M.R.O. 14-5,450-22-10-25.

# MADRAS RECORD OFFICE.

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## Government of Madras.

Revenue **DEPARTMENT.**

G.O. No. 15-29 Press ~~Mis.~~

Dated 21-6- 1866..

***Not to be folded or roughly handled***

*Proceedings of the Madras Government, Revenue Department, 21st June 1866.*

No. 485. Read the following Proceedings of the Madras Government in the Public Works Department :—

Passing orders on a letter from the Superintending Engineer of the 6th Division, forwarding two diagrams shewing the highest freshes in the Cauvery and Coleroon during the last 20 years, with reference to a question from the Supreme Government of the effects which the denudation of the forests in Coorg, &c., has had on the floods of the Cauvery river. } (Here enter 16th June 1866, No. 1,894.)

No. 486. ORDER THEREON, 21st June 1866, No. 1,529.

**Miscellaneous.**

Communicated to the Board of Revenue. Copy to the Collectors of Tanjore, Trichinopoly, South Arcot, Salem, and Coimbatore.

(True Extract.)

(Signed) J. GROSE,
*Under Secretary to Government.*

To the Board of Revenue,
,, the Collector of Tanjore,
,, the do. Trichinopoly,
,, the do. South Arcot,
,, the do. Salem,
,, the do. Coimbatore,
} With Proceedings Public Works Department, No. 1,894.

Exd. S. T. Augustin

No. 356. Read the following letter from the Superintending Engineer, 6th Division, to the Secretary to Government, Department Public Works, dated Tanjore, 25th May 1866, No. 133:—

30th January.

1. With reference to Memorandum No. 11 and G. O. No. 597, dated 20th February, I have the honor to enclose two diagrams showing the highest freshes in the Cauvery and Coleroon during the last twenty years.

2. From an examination of these diagrams, it will be observed that from 1846 to 1857 the water rose above 10 feet over the Cauvery dam at the Upper Anicut only in three years, viz., 1848, 1850, and 1851, while the duration of the floods above 10 feet varied from half to three days. 1858 was an exceptional year, when the floods in July failed, but those in October and November rose to an unprecedented height, and were 6½ and 2 days respectively above 10 feet over the Cauvery dam; the rise in November was very sudden, viz., from 5 to nearly 13¾ feet in 24 hours. From 1859 to 1865 there were only two years in which the water did not rise above 10 feet over the Cauvery dam, viz., 1860 and 1861, and in 1859, 1864, and 1865 the freshes were remarkable not only for their height, but for their duration lasting 6, 7, and 11 days respectively, though for 2½ days out of the 11 the water fell ¾ feet below the 10 feet mark.

July 1848, 2 days above 10 feet mark.
July 1850, 3 do. do.
Nov. " 1 do. do.
July 1851, ½ do. do.

July 1859, 6 days over 10 feet mark.
Oct. 1862, 1½ do. do.
June 1865, 2½ do. do.
July 1864, 7 do. do.
July 1865, 11 do. do.

3. Though the floods have been higher from 1859 to 1865 than they were from 1846 to 1857, owing to the duration of the floods during the former years having far exceeded that of the floods of the latter, and owing also to the fact that the height of water at the Cauvery dam throughout the season, as exhibited in Statement B, from 1856 to 1865, has differed, but little from that from 1846 to 1855. It must be concluded that the high floods of late years are attributable rather to a greater fall of rain than to the clearance of the catchment basin.

4. It is worthy of observation that the trifling falling off in the height of water

Statement B.

throughout the season, from 1856 to 1865, when compared with that from 1846 to 1855, is to be found during the north-east monsoon rather than the south-west; in the latter the floods depend almost entirely upon the rain-fall in the portion of the catchment basin which is being denuded of its forests, while in the former the floods depend chiefly on the rain which falls in the plains.

5. In 1864 it will be observed that, the height of water in August was above the average, and though in the same month, in 1865, the water was rather below the average, the freshes came down earlier than usual in 1865, and the duration of the floods does not appear to have been curtailed. The clearance of the hills, so far as they have gone, have not appreciably affected the Cauvery irrigation.

6. There are no reliable water returns of an earlier date than 1814, but from the diaries formerly kept by the Officers in this Division, it would appear that the freshes were unprecedentedly high in

1814.

1818 } Sir A. Cotton estimates damage to Government and people at
1819 } Rupees 8,00,000.

1821—One of the breaches was open for 20 days notwithstanding the presence of the Collector and 3,000 coolies.

In 1827 } Sir A. Cotton estimates the fresh as about 1½ feet below that
1832 } of 1819.

In 1840—The water at Seringham head was 11 feet 10 inches. Except in the last case no figures are given to show the height of the floods adverted to or their duration.

7. The diagrams have been prepared and the information given above has been afforded by Captain Mead, who is investigating a project for the improvement of the Cauvery irrigation, and who has prepared the following Statements :—

*A.* A Statement of the height of the freshes in the Coleroon and Cauvery for the last twenty years.

*B.* Do. do. showing the height of water at the Cauvery dam for each month for the last twenty years.

*C.* Do. do. showing the approximate quantity of water which enters the District at different heights on the gauge at the Cauvery dam, and how it is disposed of.

*D.* Do. do. showing the volume of water required to be stored to maintain a depth of 5 feet of water over the Cauvery dam for three and four months, and the quantity available for storage if all waters above floods of 8 and 9 feet over the Cauvery dam were arrested and retained in reservoirs.

8. Five feet of water over the Cauvery dam ought to afford a full and sufficient supply to the irrigation dependent on the Cauvery. The first great branch from the Cauvery is the Vennar, and though the cultivation below the point of bifurcation under these rivers bears the proportion of about 9 to 10, the water-way over the respective dams is nearly 7 to 4. So that the Cauvery receives far more than its share of water, and yet owing to the defective state of the river the Myaveram Táluq does not receive a sufficient supply unless 7 feet of water are flowing over the Cauvery dam, or until the District is receiving nearly double the supply it ought to require, and even then, a portion of the Shealli Táluq receives but a very scanty supply. The cultivation in this Táluq, I should, however, mention, is and always has been in a great measure dependent upon local rain during the north-east monsoon for its supply of water.

Cauvery 936 feet.
Vennar 558 ,,

9. A reference to columns 4 and 5 of Statement D, showing the volume of water available for storage above freshes of 7 feet and 8 feet at the Cauvery dam, considered in connexion with the duration of the floods during late years, will indicate the impossibility of forming reservoirs on the hills capable of materially influencing



the high floods in the District, and thus preventing the occurrence of breaches, &c. Works for this purpose must be constructed in the delta itself. But reservoirs* for storing water for purposes of irrigation capable of containing 800,000,000 cubic yards of water would be invaluable. During the past ten years such reservoirs by retaining all water over 8 feet above the Cauvery dam in July and that above 7 feet in August in bad years, could have been filled every year with the exception of 1858, when the south-west monsoon failed, and could have maintained a permanent depth of 5 feet of water on the Cauvery dam for four months in 1859 and 1862, for three and a half months in 1856, 1857, 1860, 1863, 1864, and 1865, and for nearly three months in 1861, and this not by robbing the District of its water when the floods were low, but by relieving it of some of the superfluous water it did not require when the floods were high, they would have tended to prevent injury to the river banks in the delta.

* Area of Reservoirs 26 square miles, with an average depth of 10 yards.

No. 357. ORDER THEREON, 16th June 1866, No. 1,894.

CIVIL WORKS, No. 58.

1. The question raised by Colonel Lawford of the effect which the denudation of the tracts of forests in Coorg and other parts of the upper catchment basin of the river Cauvery has had in augmenting the magnitude of the floods in that river, and in proportionately shortening the time of their duration, having been brought under the notice of this Government by the Government of India, the Superintending Engineer of the 6th Division was called upon to report upon the matter from the information obtainable from the records of his Office.

2. Captain Oakes now submits a full report on the subject, with returns to show the height to which the freshes attained during the twenty years from 1846 to 1865, inclusive, and the length of time which each fresh continued at a given level. From an analysis of these it appears that for the last ten years of the period the floods have been heavier than during the first ten years, and so far Colonel Lawford's theory would appear to be borne out; but, as these heavy floods chiefly occurred during the north-east monsoon, which does not extend into the Districts in which the clearance of forests has been going on, and as their duration was also greater during the latter than during the former years, the Superintending Engineer seems to be right in attributing these greater floods in the river simply to an accidental increase in the amount of rain-fall.

3. The Government are not prepared to say that Colonel Lawford's supposition is without foundation, and they have no doubt that locally the effect of the destruction of the jungles is perceptible, but there is nothing before them to show that the clearances in the upper basin of the Cauvery have been sufficiently extensive to influence the river so far from the localities in which they were made as Tanjore. To bear out this view the Government have only further to remark that the heaviest floods ever known to have happened in Tanjore occurred early in the century, long before coffee planting and its accompanying clearances were introduced, and that no flood of such height as to cause serious damage has occurred since 1858, which would scarcely have been the case if clearing away the jungles has had the effect which Colonel Lawford imagines.

4. The Government are much pleased with the completeness of the returns submitted. The wet cultivation in the Tanjore District commences with the early freshes in June, and by the end of August the whole of the wet lands in the Delta are under crop, and it is therefore of paramount importance that there should be no failure in the supply of water at that season; but during the month of September and the early part of October, the break between the two monsoons occurs, when the rains of the south-west monsoon have ceased to fall and those of the north-east monsoon have not commenced, and it consequently happens that, in unfavorable years, the crops suffer much from drought. The Superintending Engineer shows that, with the single exception of the year 1858, in which the south-west monsoon failed, there has always been a sufficient quantity of water passing down the river during the months of July and August to have admitted of 8,000 millions of cubic yards being stored not only without robbing the cultivation of its supply, but also with the advantage of relieving the river of a part of its surplus water at times when the floods were so high as to endanger the banks, and, further, that this quantity of water would have been sufficient to have maintained an average depth of water over the Cauvery dam for four months in the year 1850 and 1862, and for three months in 1856, 57, 60, 63, 64, and 1865. These are most valuable data, and will be of much use to the Government when the question of storing water in the upper valleys of the Cauvery and its tributaries is under consideration.

5. The Superintending Engineer states that although five feet of water over the Cauvery dam ought to afford a full and sufficient supply for the irrigation dependent on the Cauvery, yet, owing to the defective state of the river bed, the Eastern Táluqs do not receive a sufficient supply until there is seven feet passing over the dam. It is observed that, with five feet over the dam, 3,10,000, and with six feet 13,55,000 cubic yards of water per hour are permitted to escape into the Coleroon. Captain Oakes is requested to consider whether, with due regard to the rights of the cultivation under the Mannyaur and the Lower Anicut, it would not be desirable to utilize the greater part of this water by raising the Tamboghy in the south branch of the Upper Anicut, and thus raise the number of days during the south-west monsoon on which sufficient water for the irrigated lands dependent on the Cauvery enters that river, from an average of twenty yearly up to more than sixty days. Relief to an equivalent extent might be offered to the Cauvery during floods by increasing the number of under-sluices in the anicut itself, or in one of the works for the discharge of surplus water constructed in the Cauvery north bank.

(True Extract.)

Colonel R. E.,
*Secretary to Government.*

To the Superintending Engineer, 6th Division.
,, Revenue Department.

Exd. S. T. Augustin.

P. 20 786/16 & 4460/7

Revenue 1866. Dispatches from Govt for June No. 1759.

Proceedings of the Madras Govt in the Jud. Dept.

Dated 16th June
Received 18th July 1866.
No. 1894.

Passing orders on a letter from the Collr of the 6th inst forwarding two diagrams showing the highest freshes in the Cauvery & Coleroon during the last 20 years with reference to a petition from the Supreme Govt of the effects which the demolition of the forts and Coorg Rice Bds on the flow of the Cauvery River in 1829. 21 & 22 and

With orders &

No 485-486.