

ORDINARY, MS.

Public DEPARTMENT.	
G.O., DATED	25-1-94
No.	65

INDEXED.

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[Despatch Abstract.]

Copy of the report for
part 1.14. kept on the
proper report of No. 1
Periyar for the matter
of Nos 93, for immu-
nity action with reference
to paras 2 & 3 of the
Chunabhai note is.
garden the high note
mistaken especially at
Phekady -

READ AGAIN ORDER OF GOVERNMENT, DATED
18, No., MISCELLANEOUS.

FURTHER PAPER, No.

397

OF 18

94

ENCLOSURE.

CURRENT No.

STATEMENT WITH DITTO.

ORDER OF GOVERNMENT.

LETTER OF GOVERNMENT.

STATEMENT WITH DITTO.

PAPERS NOT FILED UP, BEING MEANT FOR DESPATCH
IN ORIGINAL (not paged).

N.B.—

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IRRIGATION.

Govt. of {1894} Madras.
PUBLIC WORKS.

Dated January, 9th.

Recd.

Encl.

G.O., 9th Jan. 1894, No. 6 I.

JANUARY.

UNDER SECRETARY
21 JAN 94
PUBLIC WORKS DEPT.

Periyar Project

Progress report of No. I Periyar Division
for the month of November 1893, recorded
and communicated to the Government of
India.

N
Order 25 Jan 94 K 65

*Comm^d to the Surgeon
General for immediate action
with reference to paragraph
2 and 3 of the Chief Engineer's
note.*

*35B
23/1.*

The Surgeon General

RECEIVED

25 JAN 94

IN H.S.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following papers :—

No. 216 C.E.

Progress Report for November 1893.

General.—Rain, festivals, bad health, and an unusually large number of less important contretemps during November contributed to retard progress on all works. The subjoined account will show however that the monthly record, if slightly below what had been hoped, was quite equal to what was reasonably to be expected at this time of year. The population of the two camps was 5,021 at the end of the month against 5,250 at the beginning.

Health.—The hospital statistics for November at Thekady show some slight improvement as compared with October; but those at Periyár continue to show a very large prevalence of sickness notwithstanding that the houses are better than they have ever been before, the streets cleaner and better drained, the latrines greatly improved, and that the lowest part of the camp in the thickest of the malarious mists has been altogether removed. The entire absence this season as yet of any epidemic diseases, such as cholera or small-pox, points to the conclusion that the general unhealthiness is the effect of some temporary climatic influence rather than of defective sanitation. Unrelaxed attention however will be paid to the latter with a view of minimizing as far as possible the former. The hospital statistics for the month were as follows :—

Camp.	Population.	Daily average attendance.	Total treated.	Ratio sick to 1,000 of population.	Deaths.	Ratio deaths to 1,000 of population.
Periyár	4,109	158.64	1,487	361.90	9	2.20
Thekady	912	42.86	638	69.90	1	1.29

There were no serious accidents during the month.

Main dam.—The month's outturn of concrete was 114,207 cubic feet, being again in advance of any month's record yet accomplished. The rubble put in amounted to 34,406 cubic feet, making a total addition to the work of 148,613 cubic feet. The total contents of the dam up to date are now 2,980,096 cubic feet, leaving 3,092,643 cubic feet still to be added before completion; and of the former figure 523,295 cubic feet has been the outturn of the present season.

Rain fell on most days of the month under review; this and the break down of the new wire rope—regarding which a special report has been submitted—appreciably affected the outturn. Some inconvenience was also felt from want of space by reason of the diminishing area of the dam as the structure rises. The area is at present the more restricted as the raising of the river to its next level is in immediate contemplation and neither its present nor its future channel through the dam is available for work. The raising of the river from the one channel to the other in December

will render the former available for labour, and it may reasonably be expected that this addition to the working area will enable a distinctly more rapid rate of progress to be achieved during the remaining months of the present season.

The stocks of all materials were maintained with the exception of that of stone. The quarry recently opened to take the place of the now completed right bank escape (which has hitherto been the source of stone supply) is at a considerably greater distance from the dam, and more trucks are therefore required for the transmission of stone. These are not available, nor will be till the completion of the water-shed cutting in January or February sets free those at present in use on that work. Till that time the stock on the right bank escape must continue to be drawn upon, and meanwhile the want of space at the new quarry will prevent a stock from being accumulated there. The existing stock on the escape and elsewhere is however sufficient to stand the drain. The leaks in the main dam were examined immediately after the close of the month. There are only two which are of the smallest importance, the others being scarcely more than the capillary moisture usually known as "sweating." Of the two, one lies so low that the river level behind the dam seldom permits an examination. It has never yet been actually gauged, but an endeavour will be shortly made to gauge it. The other was gauged at the beginning of December and was found to be discharging 23.6 cubic inches per second against 28.75 in September. Of the remaining leaks, the only two large enough to be gauged with any accuracy were found to be discharging about 109 and 24 cubic inches per minute against 103 and 71 respectively in September. The head against the dam being now about 5 feet greater than on the former occasion, it may be taken as probable that the leaks are slowly "puddling" themselves.

Water-shed tunnel.—The figures for the month on this work show a total advance of 166 feet, made up as follows:—

	FEET.
North end	110
No. 2 shaft southwards	9
Do. northwards	40
No. 1 shaft	7
	166

It was considered advisable to postpone the meeting between Nos. 1 and 2 shafts until after the conclusion of the rains in case a fresh in the Mulyapanjan river should find its way, through the now open southern mouth of the tunnel, to the work at No. 2 shaft north face, a decision which was immediately justified by a high fresh working of the tunnel and was thus only prevented by the unpierced block between the two shafts from also stopping the work at the face of the No. 2 shaft northward boring. The machine drilling southwards having for the above reason been stopped on the 2nd November, pumps were set to work to clear the water brought in by the spring at the northward face of the No. 2 shaft boring. This was accomplished by the 15th and a sump having then been first blown out of the floor, opposite to the entrance of the spring, work was resumed on the 20th and as above mentioned 40 feet advance accomplished by the end of the month.

At the north end two stoppages, each two full days—the first from a landslip on the turbine channel and the second from the breakage of a friction clutch on the turbine shaft—diminished the progress by about 25 feet, the ultimate advance being only 110 feet as stated above. The present state of the work is shown on the accompanying section. From this it will be seen that a meeting can be effected between Nos. 1 and 2 shafts by a few days' hand drilling whenever desired, and that an interval of about 700 feet is all that remains between No. 2 shaft and the north end in order to complete the tunnel. Should no more water be met with from No. 2 shaft, the completion may therefore be reasonably anticipated in April. Even should more springs render all work impossible from No. 2 shaft, the completion of the work (which would in that case have to be effected from the north end) can hardly be delayed beyond June or July.

Water-shed cutting.—The progress on this work has been a good deal hindered by freshes in the Mulyapanjan and by a scarcity of labour due to cultivation in the Cumbum valley. Progress now is moreover necessarily slow as operations are confined to a small space in the deepest portion of the cutting where every stone has to be lifted about 50 feet. The figures for the month under review were as follows:—

	C. FEET.
Rock removed	25,818
Earthwork	40,271

Transport.—The road and canal were maintained in efficient order throughout the month. About 25,000 cubic feet of limestone were conveyed from Thekady to Periyár during the month. The wire rope of the ghât wire ropeway gave a great deal of trouble owing to the frequent breaking of single strands. Owing to the interruption thus caused and to the landslip above mentioned on the turbine channel, only 15,000 cubic feet of limestone were conveyed by the ropeway during the month.

Rainfall.—At Periyár 5.33 inches against an average (5 previous years) of 4.23. At Thekady 10.65 inches against an average (4 previous years) of 3.29.

PERIYAR, (Signed) S. D. PEARS,
9th December 1893. Supt. of Works, No. 1 Periyár Divn.
To the Chief Engineer, Public Works Department.

Note by the Chief Engineer, Public Works Department.

Submitted for the information of Government.

2. The continued high rate of sickness, especially at Thekady (where the rate is 699.56 per thousand, not 69.90 as stated in the report) is very unsatisfactory and unintelligible.

3. It is certainly not due to want of attention to sanitary measures, for I made a careful inspection of the camp during the month in question and am satisfied that its sanitary condition is better than it has been at any previous time. I would suggest that the District Surgeon be instructed to inspect the camps at once.

4. The progress on the main dam continues to improve, each month showing an advance on that preceding it. It is probable that during the remaining four months of this season we shall put in at least 500,000 cubic feet and average 120,000 cubic feet per month in future years, which will enable the water to be raised to 120 above datum (at which level it can be sent through the tunnel) by about the end of 1895 and the dam to be completed a year later; it has in fact for some time past been apparent that these would be about the dates of completion.

5. A certain amount of trouble is now experienced in connection with the supply of stone, and I am anxious, if possible, to utilise some of the large quantity which is stacked on the banks of the water-shed cutting. At present the cost and slowness of towing has prevented this from being used, but inquiries are being made as to the cost of fitting some of our barges with propellers driven by small oil engines at a speed of about three miles an hour, and it is not unlikely that by this means the stone in question may be got to the dam at a cost somewhat less than that of quarrying near the dam.

6. It was mentioned in the report for October that work from the northern face of No. 2 shaft had been stopped until the works to be done from the southern face of the same shaft was finished, as a spring had been cut on the northern side which, it was feared, might, if cut into any further, increase so as altogether to prevent work in this portion of the tunnel.

7. The southern portion having been completed, work on the northern face has been resumed and the spring has been found much smaller than was feared, and it is hoped that work will now go on without interruption until the headings from No. 2 shaft and the north end meet, which ought to be, according to present indications, in

April or May. Every effort should be made to effect the junction before the beginning of the south-west monsoon, as the existence of the tunnel will be of great value in moderating the floods in the Mulyapanjan, which in July and August always interfere more or less with traffic.

8. As stated above I visited the works during November, but there is little that calls for special remark; the progress, especially on the main dam and water-shed cutting, is very noticeable and more striking than would be expected from a mere perusal of the monthly reports.

9. The improved organisation and smoothness with which work is proceeding is also noticeable and reflects credit on Mr. Pears and his staff.

10. There is, however, one matter indirectly affecting the works which I think requires the special notice of Government, and that is the state of the road between Periyakulam and Kumili; I could not have believed that a road could have deteriorated to such an extent in a single year.

11. In some parts, notably between Chinnamanur and Uttamapalaiyam and between Cumbum and the foot of the ghât, there can hardly be said to be a road at all, nor is this to be wondered at, if, as appears from the District Board's report for 1892-93, the allotment for the whole road from Periyakulam to Gûdalûr (a distance of 38 miles) was only Rs. 2,000 and the expenditure Rs. 1,080; from Gûdalûr to the foot of the ghât there seems to have been no expenditure at all.

12. If the road from Periyakulam to the foot of the ghât is bad, the ghât itself is worse; the nature of the country through which the former runs is such that in dry weather carts can get along somehow without a road at all, but the ghât has now got to that stage of deterioration that its complete ruin, unless prompt measures are taken for its restoration, is only a matter of months. Even now a few days of heavy rain would probably make it impassable; fortunately there are six months at least during which no heavy rain is to be expected, and, if the District Board will act promptly, the road can be restored.

13. Government has spent nearly three lakhs of rupees on this ghât, on the road from its foot to Cumbum and on the two bridges on the Suruli, and it does not seem right that this expenditure should be rendered useless by neglect to keep the road in proper condition.

14. There are three toll-gates between Ammayanakanur station and the foot of the ghât and their maintenance under present conditions seems little less than a fraud upon the travelling public.

15. Nothing whatever has been yet done towards bridging the Pambar, Varaghanadi and Teniar; nor, as far as I can ascertain, do the District Board contemplate doing anything.

16. On the understanding that the Board would bridge these streams, Government consented to bear the cost of the two bridges over the Suruli, which are now under the point of completion, but the value of these bridges is greatly reduced so long as traffic is liable to interruption by the three rivers named above, especially the two latter.

17. If the Board cannot provide the necessary funds for the construction of these bridges, I would suggest that the sum required (which will, I think, be about Rs. 70,000) should be advanced by Government and the work undertaken by this department; the income of the District Board will be so increased by the completion of the Periyâr project that it will have no difficulty in meeting the interest on this sum.

18. If orders for the preparation of the estimates were given at once, they could, I think, be prepared in time, for the foundations of the bridges to be got in during the coming dry season; the traffic on the road is increasing daily and deserves more consideration than it receives at present.

21st December 1893.

(Signed) J. PENNYCUICK, Colonel, R.E.,
Chief Engineer, P.W.D.

ORDER—dated 9th January 1894, No. 6 I., Public Works.

Recorded and communicated to the Government of India.

2. Paragraphs 10 to 18 of the Chief Engineer's note will be considered in the Local and Municipal Department and paragraphs 2 and 3 in the Public Department.

[Here enter No. 7 I., dated 9th January 1894.]

(True Extract.)

R. E. Penny Major, R.E.,
Under Secy. to Govt., P.W.D.

To the Superintendent of Works, No. I Periyâr Division.
" Chief Engineer for Irrigation.
" Revenue Department.
" Local and Municipal Department.
" Public Department.

Exd. C. A. Manisawmy.
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