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Fort Saint George, Public Works Consultation of 13th July 1858.

No. 17. Read the following letter from Colonel C. E. FABER, Chief Engineer; to H. FORBES, Esq., Acting Secretary to Government, dated 27th April 1858, No. 9339.

SIR,

1 Letter, No 1045, dated 7th April 1857, from Collector of Malabar.
1 do. „ 593, „ 30th Sepr. 1856, from District Engineer of Rajahmundry.
1 do. „ 41, „ 22nd Decr. 1856, from Collector of Canara, with 1 enclosure.
4

Government being in possession of the views of the local Officers respecting the tolls which should be charged on the Canals in the Rajahmundry, Canara, and Malabar Districts, I have now the honor in accordance with the instructions contained in Extract Minutes of Consultation No. 134, dated the 26th January 1858, to report as to the general principles which should regulate the levy of tolls on Canals.

2. In this matter, there are only two questions in which the guidance of general principles is required.

1st. The amount of toll to be charged.

2nd. The manner in which the toll should be collected.

3. With respect to the first point, the District Engineer of Rajahmundry adopts the principle of proportioning the toll to the average cost at which the goods are moved, or as he terms it, to the "cost of traction" this "cost" it must be observed does not include the interest of any expenditure incurred on the Canal or on the boat, but only the cost of imparting motion to the latter, whether that motion be produced by men, by animals, or by steam power.

Vide Letter from the District Engineer, No. 593, dated 30th September 1856, forwarded to Government with the Chief Engineer's letter, No. 7343, dated 18th October 1856.

4. The Collector of Canara does not enunciate any principles.

No. 41, dated 22nd December 1856.

5. The Acting Collector of Malabar supports that of charging according to the value of the Canal, as a means of communication, *i. e.*, where a Canal connects two important navigations, partly backwater and partly river, he would charge more than he would for another which connects inferior communications.

Vide Extract of Letter No. 1045, dated 7th April 1857, communicated to Government with the Chief Engineer's letter dated 28th January 1858, No. 6975.

6. In accordance with these views, he divides the Canals of Malabar into two classes, and recommends that 6 pice per ton per mile be charged on the first class, and 4 pice per ton per mile on the second class Canals; he does not however point out what principle of estimation induced him to fix upon 6 pice in the one, or 4 pice in the other case as suitable.

7. He appears however to have considered the subject, as he gives a list of articles carried by water, showing their value per ton, and states, "that such information is required in calculating the maximum rates of toll which can be borne by the traffic."

8. The District Engineer of Rajahmundry has in the application of his principle adopted as the basis of his calculations, the present cost of traction.

9. He does not allude to the great variations in the cost of traction due to the variations in the speed, with which boats propelled by steam may move, by this means he limits the generality of his principle.

10. Practically, however, the District Engineer of Rajahmundry recommends, that the toll shall be half the maximum present "cost of traction," on the boats used by the people of Rajahmundry; for he states the latter to be 1½ pice per ton per mile, and he recommends a charge of ¾ pice per ton per mile.

11. The rates of toll recommended by the Acting Collector of Malabar, are practically half the maximum and half the minimum limits respectively of his estimate of the average cost of water carriage in Malabar; for he states in para. 3 of his letter, that this average is from 8 pice to 1 anna per ton per mile, while in para. 9 of the same letter, he recommends 4 and 6 pice as suitable rates of tolls.

12. I presume that Mr. Robinson includes in his estimate of the cost of carriage, the boat owner's profit, as well as a remuneration for the use of his boat if so, his amount is of course much greater than the mere "cost of traction."

13. There is no doubt but that the real principle whereby the amounts of tolls should be regulated is the following.—"The toll to be the smallest which will suffice to cover the expenses of maintaining the Canal navigable," and afford a moderate interest on the capital laid out in establishing and maintaining the work.

14. This is all that Government should demand.

15. There is however a practical difficulty met with in determining what this minimum amount is in each case arising from the uncertainty as to the number of tons of goods which can be carried without ruin to their owners, and of persons who can afford, and who will travel when any particular toll is imposed.

16. If we could certainly affirm that by charging a toll of 6 pice per ton a mile for goods and passengers, taking one passenger as equal to say $\frac{1}{16}$th of a ton, 10,000 tons, and 16,000 passengers would annually move over every mile of the Canal, we should of course know that the toll would realize to Government about Rupees 345 per mile per annum, again if we could as readily assert, that by reducing the toll to 4 pice the number of tons carried would be increased to 20,000 and the number of passengers to 32,000, we should know that the tolls would at this rate realize about Rupees (460) four hundred and sixty per mile per annum, and that it would be better for Government, as well as for the Public, that the charge should be 4 pice than that it should be 6 pice per ton per mile.

17. As we cannot obtain this knowledge, however, except by experience in each particular case, we cannot decide at once on "general principles" what should be charged in every particular case, this fact is sufficiently illustrated by the reports now submitted by the District Engineer of Rajahmundry, and by the Acting Collector of Malabar, where one recommends 6 and 4 pice per ton per mile, and the other only $\frac{3}{4}$ of a pice per ton per mile.

18. The difference in the experiences of these two Officers sufficiently accounts for the differences in the results to which they have separately arrived.

19. The known difficulty of judging before-hand what the amount of traffic on any particular Canal will be when that traffic is fully developed, suggests the advisability of leaving the navigation of every new Canal free for, say three years after its completion, a moderate toll may then be charged. I think 2 pice per ton per mile sufficient to answer in most cases the purpose of reimbursing Government without preventing the public from making free use of the Canal.

20. I would however recommend its being lowered to 1 pice per ton per mile on Canals leading to large Cyties (as for instance to Madras) or forming parts of an extended system of Canals as in Rajahmundry.

21. In situations where a very important traffic cannot spring up, while at the same time some traffic does take place along common roads, it would doubtless be preferable to construct a Canal and charge a toll of, say 4 pice a ton a mile to omitting to do so, because a charge of 2 pice a ton a mile would not afford a sufficient return for the expenditure of the necessary capital.

22. Mr. Robinson's principle of charging a higher rate of toll per ton per mile on important Canals than on minor ones, is in one point of view, obviously erroneous; the greater the traffic the smaller in general is the toll required to make the Canal remunerative.

23. The second point to be considered is "the manner in which the toll should be collected."

24. On this point the District Engineer and the Collector of Rajahmundry and the Collectors of Canara and Malabar are agreed, that it is better to charge a toll than to levy a tax on boats.

25. The strongest argument against levying a toll is, that it would not press equally on all boat owners, those who could make constant use of their boats would of course benefit at the expense of those who could not do so.

26. I am inclined to prefer this mode of taxation, but I do not think it advisable to adopt it in newly formed navigations on account of its tending to discourage enterprise.

27. In all such navigations I would prefer the plan of charging a toll, although I am fully alive to the inconvenience attending that plan.

28. In concluding this report, I would recommend that 1 pice per ton per mile for goods and passengers be charged on the Rajahmundry Canals, but that no charge be yet made either in Canara or Malabar, as the Canals in those Districts are not yet in sufficiently good a state to render it advisable to do so.

Letter from W. ROBINSON, Esq., Acting Collector of Malabar; to Colonel C. E. FABER, Chief Engineer, dated Calicut, 7th April 1857, No. 1045.

SIR,

With reference to the Extract Minutes of Consultation under date the 28th January last, I beg to submit the following information.

2. The navigable Canals of the District are shewn in the margin with their mileage cost of construction, (its rate per mile) the average cost of present maintenance, and, as far as it has been ascertained, the traffic on each.

		Distance in miles.	Cost of construction.			Average cost of maintenance per annum.			Average No. of boats in the year.
			Average rate per mile.	Total.		Rate per mile.	Total.		
1	Sultan's Canal	3	.....	.....		100 0 0	300 0 0		...
2	Badegherry do.	3	263 10 8	791	0 0	75 0 0	225 0 0		..
3	Pyolly do.	1½	796 10 8	1,195	0 0	50 0 0	75 0 0		..
4	Conolly do.	6	3,226 10 8	19,360	0 0	75 0 0	450 0 0	*	5,400
5	Cooty to Tanoor and Pooraparamba	15½	1,226 14 4	19,017	0 0	75 0 0	1,162 8 0		2,630
		15	827 5 4	12,410	0 0	50 0 0	750 0 0	*	8,000
6	Ponany and Chowghaut	1	.....	.....		.....	.....		..
7	Edaterooty Canal	1	2,350 7 4	2,350	7 4	200 0 0	200 0 0		..
8	Calicut bazar Canal								

* The number of boats has been assumed with reference to the navigation of 2½ months. No. 220.

3. An approximation average of the cost of the various descriptions of carriage per ton per mile in the District is likewise given. The average cost of water carriage per ton per mile in Malabar may be taken at 8 pies to 1 anna.

Description of Carriage by land.	Rate per ton per mile.
Carts	0 4 10
Bullocks	0 4 11
Coolies	0 9 11

4. The principal articles which are carried by water are also shewn with their value per ton, great difference of value naturally exists, but such information is required in calculating the maximum rates of toll which can be borne by the traffic.

Description of Articles.	Average value per ton.
Cocoanut wet	37 8 0
Do. dry	80 0 0
Paddy	45 0 0
Stones	0 14 0
Coir yarn	80 0 0
Ginger	140 0 0
Piece goods	650 0 0
Pepper	400 0 0
Arecanut	65 0 0
Hemp	180 0 0
Cadjans	16 0 0
Sappan wood	65 0 0
Arrow root	80 0 0
Turmeric	160 0 0
Mimosa Absteigrus	40 0 0
Coculus Indicus	40 0 0
Salt	32 8 0
Ghee	400 0 0
Chillies	112 0 0

5. The present Canals in Malabar are wholly unconnected with irrigation of the country and are purely for navigation purposes, they connect the five backwaters of the coast and the estuaries of our rivers and they would if carried out on an adequate scale form the connecting links of one of the first chains of inland water communication to be met with, perhaps of 600 to 800 miles, navigable rivers inclusive. The expense of repair and improvement and profits on the capital expended and to be laid out must therefore be levied by a toll and in a country so thriving and enterprizing as Malabar, these works must gradually become very remunerative.

6. It is only necessary to mention that the ferries of the coast let at 36,000 Rupees per annum (the interest of upwards of 7 lacs) to shew what might be laid out on the Canals with certainty of remunerative returns.

7. The tolls on these Canals must be let to contractors as the most economical and safest system and that least open to abuse. A Malabar Ryot will bear a good deal from a Government servant, but he complains readily of an over-exaction on the part of the contractor.

Under	1	ton	to pay	1	ton.
Above	1	& under	3 „	3	„
„	3	„	5 „	5	„
„	5	„	8 „	8	„
„	8	„	10 „	10	„
„	10	„	15 „	15	„
„	15	„	20 „	20	„
„	20	„	30 „	30	„
„	30	„	50 „	50	„
„	50	„	75 „	75	„
„	75	„	100 „	100	„

8. The classification of the boats in use will be very easy, and I would propose to rate the boats and charge toll as shewn in the margin, and I would leave it optional with boat-owners to apply for official measurement which together with the registered number of the boat might be cut in a conspicuous part on the bows.

9. The question of putting differential rates on the different Canals is clearly one of importance. The respective value of our Canals to the traffic of the country depends very much on the extent of natural navigation, they connect and make continuous E. G. the short Pyolly Canal of 3 miles in length, connects 30 to 40 miles of natural navigation (river and backwater) on either side of it and thus completes a communication of 60 or 70 miles and is therefore of very great value, and a heavy toll for passing the Canal would be almost nill when spread over the whole length of communication available to the craft which used it. The Conolly Canal of 6 miles connects 40 miles of river and natural backwater carriage to the South with 25 or 30 miles of the same to the North, and being close to Calicut its accommodation is worth far more than that of the Tanore and Cootay Canal which cannot as yet be termed a "thorough communication" at all. This latter when completed, though most valuable to the country through which it passes and indispensable to the great chain of water communication does not make available more than 30 or 40 miles of natural water carriage beyond its own length. A boat passing its entire length will pay a heavy toll for comparatively short accommodation. The Chowghaut Canal on the other hand is constructed to connect the Ponany river with the harbour of Cochin, and with Cochin and Trevándrum backwaters and when in a thoroughly effective state must become a most valuable work as leading from the Railway station near Cootay to Cochin and making available by its short course of 15 miles at least 100 miles of freeest backwater and river communication. Here again is a Canal that would bear a higher rate of toll; and I would classify the existing Canals as per margin.

Pyolly.	At first class and highest rate.
Conolly.	
Chowghat.	
Calicut Bazar when opened.	
Sultan.	2nd class rate.
Badagherry.	
Tanoor.	
Edatirty.	

With reference to these points a somewhat differential rate on the different Canals will be desirable. A rate of 6 pies per ton per mile would not be an excessive charge for the 1st class Canals, and 4 pies per ton per mile for those which labor under the disadvantages above mentioned.

10. I must now add that I do not consider any one of the Canals in Malabar in a state of completeness and efficiency at all times such as to justify a toll being put on them at once. I venture to append a copy of my remark on the subject of Malabar Canals forwarded with the Budget of 1857-58. The Canal nearest to a state of completion is the Pyolly, which perhaps only needs a proper lock at Pyolly; a work that would not cost above 3,000 Rupees, and some corners &c., require to be removed to give a better sweep. The next is the "Conolly" Canal near Calicut, but it needs finishing and deepening in some places, and the construction of good commodious locks at either end to obviate the necessity at present existing of throwing dams across both ends to keep out the salt-water during certain seasons. The little locks now existing are a sad impediment to traffic, and limit the size of boat used to a description which could scarcely ply, were a toll of any adequate rate put on the boats. An outlay of 1,500 Rupees per mile, 9,000 Rupees would make this a most effective and remunerative work.

11. A small toll might as an experiment however, if urgently wished, be even now put on these two works.

12. The other Canals could not be fairly tolled in their present state. The Tanoor Canal is as a "thorough communication" incomplete and as far as it goes even, and requires great improvement. The line ought to be completed to Kadalhoondy 8 miles through the low coast land, the Pooraparamba-cut being abandoned, unless it be found that it will be possible to fill the Canal with fresh water through it from the Tirwangady river.

13. The Chowghaut Canal must be greatly improved and proper locks must be built. The Budagherry Canal is likewise not in an effective state throughout the year and only available at high tide.

14. Under these circumstances, I beg with reference to my remarks above alluded to, to recommend that prior to the imposition of any toll, the District Engineer be called on to examine and report on the whole line of fresh water and Canal communication estimating for all works that are required to complete the line of West Coast Canal on an adequate scale, and to prepare estimates for such works as are immediately required for the completion of those portions which should be made as shortly as possible subject to a toll, such as the improvement of the Budagherry Canal, Pyolly lock, locks and improvements for the "Conolly" Canal, to complete the Cootay, Tanoor and Kadalhoondy Canals and perfect with locks &c., the Chowghat Canal.

Letter from Captain F. H. RUNDALL, District Engineer, Godavery Division; to Colonel C. E. FABER, Chief Engineer, dated Dowlaiswerum, 30th September 1856, No. 593.

SIR,

With reference to your letter No. 5817, dated 15th Ultimo, I have the honor to submit the following remarks. The works included in the estimate No. 14 in list No. 1 of the Budget for 1856-57, amounting to Rupees 64,820, viz., the construction of two locks and two calingulahs in the Akeed Canal and the embanking the Weyaroo serve for irrigation as well as for navigation purposes.

2nd. 14,000 acres of land are now dependent on the cross-bank which is raised at the junction of the Weyaroo with the Oopootair, and 25,000 acres will eventually receive water from the same source, from which if the water-tax is fixed at 1½ Rupee per acre, a rental of Rupees 37,500 may be derived. It is to be regretted that this work should have been considered as a separate project, for it is an integral portion of the whole Delta improvements, and I would beg to point out that as all the Delta Channels are more or less connected with one another, their return for the outlay should be looked for, not from any isolated portion but from the whole system of works.

3rd. As a line of navigation, it is of great importance, leading as it does from the salt pans at Buntomillee to the Godavery on the one hand, and the Kistna on the other. The traffic along the Canal as taken at the Permiella Lock and Ellore amounts at present to about Rupees 50,000 tons per annum, exclusive of rafts. From the time that it becomes necessary to throw the bund across the Canal at Yaloorpad, the navigation from the salt river is closed for about 5 months of the year.

4th. It is impossible to tell what the expected traffic may be, but of this I am sure that it will be very large, as the whole of the salt required in the interior will be carried by this Canal across the Colair Lake to Bezwada and Ellore as well as to Rajahmundry and so up the Godavery as far as Budrachellum.

5th. The spontaneous salt formed at the Buntoomillee pans is of a fine large hard grain much esteemed amongst natives, and hitherto conveyed in large quantities on the Brenjary bullocks to all parts of the Deccan.

6th. With respect to the levying of tolls the subject divides itself into two points, viz., the amount that should be demanded, and the mode in which it should be levied.

7th. The first would seem to be limited to the actual cost of working, as distinguished from the actual charge made by the public carriers, as the latter is of course subjected to fluctuation according to the relative amount of demand and means of supply. The cost of traction is apparently the rule which guides the Legislative authorities in European countries in fixing tolls, and it may I am of opinion be made applicable here also.

8th. The actual cost of transit including interest on 1st cost on the Delta Canals, as far as I have been able to ascertain, varies according to the size of the boat from 1 to 1½ pie per ton per mile. In the Government boats which work rather more expensively, the cost is at the rate of about 2 pie per ton per mile. The average distance traversed by boats, varies from 30 to 40

miles; taking 32 miles as the standard, the cost of conveying 1 ton of goods that distance would therefore amount to 4 annas in small, and 2-8 pie in large boats. The toll to be levied therefore, should not exceed ¾ of a pie per ton. This would add to the cost of transporting a ton the above distance the sum of 2 annas. For empty boats I would propose a charge of ¼ of a pie per ton per mile. The sum usually paid in Europe is one shilling for each Lock passed.

9th. The present charge for transport amounts to between 4 and 5 pie per ton per mile on merchants' goods, though Contractors have till lately, and are still, but in diminished numbers working for the Government in transporting stone at 3 pie per ton. There seems but little likelihood of the charge being diminished below the last rate until the general introduction of steam power, as the demand for carriage is so much greater than can be supplied.

10th. The profits of the carriers are daily increasing by owing to the diminished cost of traction caused by using larger sized boats, which are now being every where built, for as the power for traction increases only as the square, the capacity of the boat increases as the cube, which ratio indicates the profit obtainable by the carrier when increasing the size of his boat.

11th. The 2nd point, viz., the mode of collection requires some consideration.

12th. There are two methods by which it might be effected, the one by assessing each boat at a certain annual rate and the other by collecting the toll at each Lock. The first would be less costly and diminish the openings for fraud and oppression, but would I think prove less convenient to the people at large, inasmuch as it would necessitate an annual assemblage at the Registrative Office, and a pre-payment of the tax in advance. The tax could only be framed by an approximate estimate of the work done by each boat, and as it would have to be paid by the owner whether his boat worked or not throughout the entire period, it would be felt to be an especial grievance in the event of his being by any cause prevented from plying throughout the whole 12 months. On the other hand if allowance be made for all such possible contingencies the amount of Revenue will be considerably diminished.

13th. I think therefore the system of levying tolls at each lock as practiced in England will be the preferable method. The toll might be farmed as the Turnpikes are, but I think it would be unadvisable to do so, as the practice would be sure to give rise to unlawful exactions, and therefore the method best adapted to the interests of both the Government and the people, lies in the collection being placed in the hands of the Government Officers. Establishments are already entertained at all the locks, and there is an European Overseer at every other lock, to whom an appeal can immediately be made in the event of any undue exaction being demanded by the Native Lock-Superintendant, an especial act providing against extortion of this kind coupled with a good system of check tickets, would I think obviate the objections which might otherwise weigh against this mode of collecting the toll. A cash ticket should be given by the Lock Superintendant to whom the payment is made, and this ticket should be delivered to the European Overseer at the next lock, who would furnish a "pass"—ticket for the lock below. At certain intervals, say each month, these cash tickets should be redeemed by the Superintendants, who have in the first instance passed them, by which means an effectual check will be kept on the receipts, as no boat could pass the lock at which the European Overseer lived, without possessing a cash ticket, which ticket would have to be redeemed by the party originally furnishing it, and which he could only do by having received its value in the first instance. By this means the cost of collection would be greatly diminished.

14th. I have calculated the toll on the estimate of the average trips of a boat being 32 miles, which is the distance of Dowlaisweram to Cocanada, and I would therefore recommend that payment at one lock should clear the boats of all locks within that distance, but whether the distance travelled be less or greater, the same rate shall be paid at the first lock through which the boat passes.

15th. In order to ascertain what the tonnage of each boat is, they should all be registered, numbered, and a ticket signed by the Registering Officer furnished to the owner, which should be shewn to the Lock Superintendant wherever a payment has to be made. By this means an additional check will be kept by the boats *number* only being entered in the daily traffic report kept at each lock, the tonnage can then be compared in the Registering Office, or better still

the charge to be made on the boat can be stamped together with the tonnage on the register ticket. So that every boat owner will know what he has to pay, and will therefore be the more able and ready to resist any extortion.

16th. I have been somewhat at a loss to know how to calculate a fair toll on the rafts of timber which form a very considerable portion of the traffic. The simplest arrangement that I can think of is, that each raft shall pay 1 Rupee and be cleared for the same distance that the boats are. The size of the raft to be regulated by that of the lock.

17th. The number of boats carrying merchandize, that passed through the 3 head locks during the years 1855-56, and which may be calculated as having travelled the rate of 32 miles, amount to 7395, the tonnage of which may safely be taken at 20 tons on the average, this would give 1,47,900 tons carried a distance of 32 miles and at the above rate of assessment yield a Revenue of 18,487 Rupees. The number of empty boats amount to 6883 which at ¼ pie per ton for 1,37,660 tons would afford Rupees 5,736. The rafts amount to 3730, which at 1 Rupee per raft would give 3,730 making a total of Rupees 27,953.

18th. In addition to the above however there are passenger boats.

19th. These consist of those belonging to the Navigation Company which traverse the Canals regularly every day, and Dhonies which travel occasionally. From the former it would be simplest to levy an annual sum of 8 annas per trip for each boat traversing each Canal, and the passengers on Dhonies should be charged 1 pie each for each lock passed. The Navigation Company at present work 3 Canals making daily 2 trips on each. They would therefore pay a Revenue of 1,095 Rupees. The number of passenger Dhonies in all 3 Canals amounted to 897, taking the number of passengers to average 10 and that each passed 3 locks would give 8970 passengers at 3 pie or Rupees 140.

20th. The total revenue then during the past year would have been as follows:—

	Tons.		
Laden Merchants' Boats.....	1,47,900	@ (2)	18,487
Unladen Merchants' Boats.....	1,37,660	(8)	5,736
Rafts.....3,730.....		(1)	3,730
Navigation Company.....			1,095
Passenger Dhonies.....			140
			29,188

21st. The respective values of the above goods and Rafts as taken and entered in the returns kept at the head Locks amounts to Rupees 15,71,831 and 1,93,764 respectively. The proposed tolls would be 1½ and 2 per cent., on these amounts I have little doubt but that the above traffic will be increased many-fold in a very few years. The Palcole, Ellore and Central Delta Canals are not yet open for traffic. The Samulcottah junction Canal, the extension to Toonee and the grand junction across the Delta have yet to be commenced, and I think I may without being too sanguine safely assert that the traffic will be increased ten-fold in as many years.

22nd. With the above explanation I think the advisability of at once commencing the works entered in estimate No. 14 of 1856-57, will be immediately apparent. The revenue according to *present* returns would be Rupees 4,000 from the navigation and eventually from the irrigation Rupees 37,000. By the construction of the Lock and so keeping the navigation open throughout the year, the traffic will I doubt not at once be doubled and yield 8,000 Rupees. The revenue from irrigation will depend on the exertions of the Collector in fixing the water rate.

23rd. The present cost of superintendence at the locks amounts annually to Rupees 6,432. The additional expenses for collection, registration and printing may amount to half as much again with the present number of Locks and Canals open.

24th. When the additional lines come into play, the expenses will of course be increased, but the receipts will be much more so.

25th. As all the establishments at the Locks are at present under the Public Works Department Officers, it will perhaps be simpler to let the work of registration and collection be car-

ried out by the same Department and let the District Engineer remit the amount to the Collector's Treasury.

Letter from W. FISHER, Esq., Collector of Canara; to Colonel C. E. FABER, Chief Engineer, dated Mangalore, 22nd December 1856, No. 41.

SIR,

I have the honor to acknowledge the receipt of your letters Nos. 7642 and 5818 (respectively dated 15th August and 30th October) calling for a report on the probable amount of traffic to be expected on the Coompta and Tuddri Canal; and an opinion as to the best method of assessing and levying a toll on goods passing through it, with a view to defraying the cost of maintenance and affording a fair return for the capital laid out on the work.

2. All attempts to obtain information from the Native Merchants at Coompta have failed, these people having got rid of the subject when personally addressed by the Sub Collector, on the plea of wishing to make their statements in writing, which however, they have not done. My data for estimating the probable traffic on the Canal are therefore derived from the Coompta Export and Import Returns, but if Messrs. Brice and Co.'s opinion is correct, these statements do not give the full amount of the traffic now finding on outlet at Coompta. Without attempting to reconcile their estimate with our returns, I may adopt the latter as at any rate safe, and will take them therefore as the basis of my calcuations.

3. In appending copy of Messrs, B. and Co.'s letter, I must here observe however, that they seem to take it for granted that all the produce brought down to Coompta will pass through the Canal; but this will certainly not be the case for some time, and any thing approaching to it would indicate the speedy downfal of Coompta before the advantages and attractions of what will speedily be its rival, the Port of Tuddri.

4. As long as goods are shipped at Coompta itself, none of the pepper and other garden produce of Mysore, and the Southern Balaghât, which now come down the Hoss and Neelcoond Ghauts, will pass through the Canal. It will receive whatever approaches Coompta viâ the Tuddri river, whether from Kutgal or Merjan; and the time will come when most of the goods so received will repass the Canal en-route to Tuddri; but this will only take place during the interval which must occur between the time when the advantages of Tuddri over Coompta are realised, and that which will witness the conveyance of all the Cotton to Tuddri direct.

5. The value of the Canal, and the existence of Coompta, will then depend on the continuation of the cutting into the Honoor river. This would probably secure Coompta a portion of the trade she now possesses, and as the resources of the country are opened up, may again make the Town what it is now.

6. Taking this view of the subject, I feel that the calculations of to-day will be worthless tomorrow; but I will put down the average trade of Coompta at 60,000 Candies per annum. Messrs, Brice and Co., certainly estimate that 70,000 Candies of produce of various kinds are exported from it in the course of a year, but Imports included, the average quantity of goods does not appear to me to exceed 60,000 Candies. I presume that of this quantity not more than 50,000 will pass through the Canal, the rest being conveyed into or out of Coompta by land, and shipped there. A toll of one anna per Candy on 50,000 Candies would yield an income, in round numbers of about Rupees 3,100.

The cost of maintenance as estimated by Lieutenant Goddard, is... ...	372	0	0
And the cost of establishment for collecting the toll...	210	0	0
Total per annum...	612	0	0

This leaves Rupees 2,488 per annum as interest on outlay, or about 7 per cent. on Rupees 36,020 the estimated cost of the work, 10 per cent. perhaps ought to be realised as interest on outlay on this account; but if my estimate of the traffic is at all correct, the rate per Candy proposed will only produce the above income. If on the other hand Messrs. Brice and Co.'s calculation is nearer the truth, 10½ per cent. on the outlay would be realised by the proposed toll of one anna per Candy on all goods passing through the Canal.

7. As to the rate proposed, I have only to observe that with reference to Messrs. Brice and Co.'s calculation, which in this instance may be relied on with confidence, the merchant using the Canal instead of the present means of transit, will forward his goods from Kutgal to Coompta, toll included, for 5 annas per Candy, whereas he now pays eight, the saving in favor of the merchant who uses the Canal being 3 annas per Candy. Assuming that one anna per Candy may be levied on all goods passing through the Canal towards Coompta, I see no reason for fixing a lower rate for goods going from Coompta to Tuddri or into the interior.

8. If this point is disposed of, it only remains to devise a safe and satisfactory mode of collecting the toll. With a view of avoiding the corruption, vexatious investigations, and loss of time to merchants, which a tax on goods in transitu involves, I had thought of proposing a system of licenses. There would however be some difficulty in arranging this satisfactorily, and as the site of the new Custom-house will completely command the Coompta end of the canal, I think the toll might be levied there on every boat passing in or out with cargo of any sort.

9. Empty boats returning might, I imagine, be allowed to pass free; but all boats having on board cargo of any sort, however small in quantity, would be charged according to their measurement. All boats intending to ply on the Canal must be registered. They should be compelled to carry a number, and their measurement in a conspicuous position, and be made liable to penalty for altering or defacing these figures. The owner and crew of any unregistered boat entering or attempting to pass through the Canal should also be liable to fine, leviable by distress.

10. The rate proposed is I trust moderate, and the mode of collecting the toll as little open to objection as possible. A very small establishment would suffice, as noted above, and the management would be in the hands of an experienced and superior Officer of Customs.

Letter from Messrs. A. C. BRICE & N. BRAND; to J. D. ROBINSON, Esq., Sub Collector of Canara, dated Coomptah, 30th August 1856.

SIR,

1. We have the honor to acknowledge your letter No. 141, with enclosures from the Collector of Canara and the Chief Engineer of Madras, on the subject of a toll on the Canal from this place to join the Tuddry river.

2. We think the Chief Engineer is rather sanguine about the profit to be realized from a toll, and we should likewise hope that the working expenses of this undertaking would come under 10 per cent. of the first cost of the Canal; in fact the present Custom House Establishment ought to be able to attend to this work, if the building were moved down to the mouth of the Canal.

3. The chief articles in our opinion that would be transported by the Canal from Coomptah to Tuddry would be the classes of produce suited for the English market; say Cotton, Pepper, Sandalwood, Myrabalums, Sugar, Cardamoms, Seeds, Turmeric, Wheat and Indigo; and of these, we may calculate the average yearly export from this port at 70,000 Candies; the Export of Cotton in 1853 came up to nearly this quantity, but this was excessive and cannot be taken as a criterion for calculation.

4. We will presume that one half of this trade will be diverted to Tuddry when ships begin to arrive at that port, say 35,000 of produce to be sent by the Canal to Tuddry; and we will assume that the whole 70,000 Candies, the export from this port, was shipped at Kutgal by boat for Coomptah; this would bring the amount from these two sources of traffic up to 105,000 Candies which at a leviable rate of ½ an anna per Candy would give Rupees 3,281, but

the down traffic would stand a higher charge, as we will shew hereafter, suppose we say 1 anna on all the down traffic, would give an addition of Rupees 2,187, bringing the total up to Rupees 5,468; but then a considerable amount might be got on the transmission of rice grown along the banks of the Canal, but having no statistics of the production, cannot state an amount. The produce to be sent above Ghaut, we have left out of the calculation altogether, as also rice down the Ghaut, which comes to the extent of about 20,000 Candies; this is one point that ought not to be overlooked, namely the large increase that will probably take place in the export of seeds, the moment ships can sail direct; and as a large share of this trade will go into the hands of Natives, they will be taken to Coomptah first, where the dealers have their Godowns.

5. That the undertaking will pay we have no doubt, but the great object in our opinion for Government to consider is in what way it will affect the direct trade to the Home markets, and of this there can be no difference of opinion.

6. The reason we have taken 1 anna for the down traffic, is that the expense is much greater in proportion than by sea to Tuddry; for 1½ anna per Candy, so we think, that to charge more than ½ anna would prevent goods going by the Canal, with the down traffic however it would be different, the present expense being, cart hire, Kutgal to

Munkey	4 annas.
Ferry	1 „
Cart hire to Coompta	3 „
	8 annas.

Boats could be got to go from Kutgal to Coomptah at 4 annas, add fee 1 anna, difference in favor of Canal 3 annas.

7. We are in favor of charging by the Candy, because in any new scheme of this sort the people have a distrust about success, and would hesitate to pay a large sum for the privilege of carrying along the Canal, while the anna chargeable on goods would not be thought about, but no doubt the charge per boat would ultimately be resorted to, as the Government would require a much smaller staff for superintendence.

8. This undertaking is viewed very favorably by the Sowcars of this place, but native like, they do not approve of a fee or even boats being charged for the use of the Canal, and think the work ought to be treated as a road, however their narrow views will not interfere with the profits of the Canal; a few of the people here would like to see a bridge likewise, this we have nothing to say against; but decidedly go in for the Canal, of the two works, as the one that will most effectually increase the trade of Canara with the Home markets, and this we anticipate the Government are very anxious for, a bridge, however with the Canal would be superfluous.

9. We think the work ought to be carried to Honore, uniting as it would do the Hoss Neelcoond and Girsappah Ghauts, with the new shipping ports, we are positive that a large portion of the Mysore trade would then divert to the port of Tuddry, instead of Mangalore and Coondapoor; if this extension is thought desirable by Government, there is no doubt that the Canal would be a very paying undertaking ultimately, and we may mention, that if this were carried out, we intend opening up stations in the Mysore country which presents a fair field, if the lines of communication were in a further advanced state.

10. The success of the Canal depends a good deal on what may be done for Kutgul in the way of enlarging the Cotton green there; at present there is no room for any thing like the November and December traffic; and we would suggest that the river-face from our premises up to the end of the hill be all piled, that small Pattamars might be loaded along the whole length; we would also recommend that a road be turned over the hill, that empty carts could get back without blocking up the present road, but if this is not thought practicable, all that low lying pieces of ground near the salt godowns might be raised for cattle to encamp.

No. 18. ORDER THEREON, No. 1307; dated 7th July 1858.

Para. 1. In reviewing the Budget of 1856-57, the Government of India observed,* with reference to a proposition to levy a light Toll on boats using the Coomptah and Tuddry Canal, that they deemed it "very essential that such Tolls should be imposed on this and every other "Canal of navigation, as will defray the cost of maintenance, and afford a fair return for the out-"lay on the work." "This," they remarked, "is evidently the best test of the expediency of "spending money on a navigable Canal;" adding that, "if the facilities afforded to traffic are "not worth more than the cost of the work, the work itself is a loss to the nation, and ought not "to have been undertaken. If they are worth more, the traffic can well afford to pay the cost, "and still be a gainer."

* Letter, dated 11th July 1856, No. 3173, para. 17.

2. The attention of the Chief Engineer was called to these remarks in para. 7 of Extract from the Minutes of Consultation of the 12th August 1856, No. 1405; and he was desired, in communication with the Collector of Canara, to report the amount of Toll that should be levied on boats using the Tuddry Canal, and the mode in which the collections should be made. He was also requested to consult the Collectors of Malabar and Rajahmundry, in view to similar arrangements being introduced with respect to the Canals in those Districts.

3. This requisition led to the correspondence noted in the margin; and in Extract from the Minutes of Consultation of the 26th January 1858, No. 134, the Government expressed their opinion, that the question of levying Tolls on Canals, should be determined on general principles, and not on a separate consideration of each individual case. They also observed that it would facilitate the consideration of the subject, if one general report were submitted on the Tolls that should be collected on the Canals in Rajahmundry, Canara and Malabar; and they requested the Chief Engineer to prepare and submit such a report, for transmission to the Government of India. With this requisition that Officer complies in his letter above recorded.

From Chief Engineer,	18th	October	1856.	No 7343
Extract Minutes Cons.,	11th	Novr.	do.	do 2096
From Chief Engineer,	15th	Decr.	do.	do. 8882
Extract Minutes Cons.,	28th	January	1857,	do. 220
From Chief Engineer,	16th	do.	do.	do. 9516
Extract Minutes Cons.,	28th	do.	do.	do. 212
From Chief Engineer,	14th	Decr.	do.	do. 5943
Extract Minutes Cons.,	26th	January	1858.	do 134
From Chief Engineer,	28th	do.	do.	do. 6975

4. The Chief Engineer premises, that there are only two questions, in connection with the levy of Tolls, in which the guidance of general principles is required, viz.

1st. The amount of Toll that should be levied, and

2nd. The mode in which it should be collected.

5. The views of the local Officers on the first point, are stated and discussed by the Chief Engineer in paras. 3 to 22 of his report. The District Engineer of Rajahmundry advocates the principle of fixing the Toll, with reference to the actual cost at which goods are at present transported. That cost, including interest on the first outlay on the Delta Canals, he estimates (para. 8) at from 1 to 1½ pie per ton per mile, and fixes the Toll at half the maximum cost, or ¾ pie per ton. The Collector of Canara would fix the amount of Toll, with reference to the extent of traffic passing through the Canal; while the Acting Collector of Malabar would levy it, (para. 9) according to the value of the Canal as a means of communication. The Government do not consider it necessary in this place, to discuss the views of the Collectors of Canara and Malabar, as they concur with the Chief Engineer, that, in the present state of the Canals in those Districts, it would not be advisable to make any charge, until the navigation shall have been rendered complete and efficient. The Officiating Chief Engineer will be good enough to obtain and submit estimates for that purpose, with a view to their being entered in the Budget of 1859-60.

6. With regard to Rajahmundry, the Chief Engineer states (para. 3) that the District Engineer's estimate of the cost of transporting goods on the Delta Canals, with reference to which cost, the latter proportions the Toll, "does not include interest on the expenditure incurred on "the Canal or on the Boat, but only the cost of imparting motion to the latter, whether that "motion be produced by men, by animals, or by Steam power." Looking, however, to para. 8 of Captain Rundall's report, wherein he adverts to "the actual cost of transit including interest "on first cost on the Delta Canals," it would seem that the item of interest did enter into that

Officer's computation of the cost of transport. The principle laid down by the Government of India, is, that a light Toll should be levied on Canals sufficient to defray the cost of maintenance, and afford a fair return for the outlay on the works. The principle enunciated by this Government in considering the levy of a Toll on boats, on Cochrane's Canal, was that the Toll should be so fixed, as not only to cover the charges of Superintendence and ordinary repairs, but also should allow the formation of a fund for meeting serious casualties, and effecting improvements of importance, but from which no direct return could be derived, such as the construction of quays along the sides of the Canal which were very desirable, but for which no increase of Toll could be made. The Toll now levied on the boats using this Canal is 4 annas a ton, upon the registered tonnage of the boat without reference to distance.

7. It does not appear whether the Toll of three-fourths of a pie per ton per mile proposed by the District Engineer for the Godavery Canals, will meet the above requirements, and the Government have not the means of obtaining the information. The points which would require to be considered in the levy of a Toll, are :

1. The cost of the Canals.
2. The interest on that amount at five per cent.
3. The annual charges for repairs.
4. The cost of Superintendence and Canal establishments.
5. The amount of traffic.
6. The average tonnage of large and small boats.
7. The rate of Toll, the amount that would be demandable on each description of boat for a a trip, and probable returns.
8. The amount of revenue from irrigation.

8. The Chief Engineer's letter of the 18th October 1856, No. 7343, communicates much interesting information on most of the points connected with the subject, but is altogether silent as respects the cost of the Canals, and the expense of maintaining them, as indicated in the first four items mentioned above. The Government would wish, therefore, to have a further report shewing at one view, all the circumstances which should influence the consideration of the question as regards the amount of the Toll; the details on which the District Engineer based his calculations and proposed $\frac{3}{4}$ of a pie per ton per mile, as an equivalent for all those considerations, and how far that rate may be regarded sufficient, or otherwise. The Report should be complete in itself, so that the Government of India to whom the matter will need to be referred eventually, may have a connected view of the subject without the necessity of a reference to other papers. The Officiating Chief Engineer will be pleased to give this subject his early and special consideration, in communication with the District Engineer.

9. With regard to the 2nd point, all the Officers consulted are of opinion, that it would be better to levy a Toll, than to assess each boat at a certain annual rate. The Chief Engineer, who has not expressed himself very distinctly on this part of the subject, would appear (paras. 25 to 27) to take the same view, and the Government are of opinion that, on the whole, the levy of a Toll would be attended by fewer inconveniences, and be more satisfactory to the people at large, than a tax on each boat. The Government also think that, as suggested by the District Engineer of Rajahmundry, the Toll should be collected at the Locks by the Lock Superintendent, who will be subject to the supervision of the European Overseer, stationed at every other Lock, to whom complaints can be immediately made in the event of exaction by the Native Superintendents. The Government also consider the system of check tickets, proposed by Captain Rundall to be well calculated to prevent fraud; and they approve of this and of the other arrangements recommended by that Officer in paras. 13 to 15.

10. It will be necessary that application should be made to the Legislative Council for an Act, to authorize the levy of Tolls, and to furnish illegal exactions. The Officiating Chief Engineer will therefore be good enough, in forwarding the further report now called for, to state his views on the provisions which such an act should contain, preparatory to a draft being prepared by the Government Pleader, for transmission to the Legislative Council.

(Signed) T. PYCROFT,
Chief Secretary.

No. 1307 13

Extract from the Minutes of Consultation
Under date the 7th July 1858.

Read the following
Letter from the Chief Engineer

Heve enter 27th April 1858 No 9339

A. In reviewing the
Budget of 1856/57, the Government
of India observed, with reference
to a proposition to levy a light
toll on boats using the Coomptah
and Tadilly Canals, that they
deemed it "very essential that
"such tolls should be imposed
"on this and every other canals
"of navigation, as will defray
"the cost of maintenance and
"afford a fair return for the
"outlay on the work." "This,"
they remarked, "is evidently
"the best test of the expediency

† Letter dated 11th July 1856 No 3173 para 17.

"of spending money on a navi-
"gable canal", adding that, "if
"the facilities afforded to traffic
"are not worth more than the
"cost of the work, the work
"itself is a loss to the nation,
"and ought not to have been
"undertaken: If they are worth
"more, the traffic can well afford
"to pay the cost and still be a
"gainer."

2 The attention of the Chief Engineer was called to these remarks in para 7 of Extract from the Minutes of Consultation of the 12th August 1856, N° 1105, and he was desired, in communication with the Collector of Canara, to report the amount of toll that should be levied on boats using the Sudder canal, and the mode in which the Collections should be made. He was also requested to

From Chief Engr 18th Octr 1856 N° 7343.
Extt Mins. Cons. 11th Nov — " 2096.
From Chief Engr 15th Dec — " 8882.
Extt Mins. Cons. 28th Jany 1857 — 220.
From Chief Engr 16 — " — 9516.
Extt Mins. Cons. 28th — " — 212.
From Chief Engr 11th Dec — 5943.
Extt Mins. Cons. 26th Jany 1858 — 134.
From Chief Engr 28th — " — 6975.

to consult the Collectors of Malabar and Rajahmundry, in view to similar arrangements being introduced with respect to the canals in those Districts.

3 This requisition led to the correspondence noted in the margin, and the Extract from the Minutes of Consultation of the 26th January 1858 N° 134, the Government expressed their opinion that the question of levying tolls on Canals should be determined on general principles, and not on a separate consideration of each individual case. They also observed that it would facilitate the consideration of the subject, if one general report were submitted on the tolls that should be collected on the Canals in Rajahmundry, Canara and Malabar; and they requested the

the Chief-Engineer to prepare and submit such a report, for transmission to the Government of India. With this requisition that Officer complies in his letter above recorded.

4. The Chief-Engineer premises that there are only two questions, in connection with the levy of tolls, in which the guidance of general principles is required, Viz.t

1st. The amount of toll that should be levied, and

2d. The mode in which it should be collected.

5. The views of the local officers on the first point are stated and discussed by the Chief-Engineer in paras 3 to 22 of his report. The District Engineer of Rajahmundry advocates the principle of fixing the toll, with reference to the actual cost

at which goods are at present transported. That cost, including interest on the first outlay on the Delta Canals, he estimates (para 8) at from 1 to 1½ pie per ton per mile, and fixes the toll at half the maximum cost, or ¾ pie per ton. The Collector of Canara would fix the amount of toll with reference to the extent of traffic passing through the Canal, while the Acting Collector of Malabar would levy it, (para 9) according to the value of the canal as a means of communication. The Government do not consider it necessary in this place to discuss the views of the Collectors of Canara and Malabar, as they concur with the Chief-Engineer that, in the present state of the Canals in those Districts, it would not be advisable to make any

charge

charge, until the navigation shall have been rendered complete and efficient. The Chief Engineer will be good enough to obtain and submit estimates for that purpose, with a view to their being entered in the Budget of 1859/60.

6. With regard to Rajahmundry, the Chief Engineer states (para 3) that the District Engineer's estimate of the cost of transporting goods on the Delta Canals - with reference to which the latter proportions the toll - "does not include interest on the expenditure incurred on the Canal or on the boat, but only the cost of imparting motion to the latter, whether that motion be produced by men by animals or by steam power". Looking however to para 8 of Captain Randall's report, wherein he adverts

adverts to "the actual cost of transit including interest on first cost on the Delta Canals" it would seem that the item of interest did enter into that Officer's computation of the cost of transport. The principle laid down by the Government of India is that a light toll should be levied on Canals sufficient to defray the cost of maintenance, and afford a fair return for the outlay on the works. The principle enunciated by that Government in considering the levy of a toll on boats on Cochrane's Canal, was that the toll should be so fixed as not only to cover the charges of Superintendence and ordinary repairs, but also should allow the formation of a fund for meeting serious casualties, and so effecting

affecting improvements of importance but from which no direct return could be derived, such as the construction of quays along the sides of the Canal which were very desirable but for which no increase of toll could be made.

The toll now levied on the boats using this canal is 1/4 Annas a ton upon the registered tonnage of the boat without reference to distance.

It does not appear whether the toll of three fourths of a pie per ton per mile proposed by the District Engineer for the Godavery Canals will meet the above requirements, and the Government have not the means of obtaining the information.

The points which would require to be considered in the levy of a toll are -

1. The cost of the Canals -

The

2. The interest on that amount at five per cent.
3. The annual charges for repairs.
4. The cost of Superintendence and Canal establishments.
5. The amount of traffic
6. The average tonnage of large and small boats.
7. The rate of toll, the amount that would be demandable on each description of boat for a trip and probable returns.
8. The amount of revenue from irrigation.

8. The Chief Engineer's letter of the 18th October 1856 No 1321 communicates much interesting information on most of the points connected with the subject but is altogether silent as respects the cost of the Canals and the expense of maintaining them as indicated in the first four items mentioned above. The Government would wish therefore

to

to have a further report shewing at one view all the circumstances which should influence the consideration of the question as regards the amount of the toll, the details on which the District Engineer based his calculations and proposed ¾ of a pie per ton per mile as an equivalent for all those considerations and how far that rate may be regarded sufficient, or otherwise. The Report should be complete in itself, so that the Government of India to whom the matter will need to be referred eventually, may have a connected view of the subject without the necessity of a reference to other papers. The Chief Engineer will be pleased to give this subject his early and special consideration in communication with the District Engineer.

With

9 With regard to the 2nd point, all the officers consulted are of opinion that it would be better to levy a toll than to assess each boat at a certain annual rate. The Chief Engineer, who has not expressed himself very distinctly on this point of the subject, would appear (Nunas 25 to 27) to take the same view, and the Government are of opinion that, on the whole, the levy of a toll would be attended by fewer inconveniences, and be more satisfactory to the people at large, than a tax on each boat. The Government also think that, as suggested by the District Engineer of Rajahmundry, the toll should be collected at the locks by the lock Superintendent, who will be subject to the supervision

of

of the European Overseer stationed at every other lock, to whom complaints can be immediately made in the event of exaction by the Native Superintendents. The Government also consider the system of check tickets, proposed by Captain Rundall to be well calculated to prevent fraud; and they approve of this and of the other arrangements recommended by that Officer in paras 13 to 15.

10. It will be necessary that application should be made to the Legislative Council for an Act to authorize the levy of tolls, and to punish illegal exactions. The Chief Engineer will therefore be good enough, in forwarding the further report now called for, to state his views on the provisions which such an Act should contain, preparatory to a draft being prepared by the Government Pleader, for transmission to the Legislative Council.

10 Copies to the Offg Chief Engr 2 Divn 28th

WHP

Cons: 20th Jany/58 No. 64 168.
— 16th Feby — — — 93 & 94
— 6th — — 57 — 172–180.
— 11th Nov.r/56 — 94 & 95
— 20th Oct.r/57 — 66 to 68.
— 12th Aug.t/56 — 87 to 90.

Public Works 1838 Depart.t
Dis.d to Cons: 13th July
No. 1307
Extract Minis. of Cons.:
Dated 9th July/58.
From the Offg Chief Engr. 2d/4th
Oct.r/58 No. 2313 inc.

Passing observations on the letter of the Offg Chief Engineer on the subject of levying tolls on Canals, and requesting that Officer to submit for transmission to the Government of India a further Complete report shewing at one view all the circumstances which should influence the consideration of the question.

No. 17 & 18.

c23 June R28th