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MADRAS RECORD OFFICE

Government of Madras

DEPARTMENT

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Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
2nd April 1873.*

No. 25. Read the following letter from the Chief Engineer for Irrigation, to the Secretary to Government, Public Works Department, dated Fort St. George, 6th February 1873, No. 63:—

It appears to me to be necessary to bring to the special notice of Government the inadequacy of the Executive Establishments in the principal Irrigation Districts, with a view to such measures as may be thought necessary being taken as early as possible to remedy a state of affairs which cannot, if continued, fail to bring discredit upon the operations of the department and lead to serious losses, both direct and indirect.

2. Beginning with Tanjore, I find that the Engineering staff consists of an Executive Engineer Mr. O'Shaughnessy, and of two young Assistant Engineers, Lieutenant Greenaway of the Staff Corps and Lieutenant Smart, R. E. There are five ranges, and this number should, I consider, be reduced to four by forming the present 1st and 2nd Ranges, consisting of the Tanjore and Combaconum Taluqs, into one range, leaving the others with their present boundaries. The ranges should then be designated:—

TALUQS.

1. Tanjore Range ... Tanjore and Combaconum.
2. Mayaveram ... Nannilum, Mayaveram, and Sheally.
3. Southern ... Munnargudi and Puttoocotta.
4. Negapatam ... Negapatam and Titrapundi.

3. Taking, first, the Tanjore Range, Lieutenant Greenaway is in the Tanjore Taluq and Lieutenant Smart in the Combaconum, and, if the services of an experienced officer be made available for the charge of the range, the Engineering establishment will probably suffice. The expenditure of the first half of the current year was in—

Tanjore on Irrigation works	...	...	...	...	49,074	rs.
other	..	...	...	...	16,311	
Combaconum Irrigation works	...	...	...	...	26,799	
other	..	...	...	...	38,401	
					<u>1,22,611</u>	

anticipated expenditure of second half-year—

Tanjore on Irrigation works	...	...	...	...	32,000	
other	..	...	...	...	35,890	
Combaconum Irrigation works	...	...	...	...	24,851	
other	..	...	...	...	32,818	
					<u>1,25,661</u>	
					<u>2,55,273</u>	

In addition to this large expenditure, the proper outlay of which is in itself a heavy charge, there is the management of the upper and lower anicuts and of the principal works of regulation, including those both of surplus and distribution, upon which the safety and well being of the irrigation of the whole district depend, to be provided for in this range, and one Executive and two Assistant Engineers are the smallest number which can be expected to look after the multitude of interests involved.

With regard to subordinate establishments, these too are at present very inadequate. In the Tanjore Taluq there are a Supervisor, two Taluq Overseers, a Local Fund Overseer, and two Mistries; in the Combaconum Taluq there is a similar establishment, but without a Supervisor. In Tanjore an additional Super.

*Proceedings of the Madras Government, Public Works Department,
2nd April 1873.*

visor and two Maistries, and in Combaconum one Supervisor and two additional Maistries are much needed.

The additional establishment required for the Tanjore Range will then be—

One Executive Engineer.

Two Supervisors.

Four Maistries.

4. *The Mayaveram Range*—This is provided with an Executive Engineer, who with proper assistance will, I have no doubt, manage it very well. The range should form two sub-divisions, the first Nannulam, which is the taluq having the highest revenue of any I believe in the Presidency, and the second Mayaveram and Sheally. Two Assistant Engineers are needed for the sub-divisions, a Supervisor for Mayaveram, another for Sheally, and two additional Maistries.

5. *The Southern Range* is one which unfortunately has, from its comparative unimportance, been left unimproved. The expenditure in it too is small; for this year under 61,000 Rupees. I consider that it may, under present circumstances, be left as it now is in charge of an Upper Subordinate, with the existing subordinate establishment of two Taluq Overseers, a Local Fund Overseer, and two Maistries. Two-thirds of the expenditure are on works other than irrigation.

6. *The Negapatam Range* is an important one, it is, as regards the irrigation, in urgent need of improvement, and reformation will certainly lead to an enhancement of revenue. This was very clearly shown in the evidence taken by the Public Works Commission in 1869. I do not consider that it is a proper charge for a subordinate. It should be placed in charge of an Executive Engineer of some experience, with a Supervisor in the head quarter's sub-division, Negapatam, and an Assistant Engineer in the Tirapandy Sub-division. There are now three Overseers, including one for Local Funds and two Maistries; one additional Overseer and three Maistries will suffice. The expenditure for the current year is estimated at 90,143 Rupees, of which only 18,500 are for irrigation works; this of itself shows that the old most unsatisfactory condition of these works is still in existence, and there is no help for it until an officer, capable of devising and carrying out measures for their improvement, is placed in charge of the range.

7. The following is an abstract showing the present and additional establishments required for Tanjore with its 700,000 acres of irrigation, and an expenditure of about 5½ lakhs of rupees:—

Description	PRESENT ESTABLISHMENT.					PROPOSED ESTABLISHMENT.					Additional required
	Tanjore.	Mayave-ram.	Southern	Negapa-tam.	Total.	Tanjore.	Mayave-ram.	Southern	Negapa-tam.	Total.	
Executive En- gineers	...	1	...	...	1	1	1	...	1	3	2
Assistant En- gineers	2	...	...	...	2	2	2	...	1	5	3
Upper Sub- ordinates	1	1	1	1	4	3	3	1	1	8	4
Overseers	6	5	3	3	17	6	5	3	4	18	1
Maistries	4	4	2	2	12	8	6	2	5	21	9

I am not at all sure that I have allowed in the above arrangements a sufficient number of Maistries; but as in this district men of this class are obtainable as

*Proceedings of the Madras Government, Public Works Department,
2nd April 1873.*

required, this, if the case, will not so seriously affect the operations of the department as it might do elsewhere. I may notice here that when I was District Engineer of Tanjore, in 1862-63, I had Mr. W. Fraser, C.E., Captains Chrystie and Mead, and Sub-Engineer Acheta Nayadu in charge of four out of the five ranges; the latter was a man of great experience, quite equal to the charge of a range, and at that time the expenditure was less than half what it is now.

8. The next district to be noticed is the G-slavery, but here I propose to confine my remarks to the delta ranges, for the efficient management of which I am more especially responsible. The delta is at present divided into three ranges, called the Eastern, Central, and Western. To this arrangement I should have no objection were there three officers of sufficient experience likely to be available for their supervision; but, as I have before remarked, in the absence of a third officer, I consider that the Eastern and Central Sections of the delta should form one range, and that thus competent supervision should be secured. At present Mr. Supervisor Ellis is in charge of the Central Delta, and, although he is highly spoken of by the District Engineer, he is not, in my opinion, qualified for the charge of a delta range, but should work as an Assistant to an officer of standing, such as the Executive Engineer of the Eastern Delta, who is conversant with the requirements of hydraulic works. I am well aware that the charge of the combined ranges will be a heavy one, but with a proper staff of Assistants, I do not think that Captain Mead will find it otherwise than practicable to make his influence felt beneficially throughout its whole extent; and, in the present scarcity of qualified officers for executive duties, there is no other unobjectionable course available. The eastern part of the delta should form three sub-divisions: 1st, the anicut and head works with quarries, lime kilns, river banks above the anicut, the main canal and the boat office; 2nd, all the canals, roads and works north of the Toodisbaga drain; 3rd, the works to the south of that drain. Two Assistant Engineers, Messrs. Martin and Larmine, are already employed in this range, and a third is required. In this section of the delta many new works are being carried out, and their efficient execution demands incessant care and watchfulness on the part of officers who can understand the instructions given to them, and who can be relied upon to carry them out faithfully. There are, in addition to the new works, the repairs, the control of the Conservancy Establishments, the protection of the rivers, etc., to be provided for, and for many years to come the annual expenditure will be limited only by the power of the establishment to look after it, and the amount of labour procurable. There are at present no Upper Subordinates, but I consider that there should be at least two, if only to assist in supervising the large masonry works in progress. There are four Overseers and one in addition is required for the Coringa and Bank Canals. In the Central Section of the delta, the establishment consists of Mr. Supervisor Ellis and one Overseer. The proper strength would, in my opinion, be an Assistant Engineer, one Supervisor, and two Overseers, and it might then be fairly expected that the works would be properly managed by the Range Officer. At present the expenditure is not large in this section, but completion estimates are nearly ready, and there is plenty to be done in the meanwhile in looking after the rivers, and in the lower part of the section, including Palaveram. The Western Section of the delta remains to be considered. There is an Executive Engineer in

charge of this range, which forms two sub-divisions, divided by the Gostanuddy and Yennamaduru Drains. Lieutenant A. R. F. Dorward is at present in charge of the Western Sub-division, and Mr. Supervisor Baker of the Eastern. In my opinion no Supervisor, unless his qualifications be such as to entitle him to promotion to the Engineering grade, is fit for the charge of a Delta Sub-division, and, seeing what large and important works are in progress, I would ask for an Assistant Engineer to

Paragraph 7 of memorandum, G. O., 18th April 1871, No. 1,071. take Mr. Baker's place. I have already stated that Chittipett should be the

permanent head-quarters of the Range Officer and his two Assistants, and this arrangement should be carried out as early as possible. Mr. Baker's head-quarters are at present at Palcole, and possibly this may be advisable as a temporary measure; the District Engineer will be called upon to explain under what circumstances Palcole has been selected, and for how long he proposes that the head-quarters shall remain there. N. Kotiah, a Supervisor, appears from the statement received from the District Engineer, to have been placed in charge of a third sub-division; he should at once be placed under Lieutenant Dorward. Again, I notice that a fourth sub-division, with head-quarters at Aked, is at present in charge of Delta Superintendent P. Annachellum. It is useless for me to make such arrangements as appear to be advisable for the efficient management of the delta, and in this case the formation of two sub-divisions with the determination of the boundary between them was decided upon in communication with Colonel Fisher, if the District Engineer omits to carry them out, and substitutes for them other arrangements of which I cannot possibly approve. It is not quite clear from the statement whether there are two or three Taluq Overseers in this section of the delta, as the future employment of Overseer Ramasamy Naidoo, who is being relieved by Mr. Marchant, has not been indicated; whichever number be correct, it is much too small for the work to be done and to additional Overseers appear to me to be required, namely, two for the Eastern and three for the Western Sub-division. Subjoined I give an abstract of the present and required establishments:—

Description.	PRESENT ESTABLISHMENT.			PROPOSED ESTABLISHMENT.			Additional required.
	Eastern and Central Deltas, four Sub-divisions.	Western Delta, two Sub-divisions.	Total.	Eastern and Central Deltas, four Sub-divisions.	Western Delta, two Sub-divisions.	Total.	
Executive Engineers	1	1	2	1	1	2	
Assistant do.	2	1	3	4	2	6	
Upper Subordinates	1	1	2	3	2	5	
Overseers	5	3	8	7	5	12	4

If the services of Lieutenant J. F. Dorward, who is posted to the Godavery District, can be spared, I would suggest his being placed in charge of the Central Delta Sub-division, as he is an officer of some experience, and would therefore be able to lighten the work and responsibility of the Range Officer. In all probability

the Central Delta is a more important charge for an officer of Lieutenant Dorward's standing than any range out of the delta.

9. *The Kistai Delta.*—The present District Engineer has but just joined the district, and, although I have been in communication with him, he has not had time to report in detail the requirements of the delta ranges. The state of this delta has for a considerable time past been, on good grounds, deemed unsatisfactory. There has been very great delay in preparing and submitting the completion estimates; those for the Western Section have been received and will as soon as possible be reviewed. The existing works do not appear to have been utilized as extensively as they might have been, and work done has not been carried out in all cases judiciously. The floating plant has been neglected to the serious disadvantage of the canals, and the workshop would seem to have been practically shut up, although without it the plant cannot be kept in proper order. Lastly, the labour question seems to have simply drifted. All this is eminently unsatisfactory. From Major Hasted a more efficient administration may be anticipated, and it should be placed within his power to manage the delta properly. The delta is divided naturally by the river into two ranges, and each range may conveniently be formed into two sub-divisions, namely, a northern or upper and a southern or lower sub-division on each side. I am of opinion that Major Hasted cannot, and should not be asked to, take upon himself the duties of a Range Officer, and if so it follows that there must be a Range Officer and two Assistants for each side of the river. There are two Assistant Engineers in each range, and two officers of sufficient standing and experience to carry on the work of the ranges efficiently are required. I cannot at present say what additions to the subordinate establishment are needed, but information on this point will be furnished as soon as possible.

The District Engineer's head-quarters should be at Bezoarah, as also those of the Assistant Engineer of the northern sub-division of the Eastern Range; the Assistant Engineer of the lower sub-division should live at Gudivada, where there is a house, which can probably be rented or purchased. I am afraid it will be necessary to ask the Government to build a house for the District Engineer. There were formerly a good many houses at Bezoarah, but some from neglect have gone entirely to ruin, others have been removed to make room for canal extensions and improvements, and there does not appear to be one unoccupied or likely to be available.

On the western side of the river the Range Officer might live either at, or as near to, Duggirala as may be practicable, and the Assistant of the northern sub-division should reside at the same place. An office building and probably two houses for the Engineers will be required here. The Assistant of the southern sub-division should have his head-quarters at Chabrole on the Commamore Canal, and there is a small house there.

10. The requirements of the Nellore District as regards the Irrigation Range have already been brought to notice in my letter of the 4th instant, No. 56.

No. 20.

ORDER THEREON, 2nd April 1873, No. 1,011.

IRRIGATION, No. 4.

CERTAIN of the propositions made by the Chief Engineer for Irrigation with reference to the arrangement and

*Proceedings of the Madras Government, Public Works Department,
2nd April 1873.*

working of the Public Works Establishments of the Tanjore, Godavery, and Kistna Districts, do not commend themselves to the approval of Government.

1st.—As to the doubling up of the Tanjore and Combaconum Ranges, and of the Eastern and Central Deltas of the Godavery. The re-distribution of ranges is a subject which has very recently been thoroughly gone into, while the District Engineer of Tanjore, Major Oakes, was acting for Lieutenant-Colonel Mullins, and the junction of the Sheally and Nannulum Ranges was the only change thought desirable in the Tanjore District. In the Godavery the Eastern and Central Deltas were formed into separate ranges, according to their original constitution, an arrangement which the Chief Engineer for Irrigation would now reverse. The late re-organization having abstracted from purely executive duties some fourteen Engineers of the highest grades, it is, on that score alone, most inexpedient to increase the size of the Irrigation Ranges, beyond the minimum limits prescribed by revenue considerations and natural conformation. An average outlay of Rupees 10,000 a month, in each of the Tanjore and Combaconum Ranges comprising but a single taluq, is within the scope even of young officers, assisted by subordinate agency, and with an experienced District Engineer always at hand to guide, direct, and control. The expenditure in the Central Delta of the Godavery is stated by the Chief Engineer for Irrigation not to be large at present, owing to which circumstance doubtless the District Engineer considers its management within the scope of an able Supervisor. For the Eastern Delta the services of Captain Mead have been exceptionally retained in order that so heavy a charge should be well provided for; but it would not be desirable to add to its weight in view of casualties which might lead to his being succeeded by an officer of less experience.

2ndly.—It appears to Government that the objection taken by the Chief Engineer for Irrigation, to Irrigation Ranges being held by Upper Subordinates, is contrary to the principles upon which the Public Works organization of this Presidency has for years been based, and less than ever tenable under the District Engineer system, which should strengthen the hands of the few Upper Subordinates selected for such charges, and render them competent for the same. Throughout Lieutenant-Colonel Mullins' paper no credit is allowed to the extra weight in favour of Range Officers given by the constant presence of an experienced officer in the district; it is incorrectly stated that Major Hasted has been asked to take upon himself the duties of a Range Officer, and that officer is made to appear as if quite new to the district. Whereas he has had such experience of it that the young officers working under him must feel their resources doubled with him at hand to direct them. With the existing available agency the better way to work the Kistna District would be to divide each existing delta range into two, so that each of the four Assistant Engineers should have a range and work in direct communication with the District Officer.

3rdly.—The Government deprecate the tendency which is shown by the tenor of this communication to interfere beyond a certain point with the arrangements made by District Engineers for working their charges. The questions of subdividing Irrigation Ranges and of their head quarters are such as should properly be settled between the District Engineer and Chief Engineer for Irrigation, and after confirmation by Government should not be altered without some very

*Proceedings of the Madras Government, Public Works Department,
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weighty reason. And the Godavery District Engineer will be called upon at once to cancel any unauthorized departures from sanctioned arrangements; especially such as that which places a sub-division under the separate charge of a subordinate from the Conservancy Establishment. But the Government cannot concur with the Chief Engineer for Irrigation in interfering with the District Engineer as to his relative distribution of range charges between Lieutenant J. F. Dorward, R.E., and Mr. Supervisor Ellis.

2. On the subject of establishments of permanent Overseers, the Government would say, once for all, that it is fixed by the number of taluqs and districts, and is not liable to increase. But any amount of subordinate agency needed may be raised under the name of Sub-Overseers and Maistries on the permanent petty establishment; much of which in the Irrigation Districts should be chargeable to "Agricultural" "Extraordinary." The demand for Upper Subordinate agency will be attempted to be met by degrees, a commencement being made by drafting Sub-Engineer Ramiah from the Chicacolo Range of Ganjam (where he will be succeeded by Ensign Lever) to the Nellore District. And as none but young officers are available from the Engineer ranks, a reference will be made in the Military Department to His Excellency the Commander-in-Chief to spare from Military duty the services of the five officers of Royal Engineers now expected from England as an exceptional case. There are just so many vacancies, it is observed, in the ranks of the Assistant Engineers of the Department.

3. It is with great regret that the Government find themselves compelled to respond to the demands of the Chief Engineer for Irrigation in an insufficient manner. But they have to provide for the demands of the whole Presidency, and not for the Delta Districts alone, from a limited establishment, the strength and details of which must be accepted, at least till a fair trial has been given to the working of the new system for one whole season or more. And they look to Lieutenant-Colonel Mullins' knowledge of the great subject of irrigation being brought to bear personally on Engineers in charge of Irrigation Districts and Ranges by frequent and regular tours amongst them, in which at least as much attention should be devoted to watching the present routine of work as to developing new projects. Pending trial of the new organization with its comparatively insufficient executive, it would be undesirable to take up new projects; in fact, the Chief Engineer for Irrigation should strictly limit his demands for extraordinary funds within bounds prescribed by the existing capacity for efficient execution and supervision.

(True Extract.)

(Signed) G. W. WALKER, Colonel, R.E.,

Secretary to Government.

To the District Engineer, Tanjore.
" " Godavery.
" " Kistna.
" " Ganjam.
" " Nellore.
" Chief Engineer for Irrigation.
" Military Department.

Ed. F. C. Shooker.

1463

For Lt George
6 February 1873

From

The Adjutant-General for Brigades

To The Secretary to Government P.M. & Co.

Sir,
It appears to me to be necessary to bring to the special notice of Government the inadequacy of the Executive establishments in the principal Brigades Districts, with a view to such measures as may be thought necessary being taken as early as possible to remedy a state of affairs which cannot, if continued, fail to bring discredit upon the operations of the Dept. and lead to serious losses, both direct and indirect.

Beginning with Tanjore, I find that the Engineering staff consists of an Executive Engineer, Mr. O'Shaughnessy, & of two young assistant Engineers, Lieut. Spenser & Lieut. H. Smart, R.E. There are 5 Ranges and this number should, I consider, be reduced to 4 by forming the present first & second Ranges, consisting of the Tanjore & Pambacorum Taluqs into one Range, leaving the others with their present boundaries. The Ranges should then be designated

- | | |
|-----------------|-------------------------------|
| 1 Tanjore Range | Tanjore & Pambacorum Taluqs |
| 2 Mayavaram | Mannikulam, Mayavaram & Pulli |
| 3 Suthern | Manargudi & Puthoorottar |
| 4 Kizhapatam | Kizhapatam & Pithapund |

3 Taking first the Tanjore Range.

Lieut

Licut Grenaway is in the Tanjore Taluk & Licut Smart in the Bombacorum, and, if the services of an experienced officer be made available to the charge of the Range, the Engineering establishment will probably suffice. The expenditure of the first half of the current year was

Tanjore on Irrigation works	48,074
Other	16,334
Bombacorum Irrigation	26,799
Other	38,404
	129,611
Anticipated expenditure of 2nd half year	
Tanjore on Irrigation works	32,099
Other	35,896
Bombacorum Irrigation	24,831
Other	32,838
	125,664
	<u>255,275</u>

In addition to this large expenditure the proper outlay of which is in itself a heavy charge, there is the management of the Upper & Lower canals and of the principal works of regulation, including those of surplus and distribution, upon which the safety & well being of the irrigations of the whole District depend, to be provided for in this Range, and one Executive and two Assistant Engineers are the smallest number which can be expected to look after the multitude of interests involved. With regard to subordinate establishments there too are at present very inadequate. In the Tanjore Taluk there are a Superior, 2 Taluk Messars, a Local Fund Messar and 2 Maistries.

3. The Bombacorum Taluk ^{there is} a similar establishment but without a Superior. In Tanjore an additional Superior & 2 Maistries, in Bombacorum one Superior & 2 additional Maistries are much needed.

The additional establishment required for the Tanjore Range will then be

- 1 Executive Engineer.
- 2 Superiors.
- 4 Maistries.

4. The Mayavaram Range. This is provided with an Executive Engineer, who with proper assistance will I have no doubt manage to very well. The Range should form 2 subdivisions, the first Mainland, which is the Taluk having the highest Revenue of any I believe in the Presidency, and the second Mayavaram & Sheally. Two Assistant Engineers are needed for the subdivisions, a Superior for Mayavaram, another for Sheally and 2 additional Maistries.

5. The Southern Range is one which unfortunately has, from its comparative immaturity, been left unimproved. The expenditure in it too is small. For this year under 6,000 Rupees. I consider that it may under present circumstances be left as it now is in charge of an upper subordinate, with the existing subordinate establishment of 2 Taluk Messars, a Local Fund Messar and 2 Maistries.

Two thirds of the expenditure are on works other than irrigation.

6. The Negapatnam Range is an important one, it is, as regards the irrigation, in urgent need of improvement, and reformation will certainly lead to an enhancement of Revenue. This was very clearly shown in the evidence taken by the Com. Commission in 1869. It is not considered that it is a proper charge for a subordinate. It should be placed in charge of an Executive Engineer of sound experience with a supervisor in the head quarters subdivision - Negapatnam - and an Assistant Engineer in the Pithampudi subdivision. There are now 13 officers including one Local Funds and 2 assistants; one additional officer and 3 assistants will suffice. The expenditure for the current year is estimated at 90,143 Rupees of which only 18,300 are for irrigation works. This of itself shows that the old most unsatisfactory conditions of this work is still in existence, and there is no help for it until an official, capable of devising and carrying out measures for their improvement, is placed in charge of the Range.

7. The following is an abstract showing the present and additional establishments required for Tanjore with its 700,000 acres of irrigation, and an expenditure of about

about $5\frac{1}{3}$ lacs of Rupees.

Description	Present Establishment					Proposed Establishment					Additional required
	Tanjore	Nagapattinam	Madurai	Negapatnam	Total	Tanjore	Nagapattinam	Madurai	Negapatnam	Total	
Executive Engineer	-	1	-	-	1	1	1	-	1	3	2
Assistant Engineer	2	-	-	-	2	2	2	-	1	5	3
Upper Subordinates	1	1	1	1	4	3	3	1	1	8	4
Officers	6	5	3	3	17	6	5	3	4	18	1
Maintainance	4	4	2	2	12	8	6	2	5	21	9

I am not at all sure that I have allowed in the above arrangements a sufficient number of maintainers, but as in this District many of the clerks are obtainable as required, the case will not so seriously affect the operations of the Dept. as it might elsewhere. I may notice here that when I was District Engineer of Tanjore in 1862-63, I had Mr. J. Francis B. C., Captain Chrystie & Head, and Sub-Engineer Robert Pagden in charge of 4 out of the 5 Ranges. The latter was a man of great experience, quite equal to the charge of a Range, and at that time the expenditure was less than half what it is now.

The next District to be noticed, is the Coimbatore, but here I propose to confine my remarks to the Delta Ranges, for the efficient management of which I am more especially responsible.

responsible. The Delta is at present divided into 3 Ranges called the Eastern, Central & Western. To this arrangement I should have no objection were there 3 officers of sufficient experience like me to be available for their supervision, but, as I have before remarked, in the absence of a third officer I consider that the Eastern and Central sections of the Delta should form one Range, & that three competent supervisors should be secured. At present Mr. Superior Ellis is in charge of the Central Delta, and, although he is highly spoken of by the District Engineer, he is not in my opinion qualified for the charge of a Delta Range, but should work as an assistant to an officer discharging such as the Executive Engineer of the Eastern Delta, who is conversant with the requirements of hydraulic works & I am well aware that the charge of the combined Range will be a heavy one, but with a proper staff of Assistants I do not think that Captain Innes will find it otherwise than practicable to manage. His influence felt beneficially throughout its whole extent, and, in the present scarcity of qualified officers for Executive duties, there is no other unobjectionable course available. The Eastern part of the Delta should form 3 subdivisions: 1st The ancient head works with quarries, limekilns & warehouses above the ancient, the main canal and the Boat office. 2nd All the canals, roads & works south of the Porcia. 3rd The works to the south of that

that drain. Two Assistant Engineers Messrs. Martin & Larnived are already employed in this Range, and a third is required. In this section of the Delta many new works are being carried out and their efficient execution demands incessant care and watchfulness on the part of officers who can understand the instructions given to them, and who can be relied upon to carry them out faithfully. There are, in addition to the new works, the repairs, the control of the low-levancy establishments, the protection of the rivers &c. to be provided for, and for many years to come the annual expenditure will be limited only by the power of the establishment to look after it and the amount of labour procurable. There are at present no upper subordinates, but I consider that there should be at least two, if only to assist in supervising the large masonry works in progress. There are 2 Messrs. and one in addition is required for the Boring & Bore Canals. In the Central section of the Delta, the establishment consists of Mr. Superior Ellis and one overseer. The proper strength would in my opinion be two Assistant Engineers, 1 Superior & 2 Messrs., and it might then be fairly expected that the works would be properly managed by the Range officer. At present the expenditure is not large in this section, but competent estimates are nearly ready and there is plenty to be done in the mean while in looking after the rivers, and in the lower part

of the section, including Polanarans.
 The Western section of the Delta remains to be
 considered. There is ~~no~~ District Engineer in
 charge of this Range, which forms two sub-
 divisions divided by the Hystamado & Kema-
 madine drains. Lieut A. R. F. Doward is at
 present in charge of the Western subdivisions
 & his superior, Major of the Eastern. No
 one appears as superior, unless his quali-
 fications be such as to entitle him to pro-
 motions to the Engineer's grade as fit
 for the charge of a Delta subdivision and,
 being what ~~large~~ important work is in pro-
 gress, I would ask for an Assistant Engineer
 to take Mr Baker's place. I have already paragr of memo
 dated that Chettipett should be the per- 18. April 1871.
 manent head quarters of the Range Office 1871
 & his two Assistants, and this arrangement
 should be carried out as early as possible.
 Mr Baker's head quarters are at present
 at Palcole, and possibly this may be ad-
 visable as temporary measure; The District
 Engineer will be called upon to explain
 under what circumstances Palcole has
 been selected and for how long he proposes
 that the head quarters shall remain
 there. At present, a superior, appears
 from the statement received from the Dis-
 trict Engineer to have been placed in
 charge of a 3rd subdivision; he should
 at once be placed under Lieut Doward.
 Again I notice that a 2nd subdivision, with
 head quarters at Alced, is at present in
 charge

charged by Delta just P. Marchellins. It is de-
 cided for me to make such arrangements as
 appear to be advisable for the efficient man-
 agement of the Delta, and in this case the pro-
 motions of two subdivisions with the determi-
 nation of the boundary between them was de-
 cided upon in communication with Colonel
 Fiecher, of the District Engineer, and to carry
 them out, and substitutes for them other ar-
 rangements of which I cannot possibly ap-
 prehend. It is not quite clear from the state-
 ment whether there are two, or three Delta
 officers in this section of the Delta, as the
 future employment of services (Amazons)
 raiders, who is being relieved by his Mar-
 chant has not been indicated: whichever
 number be correct, it is much too small
 for the work to be done & two additional
 overage appears to me to be required say 2
 for the Eastern & 3 for the Western subdivisions
 Subjoined I give an abstract of the present & re-
 quired establishments.

Description	Present Establishment			Proposed Establishment			Total
	Eastern Delta subdivisions	Western Delta subdivisions	Total	Eastern Delta subdivisions	Western Delta subdivisions	Total	
Engineers	1	1	2	1	1	2	-
Engineers	2	1	3	4	2	6	3
Subordinates	1	2	3	3	2	5	2
	5	3	8	7	5	12	4

If the services of Lieut J. F. Doward, who is posted
 to the Godavery District, can be spared I would
 suggest

I suggest his being placed in charge of the Central Delta subdivision, as he is an officer of some experience, and would therefore be able to lighten the work & responsibility of the Range officer. In all probability the Central Delta is a more important place for an officer of Lieut. Howard's standing than any Range out of the Delta.

9. The Western Delta. The present District Engineer has but just joined the District and, although I have been in communication with him, he has not had time to report in detail the requirements of the Delta Range. The state of this Delta has for a considerable time past been, on good grounds, deemed unsatisfactory. There has been very great delay in preparing and submitting the completion estimates: those for the Western section have been received and will as soon as possible be reviewed. The estimates proper do not appear to have been utilized as extensively as they might have been, & work done has not been carried out in all cases judiciously. The floating plant has been neglected to the serious disadvantage of the canals, and the workshop would seem to have been practically shut up although without it the plant cannot be kept in proper order. Lastly the labor question seems to have simply drifted. All this is eminently unsatisfactory. Now Major Harte's more efficient administration may be anticipated, & it should be placed within his power to manage the Delta properly. The Delta is divided naturally by the river into two Ranges, and each Range may

may conveniently be formed into 2 subdivisions on a Northern or upper & a Southern or lower subdivision on each side. I am of opinion that Major Harte cannot, & should not be asked to, take upon himself the duties of a Range officer, and if so it follows that there must be a Range officer and two assistants for each side of the river. There are two Assistant Engineers in each Range and 2 officers of sufficient standing & experience to carry on the work of the Ranges efficiently are required. I cannot at present say what additions to the subordinate establishment are needed, but information on this point will be furnished as soon as possible. The District Engineer's head quarters should be at Bezoara as also those of the Assistant Engineer of the Northern subdivision of the Eastern Range: the Assistant Engineer of the Lower subdivision should live at Gudirada, where there is a house which can probably be rented or purchased. I am afraid it will be necessary to ask the Government to build a house for the District Engineer. There were formerly a good many houses at Bezoara, but some from neglect have gone ruinously to ruin, others have been removed to make room for canal extensions and improvements & there does not appear to be one unoccupied or likely to be available. On the Western side of the river the Range Officer might live either at, or as near to, Buggiralla as may be practicable, and the Assistant of the Northern subdivision should reside at the same place. An office building & probably two houses

for the Engineer will be required here. The
Assistant of the Southern Subdivision should have
his head quarters at Ephraim on the Gila
main canal, and there is a small house
there.

10. The requirements of the Yellow District
as regards the Irrigation Range have already
been brought to notice in my letter of the
21st instant at 56.

I have the honor to be

Sir

Your most obedient servant

Wm. E. Miller Lt Col R.E.

Chief Engineer for Irrigation

W. E. Miller

Public Works 1873 Department
Chas. J. Lytle Esq. Office
Nov 1872 43.

The Chief Engineer for
Irrigation
To the Secretary to Govt
P. M. D.

N. 65

Dated to Feb 21 1873
Recd 11/23

(Brings to notice
the inadequacy of
the Executive Order in
the principal Irrigation
Districts.

N. 1011-2 April 73

N. 225

619 Feb 17 1873

[Faint, illegible handwritten notes on the right page]

initial
Nettane
Mr. P. Smith
Engineer

Range Officer
Sub-Divisional Officer, Teluk. Quivera

North Range
Mr. Ottmann
Sub. Eng.

Mr. P. Smith
Sub. Eng.
P. Ramaswamy

Central Range
Land Officer
Mr. S. S. Sankaran
Sub. Eng. Supervisor

A. Thudaraipaloo
C. Sankaralingam
A. Thudaraipaloo

South Range

A. Ramiah
Sub. Eng.
Mr. S. S. Sankaran

V. Mooneswamy
Mr. Joseph
Sergeant Smith

East Coast Range

Land Officer
Mr. P. Sankaran

Range Officer
Mr. P. Sankaran

Mr. P. Sankaran
Sub. Eng.

Mr. P. Sankaran
Sub. Eng.

Range Officer
Mr. P. Sankaran

Mr. P. Sankaran
Sub. Eng.

Mr. P. Sankaran
Sub. Eng.

Range Officer
Mr. P. Sankaran

Range Officer
Mr. P. Sankaran

Mr. P. Sankaran
Sub. Eng.

Mr. P. Sankaran
Sub. Eng.

Special Agent

Della Superintendent
Sub-Divisional Officer
Local

Total
2,250 16,800 1,700 10,000 5,400
75,000
2,50,000

P. Venkateswara
A. Venkateswara
Mr. P. Sankaran
B. Sankaran
Chait. Hussain
Chait. Sankaran

P. Venkateswara
C. Sankaran

1,700 6,100 10,000 3,500 1,52,000 7,600

Sargone
Major P. Sankaran

India
May started.

Colli Superintendente Agricultural Provincial L. & C.
Extra. Ordinary
ordinary
S. George's Parish S. Mark's Parish S. Peter's Parish

Edw. Eng

Left 25 forward
Ch. Hargrave

Capitulum (Cap.)

Mr. Hansen

Sp. Exquis

P. Maximal Row P
Mr. Tiger

Mr. Lawrence
Summerhose.

Enbren, D. L. Mr. Peter A. B. Jr. P. Sachiah Pantealo
Lieut. Wm. H. Campbell in charge of Northern Lake Division St. Burgess Woodbury
Mahamad. Kassindah St. Thos. Graham Jr.
Supervisor P. Ramon, Jr.
in charge of Southern Lake Division C. H. Storaasli

Grubbe, Allen

Mr. Harris Lieut Ramsey Supt Engineer
Supt Engineer in charge of Northern Sub Division
Samuel Chitt, Sub Engineer, Sergeant Bennett
in charge of Southern Sub Division Mr Kelly
P. Ram Narayan Rao

Special Vacant.

Robert R. Rye

Mr. Karnatt
Superior

Franklin Poye

Stenobothrus
Punctatus
Supervision

P. Bonaldi

Bright Superintendant.

A. Gendefach. R60.

100th Street

A. Schenck's in Cas. 70 1000

41,300 15,500 1,55,000 20,000 7,300

from Alamos ranch

15

The Chief Engineer deprecates as premature the assertion by this Chief Engineer for a suggestion that the present state of the Public Works Dept. is such as must bring discredit upon it and lead to serious losses. There are foregone conclusions of this, in accordance with the programme for a Public Works Establishment laid down in his Despatch from the Report of the Public Works Commission, dated just three years ago. Action has just been taken by the Government on the report itself, and to at once change that course of action for one in accordance with the Despatch without at least a twelve months fair trial of the system just inaugurated, would, the Chief Engineer submits, lay the Government

of a Machine deservedly open to the
charge of vacillation and inconsistency.

Colonel Walker, it is well
known, never advocated a return to
the District Engineer system; because
he held that the strength of the Pub.
Works Establishment of the Cte
Colonies was insufficient to allow of
20 District Engineers being withdrawn
from Executive Duties instead of only
6 Superintending Engineers (2 of the
8 being otherwise employed as inspecting
engineers). The change has not
thrown heavy Executive charges
into the hands of Assistant
Engineers of 5 years standing or
less, and as the complement
of Officers is now at least seven
short, there are actually vacant
2 Ranges, 4 Specials and 1

Extra.

4th or Probationary charge.
But this deficit in num.
bers is partly owing to the
opportunity of the Georgia
migration - having been taken
to weed out extreme inefficient
Officers, and partly to the
employment in Military duties
for one year after their ar-
rival in the Country of
the young Engineer Officers
whose ultimate destination
is the Spibhoko De-
partment. The numbers
will be filled up within
a twelve months at the
most.

most; the Assistant
Engineers already acknowledged
as of high average abilities
and capacity for work, will
gain experience daily; and the
District Engineers, free from all
Executive duties, and with moderate
charges to look after,,
should be reckoned as
capable of doing much to
make up for temporary de-
ficiencies.

Mr. C. M. Mullins' proposals
appear to the Chief Engr. to strike at

some of the fixed principles of the
Public Works system of this Presi-
dency; as he would ignore the
competence of any Upper Subordinate
to hold charge of an Irrigation Range,
and is in favor of Executive Servi-
tudes under Senior Officers inclu-
ding several Ranges worked as
Sub Divisions. The latter proposal
being specially inconsistent with
the present lack of experienced
Officers. The Chief Engineer depre-
cates accordingly his proposal to
join the Turgie and Combaconum
Ranges into one Range, and the
Eastern and Central Deltas of the
Godavary into another; the former
Delta being already composed
of 2 if not 3 old Ranges, as is the
Western Delta, and both Deltas
of

of the Kistnah. In the present state of the Department it is surely better to work the Tanjore and Combaumun Ranges, each composed of a single Talook, by Assistant Engineers working immediately under the eye of the District Engineer, than to form them into a charge that could only be held by an experienced Executive Engineer, such as is not available. So with the Godavary Central Delta, in which it is confessed that the expenditure is not at present large, and which the District Engineer has accordingly placed in charge of a Supervisor of known ability.

Colonel Walker is likewise disposed to think that the Chief Engineer goes too far in his interference with District Engineers, in dictating the

the employment of Lieutenant J. F. Howard, now in charge of the Ellore Range, in lieu of Mr. Supervisor Ellis in the Central Delta Range. The District Engineer, being supplied by Government with a fixed number of Range and Sub Divisional Officers and Establishments, is answerable for making the best use of them, and must be allowed to use his own discretion as to their allocation. - Head Quarters of Range and Sub Divisions once agreed on and approved by Government should not be changed without fresh reference to Government. The creation of extra Sub Divisions, permanent employment of any but Officers and Subordinates of

certainly
G.M.

of the regular Establishment
in charge of Sub Divisions is
very properly reprobated by the
Chief Engineer for Irrigation.

Wm. L. Colburn P.E.

Chief Engineer
J. W. Esch.

943

1011
The following
propositions made by
the Chief Engineer for
Irrigation with reference
to the arrangement and
conduct of the Public
Works Establishments
of the Sanjoni Railway
and District Districts
do not command the
assent to the approval
of the Government
of the following
propositions made by
the Chief Engineer for
Irrigation with reference
to the arrangement and
conduct of the Public
Works Establishments
of the Sanjoni Railway
and District Districts
do not command the
assent to the approval
of the Government

I have carefully considered
this paper with Col Walker
and Mr. Sim. The conclusion
at which we arrived is to
give the new organization
a fair trial & surrendering
such portions of the
extraordinary allotment
as we cannot utilize.
At the end of an entire
year we shall be in a
position to report to
the Govt of India with
reference to the
propositions made by
the Chief Engineer for
Irrigation with reference
to the arrangement and
conduct of the Public
Works Establishments
of the Sanjoni Railway
and District Districts
do not command the
assent to the approval
of the Government

the objection to them by the
Chief Engineer for Irriga-
tion, to Irrigation
Ranges being held by
Upper Subordinates, is
contrary to the principles
upon which the Public
Works Organization of
this Presidency has for
years been based, and
less than ever tenable
under the District Engi-
neer system which should
strengthen the hands of
the few Upper Subordi-
nates selected for such
charges, and render
them competent for the
same. Throughout Lieut
Colonel Mullins' paper

no

This principle should
be simply insisted on.

11
no credit is allowed to
the extra weight and
favor of Range Officers
given by the constant
presence of an experienced
Officer in the District;
it is incorrectly stated
that Major Hewitt has
been asked to take upon
himself the duties of
a Range Officer, and
that Officer is made
to appear as if quite
new to the District.
Should he have had
such experience of it,
that the young Officers
working under him
must feel their resources
doubled with him at
hand

Have to advise Mr. Mc
existing available Agency
the better way to work
the District District
would be to divide each
existing Delta Range
into two so that each
of the Assistant En-
gineers should have
a Range and work
in direct communica-
tion with the District
Officer.

The Government
deprecates the tendency
which is shown by the
tenor of this commu-
nication to interfere
beyond a certain point
with the arrangements
made

See my pre-
vious remark
Eds

Is this strong
enough?

12
made by District En-
gineers for working
their charges. The
questions of subdividing
Irrigation Ranges
and of their Headquarters
Quarters are such as
should properly be
settled between the
District Engineer
and Chief Engineer
for Irrigation and
after confirmation by
Government should
not be altered at the
caprice of one or the
others and the foregoing
District Engineer will
be called upon at once
to cancel any
unauthorized

the unauthorized departures
from sanctioned arrange-
ments, especially such
as that which placed
a Sub Division under
the separate charge of
a Subordinate from the
Conservancy Establishment.
But the Government
cannot concur with the
Chief Engineer for Irriga-
tion in interfering
with the District Engi-
neer as to his relative
distribution of Range
charges between Licent-
es J. F. Howard P.E., and
Mr Supervisor Ellis.

On the subject
of Establishments of
Instruments

13
Permanent Overseers the
Government would say,
once for all, that it is
fixed by the number of
Talukhs and Districts,
and is not liable to
increase. But any
amount of subordinate
Agency ~~needed~~ may
be raised under the
name of Sub Overseers
and Masters on the
permanent petty estab-
lishment; much of
which in the Irrigation
Districts should be
chargeable to Agricul-
tural "Extraordinary".
The demand for Upper
Subordinate Agency
will

will be attempted to be made
by degrees; a commensurate
being made by
drafting Sub Engineers
from the Chi-
cago Range of Engineers,
(where he will be suc-
ceeded by Ensign Linn)
to the ^{Melrose} District
and as more but young
Officers are available
from the Engineer
rank, a reference will
be made in the Military
Department to His
Excellency the Commander
in-Chief to spare from
Military duty the
services of the five
Officers of Royal Engineers
now

now expected from England
as an exceptional case.
There are just so many
vacancies it is observed
in the ranks of the
Assistant Engineers
of the Department.
It is with
great regret that the
Government find them-
selves compelled to
respond to the demands
of the Chief Engineer
for Irrigation in an
insufficient manner
to which he
must feel to be so much
dissatisfied.
But they have to pro-
vide for the demands
of the whole Presidency,
and

and not for the Field
District alone, from a
limited Establishment,
the strength and details
of which must be accepted,
at least till a fair trial
has been given to the
working of the new sys-
tem for one whole season
or more. And they look
to Lieut Colonel Mullins
knowledge of the great
subject of Irrigation
being brought to bear
personally in En-
gineers in charge of
Irrigation Districts and
Ranges by more frequent
and regular tours amongst
them, in which at least
as much attention
should

should be devoted to watch-
ing the present routine
of work, as to developing
new projects. Studying
trial of the new orga-
nization with its com-
paratively feeble execu-
tion, it would undoubtedly
be undesirable and the
effort to take up new
projects, in fact the
Chief Engineer for Irriga-
tion should strictly limit
his demands for extra-
ordinary funds within
the bounds prescribed
by the existing capacity
for efficient execution

To the Mr. Lieut. Colonel and superintendent
Goswami, Ratan, Ganga,
Kilari, Ch. Engineer
Wily Dept.

Dec 25/72

PUBLIC WORKS.

The District Engineer

2 April 1911

Nov. 25-82 ✓

Establishments Having
under an letter from the
Supt. for Brigades
Lumpkin has advised the
necessity of the Spec-
ial Establishments in
the principal Irrigation

Q00W2 L: 1011-173

L. n. f. l. m. 18-20-23