

MADRAS RECORD OFFICE

Government of Madras.

DEPARTMENT OF THE PUBLIC RELATIONS

G.O. No.

Press

Dated

18

Not to be folded or roughly handled

Fort Saint George, Public Works Consultation of 10th March 1857.

No. 78. Read the following letter from Lieutenant H. N. D. PRENDERGAST, Officiating Adjutant of Engineers; to J. D. BOURDILLON, Esq., Secretary to Government, dated 27th January 1857, No. 318.

SIR,

I have the honor by desire of the Commandant of Engineers to forward his Memo, on the proposed Madras Canal to connect the Northern and Southern Canals prepared in obedience to your letter of the 21st Instant, together with a plan illustrative of it.

Memorandum by the Commandant of Engineers on the proposed Madras Canal to connect the Northern and Southern Canals, prepared in obedience to Mr. Secretary Bourdillon's letter of the 21st January 1857.

In considering the lines already proposed or discussed in the papers transmitted to me, it appears to me that the one if not the first essential point in the question has been lost sight of, viz. That nineteen twentieths of the goods conveyed by both the Northern and Southern Canals are consumable articles for the population of Madras, viz. Rice, Gram, Straw, Lime, Firewood &c. and consequently that the Canal should be cut if possible where the population is; and hence the question is not, where can the Canal be cut most easily? but, where is it wanted? Unless we carefully keep our grand object in view, we shall be always liable to find ourselves carried away from it, by some apparent or real difficulty. In carrying out water communications we ought to be specially careful that we don't make the same obvious mistake that has been made in the Madras Railway for instance, in carrying it not through the towns on its route, where the masses of the people are that would use it, but through uninhabited country near them where the Railway can be made cheaply, but where there are scarcely any people to make use of it. We must remember continually that our object is not to make a Canal, but to carry people and goods cheaply from *where they are*, to where they *should be*. At present if Rice is wanted in Triplicane, it is brought perhaps from Doogoorauzpatam 70 miles to the Northern Canal Basin for about one Rupee a ton, I believe, and then carried on from there 3 or 4 miles by land at somewhere almost another Rupee, thus nearly doubling the cost because the Canal has not been carried to the place where some of the people live for whom it is worked.

Besides this there is however another point of essential importance. One of the great desiderata for this struggling City is cheap and expeditious means of locomotion for its $\frac{1}{2}$ millions of people, within its limits. The value of a water communication through its masses along its line of greatest length would be vast, and scarcely inferior if at all to that of the landing of goods from the country.

My view therefore of this matter is, that almost whatever the cost may be we ought to carry the Canal where it is wanted. But it seems to me to happen in this case as it does so generally, that the right line is in every respect the most advisable line.

The line I propose therefore is the direct line from the Adyaur to the Coom, that is from the end of the Southern Canal, to the nearest point of the Coom near Ashton's Shop varying only a little from a straight line.

My reasons for proposing this line then are.

- 1st. It goes where it is wanted through the population.
- 2nd. It is the shortest line.
- 3rd. It is probably the cheapest.
- 4th. It will interfere with hardly any very valuable property.
- 5th. It can be done most quickly.
- 6th. Its independent of the Pommel tank or any other project.

A line of Canal from the Northern Canal Basin, by the Black Town Ditch, the Coom and this line to the Adyaur, it will be seen passes very near to $\frac{1}{2}$ of the population of Madras, so much so that the average distance that people and goods must go to or from it, would be only about $\frac{1}{2}$ of a mile, excepting at the North end of the Black Town; but then it is of the greatest

the whole project now all

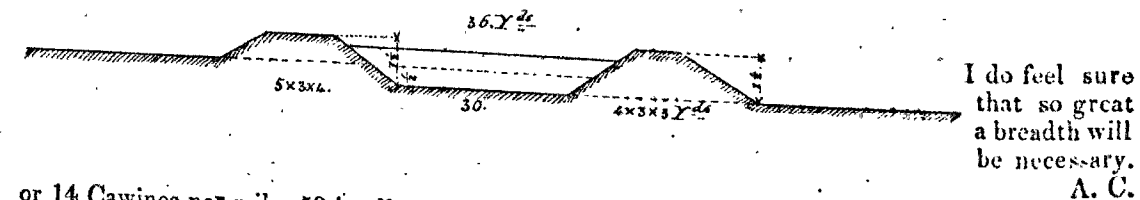
Fort Saint George, Public Works Consultation of 10th March 1857.

importance that the Canal should also be extended along the North face as was so strongly urged 3 years ago. It seems strange that this important point should have been totally lost sight of in all the papers now before me, for though the main traffic on the Northern and Southern Canals must always be articles of Madras consumption, yet it is certain that a large and rapidly increasing amount of articles for export will be brought by the Canals, the destination of which will be the beach. This line is also required for consumable articles for all the Northern part of Black Town, and also for Passengers to the buildings connected with the Port. With small Steamers running every half hour from Clive's Battery to the Luz, the amount of Passenger traffic would be enormous, and perhaps hardly any thing is so much wanted in Madras at this moment. There cannot be less than 20,000 people a day passing along most part of that line, that is, on lines parallel with it, and several thousands in Wheeled Carriages.

On the 3rd point. I would not cut it thro' to Tide water, but would carry it on the highest possible level, that is, excavating no more than would be required to give a certain breadth of water and form banks sufficient to give $4\frac{1}{2}$ feet of depth which I think would be enough to correspond with the depth in the Northern and Southern Canals. This would of course involve pumping back the water by Steam power to provide for the Lockage, but this would not entail a great expense.

It would incur a paper of this sort to go into the calculation of this, but I estimate that 4 annas would be the cost of filling a Lock, raising the water 10 feet and that each Lock full would transmit 50 tons of load, supposing the boat to return empty so that the expense of supplying the water would be 1 pice per ton for the $3\frac{1}{2}$ miles, which is far less than the interest of the additional expense of cutting a deep Canal.

The advantages of this mode of execution would be; 1st It would destroy so small an extent of land. The whole breadth for the Canal including embankment need not exceed 50 yards at the utmost,



or 14 Cawines per mile, 50 in all at 1,000 Rupees a Cawny 50,000 Rupees.

2nd. It would not interfere with the drainage.

3rd. It would always be clean.

4th. It would be more convenient for landing and shipping.

5th. There would be no high spoilbanks to intercept the air.

6th. The cost of execution would be very small. The main excavation would probably not exceed 20 square yards of section, 1,26,000 cubic yards in $3\frac{1}{2}$ miles, (besides the excavation for the locks,) and this raised only to a trifling height.

6th. It could be done in three or four months.

The only objections to this mode of carrying it in a high level seem to be 1st that it would be some obstruction to the roads that cross it. To this I reply that the only great thoroughfare is the Mount road, and for this the Canal might be cut down to the level of the Coom, and the Lock made on the South side of the road, so that there need be little or no rise on this main line of road, and for the other roads by flat bridges and long slopes such as Mr. Kennedy has given to the Southern Canal bridge road, this obstruction would become insignificant and certainly not to be compared to the relief given to the roads by the transfer of such an enormous amount of traffic from them to the Canal.

3rd. They would cause some delay to the passenger boats, but if properly constructed the boats could pass through them in one minute I know of no other objection to the carrying it on a high level, excepting that beforementioned of having to pump the water, which however, is not really a objection because it involves less expense than the alternative. Thus the small amount of excavation and the moderate height of the Canal level above tide water, with the small extent of highly improved land required render this probably a cheaper line than the others.

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The 4th point has been shewn in what is written above. Hardly any valuable property will be interfered with. The line will require the removal of a considerable quantity of buildings near the Coom, but they are all of small value.

The 5th point that it can be done most quickly is also involved in the 3rd that it will be the cheapest. The works required will be,

2 Locks

8 Bridges of which one is a large one.

Perhaps 10 tunnels about 1,80,000 Cubic yards of earth-worth.

7 Miles of fencing a Steam Engine of 10 Horse power.

With respect to the locks I must state that I do not agree at all with the late Superintendent of the Coast Canal, in giving them a width of 20 feet. *There is not the least use in having wide boats.* No one advantage is gained by them, while there is every disadvantage; they offer more resistance, they incumber the Canal more and in many ways needlessly cause an increase of expense. The natives use them because they know no better, and instead of teaching them we learn from them. If there were no other reason for using narrow locks, I think this would be quite sufficient to compel the natives to use a proper form of boat, that is a boat that can be worked cheaply. A boat can be made of any length without an increase of resistance, and without an increased width of Canal. On the Rhone, in a strong Current the Steamers are 300 feet long, from which it may be inferred how long a boat may be used in a Canal. I would therefore make these locks at most 12 feet wide and I think 10 feet would perhaps be better, but I would make them 150 feet long. They would then (with 10 feet) accommodate boats carrying 30 tons to the foot of draft, or 120 tons on a draft of $4\frac{1}{2}$ feet. They should be made on the plan now adopted in England, by which they can be filled and emptied in a few seconds, and thus cause very little delay even to Passenger boats.

There would be though objection to these narrow locks that many of the present boats could not pass through, but I consider it absolutely necessary to put a stop at some time to the present form of boats which are insufferable, and whenever this is done there will be some little inconvenience, but the sooner it is done, the less there will be. The present boats will have the use of the Canal for which they were built, and this is undoubtedly the time for introducing a new form, when a new Canal is opened. The effect of these narrow locks in the Southern Canal will be that the Southern part of Madras will be chiefly supplied from the Southward but the new boats can also work in the Northern Canal if the owners like it. And on the Northern Canal I would take immediate steps, by putting a prohibiting tax in width beyond 9 feet, to prevent any more boats being built on the present form. At the same time the Government should I think build some properly formed Canal boats as specimens to show the natives what kind of form is suitable for Canals. To continue to make unnecessarily expensive Canals and locks, because the natives who have had no means of learning how to work a Canal, use badly formed boats, is insufferable. It is in fact one of those fundamental errors which have so pervaded our management of India, that is, learning from the natives how to do things wrong, when we ourselves know better, instead of teaching them how to do things right.

I can of course only give here a very rude estimate of the cost of this line, but it may be.

	Rs.
2 Locks 10 feet x 150 and 8 feet lift @ 15,000	30,000
1 Large bridge	15,000
7 Small do. @ 8,000	56,000
10 Tunnels @ 1,000	10,000
180000 Cubic yards of earth @ 3 annas	34,000
Engine of 10 Horse Power	6,000
Sundries	20,000
50 Cawnies of land @ 1,000	50,000
Compensation for buildings	50,000
Dredging Black Town Ditch &c., as in Lieutenant Chamber's Estimate	22,000

Total Company's Rupees... 2,93,000

of course this is only meant to help any person to judge of the probable cost.

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I however by no means rest the matter upon the probable cost. The main principle I wish to urge is that the Canal should be cut where it is wanted even though it cost a great deal more.

It must be remembered that when the Southern Coast Canal is carried on to Cuddalore 60 miles and so connected with those of Tanjore, thus connecting all South Arcot, Tanjore, Trichinopoly and Coimbatore with Madras the traffic both in goods and Passengers must be prodigious. Even on the Northern Canal, without even a road to connect its northern end with Nellore or any other point on the Northern road, the traffic is now I believe about 1,20,000 tons a year, besides Passengers, so that we may be sure the Southern traffic will far exceed that. Besides, there is no great town to the northward like Pondicherry to the Southward, nor any minor towns along the coast (except Nellore,) like Cuddalore, Porto Novo, Cumbaconum, Nagore and Negapatam, besides the inland Cities of Tanjore and Trichinopoly and the vast population of the Delta of the Cauvery, between which and Madras there will certainly be immense intercourse in Passengers, when Steamers are running at 8 or 10 miles an hour, and carrying at 1 pie or 2 pice a head per mile, or at 1 or 2 Rupees for the whole distance so that we are in little danger of over estimating the traffic on this line of Canal, while on the other hand we are always in danger of not duly considering the extent of the changes that will be effected by the works we may propose to execute. A communication connecting several Millions of people, which reduces the cost of traffic both in goods, and Passengers, to $\frac{1}{4}$ or $\frac{1}{5}$ of what it has hitherto been, will produce so fundamental a change that the effects of it cannot be fully foreseen.

I cannot conclude this paper without again referring to the branch Canal on the North face of Black Town; I considered this an essential work, far more so than the extension of the Railway along the same line for this obvious reason, that the cost of carriage by the latter so nearly approaches to that by the common roads that it is of comparatively little importance whether the goods were carted from where the Railway crosses the Canal or from the beach, but two miles of carting costs as much as 20 or 30 miles of Canals transit, and moreover the quantity of goods brought by the Canal is about 4 times that brought by the Railway, and this disproportion will certainly increase as they are both extended, on account of the great difference of cost by the two.

My mode of estimating the value of this Canal is this. I suppose that judging from the traffic on the Northern Canal its present isolated state, while it yet forms no part of a great line of communication extending into the country so as to connect the seat of Government and port with several Millions of people; I suppose, that we need not look forward many years in order to allow for 2,00,000 tons of goods nor need we do so to allow for 3,000 Passengers a day passing along it. We may suppose that all these pass on an average along 2 miles of the 3 $\frac{1}{2}$. The saving on the goods may be safely taken at 2 annas a ton a mile, and that of the Passengers at 2 pice a mile per head. The latter supposes that each pays 1 pie a mile, and that they would on average willingly pay 2 annas to go for instance from Triplicane to Black Town and back 8 miles, travelling without fatigue, in the shade and at 6 miles an hour.

The estimate would then be 2,00,000 tons at 4 annas	- - -	Rs.... 50,000
1 Million Passengers at 4 pice	- - -	" 20,000

Saving per annum	Rs.... 70,000
or upon 3 lacs...	23 per cent.

This may help to enable any person to form a judgement of the value of this work, it cannot do more. The main value of it probably will be in its completing the communication between the South and Madras, and so leading to so much greater use of the Southern Canal, than would be made of it, if goods had to be landed at the Adyaur far from the City and carted from an out of the way place to where they were to be used.

In connection with this scheme, I would beg strongly to urge the cutting of two or three branches so as to still further provide Madras with water lines of transit, and take the traffic both in goods and Passengers off the roads. The line along the North face of Black Town, I have already spoken of. If a breakwater is constructed especially, the beach at Clive's Battery would probably be sheltered, and the goods could be shipped direct from the Canal basin there.

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Another line I would propose would be from the north point of the Adyaur backwater near the Beach, through Saint Thome, to the open space near the Ice House and thence to the main Cut, as shewn in the accompanying plan in red. It will be seen that if these Cuts are made Poorsewauk will be almost the only populous part of Madras that's more than half a mile from water carriage.

It will of course be an essential part of this scheme that there should be frequent widenings in the Canal and public landing places, with space sufficient for storing firewood &c. and for loading bandies. I look upon it as a most serious mistake that these have not already been provided along the Black Town ditch and the Cooum, for it is evident that these, with the clearing out of those lines, are essential to the full development of the traffic on the Northern Canal, and rapidly as that is increasing, it would certainly have been much more rapid, had these arrangements been made to encourage the discharge of the boats in various places in the heart of the population. It is indeed by such small matters as this, that great works are made thoroughly effective, and from inattention to them, great works however well planned are often not half so productive of benefit as they might be.

I should observe that the proposed line of Canal does not involve more interference with private property than the new roads to the Cathedral and to the new Cooum Bridge have required.

(Signed) A. T. COTTON, Colonel,
Commandant of Engineers.

ORDER THEREON, No. 439; dated 7th March 1857.

No. 79.

In pursuance of the requisition of Government contained in para. 3 of Extract Minutes Consultation 21st January 1857, No. 147, the above letter lays before them a Memo. by Colonel A. T. Cotton stating his views as to the best line to be followed, to effect a junction of the North and South Canals by the union of the Cooum and Adyar rivers. The scheme submitted by Colonel Faber, on the 10th May last was dependent on the restoration of the Pommel tank, and contemplated a cut from the Cooum in a south westerly direction through Nungumbaukum and through the Long tank to the Adyar river; the whole project with subsidiary works being estimated at 2,92,400 Rupees. Colonel Cotton would reject this line, and take a more direct and hence a shorter one, from the Cooum near the back of Ashton's shop in a direction nearly Southerly, to the Adyar river a little to the west of the Elphinstone bridge; this line he would select for several reasons, but chiefly because it would run through the most populous parts of Madras, is likely to be the cheapest as it is the shortest, and could be done in a very short time, while it is perfectly independent of the Pommel tank project. It is roughly estimated to cost 2,93,000 Rupees, other improvements of a minor character are also brought forward to give full effect to the undertaking.

2. Before taking the project into consideration, however, the Government would wish the subject to be considered by the Committee appointed in Extract Minutes Consultation of the 13th Ultimo, to scrutinize and verify Lieutenant O'Connell's project in connection with the Pommel tank. They accordingly resolve to refer the whole subject to this Committee; and on the submission of a report by them, as to the relative merits of the line formerly proposed by Colonel Faber and that advocated by Colonel Cotton, the Government will be prepared to give the subject their consideration, with the advantage of further professional opinions upon it.

(Signed) H. FORBES,
Acting Secretary to Government.

Memorandum by the Commandant of Engineers
on the proposed Madras Canal, to connect the Northern
and Southern Canals, prepared in obedience to
Mr Secretary Dourdillon's letter of the 21st January
1857. —

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Railway

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Railway for instance, in carrying it ^{not} ~~was~~ ^{time} the found on its route, where the masses of the people are that would use it, but this uninhabited country near them where the Railway can be made cheaply, but where there are scarcely any people to make use of it. — We must remember continually that our object is not to make a Canal, but to carry people and goods cheaply from where they are, to where they should be. — At present if Rice is wanted in Triplicane, it is brought perhaps from Dofooranykatam 70 Miles to the Northern Canal Basin for about one Rupee a ton, I believe, and then carried on horse or bullock 4 miles by land at somewhere almost another Rupee, thus nearly doubling the cost because the Canal has not been carried to the place where the people live for whom it is worked.

Besides this there is however another point of essential importance. One of the great desiderata for this struggling City is cheap and expeditious means of locomotion for its 3 Millions of people, within its limits. The value of a water communication through its masses along its line of greatest length would be great, and scarcely inferior if at all.

all to that of the landing of goods from the Country. —

My view therefore of this matter is, that almost whatever the cost may be we ought to carry the Canal where it is wanted. — But it seems to me to happen in this case as it does so generally, that the right line is in every respect the most advisable line. —

The line I propose therefore is the direct line from the Adyar to the Coorn, that is from the end of the Southern Canal, to the nearest point of the Coorn near Ashton's shop, varying only a little from a straight line. —

My reasons for proposing this line are

- 1st It goes where it is wanted through the population —
- 2nd It is the shortest line —
- 3rd It is probably the cheapest —
- 4th It will interfere with hardly any very valuable property —
- 5th It can be done most quickly —
- 6th It is independent of the Comm. Bank or any other project. —

A line of Canal from the Northern Canal Basin, by the Black Town (Pitot), the Coorn and then line to the Adyar —

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passing along most part of that line,
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several thousands in wheeled Carriages.

On the 3rd point. I would
not cut it thro' to Side water, but would
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This would of course involve pumping
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vide for the Lockage, but this would
not entail a great expence. -

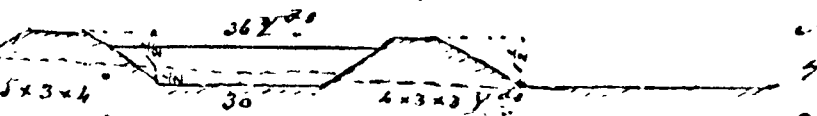
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of this sort to go into the calculation of
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for the 3 1/2 Miles, which is far less
than the interest of the additional
expence of cutting a deep Canal. -

The advantages of this mode
of execution would be;

1st

the whole project was carried

1st It would destroy so small an extent of land. The whole breadth for the Canal including Indian Reserve need not exceed 50 yards at the utmost.



I do feel sure that so great a breadth will be necessary.

or 14 Carries per mile, 50m all at 1000 Rupees a Carrying 50,000 Rupees.

2nd It would not interfere with the drainage.

3rd It would always be clean.

4th It would be more convenient for landing and shipping.

5th There would be no high spoil banks to intercept the air.

6th The cost of execution would be very small. The main excavation would probably not exceed 20 square yards of section, 126,000 Cubic Yards in 3 1/2 miles, (besides the excavation for the locks) and this raised only to a trifling height.

7th It could be done in three or four months.

The only objections to this mode of carrying it in a high level seem to be

1st That it would be some obstruction to the roads that cross it. - To this I reply that the only great thoroughfare is the Mowah road, and for this the Canal

would be

might be cut down to the level of the Crown, and the Lock made on the South side of the road, so that there need be little or no rise on this main line of road, and for the other road by flat bridges and long slopes such as Mr. Kennedy has given to the Southern Railway Bridge road, this obstruction would become insignificant and certainly not to be compared to the relief given to the roads by the transfer of such an enormous amount of traffic from them to the Canal. They would cause some delay to the Passenger boats, but if properly constructed the boats could pass them in one minute. - I know of no other objections to the carrying it on a high level, excepting that before mentioned of having to Pump the water, which however is not really an objection because it involves less expense than the alternative. - Now the small amount of excavation in the moderate height of the Canal level above tide water, and the small extent of highly improved land under this probably a cheaper line than the others. -

The 4th point has been shown in what is written above. Hardly any valuable

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valuable property, ^{will be} interfered with. The line will require the removal of a considerable quantity of buildings near the Room, ^{thing} but are all of small value.

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2 Locks

8 Bridges of which one is a large one.

Perhaps 10 Tunnels

about 100,000 cubic yards of Earthwork

7 Miles of Fencing

a Steam engine of 10 Horse power

With respect to the Locks, Sumner states that I do not agree at all with the late Superintendent of the Coast Canal, in giving them a width of 20 feet. There is not the least use of having wide boats. No one advantage is gained by them, while there is many disadvantages; they offer more resistance, they encumber the Canal more and in many ways needlessly.

Canal

can be an increase of expense. The natives use them because they know no better, and instead of teaching them we learn from them. If there were no other reason for using narrow locks, I think this would be quite sufficient to compel the natives to use a proper form of boat, that is a boat that can be worked cheaply. A boat can be made of any length without an increase of resistance, and without an increased width of Canal. On the Rhone, in a strong current the steamers are 300 feet long, from which it may be inferred how long a boat may be used in a Canal. I would therefore make these locks at most 12 feet wide and I think 10 feet would perhaps be better, but I would make them 150 feet long. They would then (with 10 feet of accommodation boats carrying 30 tons to the foot of draft, or 120 tons on a draft of 1 1/2 feet. They should be made on the plan now adopted in England, by which they can be filled and emptied in a few seconds, and thus cause very little delay even to passenger boats. There would be the objection to those ^{narrower locks} that many of the present boats could not pass through, but I consider it absolutely necessary to put a stop at some

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some time to the present form of boats which are insufferable, and whenever this is done there will be some little inconvenience but the sooner it is done, the less there will be. The present boats will serve the use of the Canal for which they were built, and this is undoubtedly the time for introducing a new form, when a new Canal is opened. The effect of these narrow locks in the Southern Canal will be, that the Southern part of Madras will be chiefly supplied from the Southward but the new boat can also work in the Northern Canal if the owners like it. — And on the Northern Canal I would take immediate steps, by putting a prohibiting tax on width beyond 7 feet, to prevent any more boats being built on the present form. At the same time the Government should attempt to build some properly formed Canal boats as specimens to show the natives what kind of form is suitable for Canals. It is now time to make unnecessary expenses in Canals and Locks, because the natives who have had no means of learning to work a Canal, use badly formed boats, is insufferable. It is in fact one of these fundamental errors which have so perverted our management of India, that is, learning from the natives how to do things.

things wrong, when we ourselves know better, instead of teaching them how to do things right.

I can of course only give here a very rude estimate of the cost of this line, but it may be:

2 Locks 10 ft x 150 ft lift @ 15,000 Rs.	30,000
1 Large Bridge	15,000
7 Small do @ 8,000 Rs.	56,000
10 Tunnels @ 1,000 Rs.	10,000
180,000 cubic yards of Earth @ 3 Rs.	540,000
Engine of 10 Horse Power	8,000
Undries	20,000

50 Acres of Land @ 1,000 Rs.	50,000
Compensation for Buildings	50,000

Dredging Black Town	
Ditch ~~year~~ as in List	
Chambers' Estimate	22,000
Total Cost	223,000

Of course this is only meant to help any person to judge of the probable cost.

However, by no means rest the matter upon the probable cost. The main principle I wish to urge is that the Canal should be cut where it is wanted even though it is

Cost the whole project on its own merits.

cost a great deal more.

It must be remembered that when the Southern Coast Canal is carried on to Cuddalore 60 Miles and so connected with those of Tanjore, thus connecting all South Arcot, Tanjore, Trichinopoly and Coimbatore with Madras the traffick both in goods and Passengers must be prodigious. Now on the Northern Canal, without even a road to connect it with Madras or any other point on the Northern road, the traffick is now ~~about~~ about 1,20,000 Tons a year, besides Passengers so that we may be sure the Southern traffick will far exceed that. — Besides, there is no great town to the Northward like Pondicherry to the Southward, nor any mountains along the coast (except Malabar), like Cuddalore, Porto Novo, Cumbacorum, Nagore and Negapatam, besides the inland cities of Tanjore and Trichinopoly and the vast population of the Delta of the Cauvery, between which and Madras there will certainly be immense intercourse in Passengers, when steamers are running at 8 or 10 Miles an hour, and carrying at 1 p. or 2 p. a head per Mile, or at 1 or 2 Rupees for the whole distance. So that we are in little danger

danger of overestimating the traffick on this line of canal. — while on the other hand we are always in danger of not duly considering the extent of the changes that will be effected by the work we may propose to execute. A communication connecting several Millions of people which reduces the cost of traffick both in goods and Passengers, to 20 or 30 of what it has hitherto been, will produce so fundamental a change that the effects of it cannot be fully foreseen. —

I cannot conclude this paper without again referring to the branch canal on the North face of Black Town; I consider this an essential work, far more so than the extension of the Railway along the same line for the obvious reason that the cost of carriage by the latter is nearly approached to that by the common roads that it is of comparatively little importance whether the goods were carted from ^{where the Railway is} the Canal or from the beach; but two Miles of carting costs as much as 20 or 30 Miles of Canal transit, and moreover the quantity of goods brought by the Canal is about 4 times that brought by

the whole proposed canal.

by the Railway, and thus disproportion
will certainly increase ^{as they are both}
extended, on account of the great dif-
ference of cost by the two. —

My mode of estimating the value
of this Canal is thus. I suppose that
judging from the traffick on the Northern
Canal in its present isolated state,
while it yet forms no part of a great
line of Communication extending into the
Country so as to connect the Sea of Cochin
and Port with several Millions of people;
I suppose, that we need not look for-
ward many years in order to allow
for 20,000 Tons of goods nor need
we do so to allow for 3,000 Passengers
a day passing along it. We may sup-
pose that all these pass on an average
along 2 Miles of the 3½. The saving
on the goods may be safely taken
at 2 Annas a Ton a Mile, and that of
the Passengers at 2 Pice a Mile per head.
The latter supposes that each pays
1 Pice a Mile, and that they would
on average willingly pay 2 Annas to go
for instance from Triplicane to Black
Town and back 8 miles, travelling
without

without fatigues, in the shade and at
6 Miles an hour.

The Estimate would then be
20,000 Tons at 4 Annas — Rs 50,000
1 Million Passengers at 4 Pice — 20,000
Saving per Annum Rs 70,000
or upon 3 Lacs — 23 per Cent

This may help to enable any person to
form a judgment of the value of
this work, it cannot do more. The main
value of it probably will be in its com-
pleting the Communication between the
South and Madras, and so ~~producing~~ leading
to so much greater use of the Northern
Canal, than would be made of it,
if goods had to be landed at the
Ulyan far from the City and carried
round in out of the way places to where
they were to be used. —

In connection with this
scheme, I would beg strongly to
urge the cutting of two or three canals
so as to still further provide Madras
with water lines of transit, and take
the traffick both in goods and Pas-
sengers off the roads. The line along
the North Face of Black Town I have
already spoken of. If a breakwater is con-
structed especially, the beach at Oliver's Battery

would
the whole project now sail

would probably be sheltered, and the goods could be shipped direct from the Canal basin there —

Another line I would propose would be from the North point of the Old, and Back-water near the Beach, thro' Saint Thomas, to the open space near the Ice House, and thence to the main cut, as shown in the accompanying plan in red. — It will be seen that if these cuts are made Poorewanck will be almost the only populous part of Madras that is more than half a mile from water carriage. —

It will of course be an essential part of this scheme that there should be frequent widenings in the Canal and public landing places, with space sufficient for storing firewood &c and for loading bandies. I look upon it as a most serious mistake that these have not already been provided along the Black Town detour and the Coorn. For it is evident that these, with the clearing out of those lines, are essential to the full development of the traffic on the Northern Canal, and rapidly as that is increasing, it would certainly have been much more rapid, had these arrangements been made to encourage the discharge of the boats in various places in the heart of

of the population. — It is indeed by such small matters as this, that great works are made thoroughly effective, and from inattention to them, great works however well planned are often not half so productive of benefit as they might be. —

I should observe that the proposed line of Canal does not involve more interference with private property than the new roads to the Cathedral and to the new Coorn Bridge have required. —

D. Cotton Esq.
Commandant of Eng^rs Office, Com^d of Eng^rs
Fort St George.
27th January, 1857. —

the whole project on the subject.

12th 1822/54

Enclosed in a letter from
Lieut. Col. S. J. P. of the Engineers
of 23rd Decr 1857

Let send me up at
once 5 Copies, as many
as there are of the Printed
Memorandum by Col
H. Cotton on the changes to
and Dabul (common
junction Canals
and the plan received.

your river,
the whole project with subs.

Cornst. of Eng^{rs} Office -

N^o 318. -

15

From,

Sicent^l H. R. D. Prendergast -
Off^r Asst^t of Engineers. -

To,

J. D. Bourdillon Esq^r. -
Sec^y to Govt in the
Revenue & P. & W. Depart^t. -

Sir,

I have the honor by
desire of the Commandant of
Engineers to forward his Memo.
on the proposed Madras Canal
to connect the Northern and
Southern Canals prepared
in obedience to your letter
of the 17th instant, together
with a Plan illustrative of
it. -

I have the honor to be,
Sir,

Fort St George,
27th January, 1857. -

Your most obed^t serv^t,
H. R. D. Prendergast
Off^r -

Off^r Asst^t of Engineers -

only 10/100 received
in 1857 10/100
4/10/57

7
tank on to the Adyar river,
the whole project on the sube.

limited - 2 a boulevard
 made along the canal -
 second demand will be
 the proposal submitted for
 1857 & 1858, but he appears
 where from I am afraid
 cannot possibly be
 before the 1st of August.
 The second demand, the one
 in relation to the canal
 as would be the case
 when the canal is
 finished. I would not
 have any to be done
 but I would not
 think that it will be

N^o 409 P.W.D.

Extract from the Minutes of Consultation.
 Under date the 7th March 1857

Read the following
 letter from the Officer
 Adjutant of the Engineers.
 (1857 March 27 Long 57 N^o 518)

In pursuance of the
 requisition of Gov^t contained in
 para 3 of 24th Mins: Cons: 21st
 Jan^y 57, N^o 147, the above letter
 lays before them a Memo by
 Col A. J. Cotton stating his
 views as to the best line to be
 followed, to effect a junction
 between of the north and south
 Canals by ^{the union of the} connecting the Coom
 and Adyar rivers. The scheme
 submitted by Col Faber on the
 10th May last was dependent
 on the restoration of the Ponne
 Tank, and contemplated a
 cut from the Coom in a south
 westerly direction thro' the
 bankum and thro' the long
 tank to the Adyar river;
 the whole project with subje

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W

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diary, works being estimated
at 2,92,400 Rs. Col Cotton
would reject this line, and take
^{more direct} ~~a shorter~~ and hence a ^{shorter} ~~more direct~~
line, from the Corum near the
back of Ashton's shop in a ^{direction} ~~very~~
nearly southerly, ~~direct~~ to the
Koyar river a little to the west
of Elphinstone bridge; this line
he would select for several reasons,
but chiefly because it would run
through the most populous parts of
Madras, is likely to be the cheapest,
as it is the shortest, and could be
done in a very short time, while
it is perfectly independent of the
Ponmeltank project. It is rough-
ly estimated to cost 2,93,000 Rs.
Other improvements of a minor
character are also brought for-
ward to give full effect to the
canal undertaking.

Before taking the project
into consideration however, ^{as to the} ~~the~~
difficulties to be encountered, the
peculiar features, and the great
amount of labor involved.

the Govt would wish the sub-
ject to be considered by the
Committee of ~~Officers~~ ^{officers} ~~affin-~~
ed in Ex. Mins. Cons. of the
13th ^{Regiment} ~~Engrs~~, to scrutinize and re-
spond to Mr O'Connell's project in
connection with the Ponmeltank.
They accordingly resolve
to refer the whole subject to
this Committee; and on the
submission of a report by them,
as to the relative merits of
the line formerly proposed
by Colonel Baker
and that advocated by Col
Cotton, the Govt will be prepared
to give the subject their considera-
tion, with the advantage of
further
combined professional opinions
before ~~there~~ upon it.

B.S.

Copy to Col Cotton. Faber
Major G. Lawford - Chief Engr.
G. - Chief Engr.

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