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MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No.	2712	Press Mis.
387-388		
Dated	17-9-	18 64

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
17th September 1864.*

No. 387. - Read the following letter from Captain J. BEAN, R. E., Officiating Superintending Engineer, 6th Division, to Colonel C. A. ORR, R. E., Secretary to Government, Public Works Department, dated Tanjore, 9th July 1864, No. 652:—

SIR,

One Map.

G. O. No. 1,578, dated 31st May 1864.

G. O. „ 1,646, „ 6th June „

1. I have the honor to reply to Order of Government No. 2,430, dated 26th August 1863, which is also referred to in Orders as per margin, regarding the deficient supply of water

in the Cauvery river for irrigation purposes in the eastern Tálucs of the Tanjore District. I regret that my present knowledge of this District and its system of irrigation is so limited, and that I am able to draw but little from the experience of others (who have prior to myself lived a considerable period in the Province, and who have known its wants,) owing to there being scarcely any papers on the subject of the irrigation from the Cauvery and its branch rivers amongst my records.

2. There can be no doubt that the Sheally and Mayaveram and partially the Combacoonum Tálucs suffer from want of water, and that the deficiency in this respect is gradually increasing. Some years ago, I understand, that the Cauvery bed was deepened to a certain extent, and that accumulations which had formed were cleared away to give the river a freer course. Nothing however has been done lately, and evidences of the bed of the river having silted up, beyond the separation of the Arselaar river, are quite clear. The Collector himself on his late tour had the depths of sand accumulated on the floorings of the Combacoonum and Mayaveram bridges measured, when 2' 9" were found on the former and a proportionate depth on the latter work. On my late visit to the portions of the District irrigated by the river, I found that below Mayaveram the Cauvery rapidly silted up, and became narrow in its course, bearing the character of a small stream, and this is especially the case eastwards of a spot where three large irrigation channels branch off, four miles eastwards of Mayaveram. It is well known that, excepting in very high freshes, the effects of the flood are not much felt near the end of its course, and at Nadarajah Pillay Chuttrum bridge, five miles from the mouth, indications are evident of the non-existence of floods in the river's bed. This state of things, however, indicating a want of water to the eastwards, is far from being entirely attributable to the silting up of the bed.

3. The fall of the bed of the Cauvery, also, appears to have altered somewhat of late years, owing to there being no very regular flow through it from head to mouth. The levels which I have referred to may not be entirely reliable, especially as one or two of the sections were taken by Sub-Overseers, but they are sufficiently so to state general results. The bed of the Agunda Cauvery above the Upper Anicut has a fall of 2.89 per mile, and below it 1.3 per mile for a short distance. Captain Mullins' levels from Permaul Coil Lock, near the Arselaar river head, to the junction of Papanassem road 4½ miles, show a fall of 3.1' per mile. From Cootalum bridge to Mayaveram bridge, 6 miles, the fall is 3 feet per mile, and below this eastwards from Mayaveram bridge for a distance of 5 miles, the fall is shown to be 1 foot per mile.

4. Mr. Cadell was very anxious this season to have had a portion of the Cauvery cleared out, and the Mirassidars were willing to render their unpaid assistance to the extent of one-third the value of work performed by Government, but the project was entertained too late, and the freshes have filled the rivers for a month past. I acquiesced in Mr. Cadell's proposal, because I thought it desirable to expend a small sum towards remedial measures, pending the sanction of works for much larger schemes, but as I had no accurate survey of the present state of the bed, I was not sanguine of any permanent benefit; the clearing would only have afforded temporary relief, and with the present state of the river beds branching from the Cauvery, its own bed after a few high freshes would have again soon silted up.

5. Captain Mullins' reports state that the Cauvery when in full flood supplies a fair share of water; and only then, for the eastern Tálucs, but that the river when in this state does much mischief to the westwards and breaches and damages the embankments of the rivers. This state

amount records.

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of things, which I believe to be true, is caused, as he says, by the supply of water not being regulated, and that the discharge of the surplus flood into the Coleroon, beyond the wants for irrigation, is not properly attended to. The proper regulation of the distribution of water in the Cauvery appears to me a difficult matter to undertake, but there is no doubt that at present the numerous surplus sluices and calingulaks into the Coleroon do not regulate the bed of the Cauvery as they ought to do, and I have noticed the silting up of the river near these works in the Tanjore District, which silting up, considering it occurs throughout the course of the river's bed beyond the branching of the Arselaour river, is partly the cause of the state of things pointed out by Captain Mullins, that, when the cultivators in the eastern Taluqs, get their full supply, the river to the westwards is doing damage from its state of high flood.

6. I would not, however, as a primary project, adopt Captain Mullins' scheme of having regulating works three miles below the head of the river with a powerful surplus escape into the Coleroon, but I would rather, in the first instance, regulate the heads of the larger rivers and allow the Cauvery a fairer share of water than at present in the dry season, when I think it will be found that the present capacity of its bed from long inattention is insufficient, and that extensive work is required below Combaconum, not only to this river, but to the Veerasholen, Vickramanaur, &c., and especially the latter river which has silted up.

7. I come now to the regulation of the supply of the Cauvery water in connection with the rivers branching from it, especially the Codamoorty and the Arselaour. I find from the reports of Colonels H. C. and Arthur Cotton, as well as of Colonel Lawford, twenty years ago, it was always in contemplation to regulate the heads of the larger rivers by degrees and as funds became available for the works. With this intention, the Cauvery dam at the upper Coleroon Anicut was first built, and subsequently the regulating dams at the heads of the Vennaur and across the Cauvery. Now that these have been completed, I think it highly desirable that the next river the Codamoorty should be so acted upon and then the Arselaour.

8. As regards the levels of these different river beds, they are most unsatisfactory, and from this evil arise the complaints of the Mirassidars that the water is drawn off from the main river, before a supply can be secured for the lands of the Combaconum, Mayaveram, and Sheally Taluqs. From comparative levels which have been taken at the head of the Codamoorty and across the Cauvery, the average level of the beds and the breadth were found to be the same, the deepest section only of the Cauvery being nearly three feet below the other river. Sections on the same datum line of these rivers, again, taken near the head of the Arselaour, show the breadth the same and the average depth of the Codamoorty to be half foot below the Cauvery, though the deepest bed of the latter was one and half foot below the former river. If we come to the Arselaour river, which branches 20 miles below the Codamoorty, we find that its average bed two and a half miles below its head is one and a half feet below the Cauvery at the same spot, though the deep bed of the latter is lower by a foot. Sections of the same river, again, taken at its head, show it to be deeper throughout than the Cauvery, and others, taken at the same spot as recorded above, give a greater depth again for the Arselaour over the Cauvery, both in the average and deep bed. These rivers, therefore, which have a much less extent of irrigation than the Cauvery, draw off a much larger share of water than they are entitled to in the dry season, and the result is that, if the cultivators interfere, when there is a foot of water in the Cauvery at the Vennaur head, it frequently happens that the Codamoorty and Arselaour receive a supply, whilst none reaches the Combaconum Taluq by the main river. The only longitudinal sections of the rivers Cauvery and Arselaour which I possess, taken for a distance of three and two and half miles, show the fall* of the bed of the Arselaour to be nearly the

* 8 to 2' 6" per mile.

same as the Cauvery, and I find that the distance from the head of this river to the sea is about fifty-seven miles, whilst the Cauvery from the separation of the Arselaour to its mouth is about the same. The sections of these rivers also show that they take off a large proportion of the Cauvery water. At the Vennaur dam in the month of October it was calculated by the late Lieutenant Moore that with a depth of two feet two inches over the dam and a velocity of

1.4 miles per hour in this river, and 1.3 miles in the Cauvery, the discharge per hour in the Cauvery river was 1,400,000 cubic yards per hour, and half this or 7,50,000 cubic yards in the Arselaour. The breadth of the Codamoorty river at its bifurcation is equal to that of the Cauvery river, and is the same, from comparative sections taken, from twenty to thirty miles below its head.

9. The head of the Codamoorty is in a very bad state, though a good deal of work was carried out last year in the way of planting Nanal grass and throwing out hurdle groynes or Vanganies, but without a masonry dam at its head such a river becomes naturally widened out and irregular in its course, and much could be done; and this remark applies to most of the other rivers, in planting Nanal grass to accumulate sand, and so confining the stream to its proper limits. The Arselaour river disembogues at the French settlement of Karikal, and the ample and extra share of water which it gets is found most useful in regulating the bar at the mouth, and in keeping open the cut which the French have made, and which is accessible to small craft. I have no doubt that if we regulate and thereby diminish the supply, the French Government will complain, and I do not know if they have any treaty rights in connection with the water supply.

10. In the Budget of 1864-65, prepared in this Office, an entry was made by Lieutenant-Colonel Foord of an estimate for erecting four bridges over the Cauvery, Codamoorty, Trimulrajén, and Arselaour rivers, on the road from Papanassum to Cabistallum, and it was proposed to take advantage of these works so as to construct regulating dams across the bridge openings, but the head of the first river is very many miles above the bridge, and that of the second and third one and two and half miles respectively. I think a better project would be secured by erecting masonry works at the heads of the rivers themselves. At the request of Lieutenant-Colonel Foord, Supervisor Bateman did prepare plans and estimates, which are in my Office, for such works at the head of the Arselaour in connection with the Cauvery, and for arched bridges over them, but I do not advocate the erection of these dams prior to those required in connection with the Codamoorty.

11. I think it is desirable to have careful surveys, with the fall of bed of these rivers, made as soon as possible, and accurate returns of the cultivation under each river ascertained which, I am afraid, cannot be obtained from the records at present. After these surveys have been taken, plans and estimates might be prepared for the Codamoorty dam, and I would raise the body two feet, diminishing from the wings, and have more powerful sluices than in the Vennaur dam, where their effect is inappreciable. The present season is not very favorable for taking preliminary surveys, as the freshes have already passed down the Cauvery, and all that could be done would be the levelling along the banks of the rivers, instead of the beds, whereby bench marks could be erected at intervals, and cross sections taken from them after the monsoon. To carry out this work, I have no one to depute, as I am still short-handed, and have now one Range held by Taluq Overseers.

12. If the better regulation of the supply of water in the Tanjore rivers is not provided for, there is an almost certain probability of great disasters occurring at intervals, as pointed out by Captain Mullins, whenever extraordinary floods may enter the Province. The banks of the Cauvery and other rivers are not high enough to retain the extraordinary floods of certain years, and I have only to refer to Lieutenant-Colonel, then Captain, Foord's report* of the 11th

August last, paragraph 3, to Government on this subject, wherein he remarks on the probable heavy cost of strengthening such embankments, and which I believe could be, in a great measure, avoided by a proper attention being given to, and a scheme elaborated for the proper regulation of the flood supply in the Cauvery and its branch rivers.

No. 388. ORDER THEREON, 17th September 1864, No. 2,712.

1. The condition of the Cauvery river below the upper Anicut, and the alleged deficient supply of water in the eastern Taluqs of the Tanjore District, have been brought to the notice

forget my records.

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of Government several times during the past year. The subject was referred to the Superintending Engineer for thorough investigation, and the issue of orders has been delayed pending the receipt of his report.

2. In the foregoing letter, which is in reply to that reference, the Superintending Engineer represents the condition of the Cauvery to be very unsatisfactory. He reports that in the eastern Taluqs of the Tanjore District the river has dwindled into a comparatively small stream, and that the want of water is felt more and more every year; that this portion of the District receives a fair supply of water only in very high floods, and then at the expense of the western Taluqs, where much damage is done by the river when in this state; and that the bed of the river, eastward of the point where the Arselaur leaves it, has silted very considerably of late years.

3. This disastrous state of things is attributed by the Superintending Engineer to two causes; first, to the absence of regulating dams at the heads of the Codamoorthy, the Arselaur gradually become deeper than that of the main river, receive, during the dry season, and even during ordinary freshets, far more than their fair share of water; and second, to the inadequacy of the present arrangements for the discharge of the surplus waters of the Cauvery into the Coleroon, to which is due the damage caused in the western part of Tanjore by extreme floods, in the former river.

4. Captain Bean states that from former reports it is clear that the gradual construction of dams at the heads of all the larger rivers, with the view of regulating the supply of water in proportion to their irrigable areas, was always contemplated; that this has been done in the case of the Cauvery and the Vennaur; and that the Codamoorthy, the Arselaur, and other large streams should now be treated in like manner.

5. Lieutenant-Colonel Foord, the late Superintending Engineer, when entering in his Budget for the current year an estimate for constructing bridges, along the short road between Paupanassum and Kabistallum, over the Cauvery, the Arselaur, the Codamoorthy, and the Timulrajen rivers (the last being a large branch from the Codamoorthy), proposed to take advantage of these works, and to combine with them dams to regulate the distribution of water in the several rivers.

6. The present Superintending Engineer, however, objects to this project; urging that the usefulness of the regulating dams would be in a great measure lost, owing to the great distance from the heads of the respective rivers to the proposed sites of the bridges. Another project which has been prepared, for the construction of regulating works at the head of the Arselaur, Captain Bean would postpone until the Codamoorthy shall first have been dealt with.

7. At present, before deciding upon the exact works to be undertaken, the Superintending Engineer states that careful surveys must be made, the section of each river, the fall of its bed, and the extent of cultivation under it, being accurately ascertained. When this has been done, the plans and estimates of the works required to regulate the discharge into the Codamoorthy can be prepared.

8. In considering this important subject, there are two points to which the Government wish especially to direct the attention of the Superintending Engineer:—
First.—The general protection of the country against floods: the thorough repair of the river embankments throughout Tanjore being included under this head.

Second.—The more equable and fair distribution of the water for irrigation.
Although it may possibly be the case that the works required for the latter object may, to a certain extent, assist in preserving the country from floods, yet the steps proposed to be taken, viz., placing regulating dams so as to check the rush of the water down certain waste channels, would be more likely to add to the height of floods above these outlets.

9. Bearing this in mind, the Superintending Engineer is requested to go fully into the general question, and, in any scheme which he may lay before Government, to provide for both the points above specified.

10. The Government trust that every effort will be made to insure the early completion of the necessary surveys. The Superintending Engineer will report, without delay, whether, now that Lieutenant Smith has joined the District, he will be able to carry them out without additional assistance. If extra hands are required, full particulars must be given.

11. The Government observe that in England, when river walls or embankments are built for the protection of the adjoining country from floods, it is customary to levy a tax upon the whole of the land so protected, the proceeds of the tax being applied to the maintenance of the wall. The Superintending Engineer will report, after communication with the Collector of Tanjore, whether it will not be advisable to introduce a similar tax, to provide for the maintenance of the Tanjore river embankments.

12. The latter part of paragraph 9 of the Superintending Engineer's letter has been referred* to the Public Department.

* Memorandum No. 81, dated 16th July 1864.

(True Extract.)

(Signed) J. H. M. SHAW STEWART, Major, R. E.,
Deputy Secretary to Government.

To the Superintending Engineer, 6th Division.

„ Revenue Department.
„ Public Department.
„ Board of Revenue.

Exd. S. T. Augustin;

and set my records.

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*Proceedings of the Madras Government, Revenue Department,
8th August 1864.*

No. 120. Read the following Proceedings of the Board of Revenue, dated 29th July 1864.
Read the following letter from W. M. CADELL, Esq., Collector of Tanjore, to W. HUDLE-
STON, Esq., Secretary to the Board of Revenue, dated Tanjore, 26th July 1864.
No. 251 :—

SIR,

1. I have the honor to report for the information of the Board, that during the last few days the freshes in the rivers have risen to a very unusual height, and yesterday there was no less than 15 feet of water in the Vennaur at Tanjore. I regret to add that a very large number of breaches have taken place, and many of them of very serious magnitude. In the Sheally Talook four breaches are reported in the Coleroon river only; in the river Arasulur in the Combaconum Talook and within the limits of a few miles there are no less than thirteen breaches, one of them being no less than 200 yards wide, and in the Trumulrajen nine, one of which is also 200 yards wide. I have reason to fear that this is not by any means a complete list of those that have taken place, and at present and until the water subsides nothing can be done towards the closing them.

2. I have not yet heard of any accident or loss to life, but much paddy in the seed beds, also the greater part of the Cadapoo Car plants, which have recently been planted out, must of course have been destroyed. I have in concert with Captain Bean, arranged that as soon as the water subsides, measures will be taken to assist him in closing such breaches as cannot readily be undertaken by his Department. I would take leave, however, to point out that the professional Department in this District has been allowed to become very short-handed, and since Captain Mullin's departure early in May no Officer has been appointed to succeed to him in the charge of that very important Range.

3. The closing of these breaches and the raising and strengthening of the river-banks will of course entail a very large expenditure of public money, for which provision will require to be made, and I would again very respectfully but earnestly submit that the river embankments of this important province, and upon the safety of which the prosperity of this District so entirely depends, require a larger amount of professional skill and of attention than they have of late years received from the very limited Range Establishments.

1. Ordered to be submitted for the information of Government.
2. The Board understand that Lieutenant Smith, R.E., is about to re-place Captain Mullins.

No. 121.

ORDER THEREON, 8th August 1864, No. 1,417.

Miscellaneous.

Ordered that a copy of these Proceedings be furnished to the Public Works Department.

(True Extract.)

(Signed) C. G. MASTER,

Deputy Secretary to Government.

To the Public Works Department.
,, the Board of Revenue.

Exd. S. T. Augustin.

*We ought to have a close
report upon the condition
of these rivers which ought to
be put into a state of
efficiency. In England a
law is laid upon the whole
of the river system
River walls & the money
expended in the management*

from my records.

There

No 129 Revenue Department

Official Memorandum

With reference to the
L.O. Revenue Department 8th
August 1864 No 1417
in which the Department

Public Works with a copy of
the Proceedings of the Board
of Revenue dated 29th July
1864 relating to the embank-
ment of rivers in the Tanjore
District the undersigned has
the honor to forward to the Se-
cretary Department Public Works
the

Sent to D.W. with
Memorandum

~~The accompanying copy of~~
the said L.O. containing the
remarks of His Excellency
the Governor on the said
subject for disposal in
the Department, Dublin.
Wm. L. O. D. L. O. D.
24th August 1864
Secretary to Govt
The Secretary to Govt
L. O. D.

Sent to D.M.
Memorandum

N. 652

Supg. Engineer's Office 6th Div.

Tanjore 9th July 1864

From,

Captain J. Bean R.E.

Offg. Supg. Engineer, 6th Div.

To,

Colonel C. A. Dwyer R.E.

Secretary to Government

P. W. D.

Enclosure

one map

G.O. N. 1578

dated 31st May 1864

G.O. N. 1646

dated 6th June 1864

Sir,

I have the honor to reply to Order of Government N. 2430 dated 26th August 1863, which is also referred to in Orders as per margin, regarding the deficient supply of water in the Cauvery river for irrigation purposes in the Eastern Taluqs of the Tanjore District. I regret that my present knowledge of this District and its system of irrigation is so limited, and that I am unable to draw but little from the experience of others, (who have prior to myself lived a considerable period in the Province), and who have known its wants, owing to there being scarcely any papers on the subject of the irrigation from the Cauvery and its branch rivers amongst my records.

Yours

There can be no doubt that the Sheally and Mayomeram and partially the Combaconum Taluqs suffer from want of water, and that the deficiency in this respect is gradually increasing. Some years ago, I understood, that the Canvey bed was deepened to a certain extent, and that accumulations which had formed were cleared away to give the river a freer course. Nothing however has been done lately, and evidences of the bed of the river having silted up, beyond the separation of the Arsalur river, are quite clear. The Collector himself on his late tour had the depths of sand accumulated on the floorings of the Combaconum and Mayomeram Bridges measured, when 2' 9" were found on the former and a proportionate depth on the latter work. On my late visit to the portions of the District irrigated by the river, I found that below Mayomeram the Canvey rapidly silted up, and became narrow in its course, bearing the character of a small stream, and this

this is especially the case eastwards of a spot where 3 large irrigation channels branch off, 4 miles eastwards of Mayomeram. It is well known that, excepting in very high freshes, the effects of the flood are not much felt near the end of its course, and at Adarajah pillay Chutrum Bridge, 5 miles from the mouth, indications are evident of the non-existence of floods in the river's bed. This state of things, however, indicating a want of water to the eastwards, is far from being entirely attributable to the silting up of the bed.

3 The fall of the bed of the Canvey, also, appears to have altered somewhat of late years, owing to there being no very regular flow through it from head to mouth. The levels which I have referred to may not be entirely reliable, especially as one or two of the sections were taken by Sub Overseers, but they are sufficiently so to state general results. The bed of the Agunda Canvey above the Upper Ament has a fall of 2' 8 9/16 per mile, and below it 1' 3 per mile

Mile for a short distance. Captain
Mullins' levels from Germant Coil Lock,
near the Areakur river head, to the
junction of Papanasem Road, $4\frac{1}{4}$ Miles,
show a fall of 3.1 feet per mile. From
Cootalum Bridge to Mayanaram Bridge,
6 Miles, the fall is 3 feet per mile,
and below this eastwards from Mayanaram
Bridge for a distance of 5 Miles, the
fall is shown to be 1 foot per mile.

4 Mr. Cadell was very
anxious this season to have had
a portion of the Canals cleared out,
and the Shirasidars were willing to
render their unpaid assistance to
the extent of one third the value of
work performed by Government, but
the project was endangered too late,
and the freshes have filled the river
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survey of the present state of the soil,
I was not sanguine of any permanent

benefit; the clearing would only have
afforded temporary relief, and with the
present state of the river beds branching
from the Canvory, its own bed after
a few high freshes would have again
soon silted up.

5 Captain Mullins' reports
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the river near these works in the Tanjore District, which silting up, considering it occurs throughout the course of the rivers' bed beyond the branching of the Arsilam river, is partly the cause of the state of things pointed out by Captain Mullins, that, when the cultivators in the eastern Taluqs get their full supply, the river to the westwards is doing damage from its state of high flood.

6 I would not, however, as a primary project, adopt Captain Mullins' scheme of having regulating works three miles below the head of the river with a powerful surplus escape into the Coleroon, but I would rather in the first instance regulate the heads of the larger rivers and allow the Cauvery a fairer share of water than at present in the dry season, when I think it will be found that the present capacity of its bed from long inattention is inefficient, and that extensive work is required below Combaconum, not only to this river but to the Veerasholen, Vickramanawade, and especially the latter river which has

has silted up.

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7 I come now to the regulation of the supply of the Cauvery water in connection with the rivers branching from it, especially the Godamoorthy and the Arsilam. I find from the reports of Colonel H. C. and Arthur Cotton, as well as of Colonel Lawford, twenty years ago, it was always in contemplation to regulate the heads of the larger rivers by degrees and as funds became available for the works. With this intention, the Cauvery Dam at the Upper Coleroon Anicut was first built, and subsequently the regulating Dams at the heads of the Vennar and across the Cauvery. Now that these have been completed, I think it highly desirable that the next river the Godamoorthy should be so acted upon and then the Arsilam.

8 As regards the levels of these different river beds, they are most unsatisfactory, and from this evil arise the complaints of the Mirassidars that the water is drawn off from the main river, before a supply can be secured for the lands of the Combaconum,

Nayavaram

Mayavaram, and Shally Taluq. From comparative levels which have been taken at the head of the Godamoorly and across the Cauvery, the average level of the beds and the breadth were found to be the same, the deepest section only of the Cauvery, being nearly 3 feet below the other river. Sections on the same datum line of these rivers, again, taken near the head of the Arselam, show the breadth the same and the average depth of the Godamoorly to be $\frac{1}{2}$ foot below the Cauvery, though the deepest bed of the latter was $1\frac{1}{2}$ feet below the former river. If we come to the Arselam river which branches 20 miles below the Godamoorly, we find that its average bed $2\frac{1}{2}$ miles below its head is $1\frac{1}{2}$ foot below the Cauvery at the same spot, though the deep bed of the latter is lower by a foot. Sections of the same river, again, taken at its head, show it to be deeper throughout than the Cauvery, and others, taken at the same spot as recorded above, give a greater depth again for the Arselam over the Cauvery, both in the average and deep bed. These rivers, therefore, which have a much less extent

to $2\frac{1}{2}$ feet
per mile

extent of irrigation than the Cauvery, draw off a much larger share of water than they are entitled to in the dry season, and the result is that, if the cultivators interfere, when there is a foot of water in the Cauvery at the Tennar head, it frequently happens that the Godamoorly and Arselam receive a supply, whilst none reaches the Combaconum Taluq by the main river. The only longitudinal sections of the rivers Cauvery and Arselam which I possess, taken for a distance of 3 and $2\frac{1}{2}$ miles, show the fall of the bed of the Arselam to be nearly the same as the Cauvery, and I find that the distance from the head of this river to the sea is about 57 miles, whilst the Cauvery from the separation of the Arselam to its mouth is about the same. The sections of these rivers also show that they take off a large proportion of the Cauvery water. At the Tennar Dam in the month of October it was calculated by the late Lieut Moore that with a depth of 2 feet 2 inches over the Dam and a velocity of 1.4 miles per hour in this river, and 1.3 miles in the Cauvery, the discharge per hour in the Cauvery river was 1,400,000 Cubic yards per

per hour, and half this or 750,000 Cubic yards in the Arselam. The breadth of the Godamooty river at its bifurcation is equal to that of the Cauvery river, and is the same, from comparative sections taken, from 20 to 30 Miles below its head.

9 The head of the Godamooty is in a very bad state, though a good deal of work was carried out last year in the way of planting manual grass and throwing out hurdle groynes or Tanguanies, but without a masonry dam at its head such a river becomes naturally widened out and irregular in its course, and much could be done, and this remark applies to most of the other rivers, in planting manual grass to accumulate sand, and so confining the stream to its proper limits. The Arselam river disembogues at the French Settlement of Benikal, and the ample and extra share of water which it gets is found most useful in regulating the bar at the mouth, and in keeping open the cut which the French have made, and which is accessible to small craft. I have no doubt that if we

we regulate and thereby diminish the supply, the French Government will complain, and I do not know if they have any treaty rights in connection with the water supply. 10 In the Budget of 1864/65 prepared in this Office, an entry was made by Lieut Colonel Ford of an Estimate for erecting 4 Bridges over the Cauvery, Godamooty, Trimbrajen, and Arselam Rivers, on the road from Papanasum to Cabistallum, and it was proposed to take advantage of these works so as to construct regulating dams across the bridge openings, but the head of the first river is very many miles above the Bridge, and that of the second and third 1 and 2½ Miles respectively. I think a better project would be secured by erecting masonry works at the heads of the rivers themselves. At the request of Lieut Colonel Ford, Supervisor Bahr: man did prepare plans and estimates, which are in my Office, for such works at the head of the Arselam in connection with the Cauvery, and for arched Bridges over them, but I do not advocate the erection of these dams prior

prior to those required in connection with the Godamoorby.

11 I think it is desirable to have careful surveys, with the fall of bed of these rivers, made as soon as possible, and accurate returns of the cultivation under each river ascertained which, I am afraid, cannot be obtained from the records at present. After these surveys have been taken, plans and estimates might be prepared for the Godamoorby Dam, and I would raise the body 2 feet, diminishing from the wings, and have more powerful sluices than in the Veinmar Dam, where their effect is inappreciable. The present season is not very favorable for taking preliminary surveys, as the freshes have already passed down the Cauvery, and all that could be done would be the levelling along the banks of the rivers, instead of the beds, whereby bench marks could be erected at intervals, and cross sections taken from them after the Monsoon. To carry out this work, I have no one to depute, as I am still short handed, and have now 1 Range held by Taluk Overseers

Yr

N-376

12 If the better regulation of the supply of water in the Tanjore²⁵ rivers is not provided for, there is an almost certain probability of great disasters occurring at intervals, as pointed out by Captain Mullins, when ever extraordinary floods may enter the Province. The banks of the Cauvery and other rivers are not high enough to retain the extraordinary floods of certain years, and I have only to refer to Lieut Colonel, then Captain, Ford's report of the 11th August last paragraph 3 to Government on this subject, wherein he remarks on the probable heavy cost of strengthening such embankments, and which I believe could be, in a great measure, avoided by a proper attention being given to, and a schema elaborated for, the proper regulation of the flood supply in the Cauvery and its branch rivers.

I have the honor to be
Sir,

Your most Obedient servant

Heare Capt R E

Off. Supr. Engineer to D.

Proceedings of the Madras Government
Under date the 17th September 64
Read the following

From the Sup^r Engineer to the D^y

Reporting on the deficient supply of water in some of the rivers of the Tanjore District. } H.E. 9th July 1864. No 652

The condition of the Canavery river below the Upper Anicut, & the alleged deficient supply of water in the eastern talooks of the Tanjore District, have been brought to the notice of Gov^t several times during the past year. The subject was referred to the Sup^r Engineer for thorough investigation, and the issue of orders has been delayed pending the receipt of his report.

In the foregoing letter, which is in reply to that reference, the Sup^r Engineer represents the condition of the Canavery to be very unsatisfactory. He reports that in the eastern talooks of the Tanjore District the river has dwindled into a comparatively small stream, and that the want of water is felt more & more every

By order of the Government of Madras 1864

2712-17th July 1864
The Sup^r Engineer to the D^y

The Secretary to the D^y

Dated 9th July 1864
No 652

Enclosure One

Reporting on the deficient supply of water in some of the rivers of the Tanjore District.

There are two points to which the attention of the Gov^t is directed & especially with regard to the general protection of the country against floods. The first is the want of a sufficient supply of water for irrigation. It may possibly be the case that the work required in the latter may be a certain extent of work in procuring the country from floods, but the work is not so much the work of the water as it is the work of the water. The second is the want of a sufficient supply of water for irrigation. It may possibly be the case that the work required in the latter may be a certain extent of work in procuring the country from floods, but the work is not so much the work of the water as it is the work of the water.

2712-17th July 1864

year; - that this portion
of the District receives a fair
supply of water only in very
high floods, and then at the
expense of the Western Slopes
where much damage is done
by the river when in this state.
- and that the bed of the river
eastward of this point where
the Arselaur leaves it, has
silted very considerably of
late years.

This disastrous state
of things is attributed by
the Sup^r Engineer to two
causes; - first, to the
absence of regulating dams
at the heads of the Kodamooty,
the Arselaur, and other large
streams which branch from
the Cauvery, and which,
owing to their beds having
gradually become deeper
than that of the main river,
receive, during the dry season,
and even during ordinary
freshets, far more than their
fair share of water; and
second, to the inadequacy
of the present arrangements
for the discharge of the sur-
plus waters of the Cauvery
into the Coleroon, to which
is due the damage caused
in the western part of
Ranjore by extreme floods
in the former river.

4
Captain Bear states
that from former reports it
is clear that the gradual
construction of dams at
the heads of all the larger
rivers, with the view of
regulating the supply of
water in proportion to their
irrigable areas, was always
contemplated: that this
has been done in the case
of the Cauvery & the Pennar,
and that the Kodamooty,
the Arselaur, and other
large streams should now
be treated in like manner.

5
Lieut. Colonel Ford,
the late Sup^r Engineer, when
entering in his Budget for
the current year an estimate
for constructing bridges
along the short road between
Paupanapuram & Nabistallam,
over the Cauvery, the Arselaur,
the Kodamooty, and the
Mimudrajan rivers, (the
last being a large branch
from the Kodamooty,) ^{proposed to take advantage}
of these works, & to combine
with them dams to regulate
the distribution of water in
the several rivers.

The present Sup^r Engineer
however, objects to this
project; arguing that the
usefulness of the regulating
dams would be in a great
measure lost, owing to the

Great distance from the heads of the respective rivers to the proposed sites of the bridges. Another project which has been prepared, for the construction of regulating works at the head of the Orselam, Captain Bean would postpone until the Coda moorty shall first have been dealt with.

At present, the Sup^r Engineer states, before deciding upon the exact works to be undertaken, the Sup^r Engineer states that careful surveys must be made, - the section of each river, the fall of its bed, and the extent of cultivation under it, being accurately ascertained. When this has been done, the plans & estimates of the works required to regulate the discharge into the Coda moorty can be prepared.

The recommendations ~~made by the~~ are approved of. The Gov^t attach very great importance to this work, and they trust that every effort will be made to insure the early completion

In considering this important subject, there are two points to which the Gov^t wish especially to direct the attention of the Sup^r Eng^r.
 1st The general protection of the country against floods.
 2nd The more equable & fair distribution of the water for irrigation.
 Although it may possibly be the case that the works required for the latter object

the thorough repair of the river embankment throughout Nanjore being included under this head.

may, to a certain extent, assist in preserving the country from floods, yet the steps proposed to be taken, namely, placing regulating dams so as to check the rush of the water down certain waste channels, would be more likely to add to the height of floods above those outlets.

Bearing this in mind, the Sup^r Engineer is requested to go fully into the general question, and, in any scheme which he may lay before Gov^t, to provide for both the points above specified.

The Gov^t observe that in England, when river walls or embankments are built for the protection of the adjoining country from floods, it is customary to levy a tax upon the whole of the land so protected, the proceeds of this tax being applied to the maintenance of the wall. The Sup^r Engineer will report, after consultation with the Collector of Nanjore, whether it will not be advisable to introduce a similar tax, to provide for the maintenance of the Nanjore river embankments.

+ Memo nos 7 & 8 of 16/64

- 5 To the S & B Dn S
- 8 To the Rev Dept S
- 11 To the Pub Dept S
- 8 To the Bd of Rev S

of the necessary surveys. The Sup^r Engineer will report, without delay. Whetten, now that Lieut. Smith has joined the District, he will be able to carry them out without additional assistance. If extra hands are required, full particulars must be given.

The Gov^t trust that the Sup^r Engineer will not lose sight of the necessity of providing a sufficient number of escape works, to admit the surplus water of the Tanjore into the Coleroon, and to regulate the bed of the country from floods. The Gov^t attach to this almost as much importance as the construction of the heads of the branch rivers.

The latter part of para. 9 of the Sup^r Engineer's letter has been referred to the Public Department.

12
 19th September.

Copy in a letter to England 4th May 19 of 1867

W 1864 Depto
Pro: of Gov: for Sept

No 2712

Pro: of the Gov:
Of 17 Sept/64

Letter from the Supt
Engineer 6: Division re-
-garding the deficient supply
of water in the Convery
River for irrigation purposes
in the Eastern Taluqs
of the Tanjore District.

No 387. 388