L. & M.
9,000-8-8-96.

Local & Munl. (1895) Department.

MISCELLANEOUS.

G.O., No. 1809 M

DATED 2d November 1895.

[Despatch Abstract.]

Ootacamund Water-supply.

Approving, with remarks, the recommendation of the Sanitary Board to invite Mr. G. T. Walch to undertake the preparation of plans and estimates for the proposed improvement to the-----, requesting the Chief Engineer to negotiate with him on the subject; and awaiting a separate report promised by the Sanitary Board on the subject of Marlimund filtration.

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

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[7]

INDEXED.

Miscellaneous.

LOCAL AND MUNICIPAL DEPT.

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Read again Order of Government, dated 189 , No , Miscellaneous.

Back Paper, No. of 18 3

Further Paper, No. Cur 3682 L/95 of 189

Cur 559 L/95

Cur 779 L/96

Enclosures.

Current No

Statement with ditto.

Order of Government

Statement with ditto.

Papers not filed up, being meant for despatch in original (not paged).

N.B.-
A = Copy in full.
B = Not to be copied.
P = Copy abstract only.
Q = Copy heading only.

Copied by

Examined by

No. 29 14 of 1894

Memorandum on the Improvement of Marlimund with reference to G.O, No 839, M, Mis, dated 6th July 1894. Local & Muni.

1

The cost of constructing the proposed intercepting channel for cutting off Tudor Hall Estate as shewn in plan No 1 capable of discharging a run off of 1/2 an inch in one hour from the catchment area and providing two escape weirs and making the necessary provision for collecting the water from the area to be retained would be Rs 4,800.

2. Plans shewing the land required to be taken up for the channel and so much of the land proposed to be retained as catchment area have been furnished to the Collector in order that the cost of acquiring the same may be ascertained.

3. In order to enable the Sanitary Board to form an opinion as to whether the proposed measures together with those proposed in para 11 of the above order would secure the water in the lake from contamination by

manure deposited on the Tudor Hall estate or whether it would still be necessary to have recourse to filtration as well in consequence of the peat bog which is situated within the reservoir, the bottom of the lake was examined and it was found that 5 feet of peaty clay deposit extended over the whole of the lake.

4. It will be observed that the proposed channel only intercepts surface drainage, but as the channel will be above the level of the lake, water will percolate underneath, especially at the spots where peat occurs.

5. After the construction of the channel the water will be dammed up at points A, B & C in plan No. 2 to a depth of about one foot and extend over the area colored blue; further damming up will be prevented, as the water will be carried off by the channel.

6. The peat bog is shewn on plan No. 3 and colored red; to remove so much of this as is above low water line would cost not less than Rs 125,000.

7. The cost of constructing a retaining wall at ×× on plan No. 3 for cutting off the bog would cost not less than Rs 50,000. If this is constructed, the intercepting channel

would

would also be necessary to prevent the water, which would otherwise be retained, from surplussing into the lake.

8. The question of increasing the supply from Snowdon slopes will be better understood by referring to plan No. 4 in connection with the following paragraphs.

9. On the northern slope the supply channel is cut on the hill side from point D to E tapping 3 streams marked 3, 4 & 5 but it is so pervious that, at the time of inspection, all the water amounting to 22.4 gallons a minute was lost by percolation. From E to F a masonry duct 1'-8" × 1'-8" capable of discharging 12 c.ft a second takes the place of the open channel.

10. The supply channel on the southern slope is an open cut from H to K tapping 2 streams marked 6 & 7 yielding at the time of inspection 27.7 gallons a minute; however very little of this reached the Marlimund as some of it was diverted and some lost by percolation. From K to F a 12" pipe takes the place of the open channel and from F to G the water from both channels is conveyed by an 18" pipe capable of discharging 9.3 cft per second. From G to Marlimund lake there is a masonry duct 1'-6" × 1'-6"

capable

mo

capable of discharging 15 cft a second.

11. The catchment area of Snowdon slopes at present draining into the channel is colored blue and is 174·24 acres.

12. The dotted red line LM represents the channel which diverts the water from the southern channel above referred to to Government House Dhobies and which takes into it the drainage from land colored red, about 23 acres.

13. The dotted blue line represents a channel that supplies the Cooly lines just above Government gardens; this subsequently flows into the Government Botanical gardens. The channel taps a stream yielding at the time of inspection 8.2 gallons a minute and is supplied by a catchment area colored green measuring 59 acres. It may be mentioned that the main supply for the Government Botanical gardens is obtained by means of the channel shewn by a full black line ~~intercepting~~ at the time of inspection 33 gallons a minute.

14. At one time the area colored green and portion of that colored red was led into the Marlimund lake by a supply channel shewn in dotted black, but this channel has long since been abandoned.

15 In order to increase the supply to Marlimund from the Snowdon solpes the following works may be carried out:—

(a) Cutting off the supply to Government House Dhobies and diverting the same into the supply channel and lining the present channels with brick in chunam from D to E and from H to K. (The use of puddle is not recommended as the rapid gradient would cause the same to be washed out)................	Rs 16,650
(b). Recutting and lining the old south supply channel from N to O so as to command the area colored green; from N the water would find its way down the stream H and thence to Marlimund by existing channel.	Rs 6,700
(c). Laying an additional pipe from K to F..........	Rs 4,000
(d) Enlarging masonry conduit from E to F..........	Rs 8,220
(e). Laying additional pipes from F to G..........	Rs 69,000
(f). Enlarging masonry conduit from G to Marlimund Lake-	Rs 57,060
Total Rs	1,61,630

16. The object of increasing the size of the conduit and laying additional pipes is to enable them to discharge a run off of 1/2 an inch in one hour from the catchment area, the channels themselves are large enough with slight modifications.

The cost of extending the channel the northern slope and increasing the tchment area by 30.33 acres as shewn in flow would be not less than Rs10,000 as slopes of Snowdon on this side are very ep and much blasting and masonry rk would be necessary. The question of ealignment of the channel was considered but is practically impossible. However until e channel is lined or the other works carried out there is little use in thinking of xtension.

18. As the cost of the above works Rs1,61,630 for increasing the supply seems prohibitive it would appear advisable simply to carry out item (a) and perhaps (b). Instead however of lining the channel, the streams referred to might be dammed up and conveyed by means of stoneware pipes at a cost of Rs 15,000, but the lining would be more advantageous as the water entering the channel from the catchment area would also be saved.

19. The estimated cost of raising the Marlimund dam is Rs 12,000 but this is not recommended as it is probable that there would be a further slip of peat by the same becoming water logged. The peat hatched red on plan No 3 has given no trouble up to date but might slip if the dam were raised.

20. The level of the escape of Snowdon

Reservoir

Reservoir is 423.64 and the level of the pipe this point to give the requisite head is 425 By raising the bund to 431.36 at a cost Rs7500 a tank would be formed capable holding 6½ million gallons or 28 days supp

21. The cost of constructing the reservoi as suggested by Dr King would be not less than Rs 10,000; the bank would be 46 fe high and the water stored is 5,150,000 gallon or about 24 days supply and would probably silt up very rapidly.

22. Plan No 5 illustrates the cisterns refer to in para 7 of the Government Order to be constructed where pressure is high and wast constant. The estimated cost is Rs 380 and 10 of such cisterns would probably be sufficient to make a marked difference in the waste.

23. The question of connecting the various springs in the neighbourhood of Ootacamund as suggested by Dr King in his inspection notes embodied in G.O. No 648 M, dated 23rd May 1894 has been considered as a means of increasing the supply. Plan No 6 shews the position of such springs and also the existing line of pipes. The table appended gives the reduced level and the quantity of water as gauged at each spring in September 1894. The cost of connecting the springs to the main would be

not

t less than Rs 60,000.

The minimum quantity that would obtained from the springs is probably half s amount given in the table, namely 139·67 gallons a minute so that the supply could not depend entirely from these sources as the aximum quantity required to supply a opulation of 15,000 at 20 gallons a head is 16 gallons per minute. Under the circumstances the above idea must be abandoned.

5. Since writing the above, the undersigned received a communication from the Chairman, Municipal Council, Ootacamund calling attention to the low level of the water in Marlimund reservoir and stating that he has diverted the supply which was flowing to the Government House Dhobies and his report is attached to this memorandum.

R. E. Ellis
A. M. I. C. E.,
Ag: Sanitary Engineer to Gvt.

SANITARY ENGINEER
Register No 2401
11-III-95
TO THE GOVERNMENT OF MADRAS

ML 4.12.94

No. 2 2914 4

No. 187.

I beg to bring to notice ~~of~~ the unusually low level on this date of the Marlimund Reservoir since the commencement of the piping System (from 11th April 1889)

The level of the water is now at 14'25' fully 5'25' below normal full tank level at the time of the year.

This is to be attributed solely to the unusually low rainfall of the Current year (from 1st January 1894 to 14th November 1894) compared with that of the corresponding period from 1890.

The average rainfall during this period for the past 4 years is 47" – while that for the current year is only 25" – nearly half –

I append hereto a comparative statement, shewing total rainfall as registered at the Marlimund Reservoir during the period above referred to with tank level on the 14th November of the years 1890 to 94 – as well as the quantity of rainfall due to the North East monsoon (from 1st October to 14th November) for these years –

From this it will be seen that even the North East monsoon (from which we get our best supply) rainfall for the current year has very much below the average of the previous four years – the latter being 19" and the former only 10'68" – nearly half nearly half.

Notwithstanding this low level of the Marliamund Reservoir I entertain no fear of its failure unless the next South West monsoon prove to be a similar failure to what it was this year, which I do not expect will be the case

M. E. Office
15-11-94

(Sd). Philip Nery
Engineer

Comparative statement of rainfall and water level at the Marliamund Reservoir for the years 1890-91-92-93 & 94

	Rainfall		Tank level on the 14th November 1894	Remarks.
	From 1st January to 14th November	From 1st October to 14th November 94		
1890	46·37	17·53	19·40	Full
1891	46·76	21·30	20·90	Full } Tank escape was temporarily raised
1892	36·45	12·59	19·90	Full } during these years above normal fu tank level.
1893	58·67	24·83	19·60	Full & overflowing. Depression on tank bund noticed this year. Escape level consequently lowered to normal full tank level
1894	24·97	10·68	14·25	Unusually low

Vide separate report No 187 of 15-11-94 accompany

M. E. Office
15-11-94

(Sd) Philip Nery
Engineer
O.M.C.

No. 191

In continuation of my No 187 of the 15th Instant re - low level of the Marliamund water, I beg to report, that I found the diversion made to the Government House on the stream feeding the South supply channel of the Snowden catchment, was carrying off to sheer waste a very large quantity of water and on the verbal order given by the Chairman to the effect on the 16th Idem I had this large volume of water turned towards the Marliamund Reservoir through the South supply channels.

Prior to diversion of this stream the quantity of water feeding the Reservoir was actually guaged and found by me on the 16th to be:-

From Snowden duct. 16 Gallons per minute
From Marliamund catchment. { East 33 / West 40
Total 89 gallons per minute.

After diversion of the stream above alluded to, discharge from the Snowden duct was guaged on the 19th and found to be 44½ gallons per minute which is indeed a very great addition, in as much as it means an additional supply equivalent to the consumption of 2850 people.

M. E. Office
21-11-94

(Sd) Philip Nery
Engineer
O.M.C.

Ootacamund
23rd November 94.

Note by Chairman.

I desired the Municipal Engineer to draw up these reports showing the low levels of water in the Marliamund Reservoir as compared with previous years, for the information of the Municipal Council and for submission to the Government.

2. It will be seen from the first report that the Reservoir is 5 ft. 25 inches below the normal level, i.e, 19 feet 50 inches.

3. It appears to me that this has been caused not only by the partial failure of the North East Monsoon, but also by the diversion of a stream, which fed the south supply Channel, to the Government House.

4. This diversion was not made with the Consent of the Municipal Council, nor was this fact known and reported until it was discovered by Mr R. E. Ellis when he inspected the supply channels in April 1894.

5. The water from the Reservoir was much discolored latterly and I had many complaints made to me about it, but now that 28½ gallons of water per minute is being discharged into the Reservoir the cause of complaint is likely to disappear

(Sd) G. Hannett
Chairman
O.M.C

(True copies)

G. Hannett
Chairman
O.M.C

SANITARY ENGINEER
Register No. 2401.
11-XII-95
TO THE GOVERNMENT OF MADRAS

SANITARY ENGINEER
Inw Register No. 3838
4 [illegible] 94
TO THE GOVERNMENT

S.E./6 23-7-94—1,000.

No. 2914

GOVERNMENT OF MADRAS.

OFFICE OF SANITARY ENGINEER,
Fort St. George, 18th December 1894.

From

R. E. ELLIS, Esq., ASSOC. M. INST. C.E.,
ACTING SANITARY ENGINEER TO GOVERNMENT,

To

Surgeon Lt. Col: W. G. King, M.B., C.M.,
ag: Sanitary Commissioner,
Madras,

Sir,

I have the honor to forward herewith my memorandum on the Improvement of Marlimund, with reference to G.O. No. 839 M, Mis, dated 6th July 1894.

I have the honor to be,
Sir,
Your most obt. servt.
R. E. Ellis
ag: Sanitary Engineer to Govt.

23/12/94

1894

From

The Ag: Sanitary Engineer
to Government

To

The Ag: Sanitary Commissioner
for Madras.

No. 2914

Dated 18th Despd. 19th Recd.	December 1894

Encs. 3

Subject

Forwarding his memorandum on the Improvement of Marlimund with reference to G. O. No. 839 M dated 6th July 1894.

2387

19/12

Sanitary C No. 308

No. 78/5

Transferred to the President, Sanitary Board.

W. E. King
Surg. Lt. Col
Ag. Sanitary Commr.
for Madras

13-1-95

To,

The President
Sanitary Board

RAMTALA DEL X 43 DE 94 CALCUTTA

Reply to letter No. .... of 189...

SANITARY ENGINEER
Register No 2401
11 JUL 95
TO THE GOVERNMENT OF MADRAS

365 9th July 1895

Forwarded to the Sanitary Engineer

Colonel R. E.
President, Sanitary Board

Nilgiri Collector's Office.
Ootacamund 20th June 1895

From

H. A. Sim Esquire.

To

The Chairman
Municipal Council
Ootacamund.

Sir,

Having now inspected the whole of the catchment area, immediately surrounding Ootacamund, and having formed a rough idea of the way in which we consider that its resources should be made use of, as we were appointed by the Municipality to do, we have the honour ~~to~~ to submit the following report of the conclusions, which we have come to. The report is hurried and therefore less complete than we had intended to make it, because we understand that the Government Sanitary Board is sitting now at Ootacamund to consider this very question of the water supply of the Station, and we hope that by putting the

results

of our inspection before it, incomplete, as they are, we may aid it in its deliberations.

2. We may commence by drawing attention shortly to the pressing need of some such enquiry, and of action thereon. The scarcity that we have just experienced, might be expected to speak for itself but there is a tendency to discount it, firstly as being so extremely exceptional as to justify a certain degree of unpreparedness to meet it, and secondly as having been mainly brought about by culpable waste. Both of these statements are true but not to such an extent as to justify the inference of "laissez aller" which it may be sought to draw from them.

3 For one thing the Marlimund Reservoir was even originally taken by the Committee of Experts, that sat and reported on it in 1881 - of whom Mr Walch was one - as holding only a five months supply, and Mr. Jones' recent letter to yourself dated 18th May 1895, which is based on the actual contouring of its basin, shows authoritatively that it contains only a six months supply for the population, north of the Lake, that

that it is expected to serve; while as to the Dodabetta System, its capabilities may be gauged from the fact that comparatively early in the late drought, the Municipal Engineer in charge considered it necessary to supplement its supply from Marlimund and as to the so called "waste" much of it is not the mere leaving open of taps and letting the water run away but the using of the water for such perfectly legitimate purposes, as the washing of clothes, horses and carriages, the irrigation of flower gardens, and market gardens, the flushing of drains, and other purposes, which though ranking, of course, after the requirements of the Station for drinking purposes, yet are not only right, and proper in themselves, but in a sanitarium and hill station like Ootacamund, practically necessary, and should be provided for.

4. Ootacamund moreover is growing even now, and will grow still faster when once the Railway reaches it, so that provision has to be made, not only for its present but also for its future requirements;

and it appears to me that such provision may easily be made, so far as mere quantity goes, from the ample ~~storage~~ store of water that we find drains into or close by the Ootacamund basin. There may be difficulty in regard to the ownership of some of it, for vested interests grow rapidly in a growing station, and it will not be so easy to obtain the control of the water now as it would have been some ten or twenty years ago, when the report of 1877 was written; but under the combined rights of the State, the Forest Department and the Municipality, and with concession and compromise, where necessary this difficulty will probably not be found insurmountable, and in any case, it may be more easily freed now, than ten or twenty years later. The construction of tanks and pipeheads and the purchase and laying of pipes may also cost a considerable sum but as the general scheme divides itself naturally into series of smaller schemes each referable to its own particular valley or ravine, and easily separable from its neighbours

there

there is no need for the whole to be carried out at once, but each individual work may be taken up by itself, as funds are available, and the cost thus spread over a series of years.

5. We will now proceed to report on each of these various sources of supply, one and by one, merely premising that, with the exception of the various springs which private owners have diverted to the supply of their own particular houses, and of the wells, some of which remain from a foretime and some of which you have yourself recently reopened, the main and, in fact only public sources of supply now existing, are the Marlimund & Dodabetta storage reservoirs; to relieve or supplement which by the utilisation of new and additional ones has been our chief object.

6. Firstly: beginning at the North West, it was object to find a source of supply which would command the Kandal Bazaar, and its population of 3000 and to relieve the Marlimund Reservoir entirely of this considerable drain upon it. We therefore inspected the two valleys of Kandalmund behind Sylks' Hotel, and Arambey further West. The former is a small valley only, and its catchment area

is

pipe and partly by a masonry Channel, of about the Same Capacity at varying depths underground into the Marlimund Reservoir. To obviate the risk of overflowing the junction Cistern and perhaps carrying it away altogether, the Contour channels which themselves are of an average width of three feet and depth of 2 feet have been provided with an elaborate System of waste-weirs which prevent anything more reaching the junction Cistern, than its 18 inch outflow pipe will carry. The Marlimund Reservoir has figured often enough in discussions before now, but Such discussions have been rather in regard to the purity than the Sufficiency of its water Supply and have arisen because of the pollution which obviously finds its way into the reservoir from the manuring of the tea-estate immediately above: to obviate this, proposals have been made to run a catchment drain around the foot of the tea-estate; the result of which would naturally be two-fold, the pollution would be avoided, and the Supply of water would be lost; and the first point that came under our Consideration was whether the need for the former was Sufficiently urgent to justify our Submission to the latter. We Came to the Conclusion that it was not; it is true that the tea is manured and that this manure must drain to a certain extent into the reservoir but even so the analysis of the water which has been recently made, shows no exceptionally unhealthy pollution of the water even for drinking purposes, and it is not clear that Such pollution, as it does show, does not Come mainly from the peaty sides of the ravine which forms the bed of the reservoir and from which no exterior Catchment drain would relieve us; per Contra the drainage from the tea estate forms the main source of Supply to the reservoir and as our main object in sitting now as a Committee is to increase our watersupply and more particularly our Supply in this particular reservoir; it does not seem the best way of dealing with the situation to Commence by Suggesting the throwing away of the Chief of its present Sources without absolute necessity. We then Considered the Second question whether it was advisable to increase the Supply of water to this reservoir by bringing more water to it from the Slopes of Snowdon by the two Contour channels, which we have already mentioned, it would evidently be perfectly feasible to do this, even to the extent of doubling or trebling the present Supply, for the two Contour channels as has been said, have an average width of three feet and a depth of two feet and they run, the North one for Some Considerable distance along the North Slope of Snowdon, the south one a short distance only, along the south slope but tapping two perennial Streams within that distance. Their Catchment area is therefore Considerable & in heavy rains they would probably run nearly full and the whole of this supply Could be utilised if this were permitted and there was storage accommodation to receive it. The Marlimund tank however is not a strong one and it has evidently been Considered so risky to run a large supply of storm water from Snowdon into it that as we have said the outflow pipe from the junction Cistern near Snowdon House, that Conveys the Combined water of these two Contour Channels into Marlimund, is only an eighteen inch one and naturally no more water than that eighteen inch pipe Can Carry ever reaches Marlimund even in the heaviest rains. Practically therefore the additional Catchment area of Snowdon of which so much is made as an additional aid to Marlimund in some papers referring to the Subject now only very partially practically made use of and the greater part of the water spills

Spills by waste weirs down either the north or South Slopes of Snowdon, the question arises therefore whether by the addition of one or more eighteen inch pipes from the Snowdon Cistern to Marlimund, the outflow from the Cistern into the Marlimund tank Could be so increased that the full Carrying Capacity of the two Contour Channels might be utilised, their waste weirs filled up and the whole of the Storm water Caught in them, run straight into Marlimund, this is Certainly feasible and it would Certainly very much increase the supply to Marlimund but there are objections to it. In the first place Marlimund usually fills sufficiently from its already existing sources of supply and extra water poured in from Snowdon would therefore in most years simply run to waste over its weir. In the second place its dam is not a strong one and the additional flow into it from Snowdon might endanger it; in the third place the water in Marlimund is polluted and additional water poured into it would only share the same fate; and in the fourth place the breaking up and relaying of the masonry conduit the whole distance from Snowdon House to Marlimund would probably be costly. We have thought therefore that it would be better instead of pouring the additional water which we have at our disposal on the Snowdon slope into Marlimund to store it in a new tank or tanks now to be constructed as detailed below:- which would have the two advantages over Marlimund of greater purity and of dividing the loss in case of a breach: that is to say we would fill up the wasteweirs which now exist in the two Snowdon Contour channels so that they should carry their full supply of storm water, two feet deep and would bring the whole of this, first into

the Snowden Junction cistern to supply the wants of the existing 18" inch Marlimund pipe there: and then take all that was not so required: over on to the Southern or Ootacamund slope of the hill and spill it there into one of the ravines running down towards the town, there, to be caught up once more by a new dam or dams, and used for the town. There are two such ravines one that in which what we may call the Snowden fish tank now is, the other the ravine which runs from immediately South of the Snowden Junction cistern towards Government House.

These two ravines unite below Chinchona Villa, a little above the Government House, and the question which we next discussed was, whether it was preferable to form 2 smaller tanks, one at the head of each of these ravines or one larger tank at their junction. The latter would undoubtedly store more water and a good site should be found for it about the level of Avenel Lodge, but it would have the difficulty of lying under the drains of the Government House latrines and some of the more highly situated Government House buildings. Of these the latrines no doubt could be moved easily enough, but the weir. In the second place its dam is not a strong one and the additional flow into it from Snowdon might endanger it; in the third place the water in Marlimund is polluted and additional water poured into it would only share the same fate; and in the fourth place the breaking up and relaying of the masonry conduit the whole distance from Snowdon House to Marlimund would probably be costly. We have thought therefore that it would be better instead of pouring the additional water which we have at our disposal on the Snowdon slope into Marlimund to store it in a new tank or tanks now to be constructed as detailed below:- which would have the two advantages over Marlimund of greater purity and of dividing the loss in case of a breach: that is to say we would fill up the wasteweirs which now exist in the two Snowdon Contour Channels so that they should carry their full supply of storm water, two feet deep and would bring the whole of this, first into the Snowden Junction cistern to supply the wants of the existing 18" inch Marlimund pipe there: and then take all that was not so required: over on to the Southern or Ootacamund Slope of the hill and spill it there into one of the ravines running down towards the town, there, to be caught up once more by a new dam or dams, and used for the town. There are two such ravines one that in which what we may call the Snowden first tank now is, the other the ravine which runs from immediately South of the Snowden Junction cistern towards Government House.

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doubt could be moved easily enough, but
the

the buildings would remain and there would be risk of pollution from them. The two Smaller reservoirs on the other hand at the head of the ravines would of course, Store less water, but they would have the great advantage of greater purity of water and probably of cheapness: and seeing how ample Supply of water there is altogether at our Command from one Source and another, we thought though it is a matter of doubt that it would probably be preferable to adopt the Smaller Reservoirs. One of these perhaps already exists in the Snowden fish tank through which the Marlimund pipes now run and into which the overflow from Marlimund could by this means very easily be poured, and which by a little tinkering could possibly be made more water tight than it is at present: the Site for the other reservoir in the more easternly ravine above the Government House Struck us as obtainable just below the point at which a perennial stream from the Shola above runs into it. This would be well above all Sources of pollution and though its
own

own catchment area would be Small, yet as the Supply brought by the Contour Channel along the Northern Slope of Snowden would also be Spilled into it, its total Supply would probably be found ample to fill it. This disposes of the Marlimund Connections.

8. Thirdly. East of Government House is the Manjakalmund Valley in which the Rifle Range is situated: a very fair perennial stream was running down this even at the worst time of the drought that we have just experienced, and we thought that this supply should be utilized by the Construction of a Small tank: a little above the level of the Hotel-de-Paris. A week's supply or more could probably be Stored in this, a supply which as it ran out during the day would probably be replenished by the flow into it during the night, of its perennial stream and though the water is now subject to slight pollution at the hands of Dhobies who wash in it, and because of a few huts which have been built on the Todaputta land which here forms the side of the

ravine, these could easily be removed and a quite pure water obtained. Three channels already take off from this stream above the level of the proposed tank - viz: two channels to the Government gardens and one to houses lower down. But the supply to those could probably be easily continued without seriously interfering with our proposed scheme of a tank to store storm water and surplus perennial flow in.

9. Fourthly: east of Mangakal-mund Valley is the Kodappamund Valley. The body of water that issues from this, after all the previous indenting on it, in the shape of irrigation for market gardens &c, has been satisfied, may be seen at the foot of the valley between Kelso Cottage & Woodlands as a considerable stream, but it is impossible to make use of it here, because of the pollution which the water receives from these same gardens and houses above.

We proceeded therefore up the valley to find a site nearer to its source, where it should be purer. Above, it divides into the three smaller streams, which go to form it, all of them perennial, pure and of fair amount. But at this high level, the individual valleys in which each stream runs, have become simply ravines and there is consequently no room in any of them for storage reservoirs of any capacity. It appeared to us therefore that the best method of dealing with these three streams would be to construct on them masonry cisterns to serve as pipe-heads from each of which a pipe of say of six or eight inches in diameter would carry water straight down to the main system pipe at Charing Cross, where after supplying the wants of the Kodappamund valley itself, the surplus would go to supplement the main Marlimund supply. We felt confident that for the greater portion of the year there would be such a surplus and that if linked on to the main system it would, to some extent, meet the current demand on that and so enable the true Storage waters of the Marlimund Reservoir, to be held up for use in the drier weather. We took no levels but guessed that if found advisable on the score of economy to decrease the length of piping, it would be found easy to bring the water – perhaps at first by an open Channel, afterwards by piping – first from the easternmost ravine into the Central one, and then from this Central one into the westernmost one there to be finally Caught and distributed from a single Cistern instead of from three & with a single pipe instead of with three. Possibly too the overflow from this Kodappamund valley, if there was any, Could be Carried by a Contour Channel across the ridge on which the Hotel-de-Paris stands, to supplement the Supply in the Manjakalmund valley. We did not fail to notice, of Course, that the water supply in the Kodappamund valley is now used extensively for the irrigation of market gardens lying therein and there would undoubtedly be trouble experienced in taking the water from them, but Considering the rights of

Government

Government in regard to water flowing from the reserved forests above, and the rights of the Municipality in regard to the water of public streams generally, lying below and Considering that some of the market gardens are quite recent ones and that for all of them an attempt might be made in all but the driest months to supply water from Stand pipes in reasonable quantities, this difficulty may not be Considered insuperable. It is not suggested indeed, that the water supply to existing users should be withdrawn so much as that it should be Controlled and that in exceptional seasons of drought such as that through which we have just passed the right to use it for men and women in preference to market gardens should be recognised. The Arni Jagirdhar also Claims the right to take a Channel from the easternmost of these Streams to his property of "Woodlands" but his claim has been disallowed by the Courts quite recently.

10. Fifthly still eastwards, we visited the ravine immediately east of the village of Old Ooty

the true Storage waters of the Marlimund Reservoir, to be held up for use in the drier weather. We took no levels but guessed that if found advisable on the score of economy to decrease the length of piping, it would be found easy to bring the water — perhaps at first by an open Channel, afterwards by piping — first from the eastermost ravine into the Central one, and then from this Central one into the westernmost one there to be finally Caught and distributed from a single Cistern instead of from three & with a single pipe instead of with three. Possibly too the overflow from this Kodappamund valley, if there was any, Could be Carried by a Contour Channel across the ridge on which the Hotel de Paris stands, to supplement the Supply in the Manjakalmund valley. We did not fail to notice, of Course, that the water supply in the Kodappamund valley is now used extensively for the irrigation of market gardens lying therein and there would undoubtedly be trouble experienced in taking the water from them, but Considering the rights of

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10. Fifthly still eastwards, we visited the ravine immediately east of the village of Old Ooty

Here there are two Streams, one on the west, which You, as Chairman, have already partially utilised by the Construction therein of a Small gathering Cistern, from which a three-inch pipe Carries the outflow to houses and huts — Estimated to Contain five hundred people — below, and the other on the ~~west~~ east, as yet unutilised by the Municipality, from which a channel now runs to the houses of Mrs Pearce & others. Both these two Streams are perennial and in showers as we Could see plainly, Carry a Considerable amount of Storm water. Both of them we Consider should be Caught and utilised by the Construction of pipe-heads. One of them, as already Stated, You have already partially utilised in this fashion. And it has been mainly after viewing your work and seeing how much you have done with the small Supply of water at your Command, that we have Come to the Conclusion that sufficient may be done by Construction of these Comparatively cheap and unpolluted high level pipe heads to obviate the necessity of the Construction of large Costly and easily polluted storage tanks below. You have only partially utilised the Stream on the west, for a Considerable portion of it runs past the side of your Cistern and more water evidently Could be Caught if the gathering ground above, which now belongs to Esoof Sait were purchased and an additional Cistern Constructed a little to the east of Yours.

11. Sixthly: further east we Come on the Dodabetta System. This is Called the South Supply system and from it the houses South of the lake have hitherto been Supplied. Its pipes are however joined on to the Marlimund or North supply system both at Charing Cross and at the Willow bund; and its water Can be raised to the height of the Breeks School and we have therefore, thought it best to look on the Dodabetta and Marlimund tanks as practically links in one great system, the water from each of which will be joined on to, and will be used to supplement, each others. Before one reaches the two streams which now supply the upper and lower Dodabetta reservoirs one passes firstly, a stream that we may Call General Clementson's stream since it runs through the ground of Walthamstow & is used therefor, and secondly, a Stream that runs apparently untouched down directly into the Burnsfoot Lake. These two Streams might be Caught & Controlled by pipeheads and be Connected with the main system. As regards the

Dodabetta reservoirs themselves, these like the Marlimund Reservoir are well known: they are two in number the one above the other, the upper fed by the Dodabetta Stream, the latter by the overflow from the upper and by the Tiger's Hill stream of its own. The gathering grounds of these two streams are Considerable, yet the reservoirs themselves are small ones & we were told and it seemed evident that a very Considerable amount of water runs to waste over the weirs in rainy weather. It seemed to us advisable that this water should be caught by the Construction of a third tank intermediate between the existing two, at a spot immediately above the lower reservoir. There seems to be an excellent site here for a tank of Considerable size and seeing that it would receive the surplus water of the upper tank — that under the Dodabetta Stream — and the first flow of the Tiger's Hill stream, there would probably be ample water both to fill it and the existing third tank below. There is even now a fair-sized perennial stream, running out of the Tiger's Hill valley which is at present diverted to the houses of Craigmore and Burnfoot & which no doubt, if simply turned into the tank and the houses supplied by a pipe therefrom instead, would be more fully utilised than is now the

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12. Seventhly. Crossing the main Coonoor Road and proceeding Southwards we come to the Elkhill catchment area. From this but little water runs down on the Ootacamund side with the exception of one stream that runs out by Zion's Chapel, and another stream that runs through the Brewery grounds, on the latter of which a cistern is now being Constructed by the Forest Department for distribution of its supply between adjoining proprietors. There is nothing therefore available on this side until we reach Bishopsdown.

Here on the eastern or Coonoor side of the ridge on which Bishopsdowne stands a fair-sized valley runs down southwards from the slopes of Elkhill and in this valley a fair perennial stream runs. It seemed to us that there was a site for a tank of Considerable size in this valley at a spot immediately abreast of Bishopsdowne House. Certainly there is such a site and there is water. We are only doubtful if the levels will Command the Ooty Basin. Levels are now being taken to ascertain if this is so or not. If it is, as we hope to find the case water from this tank Could be easily brought by a short tunnel under the ridge South of Bishopsdowne and linked on ow to the main Marlimund and Dodabetta pipes at the Willowbund and a large additional supply thus added to the main system.

13. Eighthly: This exhausts the various sources of surface water supply around the north east and south of the Ootacamund Basin and on the west there is nothing available. for the drainage is all in that direction and the levels there will not Command the town. We may however exhaust the question by just mentioning the wells both private and public which exist within he station and which indeed take a not unimportant share in the Supply of the drinking water of the town: a fair number of them exist and residents, both Europeans and natives appear to resort freely to them for the supply of their drinking water, in preference to taking the pipe water: besides this they are of especial value in a time of drought, for being usually placed low down in the Ootacamund Basin. They Continue to be fed by their springs long after the sources which standing at a higher level on the hill sides have been exhausted. We recommend therefore that they be especially remembered & maintained. there is always the risk of their value in times of scarcity, being forgotten, in time of plenty, and as has already happened of the whole trust being put in the pipe water, & of the wells being filled up. We would raise a note of warning against this: the wells which You have recently repaired and reopened should be maintained, due precautions being of Course taken against pollution. Our attention has been drawn to one Spring in particular, that lies within the town & that maintains a Continuous flow of pure Spring water; and that is the spring lying within the limits of the ground attached to the D.P.W office, near the Assembly Rooms, that has recently been impounded in a Cistern by the D.P.W & supplied with a pipe & stand. It was suggested to us that this Cistern might be Considerably enlarged so that it might act as a small Storage reservoir, refilling itself during the night for use during the day and this seemed to us feasible.

14. Ninthly. We have not Considered it within our sphere to make detailed suggestions in regard to the removal of

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14. Ninthly. We have not considered it within our sphere to make detailed suggestions in regard to the removal of

bluegums, but there can be no doubt that these trees take up an immense quantity of underground water which is thus lost to the springs & that they afford little in the shape of cover & undergrowth to compensate for this: valuable, therefore, as they are for some purposes, anything that would tend to discourage their growth in excess would tend correspondingly to the improvement of the water supply: a commencement, it may be noted, has already been made in this direction by the felling of the bluegums in the Government House grounds.

15. Tenthly. Metres & self closing taps the latter especially are an admitted necessity when funds permit.

16. Our rough suggestions therefore resolve themselves into the following:-

a) Storage tanks of fair size at Aramby Dodabetta & Bishopsdown.

b) Storage tanks of small size at the Snowdon Fish Tank and in the Govt. House ravine & in Maryakalmund valley.

c) Pipeheads, three in the Kodappamund valley and two in the Old Ooty valley and two in the Dodabetta valley.

d) the upkeep of wells.

e) the discouragement of excessive bluegum plantations.

f) the provision of self closing taps and metres.

17. We make these rough suggestions and place them at the disposal of the Municipality for communication if they think fit to the Sanitary Board. They are not all of them new, for at one time and another committees have before now sat on this question of the water supply and reports have been made - and the matter recorded: reports more or less complete, for instance, have been written upon the proposed Aramby tank in 1893: on the Marlimund tank and its contour channels in 1881, by a Committee on which Mr Walch one of our present and most important members sat, and in 1894 by Mr Ellis and Dr. King: on the Government House tank by Major Morfant in 1877: on the easternmost of the Kodappamund streams by Mr Nery, Municipal Engineer in 1894. But we think that this is the first occasion on which the whole of the sources have been inspected and reported on at one and the same time, and we trust that it will be of use to

the municipality and the Sanitary Board to have the matter put before them in this general way, rough though this and innocent though it may be of Engineering details-

18. We perhaps lay ourselves open to the charge of being grasping and wholesale in our proposals: we can hardly deny it: we wish to obtain a fuller and purer supply of water than we now have and to effect an efficient and impartial distribution of it: this is obviously only possible by taking up new sources of supply, and in such a station as that of Ootacamund, where are these likely to be found unappropriated by others? At the same time we are satisfied that there are, within or on the edges of the Ootacamund basin, sources of supply amply sufficient to meet all the legitimate requirements of the public, not merely in the way of drinking water and for domestic purposes, but also for the use of stables, dhobies, drains, market gardens and the like: and we consider that it will be found the least troublesome and most satisfactory method in the end, to take up practically

all of these sources, and as will then be possible, by utilising them to the utmost, to give the public the fullest and amplest use of them. Difficulty there may be at first in doing this, but by friendly concession of pipe water where private rights may really be found to exist, much of this will probably be smoothed away; and since it is not the withdrawal of water from its present uses, so much as the utilisation of their surplus for others, that we aim at, concession and compromise are amply admissable. If, on the other hand, only a few sources of supply are taken up, it seems to us improbable that the result is likely to be satisfactory, for it will be possible then only to provide pipe water for some of the more immediate domestic requirements, aggravating restrictions will continue to be placed on the use of it for other purposes & the supply of it for dhobies, market gardens, and the like will have to be wholly prohibited - This we should view with regret for apart from the friction on both sides, which the enforcement of restrictions in such a matter is likely to cause, we consider, as we have said that the provision of water for the minor domestic requirements, is not only expedient, but in

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a station like Ootacamund a necessity to take the case of dhobies, as an example we think it particularly advisable that they they should be specially provided for, by the construction for them of stone platforms and slabs in convenient situations as has been done in the case of the Government House washermen. It is of considerable importance to the public sanitarily that the dhobies should have a convenient and pure supply of water to wash their clothes in, and it will certainly be an advantage to have them more under control than they now are. This would be attained by providing a sufficiency of what we may call "dhobies ghauts" provided with all reasonable conveniences, at which dhobies who behaved themselves and only they would be allowed to carry on their washing. In effect, the Municipality would provide good washing places and could then introduce a system of certificated washermen, to the convenience and advantage of both the dhobies and the public.

In the same way livery stables market gardens and the like, serve the conveniences of the public and it is expedient that their needs should similarly be catered for.

19.

19. Our task is now finished but if the Municipality should so wish, we are prepared to hold ourselves for the present as a body at the convenience of the Sanitary board in case that Board should consider it desirable either to discuss the matter with us or to require our help in the elucidation of questions regarding the differing rights of Government, the Municipality and of private owners or where such rights are especially conflicting in assisting to bring parties either to agreement or compromise. It is possible that in these matters our services as representing the Municipality may be of some use to the Sanitary Board, and as our main object is to get something done. We place them willingly at the services of the Board.

(Sd) H. A. Sim.

(Sd) Geo. Hannett -

(Sd) C. G. Douglas - Dist. Forest officer

(Sd) G. T. Walch. - late Chief Engr & Secy. to Govt. P.W.D.

(True Copy)

G. Hannett
Chairman, O.M.C.

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(Sd) G. T. Walch. - late chief Engr & Secy. to Govt. P.W.D.

(True Copy)

G W Hamnett
Chairman, O.M.C.

I have signed the "note" prepared by Mr. Sim on the water supply of Ootacamund because I am in general accord with it, but there are one or two points on which I would express a separate opinion.

1. Para. 7. Marlimund Reservoir.

It is highly advisable that manuring of crops on any part of the catchment basin should be prohibited; this might be arranged for by payment of Compensation for the prohibition (This is of course, applicable to the other reservoirs)

Snowdon Contour Channels.

The depth of these is given in the note as two feet, but owing to the lowness ~~lowness~~ of the escape weirs along them it is not nearly so much; On the South channel so low is, at all events, one of these weirs that the effective depth is not even one foot, and large quantities of water that might be taken to the Marlimund Reservoir are wasted; it is extremely rarely that more than a mere trickle twickle reaches the Reservoir from these contour channels. It would be quite impracticable to catch all the storm waters off the slopes of Snowdon and convey them along the Contour channels but by raising and strengthening the channel banks and raising the escapes along them much more may be conveyed to the Marlimund supply pipe than is now the case. It is generally concluded that Marlimund reservoir does not receive sufficient supply and I cannot agree with the reason given in the "note" against taking to it a very much larger supply from the contour channels than at present viz, that Marlimund ~~annually~~ usually fills sufficiently from its already existing sources of supply In bad years, and it is bad years that have specially to be considered, the trouble is that the reservoir does not fill sufficiently, and even when it does fill once or twice during the rains its level is far below that of its bye wash at other times during the year when it might be replenished to a considerable extent by the water which comes to the contour channels but cannot now pass along them -

Provision against any over filling of the reservoir can be easily made by an escape at the necessary level from the supply tunnel before it reaches the reservoir or if necessary by an increase in the discharging capacity of the existing bye wash

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№ 1329

I doubt if the surplus from the contour channels after they had done all that was wanted for the Marlimund reservoir would be sufficient to warrant the construction of the two extra reservoirs mentioned at the end of para 7 of the "note". I did not inspect with the other members of the Committee the site proposed for these little reservoirs but I doubt if reservoirs of capacity commensurate with their cost could be made at the places.

2. I had no opportunity of visiting with the other members of the Committee the localities dealt with in paras 10, 11 & 12 of the note, but from general knowledge of the place I doubt there being a good site for an efficient reservoir between the Dodabetta upper & lower reservoirs. Even if its capacity would be commensurate with its cost its useful life would probably be a short one owing to the large quantities of silt that would be brought into it from the bare and precipitous hill side on its Eastern flank.

3. Para 14. Growth of Eucalptus Trees.

I would not only "discourage" but prohibit any more planting in the catchment areas of the reservoirs and would then remove all existing trees of the kind belonging to Government

4. Para 15. The provision of stop-cocks to branch and service pipes is a necessity for preventing waste.

Eckford
22. 6. 95.

(Sd) G. T. Walch

True Copy

Chairman

7/25th Nov/95

No. 1329

Note of dissent by the Sanitary Commissioner.

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x In the catch-ment area of the [illegible] Dodabetta [illegible] para 13 [illegible] S. Bd. Progs.

I consider it highly desirable that the area of the tea estate should be excluded, if on investigation it be found feasible to secure a sufficient collecting surface, and consider the Engineer should be instructed to hold this matter carefully in view.

Sd/ W. G. King
Surgn. Lt. Col.
Sanitary Commissioner.

12th August 1895
Fort St. George

(True copy)

Joint Secretary
Sany. Bd. (Engineering Deptt)

[illegible] note of dissent by the Sanitary
Commissioner.

The [illegible] considers it highly desirable
that the area of the catchment should be
extended by [illegible] investigation of the
[illegible] possible to secure a supply [illegible]
collecting surface, and so the
Engineer should be instructed to [illegible]
this matter [illegible]

W. G. King
Surgeon Lt. Col.
Sanitary Commissioner

12th August 1895
[illegible]

True copy

[illegible]

Sanitary Board Office

Proceedings of the Sanitary Board No. 228, dated 14th August 1895

At meetings of the Sanitary Board held at Ootacamund on the 13th, 18th, 25th & 27th June 18[illegible]

Present.

The Hon'ble Col: J. Pennycuick, R.E., President.
Surgeon Lt: Col: W. G. King, M.B., C.M., D.P.H., Sanitary Commissioner
J. A. Jones, Esq., Mem. Inst. C.E., F.R.S.E., Sanitary Engineer

also

Geo: Hammett, Esq., C.I.E., Chairman, Municipal Council, Ootacamund on the 18th June 189[illegible]
H. A. Sim, Esq., C.S., Collector of the Nilgiris, on the 25th June 189[illegible]

The Board having as requested by G. O., dated 6th July 1894 No. 859 M., Local and Municipal fully discussed the whole of the questions relating to the Water Supply of Ootacamund, having had before them the report (herewith sent) of the Municipal Committee on the same matter and having met the Committee and considered the matter with them and having inspected the various reservoirs existing and propose not

xt a spur

some 200 feet down the valley below the bund

[illegible] note of dissent by the Sanitary [illegible]
Commissioner:

I consider it highly desirable that the area of the [illegible] should be included [illegible] investigation [illegible] possible to secure a supply [illegible] catchment [illegible] Engineer should be instructed to [illegible] this matter accordingly [illegible]

W. G. King
Surgeon Lt Col
Sanitary Commissioner

12th August 1895

Sanitary Board Office

Proceedings of the Sanitary Board No. 228
dated 14th August 1895

At meetings of the Sanitary Board held at Cotacamund on the 13th, 18th, 25th & 27th June 18

Present.

The Hon'ble Col: J. Pennycuick, R.E., President
Surgeon Lt: Col: W. G. King, M.B., C.M., D.P.H., Sanita Commissio
J. A. Jones, Esq., Mem. Inst. C.E., F.R.S.E., Sanitary Engineer

also

Geo: Hammett, Esq., C.I.E., Chairman, Municipa Council, Cotacamund on the 18th June 18
H. A. Sim, Esq., C.S., Collector of the Nilgiris; on the 25th June 18

The Board having as requested by G.O., dated 6th July 1894 No. 859 M., Local and Municipa fully discussed the whole of the questions relating to the Water supply of Cotacamund, having had before them the report (herewith sent) of the Municipal Committee on the same matter and having met the Committee and considered the matter with them and having inspected the various reservoirs existing and propose

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t as follows:—

(1) The Board finds that, in regard to the Marlimund Supply, it is impure and insufficient; that e cause of the impurity of the water is due (1) to he supply received from the Tudor Hall Estate assing over cultivated lands to the tank itself in portion being a peat bog and that in its bed are masses of vegetable matter in a state of transition towards "peat" and therefore liable to decay and to the water derived from the Snowdon catchment having to pass to the collecting channels through sholas with thick undergrowth and over ground covered with decaying vegetable matter, (2) that its insufficiency in years of short rainfall is due to the small size of the catchment area, to the state of collecting channels themselves and to the absorption caused by undergrowth and humus in the sholas

(2) To improve the purity of the water, the Board consider that the Marlimund Tank as far as possible should be abandoned as a storage reservoir and that Government should be request- clear the sholas above the collecting fall wattle, undergrowth & humus

and their

and to require that such areas shall at no future time be permitted to get into the state t area at present, viz; so thick that sunlight can hardly penetrate and reach the ground. The Board considered the question of forming ne channels above the sholas and of carrying th water from the streams and springs themsel in closed piping but looking to the insufficienc of the supply and the limited catchment areas, they do not feel justified in recommending this course and if Government clear the sholas and maintain them in the state already advised, there is less reason for such recommendation.

(3) In order that the Marlimund Tank may be as far as possible, abandoned as a storage reservoir, the Board propose to increase the capacity of the Snowdon Reservoir and consider that the bund may be raised almost to the level of the pond above the reservoir and that the capacity may be further considerably extended by excavating and clearing the basin in which the existing (but not now used) reservoir is, or alternatively it may be considered whether it may not be advisable to construct a new dam at a spur some 200 feet down the valley below the bund

t as follows:—

(1) The Board finds that, in regard to the Marlimund supply, it is impure and insufficient, that he cause of the impurity of the water is due (1) to he supply received from the Tudor Hall Estate assing over cultivated lands to the tank itself in portion being a peat bog and that in its bed are masses of vegetable matter in a state of transition towards "peat" and therefore liable to decay and to the water derived from the Snowdon catchment having to pass to the collecting channels through sholas with thick undergrowth and over ground covered with decaying vegetable matter, (2) that its insufficiency in years of short rainfall is due to the small size of the catchment area, to the state of collecting channels themselves and to the absorption caused by undergrowth and humus in the sholas

(2) To improve the purity of the water, the Board consider that the Marlimund Tank as far as possible should be abandoned as a storage reservoir and that Government should be request- [illegible] lear the sholas above the collecting

said

their

fall wattle, undergrowth & humus and

and to require that such areas shall at no future time be permitted to get into the state are at present, viz, so thick that sunlight can hardly penetrate and reach the ground. The Board considered the question of forming new channels above the sholas and of carrying the water from the streams and springs themsel in closed piping but looking to the insufficiency of the supply and the limited catchment areas, they do not feel justified in recommending this course and if Government clear the sholas and maintaining them in the state already advised, there is less reason for such recommendation.

(3) In order that the Marlimund Tank may be as far as possible, abandoned as a storage reservoir, the Board propose to increase the capacity of the Snowdon Reservoir and consider that the bund may be raised almost to the level of the pond above the reservoir and that the capacity may be further considerably extended by excavating and clearing the basin in which the existing (but not now used) reservoir is, or alternatively it may be considered whether it may not be advisable to construct a new dam at a spur some 200 feet down the valley below the bu

[illegible] advan [illegible]

[illegible]

P.R. Local & Municipal Dept.
CURRENT No. 2589 M
1895

From

The joint Secretary
Sanitary Board
Engineering Dept

To

The Chief Secretary
to Government
Local & Muni Dept

Dated 14th } august 1895
Despd 15th }

15 AUG. 95

No. 2287.

Enclo: 11 (one book containing 6 plans)

Subject

Submitting for orders of Government papers & plans on the proposed improvements to the Ootacamund water supply.

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189 , No.
Again G.O., dated
Current No. 2953 M of 1894, dated 24th November 1894 from the Collector of Nilgiris.
Current No. 2589 M of 1895, dated 14th August 1895 from the Sanitary Board.

FOR ORDERS.

Please see the notes and orders in G.O's dated 26th April 1893, No. 546 M., 8th March 1894, No. 273 M. and 6th July 1894, No. 859 M. in the sealed cover.

2. In the last of the orders above referred to, the Government called for certain additional information from the Collector of Nilgiris, the Sanitary Board and the Sanitary Engineer in connection with the proposed improvements to the Marlimund water-supply. The points on which information was required and the replies now furnished are noted below side by side, for easy reference.

(1) Estimate of the cost of constructing the intercepting channel by which it is proposed to protect the Marlimund reservoir from the drainage of the Tudor Hall Estate —— Rs. 4,800

(2) Probable cost of acquiring the land required for the Channel and of so much of the remaining 79·35 acres of the natural catchment area as does not already belong to the Municipality —— (Rs. 1312 + Rs. 17,298 or) Rs. 18,610

[The Collector does not appear to have considered when assessing this value, the adv. General's opinion that an action for nuisance would lie if the land was manured, & the chance that Govt. might therefore get it cheaper].

12 b

(3) Opinion of the Sanitary Board as to whether the proposed measures together with the removal of the blue gums and other trees near the lake would adequately secure the water in the lake from contamination by manure etc deposited on the Tudor Hall Estate or whether it would still be necessary to have recourse to filtration as well either by reason of such contamination or in consequence of the existence of the peat bog in the reservoir.	The Sanitary Board d[illegible] not give a direct reply to this, but fro the fact that it proposes the aban -ment as far as possible of the Marlimund tank as a storage reservoir and recommends the filtration of the water passing from it, it is to be inferred that the measures referred to in the G.O. are considered by it to be inadequate. But if this is so why does the Bd. propose using the Reservoir for supplying the high level houses? Perhaps though it is on the principle that half a loaf is better than none.
(4) Estimate of the cost of carrying out measures for increasing the supply in the reservoir	Rs. 1,61,630.
(5) Probable cost of increasing the catchment area	The cost of extending the channel on the northern side and increasing the catchment area by 30.33 acres is estimated by the Sanitary Engineer at not less than Rs. 10,000, but he does not recommend this work until the other measures for increasing the supply are carried out.
(6) Probable cost of constructing cisterns to prevent waste of water	Rs. 380. Ten such cisterns are thought by Mr. Ellis to be sufficient to make a marked difference in the waste.
(7) The cost of raising the Marlimund dam to prevent the overflow of water during the North East monsoon and of forming a reserve of the two service reservoirs at Snowdon	The cost of raising the Marlimund dam is estimated by the Sanitary Engineer at Rs 12,000, but he does not recommend this measure, as it is probable that ~~there may be~~ it would cause a further slip of peat by the same becoming water logged. The cost of raising the bund of the Snowdon reservoir so as to form a tank capable of holding 28 days' supply is estimated at Rs. 7,500.
(8) The cost of removing the peat bog which is believed to be responsible for some of the impurities of the water in the lake.	The cost of removing so much of the peat bog as is above low water level is estimated at not less than Rs. 1,25,000 and the cost of constructing a retaining wall to cut off the bog altogether will amount to Rs. 50,000
(9) The Cost of Constructing an entirely new reservoir as suggested by Dr. King	Not less than Rs. 10,000. The Sanitary Engineer, however, considers that it would silt up very rapidly.

3. With reference to the suggestion of Government that the blue gums and other trees which lie within fifty or a hundred yards of the lake should be removed, the Collector reports that the trees on Government land and those belonging to Mr. Wapshare which stand nearest the la have been ringed in order ha their removal, but tha

better do so direct than through the Munl. Chairman as an intermediary. I think it will be best for the C.E. to negotiate with Mr. Walch on the subject – There are two ways in which his remuneration might be settled – he might either be paid so much for the job, finding his own establishment; or he might be asked what he would take to supervise the necessary surveying &c estt. to be paid for separately & how the said estt. should be organized & paid – I should myself recommend the latter course, but this is a matter in which the C.E. will be best able to judge ~~what~~ what should be done.

It occurs to me that, if Mr. Walch is to be employed in this way, it might be convenient, as the P.W.D. is not at present over strong handed, if he also undertook the drainage estimates for the preparation of which it has ~~[illegible]~~ already been proposed to place an officer on special duty.

21/10/95

Marlimund Water Supply

FOR ORDERS.

C13/1 1/7/95 sec
4/7

G.
25.
600—8-3-95.

DEPARTMENT.

C. No.

FOR ORDERS.

The papers in the Marlimund water supply scheme have been seen by both the Govr. and the Hon Mr. [illegible] and they are both agreed that before anything else can be done estimates with regard to the proposals of the Sanity Bd. should be drawn up. The gentleman whom they consider should be employed on this work is Mr Walch: would Hon kindly look over and note upon the file for orders if he can now find time to do so

16/10/95

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21/10/95

Marlimund Water Supply

FOR ORDERS.

Hund Circ

C13/9

4/9

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600–8-3-95.

DEPARTMENT.

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16/10/95

better do so direct than
through the

Marlimund water supply

Marlimund water supply
estimated

FOR ORDERS.

Note for HM

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[24]
500—26-6-94.

(Local & Municipal) DEPARTMENT.

Papers to be read in Proceedings :—

Again G. O., dated 189 , No.

Again G. O., dated 189 , No.

Current No. 2953 M of 1894, dated from the Collector, Nilgiris

Purport Submitting certain estimate of the cost of acquiring lands for improving the quality of water of the Marlimund reservoir

Current No. 2589 M of 1895, dated from

HP 31/10/95

Note for HM.

The Coly Council have promised 2 lakhs towards these schemes. see Read^n. now put up at top of (They have carefully omitted to send this to Govt.!). So Govt. need as submitted, say anything now about finding most of the money wanted for them.

2. Mr. Walch wd. be paid from Munl. funds with Govt. sanction under sec. 16. But if the draft Bill passes he can't be paid anyhow if a Councillor still. Submitted however that this doesn't matter, as Govt. can pay him & deduct the amount from its contribution to the Council.

WC 25.10.95

Mr. Walch's remuneration will be defrayed from Provincial funds.

ORDER. No. 1809 Mun. 1—11—95

The ~~B~~ recommendation of the Sanitary Board that Mr. G. P. Walch should be invited to undertake the preparation of the plans & estimates for carrying into effect the proposals made by the Board in its Proceedings read above has the entire approval of Govt., and the Chief Engineer will be requested to negociate with him upon the subject. Mr. Walch might either be asked ~~up~~on what terms he wd. be willing to undertake the work were the ~~necessary~~ subordinate establishment that wd. be necessary separately remunerated, (& to give his opinion as to the manner in which such establishment might best be organized & paid), or he might be requested to state the terms upon which he wd. be prepared to complete the plans & estimates if he were left to find his own establishment,

2. The separate report promised in para 4. of the San. Board's Procgs. will be awaited.

(for orders.)

WC 25.10.95

HP 28/10/95

1/11/95

To Sanitary Board
Chairman Mil. Mun.

PTO

PTO

P. T. O.

better do so direct than
through the

Marlimund Water supply

Marlimund Water supply
Ootacamund

FOR ORDERS.

Note for HM

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[24]
500—26-6-94.

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(for orders.)

WC 25.10.95

28/10/95

To Prest. San. Board
Chairman Ml. Council

P.T.O.

better do so direct than
through the [illegible]

Marlimund water supply – [illegible]

Marlimund Water supply
Estimates

FOR ORDERS.

Note for HM

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[24]
500—26-6-94.

Cml DEPARTMENT.

Papers to be read in Proceedings :—

Again G. O., dated 189 , No.

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Purport
Submitting certain estimate of the cost of acquiring lands for improving the quality of the water of the Marlimund reservoir.

Current No. 2589 M of 1895, dated from

HP 31/10/95

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WC 25.10.95

(from orders.)

28/10/95

P.T.O

To [illegible] Sanitary Board
Chairman M.C. [illegible]

better do so
though

in the draft about
was of the lake + sewer estimates by Mr. Walsh, as the D.P.W. has been asked not to put on a special officer, but to draw them up in the ordinary way by ~~under~~ the officers of ~~its~~ that Dept. This was what Col. Pennycuick asked to have ordered.

It is believed that Mr. De Winton has already done a good deal of the lake estimate. Esq: he has

WR 25.10.95 Ld 28/10/95

~~I certainly thought that there was a distinct understanding that an officer wd. have to be put on special duty to prepare the Estes. for the drainage scheme — In fact, I am sure that a resn. of the San: Bd. pointed out that this would be necessary — But, of course, if the C.E. thinks he can get the work done by Mr. DeWinton, so much the better~~

HS
31/10/95

Marlimund Water Supply

Marlemund Water-supply.

HM. Draft from orders with note. —

1809 [illegible]

hen given for copying
hen copied
hen examined
hen signed
189 .

EAD AGAIN G.O., No. 189 , DATED

CURRENT NO.

ENCLOSURES TO C. NO.

ORDER OF GOVERNMENT .. .. .. A A A A A A A

LETTER OF GOVERNMENT.

STATEMENT WITH DITTO.

PAPERS NOT FILED UP, BEING MEANT FOR DESPATCH IN ORIGINAL.

N.B.—
A = Copy in full.