superintendence
 and Sundries.

31. The expenditure on works of
 distribution was Rupees 276-4-5,
 of which Rupees 30-1-7 were expended
 on the branch Channel and Sluices
 in the 1st Section, Rupees 211-15-6
 on the branch channels and Sluices
 in the 4th Section or Nagatoo
 Division, and the remainder
 Rupees 34-3-4 on the distribution
 works in the 6th Section or
 Bawanasey Division.

32. The expenditure on buildings was Rupees 20,934 - 9 - 8 consisting of the following items:-

Office Store house & workshop at Soonhasala 12- - -
 Iron and Brass foundry & room for receiving and despatching stores at Turmool - 13,532 - 3 - 10
 Office Store room and Artificer's shed at Bawanassy 27- 13 - 8
 Improvement of the Road approaches to the above Building & repairing 2 Culverts at Bawanassy 272- 12 - 2
 Converting the unfinished building intended for a Gunpowder Manufactory into an Hospital at Bawanassy 7- 2 - 2

Workshop building at Bawanassy - 6224-9- -
 Office & Store building at Valaparnoor 7-13-7
 Do Do Jupiad - 62-9-8
 Do Do Puzgadiel - 771-1-10
 Do Do Chintagunta - 8-4-10
 Quarters for Sub-Off. Engrs & Asst. Surveyor at Koondam 6-2-11

33. The following Abstract shows the expenditure on all works, from the commencement to the close of the quarter, compared with the sanctioned Estimates.

34. This Statement shows that the expenditure of the Quarter was Rupees 315,405, and the net total outlay upto the end of the Quarter Rupees 56,19,023.

35. The subjoined Statement shows the expenditure in excess of sanction at the end of the Quarter to have been Rupees 105,925 more than that noticed in my last report, the outlay not covered by sanctioned Estimates being Rupees 275,029:-

Works.	Sanctioned	Actual	Excess	Refunded	Excess
Main Supply.					
Against across the river Hindy at Turmool.	12143	1015	13158		13158
South Main Canal 2 nd & 3 rd Sections.		49406	49406	168	49238
Do 4 th & 5 th do	114719	81085	195804	6524	195310
	126862	131506	258368	6524	257706
Buildings.					
Central hospital at Turmool.	1848				
Reduce the amount of the supply sanctioned during the Q ^r .	200		200		200
Office & Store at Soonhasala	4073	12	4085		4077
Do Artificer's shed at Bawanassy	237	28	265	35	230
Office & Store building at Valaparnoor	3281	10	3291		3291
Do Do at Jupiad in Nagasree	3113	63	3176		3176
Do Do at Chintagunta in do	177	771	948		948
Do Do at Chintagunta in Hindar	1722	9	1730		1730
Iron & brass foundry & room for receiving & despatching stores at Turmool		2646	2646		2646
Workshop building at Bawanassy		1025	1025		1025
	12803	4563	17366	43	17323
	139665	13669	275734	6524	275029

ent to the close of the
auctioed Estimates.

Amount of the Estimate.	Expenditure of 1865.	Balance in the Treasury July 1st 1865.	Total Expenditure.	Amount left from other moneys.	Admitted from 1865-66.	Estimated cost.	Actual cost.
30,000	66,934	2,168	66,934	-	24	66,934	66,934
20,292	57,420	1,163	57,420	-	4858	57,420	57,420
16,240	59,139	1,015	59,139	-	-	59,139	59,139
24,600	25,817	10,212	25,817	-	-	25,817	25,817
65,000	14,211	138,888	14,211	-	8	14,211	14,211
85,677	84,294	87,085	84,294	-	168	84,294	84,294
19,665	10,717	81,085	10,717	-	7018	10,717	10,717
95,296	10,717	87,085	10,717	-	85	10,717	10,717
28,424	29,010	23,094	29,010	-	124	29,010	29,010
25,530	16,828	26,525	16,828	-	-	16,828	16,828
55,860	20,196	26,525	20,196	-	-	20,196	20,196
613,616	525,082	294,194	525,082	6524	12285	525,082	525,082
5520	4,189	30	4,189	-	-	4,189	4,189
10,218	692	212	692	-	-	692	692
10,000	928	34	928	-	-	928	928
25,738	6,109	276	6,109	-	-	6,109	6,109
4,188	4,388	-	4,388	-	-	4,388	4,388
68	8,973	12	8,973	-	8	8,973	8,973
4,000	4,359	-	4,359	-	-	4,359	4,359
4,359	4,359	-	4,359	-	-	4,359	4,359
9,227	7,535	18,532	7,535	-	35	7,535	7,535
17,59	7,535	28	7,535	-	-	7,535	7,535
7298	25	273	25	-	-	25	25
168	12	7	12	-	-	12	12
578	25	273	25	-	-	25	25
427	12	7	12	-	-	12	12
5200	5251	10	5251	-	-	5251	5251
1970	5557	63	5557	-	-	5557	5557
2444	3207	771	3207	-	-	3207	3207
3030	5274	8	5274	-	-	5274	5274
3552	67	6	67	-	-	67	67
642	697	6	697	-	-	697	697
1236	1567	7	1567	-	-	1567	1567
2900	1470	308	1470	-	-	1470	1470
1470	308	-	308	-	-	308	308
327	-	-	-	-	-	-	-
4841	-	-	-	-	-	-	-
59,584	47,790	20935	47,790	4841	185	47,790	47,790
622,148	530,723	315,405	530,723	11365	12470	530,723	530,723

Works.

Chain supply
 1st at Fort...
 2nd at...
 3rd at...
 4th at...
 5th at...
 6th at...
 7th at...
 8th at...
 9th at...
 10th at...

Distribution.

1st at...
 2nd at...
 3rd at...
 4th at...
 5th at...
 6th at...
 7th at...
 8th at...
 9th at...
 10th at...

Buildings.

1st at...
 2nd at...
 3rd at...
 4th at...
 5th at...
 6th at...
 7th at...
 8th at...
 9th at...
 10th at...

Amount of the Estimate.

Expenditure of 1865.

Balance in the Treasury July 1st 1865.

Total Expenditure.

Amount left from other moneys.

Admitted from 1865-66.

Estimated cost.

Actual cost.

36. The Chief Engineer has applied for supplemental sanction, Papers 26616, for the Hindy aqueduct, on the ground that the rates in the sanctioned Estimates were not intended to cover the cost of Stones, and Stone charges. I have asked for the particulars of the Stone issued to the work, and when this information has been received the papers will be laid before Government. I observe, however, that all the excess is by no means due to the cause above mentioned for Carriages, as well as Masonry, having exceeded considerably the amounts allowed for these items in the last sanction given for the aqueduct.

37. Supplemental Estimates for the 2^d and 3^d Sections have not yet been received, but an advance of Rs. 1000 is sanctioned in Government Order No 2797, dated 21st September 1865.

38. The excess on the 4th and 5th Sections has been covered by the sanction for the former Section given in Government Order No 3676, of the 1st December last.

39. The additional excess, beyond that of the previous Quarter, under the head Buildings is but small, and need not be specially noted in this report.

40. The following Estimates were received from the Agent, and submitted to Government during the Quarter.

Revised Estimate for the 20th Mile of the Main Canal (resubmitted) } 43,938-4-

Estimate for Certain Buildings and Roads in the Baranessy Division } 4,359-5-9

Estimate for coping the Sookkasala Arment with granite } 59,300-0-

Estimate for the construction of a line of Telegraph from Sookkasala to Cuddappah } 4,116-0-

all of these received the sanction of Government during the quarter, together with two Estimates which were previously submitted, viz

Revised Estimate for Central Hospital at Kurnool } 4,188-0-

Estimate for an Overseer's hut at ——— } 1244-13-3

41. The percentage of cost of Establishments of all kinds on the expenditure of the Quarter is 29.466, of which 7.965 are for general management, 13.239 for Permanent, and 2.951 for Temporary Establishments employed on construction, and 5.311 for Establishments engaged in investigations in Bellary and Cuddappah. The Cost of Permanent Establishments

Copy in addition to 283
of 220. Serial 13 of 1865.

21734 1866 Qd. 22nd

No 5038 504

1865
The Secretary of the
Board of Commissioners
of the Canal and
Navigation of the
State of New York
New York

Ad 29-1-1865
Rec 12-3-1865

1865
1865
1865

Reports on the progress
made in the work of the
Canal and Navigation Board
during the year
ending 31st October 1865.

With an order
No 625-22nd 5124 1865.

April 1865

No 625-1-1865

Ordered to be continued
to the Home Government.

The Manager of the
Canal and Navigation
Board requested to give his early
attention to the adjustment of the
revenue and disbursements which
are noticed in
20-

Stout St George
22nd 5124 1865
Manager - No -
X 392 Dec 23 1865