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9

MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

Cons. 29. 2. 1860

G.O. No. 113-14 Press / Mis.

70-72

Dated 25-2- 1860.

Not to be folded or roughly handled

No. 70. Read the following letter from Lieutenant-General Sir M. CUBBON, K. C. B. Commissioner for the Government of the territories of His Highness the Rája of Mysore; to the Chief Secretary to Government, Fort Saint George, dated Bangalore, 15th February 1860, No. 2.

With reference to my letter to you, dated the 22nd June last No. 12, and the further correspondence which has passed on the subject of providing a sufficiency of water for the new Dragoon barracks at Bangalore; I have the honor to transmit for submission to His Excellency the Right Honorable the Governor in Council copy of a communication, dated the 4th ultimo, addressed to me by Colonel Green, Chief Engineer in Mysore, together with copy of one to his address from Colonel Cotton, Commandant of Engineers, dated the 17th December last.

2. While I beg to express my general concurrence in Colonel Green's observations on the subject of the obstacles which oppose the execution of the proposed scheme for deriving water from the vicinity of Nandidúrg, I must not omit to state that I am by no means convinced that sufficient water for the required purpose either would, or could by any means be collected there; for it is well known that little rain falls in that quarter; and in the hot weather all the tanks in the neighbourhood are frequently observed to be quite dry.

3. On the other hand I think Colonel Green has made it evident that the barracks on the race course might be abundantly supplied with good wholesome water by the method which he has pointed out, and at comparatively small expense, should the Supreme Government be pleased to sanction a plan and estimate now before it, for protecting the great reservoir, the Ulsoor tank, from the impurities which now flow into it from the station bazár.

From Colonel CHARLES JAMES GREEN, Chief Engineer; to the Secretary to the Commissioner for the Government of the territories of His Highness the Rája of Mysore, dated Nunjengode, 4th January 1860, No. 1770.

I have the honor to append for the Commissioner's information copy of a letter from Colonel A. Cotton, regarding the Bangalore water supply project.

No.—dated 17th December 1859.

2. The general proposition consists, it will be seen, in enlarging the Mailkottah tank west of Nandidúrg, the waste weir of which is 50 feet above the race course, "which will store the water of copious monsoons, to supply the deficiency of a following bad year." The tank and channel is roughly estimated to cost 1,40,000 Rupees.

3. As I have not seen the data upon which this project is based, I cannot take upon myself to confirm most of the points said to be established.

4. Nor am I able, as at present informed, to conceive that the Mailkottah tank on the west side of Nandidúrg, could be very much enlarged, even though the supply of other tanks be intercepted.

5. Nor do I think 50 feet would be found an adequate fall in a channel which would be at least 100 miles in length; by the cheapest line that it could be carried.

6. Colonel Cotton employs the term "copious monsoons," which though a common expression on the coasts, is hardly applicable to the western side of Nandidúrg.

7. In that neighbourhood, as well as at Bangalore generally, the monsoon seems to mean, as at sea, the N. E. or S. W. winds, with which alternately we are visited with great regularity. Rain does, however, fall occasionally at any one place, even the most arid, and a second class tank might possibly fill at Mailkottah once in five or 10 years.

8. The Commissioner requested my opinion on the feasibility of bringing water from Nandidúrg to Bangalore some time ago, when it was first mooted by Colonel Cotton, and I have to apologize for deferring my answer till now. The delay arose from this circumstance that shortly after receiving your letter, as per margin, it was intimated to me, Colonel Cotton was about to solve that problem in person.

No. 534, dated 16th August 1859.

9. I beg to say that I have never seen a work of the kind, which I now learn is contemplated, and that I cannot realize it satisfactorily by any analogy that presents itself to my mind.

10. If there were an unfailing river at the level of the Mailkottah tank, the case would be different, though even then, it is not clear to me, the fall would be sufficient (length considered) for so tortuous a channel, as every channel in the hilly country of Mysore, is and must be.

11. I also foresee great objections to an extensive channel that will have the effect of intercepting, for the whole of its great length, the rain water from the fields and tanks lower down the slopes, and, I apprehend, it would frequently become breached; that it would breach in many places accidentally, and be breached at still more places designedly.

12. The Commissioner will no doubt recollect the Gaurambudi tank constructed by His Highness the Rája at a vast expense. It had been eight years completed, when I reported upon it, and no water had been or could be, collected in it, although feeders had been extended to a considerable distance; but, I observed, the latter were breached when they had reached to drainage belonging to the ráyats. Now I have no doubt the Rája would have liberally compensated the ráyats, but that had not probably saved the channel: it may, of course, have burst accidentally and therein consists another difficulty.

13. The rain in and about Nandidúrg and Bangalore falls occasionally heavily for a few minutes, when perhaps a tank is full; the waste weirs are unequal to the dicharge of the surplus water, and the tank bursts. Now a channel of the kind I suppose to be proposed, it appears to me, on a smart fall of rain would be in the predicament of a long tank, which is full of water, the bund would need to be replete with waste weirs, expensive outlets, or the capacity of the Nálá must be very great; and to open a tolerably sized channel in a country intersected with deep Nálás, and so studded with rock that it crops out above the surface in innumerable places, and is sure to be met with below the surface abundantly, would be an expensive operation; for either alternative, the estimate 1½ lac would be, as it appears to me, quite insufficient.

14. I believe the shortest way of supplying the race course barracks, which I regard as the only question, would be by four stages of pacotas, each lifting from eight to 10 feet, and being connected with the one above by a brick in chunam tunnel; the total lift required being about 32 feet only above the Artillery south horse trough at the Ulsoor tank, which I propose as the source.

15. The above would be an inexpensive work, suited to the natives, and require but a small amount for laborer's wages; but if preferred two small donkey engines might be procured from England. There had better be two, in case one should get out of repair. Both these plans have occurred to Colonel Cotton.

16. I do not forget that the Ulsoor tank still receives a great deal of filthy drainage, but the real deterioration of the water drawn from wells adjacent to the tank, is perhaps exaggerated, or how is the remarkable reputation of the station for salubrity maintained? how is it that it is so singularly free from cholera, fever, dysentery, &c. ?

17. The water has to filter through the soil to reach the wells from the Ulsoor tank, and the impurities which have sunk are retained. They are chiefly brought down by a heavy fall of rain which fills the tank and being in the first instance held in solution near the surface, they are the first to escape by the waste weir.

18. I think the Government chemist would not, on analyzing it, deem the Bangalore water very objectionable, especially that which is drawn from the wells in the Light Cavalry lines, in those near and at the Dragoon Horse trough, and from the Artillery Horse south trough, all supplied from the Ulsoor tank.

19. After the Commissioner sanctions the extension and improvement contemplated to Miller's tank, the still more important and more desirable sanatory project connected with the Ulsoor tank, and the raising the bund thereof with the stuff excavated in making the culvert, which is to carry the bazár sewage past, instead of into the tank, and so to increase the capacity of the tank, I do not think Bangalore will have any thing to complain of on the score of good and pure water.

Proceedings of the Madras Government, Public Works Department, for the month of February 1860.

20. Major DeButts, 7th November 1857, estimated for a filter and reservoir to hold rain water on the race course at Rupees 1,000 each, and there were to be eight such, but one might be first tried in connection with the plan I advocate. The proposed pacotas and connecting channel from Ulsoor tank would not cost more than Rupees 2,000, say total Rupees 3,000. It will be seen that the whole scheme of these works, the bund, the pacotas, and the passage of the water to the race course intrenchment would be under the guns of the Artillery, Dragoons and Infantry, and if sanctioned, the plan could in a very short time be carried out by Captain Mayne the Military Executive Engineer of Bangalore, I may add that there is a well of 40 feet deep on the race course and that Captain Mayne is of opinion it would retain water without the brick in chunam casing provided for above. It might be worth while trying the experiment before going to the expense of casing.

From Colonel A. COTTON, Commandant of Engineers; to Colonel C. J. GREEN, Chief Engineer in Mysore, dated Bangalore, 17th December 1859.

I have the honor to return you my best thanks for the services of Captain Puckle in examining the question of water supply for Bangalore.

2. I consider that the information we have collected sufficient for our present purpose, and I, therefore, do not think it necessary that, that officer should any longer be kept from his ordinary duties.

3. Some minor points remain to be settled which he can manage if you will be so good as to allow him, after re-assuming charge of his office.

4. I beg to state that I consider Captain Puckle has performed this duty with remarkable ability and faithfulness.

5. The following points occur to me fully established.

1st. That an ample supply of water can be obtained on the west side of Nandidúrg without the least injuring the present supply; by making a tank of large capacity which will store the water of copious monsoons to supply the deficiency of a following bad year.

2nd. That the present Mailkottah tank, the kalingal of which is 50 feet above the race course, will be a suitable site for such a tank as is proposed.

3rd. That a tank there, to contain 10 million cubic yards will supply sufficient water, with a large surplus even in very bad years.

4th. That compensation must be made for the arable land submerged by the increased spread of water, on that site, above the present.

5th. That there is no serious objection to leading the water to Bangalore from so great a distance.

6th. That in this way Bangalore will be abundantly supplied with pure and soft water, both for household purposes, and also for a large extent of irrigation for gardens.

7th. That the expense of this will not be excessive, perhaps 1,40,000 Rupees including compensation, but this is a rough estimate.

8th. The interest of this, with management about 10,000 Rupees a year seems a very small sum to secure, as far as possible an ample supply of pure soft water for from 50 to 1,00,000 people, and bears a very small proportion to the total amount expended on the force, perhaps not more than one per cent. which would surely be saved several times in the improved health of the troops.

9th. I have not been able yet to obtain a complete estimate of the expense incurred by Government and by private individuals in drawing and carrying water now, but I believe it to be much more than the above sum of 10,000 Rupees a year.

No. 71.

ORDER THEREON, 25th February 1860, No. 413.

Copies of this letter and of its enclosures will be forwarded to the Chief Engineer with reference to the order dated 28th October 1859, No. 2533; also to the Military Department for information, and for communication to His Excellency the Commander-in-Chief and the Commandant of Engineers.

(Signed) T. PYCROFT,
Chief Secretary.

No. 72. Ordered in consequence that the following letter be despatched.

From T. PYCROFT, Esq., Chief Secretary to the Government of Fort St. George; to Colonel H. YULE, Secretary to the Government of India, D. P. W., dated Fort St. George, 25th February 1860, No. 414.

In continuation of my letter of the 11th instant No. 330, I am directed to forward for the information of the Government of India a further communication* from the Commissioner of Mysore with its enclosures on the subject of providing a sufficiency of water for the new Dragoon barracks at Bangalore.

* Dated 15th February 1860 No 2.

PUBLIC WORKS DEPARTMENT.
Public.

FORT ST. GEORGE,
25th February 1860.

No. 414.

From

T. PYCROFT, Esq.,
Chief Secretary to the Government of Fort St. George.

To

COLONEL H. YULE,
Secretary to the Government of India, D. P. W.

SIR,

In continuation of my letter of the 11th instant No. 330, I am directed to forward for the information of the Government of India a further communication* from the Commissioner of Mysore with its enclosures on the subject of providing a sufficiency of water for the new Dragoon barracks at Bangalore.

* Dated 15th February 1860 No 2.

I have the honor to be,

Sir,

Your most obedient Servant,

(Signed) T. PYCROFT,
Chief Secretary.

Exd. Wm. Thomas.

No 1770
3960

Mysore Public Works Departt
Central Office 7

From Colonel Charles James Greene
Chief Engineer

To The Secretary to the Commissioner
for the Government of the Territories
of His Highness the Rajah of Mysore

Dated the 4th January 1860

Sir,

I have the honor to append for
the Commissioners information Copy of a letter
No. dated 14 December 1859. from Colonel A Cotton regarding the Bangalore
water supply project.

2. The general proposition consists,
it will be seen, in enlarging the Hailcottah Tank
Kandikeri west of Nundydroog, the waste weir of which
is 50 feet above the "Race Course," which will
store the water of copious monsoons, to "subdue
the deficiency of a following bad year." The tank
and channel is roughly estimated to cost 14,000
Rupees.

3. As I have not seen the data
upon

upon which this project is based. I cannot take upon myself to confirm most of the points said to be established.

4. Nor am I able, as at present informed, to conceive that the Maikotta tank on the West side of Nundydroog, could be very much enlarged, even though the supply of other tanks be intercepted.

5. Nor do I think 50 feet would be found an adequate fall in a Channel which would be at least 100 Miles in length, by the cheapest line that it could be carried.

6. Colonel Cotton employs the term "Copious Monsoons", which though a common expression on the Coasts, is hardly applicable to the Western side of Nundydroog.

7. In that neighbourhood, as well as at Bangalore generally, the monsoon seems to mean, as at sea, the N.E. or S.W. winds, with which alternately we are visited with great regularity. Rain does, however, fall occasionally at any one place, even the most arid, and a second class tank might possibly fill at Maikottah once in 5 or 10 years.

9—

8. The Commissioner requested my opinion on the feasibility of bringing water from Nundydroog to Bangalore some time ago, when it was first mooted by Colonel Cotton, and I am to apologize for deferring my answer till now. The delay arose from this circumstance that shortly after receiving your letter, as per margin, it was intimated to me Colonel Cotton was about to solve that problem in person.

No. 534 dated 16 August 1859.

9. I beg to say that I have never seen a work of the kind, which I now learn is contemplated, and that I cannot realize it satisfactorily by any analogy that presents itself to my mind.

10. If there were an unfailing River at the level of the Maikotta Tank, the case would be different, though even then, it is not clear to me, the fall would be sufficient (length considered) for so tortuous a Channel, as every Channel in the hilly Country of Mysore, is and must be.

11 I also foresee great objections to an extensive

extensive channel that will have the effect of intercepting, for the whole of its great length, the rain water from the fields and banks lower down the slopes, and I apprehend, it would frequently become breached, that it would breach in many places accidentally, and be breached at still more places designedly.

12 The commissioner will no doubt recollect the Gowramboody Tank constructed by His Highness the Rajah at a vast expence. It had been 8 years completed, when I reported upon it, and no water had been or could be collected in it, although feeders had been extended to a considerable distance, but, I observed, the latter were breached when they had reached to drainage belonging to the Ryots. Now I have no doubt the Rajah would have liberally compensated the Ryots, but that had not probably saved the channel. It may, of course, have burst accidentally and therein consists another difficulty.

Gauram-bude Raja

Ryots Raja

13 The rain in and about Mundydroog and

and Parigabore falls occasionally heavily for a few minutes, when perhaps a tank is full, the waste weirs are unequal to the discharge of the surplus water, and the bank bursts. Now a channel of the kind I suppose to be proposed, it appears to me, on a smart fall of rain would be in the predicament of a long tank which is full of water, the bund would need to be replete with waste weirs, expensive unless the capacity of the Nullah must be very great, and to open a tolerably sized channel in a Country intersected with deep Nullahs and so studded with rock that it crops out above the surface in innumerable places, and is sure to be met with below the surface abundantly, would be an expensive operation; for either alternative, the estimate 1½ lac would be, as it appears to me, quite insufficient.

Kilda

Nullahs

14. I believe the shortest way of supplying the Race Course Barracks, which I regard as the only question, would be by 4 stages of pucotas, each lifting from 8 to 10 feet, and being connected with

with the rise above by a trench in Chinaman tunnel. the total left required being about 32 feet only above the Artillery South Horse Trough at the Ulsoor Tank, which I propose as the source

15 ... The above would be an inexpensive work suited to the Natives and requiring but a small amount for laborers wages. But if preferred 2 small donkey engines might be procured from England. These had better be 2 in case one should get out of repair. Both these plans have occurred to Colonel Cotton.

16 ... I do not forget that the Ulsoor Tank still receives a great deal of filthy drainage but the real deterioration of the water drawn from wells adjacent to the tank, is perhaps exaggerated, or how is the remarkable reputation of the station for salubrity maintained? how is it that it is so singularly free from cholera, fever, dysentry &c.?

17 ... The water has to filter through the soil to reach the wells from the Ulsoor Tank, and the impurities which tank are retained. They are

are chiefly brought down by a heavy fall of rain which fills the tank and being in the first instance held in solution near the surface, they are the first to escape by the waste weir.

18 ... I think the Government chemist would not, on analyzing it deem the Bangalore water very objectionable, especially that which is drawn from the wells in the Light Cavalry Lines, in those near and at the Dragoon Horse trough, and from the Artillery Horse tank trough; all supplied from the Ulsoor Tank.

19 ... After the communications and the extension and improvement contemplated to Miller's Tank, the still more important and more desirable sanatory project connected with the Ulsoor Tank, and the raising the bunds thereof with the stuff excavated in making the culvert, which is to carry the Bazaar sewage past instead of into the tank, and so to increase the capacity of the tank, I do not think Bangalore will have any thing to complain of on the score of good and pure water.

Bazaar

Major

20. Major De Butts 7th November 1857 estimated for a filter and Reservoir to feed Canal water in the Race Course at Rupees 10000 each, and there were to be 8 tanks, but one might be first tried in connection with the plan I advocate. The proposed pucotas and Connecting channel from the Ulsoor Lake would not cost more than Rupees 2000 say total Rupees 3000. It will be seen that the whole scheme of these works, the Pond, the pucotas, and the passage of the water to the Race Course Encouragement would be under the power of the Artillery, Dragoons and Infantry, and if sanctioned, the plan could in a very short time be carried out by Captain Wayne the Military Executive Engineer of Bangalore, I may add that there is a well of 40 feet deep in the Race Course and that Captain Wayne is of opinion it would retain water without the brick in chunam casing provided for above. It might be worth while trying the experiment before going to the expense of casing

I have the honor to be Sir
Signed C. J. Green
Chief Engineer

Nuggingode
4 January 1860.

15

From Colonel Mallon
Commandant of Engineer
To Colonel C. J. Green
Chief Engineer in Mysore

Sir,

I have the honor to return you my best thanks for the services of Captain Puckle in Examining the Question of water supply for Bangalore.

2. I consider that the information we have collected sufficient for our present purpose and I therefore do not think it necessary that that officer should any longer be kept from his ordinary duties.

3. Some minor points remain to be settled which he can manage if you will be so good as to allow him, after Examining charge of this office.

4. Beg to state that I consider Captain Puckle has performed this duty with remarkable ability and faithfulness.

5. The following points occur to me

fully

fully Established.

1st That an ample supply of water can be obtained on the west side of Nundydroog without the least injuring the present supply. by making a tank of large Capacity which will store the water of Copious monsoons to supply the deficiency of a following bad year.

2d That the present Mailcotta Tank, the Caligula of which is 50 feet above the Race Course, will be a suitable site for such a Tank as is proposed.

3d That a tank there, to Contain 10 Mill: cyds will supply sufficient water, with a large surplus even in very bad years.

4th That Compensation must be made for the arable land submerged by the increased spread of water, on that site, above the present.

5th That there is no serious objection to leading the water to Bangalore from so great a distance.

6th That in this way Bangalore will

will be abundantly supplied with pure and soft water, both for Household purposes, and also for a large extent of Irrigation for Gardens.

7th That the expence of this will not be excessive perhaps 140000 Rupees including Compensation, but this is a Rough Estimate.

8th The Interest of this, with management about 10000 Rupees a year seems a very small sum to secure, as far as possible an ample supply of pure soft water for from 50 to 100000 People, and bears a very small proportion to the total amount expended on the Force, perhaps not more than 1 per cent which would very be saved several times in the improved health of the Troops.

9th I have not been able yet to obtain a complete Estimate of the expence incurred by Government and by private individuals in drawing and Carrying water now, but I believe it to be much more than the above sum of 10,000 Rupees a year

I have the honor to be &c.

Signed A. Cotton. Colonel

Commandant of Sappers

Bangalore
17 December
1859.

True Copy /

Signed C. J. Green

Chief Engineer

True Copy /

H. Cubbon

Commissioner

1860.

No. 1.

Enclosed in a letter from the Commissioner in Mysore to the Chief Secretary to Government Fort St. George dated 15th Feby No.

PP 449/60.

From The Chief Engineer in Mysore
To The Offg Secretary to the Commissioner of Mysore

Dated 4th January.

Forwards Copy of letter from Colonel Cotton on the subject of bringing water from Nundy-droog to Bangalore and submits Remarks upon the same.

Pros. 29th February No. 413

29th Feby 60
No 413

No 70-75

2. I will beg to express my general Concurrence in Colonel Greens observations on the subject of the obstacles which oppose the execution of the proposed scheme for deriving water from the vicinity of Hundydroog. I must not omit to state that I am by no means convinced that sufficient water for the required purpose either would, or could by any means be collected there: for it is well known that little rain falls in that quarter: and in the hot weather all the tanks in the neighbourhood are frequently observed to be quite dry.

3. On the other hand I think Colonel Green has made it evident that the Barracks on the Race Course might be abundantly supplied with good wholesome water by the method which he has pointed out, and at comparatively small expence, should the Supreme Government be pleased to sanction a plan and

Landing

estimate come before it for protecting the great Reservoir - the Ulsoor Tank - from the impurities which now issue into it from the Native Bazaar.

I have the honor to be

Sir,

Your Most obedient Servant

H. Cubbon

Commissioner

Bangalore
5th February
1860.

To

The Chief Secretary
to Government
Fort St. George

Copies 1st July 1859 Nos 82-83

From the Qur Master Genl of the Army &c 20th March 1860. Thro the Mily Depte C No. 726 in Con 20th April/60 Nos 55-56.

From Chief Engr &c 28th May/60 No. 1315. Encls 424-425.

From the Govt of India 8th Jany/61 Cs No 49 in

2-3-70

Nos 70+71. 72.

PW — 1860 Dispte
Prog: of Govt 29th February
No 449

Com
The Commissioner
in Mysore
&
The Chief Secretary
to Government
Fort St George

Dated 15th February
Rec'd 17th "
From do 11th March 60
Cs No 672 - 31 - Encls 1

Cons
With Letter to the Govt of India
No 414 & 25th Feby - 60 -

With reference to his letter of the 22nd June last forwarding Copy of a letter from the Chief Engineer in Mysore and its inclosure on the subject of providing a sufficiency of water for the Dragoon Barracks at Bangalore.

With an Order &
No 413 - 25th Feb

No. 413.

No 416

Copies of this letter and of its enclosures will be forwarded to the Chief Engr with reference to the order dated 28th Octr 1859 No 2533. also to the Military Department for information, and for communication to his Excellency the Commander in Chief and the Commandant of Engineers.

Ordered that the following letter be despatched.

To the Secry to the Govt of India Dpt
Then enter 25th Feby/60
No 414.

From Fort St George
25th Feby/60
10 Copies - Chief Engr Encls 27
7 Mily Depte
5 Govt of India 25

Public Works 1860 Dept.
Pro: of Govt 29th February.

No 114

To The Secy to the Govt
of India P.W.D.

Dated 25th February 1860.

Forwarding a Communication from the Commissioner of Mysore on the subject of providing a sufficiency of water for the new Dragoon Barracks at Bangalore.

No 72.