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CONCERNS BOTH BRITISH INDIA
AND INDIAN STATES.

MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No. 1489

Press
Mis.

S^o1-S^o2

Dated 21-5-1864.

Not to be folded or roughly handled

21/7/83

*Proceedings of the Madras Government, Public Works Department,
21st May 1864.*

No. 501. Read the following letter from the Secretary to the Commissioner of Mysore:—

Forwarding copies of the papers addressed to the Govern-
ment of India, respecting the relative merits of the
projects framed by Major Sankey and Colonel Cotton
regarding the Mauri Cunval Tank. } (Here enter 7th May 1864. No, 100/20.)

No. 502. ORDER THEREON, 21st May 1864, No. 1,489.

The papers received with the foregoing Memorandum will be forwarded to the Chief Engineer Madras Irrigation and Canal Company through the Consulting Engineer, with a request that they may be returned to this Office for record.

(True Extract.)

(Signed) CHARLES A. ORR, Colonel, R. E.,
Secretary to Government.

To the Consulting Engineer, Irrigation and Canal Company, with papers.
„ Agent for do. do.

Eid. S. T. Augustin,

590. 1489 of 21-5

ADDITIONAL PAPERS CONNECTED WITH THE MAURI CUNWAI PROJECT IN MYSORE.

*Forwarded under No. 3429 dated 23rd November 1863, from the Secretary to the Government of Fort St. George, P. W. D., to the Commissioner of Mysore.

Letter* from Colonel S. O. E. LUDLOW, R. E. consulting Engineer for Irrigation and Canal Company, to Colonel C. A. ORR, R. E. Secretary to Government, Department Public Works, dated Saint Thomé 3rd November 1863.

No. 90.

SIR,

I have the honor to forward herewith a Plan and Estimate received from Colonel Cotton, Chief Engineer Madras Irrigation and Canal Company, for a masonry dam across the Mauri Cunwai Gorge.

2. Neither the Plan nor the Estimate is drawn up sufficiently in detail, to admit of anything but a general opinion on the scheme.

3. The project is for a masonry dam 1,150 feet in length, extending right across the Gorge, the height to be 140 feet above the river bed with a parapet above that level twelve feet high. The masonry of the dam in the middle, will be ten feet below the river bed, resting every where on solid rock.

4. The water in the proposed reservoir may by this dam, be retained to a height of 140 feet above the sands of the river, an escape being provided for it, when this height is exceeded, over the Southern saddle. No mention is made at length of this escape.

5. For the discharge of the water a series of 78 sluices is provided on different levels, varying from ten feet below the crown of the dam, to twenty feet above the sands of the river, and so arranged as to be used under no greater pressure than twenty feet. Within this limit of pressure, fourteen sluices will be available for use at the same time, and be capable of discharging under a mean pressure of ten feet, 3,50,000 cubic yards per hour, being a supply for as many acres, supposing an acre to require only one cubic yard of water per hour.

6. The dam is to be formed of solid and compact masonry, (rubble stone in lime) with the exception of the core shown in the sections, which will be of rubble stone compacted with sand washed into the interstices. No lime will be used in this part.

7. The sluices will be faced and lined with cat stone jointed and dove-tailed securely; the discharge from them will leave the dam on a level with the ground which below the dam is compact rock, and will be conducted by lateral walls (not shown in plan or provided for in estimate) to the main irrigation channels for the Mysore land, and into the river for use beyond the Mysore limits.

8. The estimate includes a lump sum of 5,000 Rupees, for buildings to be erected apart from the dam on the banks, and a similar sum for the enlargement and paving of the escape in the south saddle, but does not provide for the main irrigation channels. The Chief Engineer observes with regard to these, that they need be excavated only partially "within soil," whereby expense will be saved, and an immediate command of level be obtained.

9. The total of the Chief Engineer's (revised) Estimate for the dam sluices, waste weir, buildings, &c. including superintendence is Rupees 12,66,520, being 70,740 Rs.

PO 1489
21/1/64

CONCERNS BOTH BRITISH INDIA
AND INDIAN STATES.

more than Major Sankey's Estimate for his low dam, (exclusive of cost distributing Channels,) and 2,91,420 less than Colonel Lawford's original estimate, (framed on lower rates,) which provided for cutting down the hills to the level of the dam.

10. With respect to the thickness necessary to be given to masonry dams of large size, Mr. Burnell Civil Engineer, in his treatise says: "From the movements remarked in the masonry of some dams, it would appear to be necessary to give the walls double the thickness, required by the strict application of theoretical rules. Indeed in such works the tendency to slip on the bed, complicates the condition of equilibrium to a serious extent; it is in fact greater than the tendency to turn over on the extreme edge. Representing the height of the water by H , the thicknesses which appear to be most advisable to give to dams of masonry at the following points in their height are, " x being the thickness sought,

At the top $x = H \times 30$

" middle $x = H \times 50$

" bottom $x = H \times 70$

" mean $x = H \times 50$

"such thicknesses are perhaps rather in excess; but the terrible consequences arising from the bursting of a dam and the more perfect impermeability of a large mass of masonry, should rather induce a preference in this direction."

11. Colonel Cotton's dam has a thickness where the pressure of water would be greatest of,

At top 20 feet

" bottom 107 feet

Mean thickness $63\frac{1}{2}$ or $6\frac{1}{2}$ feet less than 70', which is half the height at that point of the water above the bed or base. This is, therefore, somewhat less than would be required by the rule above quoted; but in this particular case the tendency to slide, which is stated to be the especial reason why extra thickness is considered necessary, is owing to the form of the ground, which is a ledge of rock shelving upwards to the outer side of the base, greatly diminished or counteracted. The average thickness and mass of the dam considered as a compact whole is therefore, I am confident, amply sufficient to resist the pressure of 140 feet of water tending either to overset it, or cause it to slide on its base.

12. The only objections which I have to the proposed section, are the core of rough stone in sand, which runs along the whole central length of work, and the fact of the centre of gravity of the side (cemented) walls, overhanging the base on which they stand. For should any shifting or compression take place in the rubble core (and it must be remembered that the height of the mass of uncemented rubble, is at the centre of the dam not less than 100 feet) the side walls, which it backs, might crack, and water once admitted to the core, the sand would be washed out, and the dam would probably fail.

13. The Chief Engineer, I believe considers the rubble in sand, to be incompressible, and that even were it altogether removed, the two outer walls would stand perfectly secure without it.

14. As however I do not share in this opinion, and as I consider it to be indispensably necessary in a work of this magnitude and importance, to allow for imperfection of workmanship, and to guard against the possibility of failure, I would recommend, first, that all the masonry between the floor of the sluices and the rock, be set in lime; second, that the interior slopes of the outer walls be altered, so as to bring the centre of gravity of each wall more within its base; third, that two horizontal or string courses of cemented masonry, each three or four feet thick, be built between the base and apex of the uncemented core; fourth, that cross walls of cemented masonry, be built between the front and rear walls, at distances of about fifty feet apart; and lastly, that the rock be

properly tabled and stepped, so that the base of the dam may rest firmly upon it. With these additions, I believe that the dam may be considered perfectly secure.

15. With respect to the rates I believe that 5 Rupees per cubic yard for rubble in chunam is sufficient, provided stone fit for the purpose is procurable near the spot, which I understand to be the case. The rate of 1 Rupee per yard for rough stone in sand is more questionable, but Major Sankey in his Estimate allowed much less, and as that officer is well acquainted with the circumstances and locality, it must be presumed that it is sufficient.

16. Whether 5,000 Rupees will suffice to complete the excavation of waste weir, I think to be doubtful. It will depend upon the length necessary to be given to it and the depth to which it will have to be excavated. I am informed that the cost of excavating the part already cut was very considerable, but this was probably owing to the greater depth of the excavation.

17. Rupees 5,000 ought to suffice for all really necessary buildings.

18. Whether Rupees 60,309 will cover the cost of supervision and contingencies, must depend upon the time which the construction of the dam will occupy, and whether pay of the Engineers is included in that sum. The locality is, I believe unhealthy, and the supply of labor scanty. So large a work could not possibly be completed there in less than two years, and would probably occupy more, including the time necessary for the collection of materials. The pay of an Engineer and an Assistant for the two years would amount to at least 36,000 Rupees, and the cost of minor superintendence and agency would be considerable.

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Major Sankey's present Estimate for the low dam and waste weirs (deducting from the entire Estimate the channels 6,50,000 and contingencies 32,500, total 6,82,500), amounts to Rs. 11,95,780. Colonel Lawford's original Estimate, (at much lower rates) which provided for cutting down the Hills to the level of the dam amounted to Rupees 1,910.

I am &c.,
(Signed) H. C. COTTON,
Chief Engineer.

MADRAS IRRIGATION AND CANAL COMPANY.

Estimate of the cost of constructing a Dam and Sluices at the Maury Canval. Revised.

ITEMS.	Work.	RATE.		Quantity in Cubic yards	Total of each item. Rupees.	Total of Estimate Rs.
		Rs.	Per.			
Body of the Dam.....	Rubble stone in chunam.	5	C. Yd.	1,89,137	9,45,685	12,06,211 60,309 12,66,520
Do	Rubble stone in sand.	1	"	45,186	45,186	
Sluices and Steps.....	Cut stone.	20	"	9,152	1,83,040	
Shutter and Working Gear....	80 Shutters, Complete.	150	each	...	12,000	
Office and Workshop.....	...	...	...	...	5,000	
Levelling and walling below the dam.....	...	...	...	...	5,000	
Do outlet.....	...	...	...	...	5,000	
Excavating and Bailing.....	...	...	...	...	5,000	
Supervision and contingencies.	...	...	...	...	5,000	
					Rupees.	

Signed H. C. COTTON,
Chief Engineer.

No. 2050.

MYSORE PUBLIC WORKS DEPARTMENT,
CENTRAL OFFICE
CURRENT BRANCH.

To

THE SECRETARY TO THE COMMISSIONER FOR
THE GOVERNMENT OF THE TERRITORIES
OF HIS HIGHNESS THE RAJAH OF MYSORE.

Sir,

Secretary to Government of Fort Saint George D. P. W. No. ³²⁹/₅₁₉ of the 23rd November 1863 to the Commissioner of Mysore with enclosures and Colonel Cotton's plan for the Mauri Cunwai Dam.

With reference to the communication as per margin forwarded under your docket No. ³²⁹/₅₁₉ of the 5th instant, I have the honor to offer a few observations on Colonel Cotton's plan, for constructing the Dam at the Mauri Cunwai Estimated to Cost Rupees 12,665,20.

2. In the abstract, to the Estimate attached to this design there are nine items, of which it will be observed that only three have been calculated from the Plan, or on any ostensibly reliable data, the remainder being simply assumed without reference to any measurements or rates. Of itself this would invalidate any deductions drawn from it, and prevent the possibility of instituting a comparison, with the project I had the honor of submitting for the consideration of Government, and which if possessing no other merit over, rather than under estimated the cost of the work.

Secretary to Government of Fort St. George D. P. W. No. 2484 of 1st September 1862 to Commissioner of Mysore with enclosures.

3. So far as can be gathered from the communication as per margin, Colonel Cotton originally estimated the cost of the work at 6½ Lacks. This amount is now doubled, and taking into account the many omissions which are at once apparent in the Estimate, the works as now designed cannot cost much under 20 Lakhs.

4. The most serious omission is the waste weir, for which no provision is made. The only allusion to such a work, is contained in para 9 of Colonel Cotton's letter where he observes "This height (140 feet above the sandy bed) corresponds with that of the saddle, naturally provided for the escape of the waste or surplus water, and therefore no provision is made in the Gorge for such escape."

5. I presume from this, that he proposes to place the escape at the Mardihully saddle, but he has taken no levels to this point, nor does he appear at all aware of the difficulties to be there encountered. The lowest point of this saddle is much higher than that assumed, and as it consists of a broad flat plain, (not a ridge like the southern saddle, where I have placed my waste weir) closely underlain by rock, and situated 1½ miles distant from the Dam, it is at once evident that the expense of constructing the weir here will be very considerable.

6. To shew the importance of the work thus lightly passed over, I have only to quote Sir A. Cotton's remarks, in his pamphlet on the work dated 12th April 1858, in which the following clear enunciation occurs.

"The only point is to have the Calingula (waste weir) of sufficient capacity. Nothing but a calculation, would give any one an idea of the extent of the work, that is required in a case like this. There are the remains of many vast bunds in such situation in different parts of the Peninsula. I believe that they were all breached, because their constructors had no idea of what was wanted in this way. In the present case, in the flood of 1854 (1858?) there must have been according to information, 12 million cubic yards per hour passing down the river at this point. If such a flood occurred when the tank was full, and we must allow for a possibly greater flood than this, it would take a Calingula 400 yards long flowing 2 yards deep with a clear over fall to discharge the waste water. Happily there is a very long saddle, so that a very extensive Calingula can

be easily constructed. But so far as my data go, I do not think that a less capacity of Calingula should be allowed, *than 400 yards long by 3 deep*. This is the point of the whole matter that must be looked to, and it as much concerns the Government of Madras as that of Mysore; in fact not only ought this point in the construction to be settled in communication with the Madras Government, but after construction that authority ought to have the work regularly visited, and reported on by one of its own Officers." The italics are not mine, but Sir A. Cotton's.

7. The little consideration now given to this important work, is the more surprising as the height of Bund, is the same as that accepted by Sir A. Cotton in the above quoted pamphlet, and with in fact the single exception, that the bund is now of masonry instead of earth faced with stone, the schemes are identical.

8. To shew the probable expense of so formidable a work, I will at once assume that it be placed in the position where it will cost the least, viz., the southern saddle. I find that if situated at the most favorable point, on the lowest computations, from sections taken across this and attached to any project, 181,600 cubic yards of earth and rock will have to be removed simply to reduce the hill sufficiently. The expense of this at 12 annas per cubic yard, the same rate as assumed in my project, brings the cost to Rs. 1,36,200, to which adding Rupees 50,000 for the steps in rear, the embankments to escape channel &c. we have the total cost of the work at the very lowest Rupees 1,86,200.

9. There are several other grave omissions, but this in itself will suffice to shew that the present Estimate cannot be relied on, I shall therefore at once pass on to the only other point upon which I think it requisite to offer any remarks, namely the description of sluices proposed with so much faith by Colonel Cotton, but which to my mind are the weakest point in the whole project.

10. While differing on all other points, Colonel Cotton and I agree entirely on one namely, that the capacity of the Tank should be such, as to enable it to store the whole rain fall of extraordinary years, to provide against the effects of bad seasons. We differ vastly as to the quantity which can be stored, but this principle forms the ground work of both projects. His observations in the present communication shew this clearly para 3. "In my judgment the less the supply of ordinary years, the more essential it is to prepare, for making the most of the occasional great floods. It is well known that two floods at least have occurred, since the Herrioor bridge was built—I believe 12 years—which would have more than filled the largest tank."

11. Assuming that extraordinary floods occur once in 5 years, the arrangements regarding the delivery of water in every succeeding 4 years, under either of our systems, would necessarily be such, as to allow $\frac{1}{4}$ th of the surplus retained in the Tank, being expended in each of these comparatively dry seasons.

12. I do not say that such would absolutely be the arrangements, but under all circumstances, very closely analogous ones *must* be adopted, or the delivery of water to the fields would become so uncertain, as to render the work in many respects a curse, rather than a blessing.

13. Colonel Cotton does not say any thing in this paper, regarding the capacity of his Tank. I must therefore again quote Sir A. Cotton on this subject. He says in the same pamphlet "It is I believe now proposed to make the bund 140 feet high, and the floor of the sluices 85 feet above the bed of the river, (this was the height fixed by the original projector Colonel Green) or 45 feet below the level of the Tank when full * * * From this I judge that the contents of the Reservoir at 130 feet, would be about 1000 million cubic yards, and that the contents below the floor of the sluices about 300, leaving 700 million Cubic yards available."

14. Now I must remark in passing that from this it is sufficiently clear, that if at 130 feet in depth the Tank would only hold 1000 Million cubic yards, it would not contain more than 1500 Million cubic yards, with a depth at bund of 140 feet. *The Tank therefore as now proposed by Colonel Cotton, cannot by any possibility store $\frac{1}{4}$ of the quantity, which he himself has calculated as the result of extraordinary years, namely 4600 million cubic yards (see his first report, also those of Sir A. Cotton and Colonel Rundall) and to do so, the bund must be made at least 180 feet high on his own data.*

15. Returning however to the matter in hand, let it be assumed that it be intended to store up surplus water from extraordinary years, to the extent of only 400 million Cubic yards, with a view to giving out say 100 millions, in each of the succeeding dry seasons, to make up for deficiencies—an assumption not alone sufficiently moderate, but indeed altogether below the mark.

16. Sir A. Cotton in the above sentence shews, that 300 million Cubic yards in the Tank, would stand at a depth of 85 feet, it may therefore be presumed that the above reserve store of 100 millions, would not stand at a less depth than 90 feet at the Bund. It follows that during extraordinary flood years, all Colonel Cotton's sluices below this level, would remain submerged for this year, and all those lower down to longer periods according to their position.

17. Applying this reasoning to the Plan it will be at once seen that not less than 51 out of the 78 sluices must remain submerged for 2 years, 47 for 3 years, 40 for 4 years, and 30 for 5 years, indeed many of the latter by any accidental refilling of the Tank in the interval, might very easily remain 10 or 15 years submerged and unused.

18. Composed as they are of wood it is certain they must rot in this position, and what provision has Colonel Cotton made against this contingency, or the result of any thing going astray with his perishable machinery? Absolutely none! Further there is no possibility of effecting the slightest necessary repair.

19. As the pressure against the lowest sluices of all, which are those that must remain longest unmoved, and therefore most likely to perish, is equivalent to that due to 120 feet head of water, the result of one of them yielding may be easily conceived, and that such a result must ensue is absolutely certain.

20. It may possibly be supposed that I am overstating the difficulties, connected with the sluices for this great work, but I think a little reflection will shew that I have altogether understated them, as the reserve which Colonel Cotton will have to keep for bad years, must be twice or three times the amount above assumed.

21. The following quotation from Sir A. Cotton's pamphlet, will however shew that he at least entertained a different view from his brother. "Another point" he observes, "to be looked to as respects the safety of the Tank is the sluices. It must be remembered, that we have not had as yet to deal with the discharge of such large bodies of water, under such heavy pressures as a head of 50 feet. Neither are there any precedents in other parts of the world. In England there are cases of discharge under heavy pressures, perhaps more than 100 feet of water, but they are very insignificant, as respects quantity, the water only being required to towns and navigation canals. There is nothing approaching to the discharge of $\frac{1}{2}$ Million cubic yards per hour. This therefore is a point which I think should be carefully discussed, by two or three experienced Engineers, and I would strongly urge, that three or four considerable premiums, should be offered in England, France, and America for plans and sections of sluices." I need hardly observe that Sir A. Cotton at the time, was not aware of the patent self acting sluices which I have been enabled to adopt, and which after communication with the manufacturers in England, I find are adapted to much greater heads and discharges than required for the Tank.

22. Colonel Cotton raises but one single objection to the form of the work proposed by me, namely the security of the front apron of the central waste weir. It only requires a moment's consideration to see, that in case the rock at foot is sufficiently unyielding, this feature may be omitted altogether, and a very large item of expense saved. It is only essential in case of the rock being of a different texture.

23. I will now conclude by observing that in my humble opinion, neither can the design in its present constructive features nor its cost be accepted by Government—and further that notwithstanding Colonel Cotton had the whole of last monsoon, to test the truth of the actual velocities of the stream as given by me, and thence Estimate the quantity which could be stored he has omitted to do so, thus affording the strongest presumption that he considers me to be right.

21. Although therefore 5 years have elapsed since Sir A. Cotton first reported on it, the project has made no advance, nor has Colonel Cotton considered it necessary, to bring forward one reliable fact to bear on the case, in answer to those previously put forth in opposition to his views.

25. I have criticised this project altogether from Colonel Cotton's own point of view, but I need hardly observe, that having already shewn his premises regarding the supply of water to be entirely fallacious, I am unable to see any necessity for so expensive a work. The plan which accompanied your Memo is herewith returned.

BANGALORE,
21st December 1863.

I have the honor to be, &c,
(Signed) R. H. SANKEY, MAJOR R. E.
Officiating Chief Engineer in Mysore.

NOTE.

I find by a subsequent communication (No. 1077 of 23rd December 1863) from Colonel C. Cotton, that he proposes to place the waste weir at the Mardihully Gorge, but as in addition to the information afforded being defective, and as he only provides for an outlet 180 yards wide (neither depth or any other particulars stated) which without any assigned reason, differs entirely from the capacity of calingula considered essential by Sir A. Cotton, the arguments regarding the inadequacy of the sum provided in the Estimate (paras 4 to 8 in the above letter,) are strengthened.

BANGALORE,
12th January 1864.

R. H. S.

N^o 2294.

Mysore Public Works Department
Central Office
Current Branch

From
Major R. H. Sankey, R. E.
Offg. Chief Engineer in Mysore.

The Secretary to the Commissions
for the Government of the Territories of
His Highness the Rajah of Mysore.
Dated the 20th January 1864.

Sir,
With reference to the remark contained
in para 8 of your letter Circut No. 7 of the 13th inst.,
I have the honor to forward herewith 10 printed copies
of additional papers connected with the Mainfurnal
into comprising folio 1 followed place with Major
General Ludlow and my own remarks on the same.

As this is possibly the last communication
there I shall have to make on the subject of this
important work before the matter is decided by
Government, I would take this opportunity of
replying to the enquiry contained in folio 1 headed
letter of the 23rd December 1863 regarding the
judging of the discharge of the Muggery during
last monsoon and of throwing out a suggestion
as to the final settlement of the question at issue
with Colonel Cotton.

With regard to the Secretaries enquiry
I beg to state that the register at the forge has
been suspended since last June. Colonel Farquhar
and I both agreeing that the discharge having
been registered for two successive years, and
the

the actual velocity of the stream during flood tested by experiment (as stated in my report) no practical advantage would result from our continued efforts in the same direction.

I have all along been very desirous that an Engineer Officer disconnected with the discussion should be sent by Government simply to take the section of the river at the gorge and test by actual experiment during floods the velocity of the stream. This would, I am satisfied, be the best method of settling all disputes as there would then be no fault of theory on which to ground objections by either party. but as I find Colonel Cotton in his last paper virtually objecting entirely (as far as I understood) to any register however kept during average years, I can only make another proposal which I do with reluctance as I cannot but feel that it will only lead to a useless expenditure of money.

My proposal is that Government should make over the site to the Irrigation Company for the construction of the Dam proposed by Colonel Cotton (provided to meet the Engineering objections raised regarding its section) and paying an equitable sum for such a share in the work as would give Mysore first claim on such a quantity of water as would insure during all years the irrigation of 52,000 acres of land. It being further understood that the Mysore Government construct their own irrigation Channels and allow no

no interference on the part of the servants of the Irrigation Company with the rights and collection of assessment by them.

6. My Colonel Cotton's Estimate he would require annually 3000 Million Cubic yards of water, and by mine for 50,000 acres in Mysore 52.5 Millions or say one sixth. I have stated my belief that the Dam on Colonel Cotton's plan would cost in reality 20 Lacs, the proportional share in its cost to be borne by Mysore should therefore not exceed 3 $\frac{1}{2}$ Lacs. I would however suggest that the subsidy be increased to 4 Lacs in order to remove all cause for complaint at the same time it would be advisable to bind down the Company to the completion of the Dam and sluice within eight years, and by such other conditions as may appear desirable.

Should this adjustment of the vexed question meet with approval I have no desire to hamper Colonel Cotton by any further criticism of his project, or the section of his work, and should be glad if a perfectly independent Officer be selected for the duty. though I need hardly observe that my duty to Government being now performed I shall only be too happy to assist him cordially

in

in his great undertaking.

Bangalore.
20th January 1864.

I have the honor to be
(Signed) J. R. H. Banker -
Major. R. E.
Offg. Chief Engineer in Mysore.

Mysore Commissioner's Office.

N^o 182.

Dear Sir.

The Commissioner for the Government of the
Territories of His Highness the
Maha Rajah of Mysore.

The Secretary to the Government of India
Public Works Department.

Fort William.

Dated: Mysore 25th January 1864.

Sir, In reply to Lieut. Col. Beadell's letter N^o 5360 of the
23rd ult., and in continuation of the correspondence laid
before the Supreme Govt. respecting the relative merits
of the projects framed by Major Banker and Col. Fother.

of N^o 2294 regarding the Mace River Tank I have the honor to
submit the enclosure noted in the margin with 6 printed
copies of the additional papers referred to therein.

It is, I conceive, scarcely within the province of the
Govt. to pronounce an opinion upon the proposition con-
tained in the latter part of Major Banker's letter which
it appears to me proceeds upon the assumption that

Col. Fother's project may be carried out, and that it is
not open to substantial objection. As full details have now
been submitted to Govt., it will rest with His Excellency the
Viceroy in Council to determine which of the two projects
is the better - that of Col. Fother or that of Major Banker.
But I would observe that of the latter is, as I conceive, the
more suitable, it is not in my opinion advisable to carry out
the other, while it is very doubtful whether the Bangalore
Company would be prepared to undertake the scheme
proposed by Major Banker. If however the Government
declare in favor of Col. Fother's project, I concur with
the Officiating Chief Engineer that the aid of the
Mysore Government should be rendered in the manner
suggested in para 5.

I have the honor to be
(Signed) L. Bowring
Commissioner.

Mysore Commissioner's Office.
Bangalore 7th May 1864.

General N^o 100
Dated. 20. 3/1864/65

Copies of the foregoing are forwarded to
the Secretary to the Government of Fort Saint George
Public Works Department, in reply to N^o 146 dated 7th
March 1864.

"By order"
W. H. A.
Secretary.

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79/08264

27/07/18

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12.

44/08/26/16

1864.

From the Secretary to the Comr. of Mysore

To the Secretary to Government
Public Works Departt.
Fort Saint George

Dated 7th
Despatched } May
Received }

Enclosures No.

Genl No 100
Docket No 20-
Subject

In reply to No 146 dated 7th
March 1864 forwards copies of
the papers addressed to the Comr. of
India, Public Works Department,
respecting the relative merits of
the projects framed by Major
Sankey and Colonel Cotton
regarding the Damri Runnie
Canal.

W. H. H. S.
Secretary.

44/08/26/16

21

49/08/1864

No. 501. 502

The papers received with the foregoing memo.
 will be forwarded to the Chief Engineer Madras & P. & C. Co.
 who the Consulting Engineer with a request that they
 may be returned to this Office for record.
 To the Consulting Engineer & P. & C. Co. with papers
 dated 23rd May
 1864
 23rd May 1864
 13th May 1864 - P. 19

4th V 1864 Dept
 Pro. of Govt. Secy. May
 No. 2080

From the Secy to the
 Commissioner of Mysore

Dated 7th May
 Received 10th

81 - No. 100
 29

P.O. 3144/64

No. 1489-21st May

For the day copies
 of the papers addressed to the
 Govt. of India respecting the
 relative merits of the projects
 framed by Major. Peckham
 and Col. Cotton regarding
 the Chauri Bannari
 tank.

With an Order.