

MADRAS RECORD OFFICE.

Government of Madras.

Revenue DEPARTMENT.

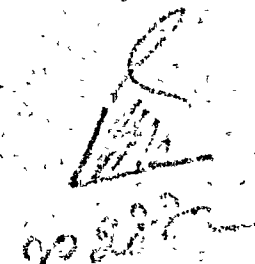
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*Proceedings of the Madras Government, Revenue Department,
4th December 1867.*

No. 54. Read the following Proceedings of the Madras Government in the
Public Works Department :—

Passing orders on Memorandum from Inspector
General of Irrigation Works on the subject
of the irrigation works on the Cauvery river } (Here enter 27th November 1867, No. 3,683.)
in Tanjore.

No. 55. ORDER THEREON, 4th December 1867, No. 2,882.

Irrigation, No. 3.

Communicated to the Revenue Board.

(True Extract.)

(Signed) F. BRANDT,
Under Secretary to Government.

To the Board of Revenue, with Proceedings Public Works Department, No. 3,683.

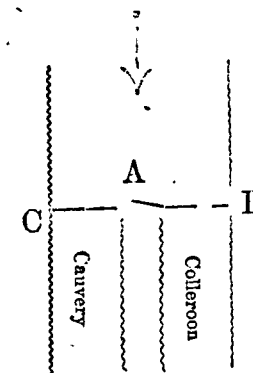
Exd. F. R. Bantleman.

No. 601. Read the following letter from the Secretary to the Government of India, Public Works Department, (Irrigation,) to the Secretary to the Government of Madras, Public Works Department, dated Simla, 28th October 1867, No. 165 I:—

I am directed by the Governor General in Council to forward, for consideration by the Government of Madras in connection with the recent despatch from the Secretary of State, marginally noted, No. 27, dated 14th September 1867, to the address of the Madras Government. copy of a Memorandum by the Inspector General of Irrigation Works on the subject of the irrigation works on the Cauvery river in Tanjore.

IRRIGATION WORKS ON THE CAUVERY IN TANJORE.

1. The reply of the Secretary of State to the letter of the Madras Government, reporting the recent operations sanctioned for the remedy of certain defects in these works, seems to me to be written under a misconception of the real state of affairs. Having visited the Cauvery in the spring of the present year, I am able to offer an opinion formed on actual observation, though whether it will be considered worth having when it is given, it is not for me to say. I may add that I was accompanied in my visit by Captain Forbes of the Northern Division of the Ganges canal, one of the ablest of our Engineers in the North-West Provinces, and that his conclusions, so far as I am able to remember, were very much in accordance with those I shall state. Captain Mead himself was also at Tanjore when we were there, and I don't think his views were materially different either.



2. The operations on the Cauvery, for the control of the water, were begun by constructing the anicut A. B. across the branch of the river called Colleroon, which separates from the Cauvery about 15 miles above Trichinopoly. The Colleroon is the larger branch as regards capacity of bed, and the Cauvery is the channel from which the irrigation canals are drawn. Difficulty was experienced in keeping up the supply in the Cauvery, and the anicut gave an efficient remedy.

Its crest having been raised six feet above the old bed of the river, of course a depth of six feet of water at least was thrown down the Cauvery so long as the supply in the main river sufficed to stand up to the level of the crest of the anicut.

3. The first result of the construction of the anicut, however, was to begin to deepen the mouth of the Cauvery, A. C., and it was feared, with reason, that if this was not prevented, the whole body of the river would be forced down that way. So a masonry bar was put across the mouth of the Cauvery at the level which it was desired to maintain the bed, that is, six feet below the crest of the anicut. For the object in view this has been quite efficacious, and so far the works were in a remarkable degree simple, cheap, and successful, and displayed great ingenuity and boldness on the part of the Engineers.

4. But time has shown that the arrangement, though cheap and simple, had serious defects. Its necessary result is that the supply of water thrown down the Cauvery is not only what is wanted for the irrigation, but a vast deal more, the whole of the floods of the main river having free entry into the Cauvery through the open mouth A. C., which is not in any way constructed so as to provide for the regulation of the water admitted. I am speaking roughly, but I think I was told that in high floods three-fourths of the volume of water which came into the Cauvery had to be thrown off again below. It may have been as little as two-thirds, but any how the proportion is very large.

5. At the earliest stage of affairs, after the construction of the anicut, the necessity for escapes from the Cauvery back again into the Colleroon, below A. C., became apparent, and a number of these were formed, some new, and some improvements of old works which had been needed even in the old days; for the general condition of the Cauvery in times of flood was of course much the same then, though the excess of water was not so great. By help of these escapes, and embankments along the channel, the floods have been kept from doing mischief, I believe, in any serious degree, during the thirty years which have elapsed since the anicut was formed.

6. Although, however, no serious effects have, that I know of, yet arisen as regards the adjacent country, the condition of the bed of the Cauvery about Trichinopoly is such as to call for the full attention of the Engineer. It is obvious from the most cursory observation at the large bridges which are built across the Cauvery, and some of the main channels in the neighbourhood of this town, that the beds have all silted up greatly. In some cases the bottom of the channel is now nearly on a level with the spring of the arches, and must have risen four or five feet at least. When Captain Forbes pointed out this, it seemed to be a fact which the Engineers either had not noticed or had not paid any great attention to.

7. What has happened is very obvious. The bed of the Cauvery below A. C. has a fall less than that of the main river above. The velocity of the flood waters, which are much charged with silt, becomes reduced in the lower parts of the channel, and the silt is thrown down and the bed rises. The effect of the series of escapes below A. C. conduces to quite the same result. The volume of water is reduced, and at the same time the velocity must diminish also. No doubt the practical operation of this was seen early, as is indicated from the desire evinced to make the sluices, through which the escape took place, at a low level, in the hope of carrying off the silt and preventing accumulations. But such an artifice wholly failed to accomplish any general discharge of the surplus silt, just as it has failed at the anicut itself. In this work there are three sets of sluices, the silts of which are six feet below the crest (I may not be exact in the difference however), and their effect in reducing the accumulation of sand above the anicut is simply quite inappreciable. A small channel is kept open for some little distance in front of the sluices, and that is all.

8. Unfortunately it was not possible to learn any thing as to how this silting up of the bed of the Cauvery had taken place. There seemed to be no records of any thing connected with the engineering history of the works. What now exists may be seen, but the rest is a blank. It was believed that it had been found neces-

sary, at intervals, to add to the height of the embankments on the Cauvery, but there was no sufficiently clear knowledge of the facts available to admit of any conclusion being come to otherwise than on general grounds as to what was probable.

9. If this view of the present condition of the Cauvery works be true, and I have myself no sort of doubt about it, it seems to be merely a matter of time when some serious catastrophe will take place. Perhaps it may be possible to continue to raise the side embankments and keep pace with the rise of the bed, and perhaps the bridges may not be destroyed for many years to come. But how a further accumulation of silt, corresponding to what has already taken place, is to be avoided hereafter, I do not see, unless some proper remedial measures are adopted.

10. What the remedies should be in detail it is not for me to say. Generally it is plain that the ultimate cause of the evil is the arrangement by which the floods are allowed to enter the heads of the irrigation channels. Somehow or other this has to be prevented. It is probable that the head of the Cauvery could not be made a regulator at any practicable cost, and a position lower down must be selected for such a work. It seems to be likely that when an efficient regulator, and escape in proximity to it, are provided, it may be the proper plan to close more or less the minor escapes now existing at intervals, in order to keep up the volume and velocity of the stream through its whole course to the tail escape. It is possible that in this way the bed might again be scoured out to its old depth, or at all events that further accumulations might be checked. Such an operation must of course be a gradual one however.

11. It is possible perhaps that the measure suggested in the Secretary of State's Despatch, namely the enlarging of the anicut, might also tend to improvement by getting rid of more of the useless, or rather injurious flood-waters. But no mere increase of the escape at the anicut will prevent a large volume of the flood-waters passing down the Cauvery, and so long as they do this on the present plan, the bed of this channel must rise.

12. The idea of the Madras Engineers, referred to in the Madras letter, of shutting off the surplus waters in reservoirs higher up the river seems to me not likely to offer a practical remedy either. No reservoirs likely to be constructed will catch any important proportion of the flood-waters.

13. The works that have been sanctioned by the Madras Government do not affect to deal with the part of the channel to which I have above referred. Their object is only to regulate properly the distribution of the water which is actually brought into use for irrigation among the several channels into which the Cauvery subdivides in its onward course. What has happened at the heads of some of these branches is just what happened at the main head of the Cauvery itself. The depth of one branch increased, because there was no masonry work to prevent erosion at its mouth, and an undue share of the available water was gradually transferred from the main channel into one of the side canals. This, so far as I could make out, was the real cause of the deficiency of water on the lower part of the main Cauvery channel, of which the Revenue officers complained. To some extent the silt deposits may have added to the evil, but they were not, I believe, at all the principal, or even an important cause of it.

14. It is here necessary for me to draw attention to the somewhat remarkable observation of the Secretary of State, contained in paragraph 4 of his despatch,

that the Collector had "found it necessary to complain of the inefficient state of "the Public Works Department in his district, and of the deteriorated condition of "the very important works of irrigation from the Cauvery." I consider that the fact of a Collector making such remarks is worthy of attention on two grounds, first, that he should have been led to make such a sweeping attack on the Public Works Department in general; and second, that he should have thought it to be the business of the Collector to pass such a judgment on the condition of the irrigation works of the district.

15. As to the first point, I have to say that the opinion that the Public Works Department is inefficient, is not confined to the Collector of Tanjore, but is universal throughout Madras; at all events I went nowhere that I did not hear the same thing. I say this with no intention of imputing blame, but only to state what I believe to be the common feeling in Madras. The time, I think, has come when it is the duty of those who care for improvement to let the truth be known, and I only follow the example of the Revenue Board of Madras in making these remarks.

16. On the second point, it is sufficient to say that, under the system, or rather total want of system, under which the irrigation in Tanjore takes place, the Collector is the only authority who has any special concern with the results of the works. The Engineers are in no sense responsible for the operation of the Tanjore irrigation works. The supply of water is regulated by the Civil Revenue Officers, and the Engineers have only a very ill-defined position in relation to the actual repair or construction of works. Even this it was recently proposed most seriously to depress, when at the commencement of the present year the Madras Government directed the entire execution of all the repairs of the irrigation works in Tanjore to be henceforth entrusted to the Collector. The Revenue Board protested against it, and the order was cancelled; but the fact shows the position which an Engineer in that Province is considered to hold in relation to works of this sort.

17. I have no wish to excite any controversy either as to the system of organization of the Madras Public Works Department generally, or as to the system of management of the irrigation works, but it is right that I should state, in the most explicit way, my conviction that they both need a very radical reform, and that satisfactory progress in relation to the spread of irrigation cannot be hoped for till such a reform is effected. As I have been placed in my present position specially to assist the Government of India in dealing with irrigation, and facilitating its extension, I feel it to be my duty to say what I think on these subjects.

SIMLA, (Signed) R. STRACHEY, Colonel, R. E.,
22nd October 1867. *Inspector General of Irrigation Works.*

No. 602. ORDER THEREON, 27th November 1867, No. 3,683.

IRRIGATION, No. 33.

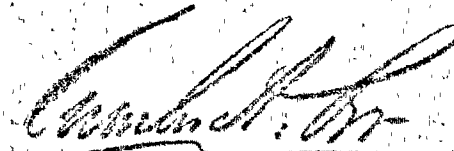
1. The Chief Engineer for Irrigation and Joint Secretary will put himself into communication with the Superintending Engineer of the 6th Division, and, after due inquiry, will report for the information of Government what grounds exist for supposing that the bed of the Cauvery is undergoing the rapid progress of deterioration by the unchecked deposition of silt which is described by the Inspector General of Irrigation Works as a fact coming within his own personal observation.

2. That the bed of the Cauvery is being gradually raised is possible, since, in common with its other branch, the Coleroon, and indeed with all deltaic rivers without exception, and more especially those which are embanked, there is doubtless a tendency to elevate its bed in continuation of the natural process by which the Delta has been formed and is being progressively, but slowly, extended seaward; but the Government have had no reason to imagine that the progress of the accumulation of silt has been so perceptible, or the result so marked as the Inspector General of Irrigation Works states it to be. On the contrary the Government were satisfied by the results of the surveying and levelling operations lately so ably and laboriously conducted by Captain Mead that no material change had taken place.

3. The statement that the silting up of the beds of the river and channels, though in one instance which was pointed out by Captain Forbes it had reached a height of four or five feet, had either not been noticed or had not been paid attention to by the local Engineers, seems to cast a serious reflection on the intelligence and professional ability of the Officers concerned, and, in the opinion of Government, requires explanation from those Officers, and more particularly from Captain Mead, who is not only named by the Inspector General of Irrigation Works as having been with him during his passage through Tanjore, but had been for more than two years exclusively engaged on investigations into the state of the river and channels throughout the Delta. Colonel Anderson will and submit

4. As the constitution of the Department of Public Works is under the consideration of Government, it seems unnecessary to notice the Inspector General's strictures upon this subject on the present occasion.

(True Extract.)



Colonel, R. E.,

Secretary to Government.

To the Chief Engineer for Irrigation,
Revenue Department.

Ed. S. T. Augustin

