

SELECTIONS FROM OLD RECORDS

365

218

**FORMATION OF TUTICORIN, TINNEVELLY  
AND QUILON BRANCH RAILWAYS**

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**TINNEVELLY DISTRICT**

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**NOTE.**—"The papers are merely printed for convenience of reference  
and do not acquire any special authority  
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**TINNEVELLY:  
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PAPERS RELATING TO THE DEVELOPMENT OF RAILWAYS  
IN THE TINNEVELLY DISTRICT.

PART I.

*Proceedings of the Madras Government, Public Works Department,  
25th October 1867.*

Read the following papers:—

From the Acting Consulting Engineer for Railways to the Secretary to Government, Public Works Department, dated Madras, 11th October 1867, No. 278.

No. 2413, dated 30th September 1867. 1. I have the honour to submit, for the orders of Government, a letter \* which

I have received from the Agent of the Great Southern of India Railway upon the subject of the survey of the proposed extension to Tuticorin, in which a copy of the London Board's letter of the 12th August, No. 116, is enclosed. The last quoted letter was communicated to this office with the Proceedings of Government, dated the 4th instant, No. 3079.

\* \* \* \* \*  
3. \* \* \* Mr. Betts also requests instructions as to whether any further inspection of the country between Madura and Tuticorin is necessary, before the working survey of that part of the line is put in hand; and whether the main line, or a branch from it, is to be taken to the town of Tinnevelly.

5. As regards the second point mooted by Mr. Betts, I consider that Mr. Carr's surveys may be accepted as sufficient, and that any further examination of the country between Madura and Tuticorin, before the working survey is put in hand, will be quite unnecessary.

6. The third point raised by Mr. Betts bears upon the preceding one, but I am convinced that it never was the intention of Government that the proposed extension of the Great Southern Railway should be taken past the town of Tinnevelly, and that if, as stated by the Directors in paragraph 5 of their letter, that impression was held by Sir Stafford Northcote, it must have arisen from the expressed desire of the Government that the Railway should be extended "through Madura and Tinnevelly," the fact that the same names are common to those two provinces and to their chief towns having given rise to a slight confusion.

*From the Secretary of the Great Southern of India Railway Company,  
dated London, 12th August 1867, No. 116.*

\* \* \* \* \*  
4. The country between Madura and Tuticorin was, as you are aware, surveyed in 1862 by Mr. Carr, the former Chief Engineer of the Company, who forwarded to the Board a detailed report, together with plans, copies of which are in your possession. A reference to these will materially aid in the survey of this portion of the proposed line, if indeed anything more will now be necessary than a mere verification or revision of the same.

5. In the letter referred to above, Sir Stafford Northcote states that it is proposed that the line should proceed by way of the towns of Madura and Tinnevelly to Tuticorin. If it be the intention of Government that the Railway shall be taken past the town of Tinnevelly, the line as laid down by Mr. Carr will be subject to a considerable deviation, and it will be a matter for consideration whether it will not be preferable to construct a branch to Tinnevelly from the main line.

## ORDER THREON, 25th October 1867, No. 3334.

3. His Excellency the Governor in Council does not consider a second examination of the country between Madura and Tuticorin to be necessary, and he is not of opinion that the main line can be carried through the town of Tinnevelly. The question of a branch to that place may be reserved for subsequent consideration.

*Proceedings of the Madras Government, Public Works Department,  
5th August 1868.*

Read the following letter from the Consulting Engineer for Railways, to the Secretary to Government, Public Works Department, dated Madras, 15th July 1868, No. 247:—

1. In the order of Government, dated the 25th October 1867, No. 3334, His Excellency the Governor in Council stated that he did not consider it necessary to make a second examination of the country between Madura and Tuticorin, the line having been already examined and surveyed six years ago by Mr. Carr, the then Chief Engineer of the Great Southern of India Railway Company. His Excellency further stated that the question of a branch to the town of Tinnevelly should be reserved for future consideration.

\* No. 1031, 14th April 1868.  
2. The Collector of Tinnevelly in a letter \* which I have the honour to enclose, stated that, in his opinion, it would be greatly to the advantage both of the district and of the Railway Company if the proposed line from Madura to the south were to be carried to the west of the route surveyed by Mr. Carr, and were to follow the direction of the trunk road as far as Kytar, branching off thence to Tinnevelly and Tuticorin respectively.

3. Upon receiving Mr. Puckle's letter, I requested Captain Lindsay to proceed to Tinnevelly, and to make a cursory examination of the two lines, with a view, not so much to ascertain the strength and direction of the traffic, on which points Mr. Puckle's letter was nearly conclusive, as to form an estimate of the difficulties which would oppose the construction of Railway in either direction.

† No. 4, 11th July 1868.  
4. Captain Lindsay's report † I have now the honour to submit for the information of Government; I think that he shows good reason for adopting the line recommended by Mr. Puckle, and for carrying the Railway both to Tinnevelly and to Tuticorin. The remarkably easy nature of the country through which the line would pass, renders any further examination or another trial survey quite unnecessary.

5. The papers printed with the orders of Government, dated the 14th February and the 7th March last, Nos. 520 and 722, contained full information with regard to the portion of the proposed line between Caroor and Madura; and I trust that the Government will consider the information which is now submitted, regarding the remainder of the proposed line, to be sufficient to justify them in recommending its immediate commencement. I have reason to believe that it is likely to be more generally useful, and more remunerative than any other line which has been yet proposed within this Presidency.

*From the Collector of Tinnevelly, to the Consulting Engineer for Railways,  
dated, Tinnevelly, 14th April 1868, No. 1031.*

1. I have the honour to furnish the information called for in your letter No. 82, dated 17th March last.

2. A line direct from Madura to Tuticorin would pass through the poorest part of the district (mostly zemindary), where there is not a single town. It would skirt the extreme east of the cotton fields, without passing through them, and would miss

carrying rice from the valley of the Tambrapurni and timber from the hills; I think there can be no doubt that if the Railway follows the present line of Trunk Road from Madura as far south as Kytar, and from thence branches off to Tuticorin and Palamcottah, it will secure many important advantages. It will pass very much along the crest of the water-shed, and so avoid much bridging. It will pass through Virudupatti, Sattur and Kytar, all centres of trade, postal towns, and Sub-Magistrate's stations, and will not be far from Sivakasi on the west and Ettiapuram on the east, the country between growing cotton and tobacco, and requiring much rice and salt; this route will advance the line straight to Tinnevely and Palamcottah, and render a future extension towards Travancore more feasible.

3. The carrying trade in salt from Tuticorin, I expect, will be very large, as we have first rate salt pans on either side of the town, and the whole of western Tinnevely and Madura must be supplied from this source if the Railway competes with the road. The harbour of Tuticorin offers peculiar advantages for landing material, as cargo boats can run in and discharge cargo in smooth water alongside the jetty at any hour of the day or night.

4. Enclosed are statements showing the trade of Tuticorin, and the area, population, and revenue of the villages within five miles of the present Trunk Road.

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*From the Acting Deputy Consulting Engineer for Railways, to the Consulting Engineer for Railways, dated Madras, 11th July 1868, No. 4.*

1. I have the honour to submit the following report on the projected extension of the Great Southern of India Railway, from Madura to the Tinnevely district.

2. In September 1862, the Chief Engineer of the Great Southern of India Railway forwarded to Government the copy of a report which he had sent to his Directors, of a survey for a line of Railway from Madura to Tuticorin; it was also intended that a branch line should be constructed connecting Tinnevely and Palamcottah with Tuticorin, or the main line. On the accompanying map I have marked the line proposed by Mr. Carr; a copy of his report is attached, and as the country through which it passes is minutely described, I need say nothing more than that is hardly possible to conceive a more favourable site for a Railway.

3. I examined the country bordering on the Trunk Road, from Madura to Tinnevely, and from Tuticorin to Kytar. I also visited the western taluks, the most productive and important in the district, returning to Palamcottah by the rich valley of the Tambrapoorney.

4. From Madura to Tiroomungalam, a town containing about 5,000 inhabitants the country is flat and open, the soil is ferruginous and closely cultivated; after passing Tiroomungalam, black cotton soil appears, and the character of the country is unchanged, with the exception of a belt of red soil near Kovilputty, about six miles in breadth up to Kytar, 18 miles from Tinnevely.

5. Throughout the length the land is almost perfectly level, and very well adapted for Railway construction; the banks need not be high, and but little waterway will have to be provided. Building material is to be found in the neighbourhood, but not in abundance; kunker, however, is met with a few feet under the surface of the cotton soil, gneiss is procurable at some distance from the line.

6. After Tiroomungalam, the proposed line passes through Virudupatty, Sattur, Kovilputty and Kytar, towns enjoying a considerable trade in cotton, grains, chillies, tobacco, cloth, sugar, etc., and having from 5,000 to 10,000 inhabitants each.

7. From Kytar to Tinnevely the soil is gravelly, and the land is more undulating than that previously passed over.

8. The only river of any size to be crossed is the Vypar, which will require a bridge with a waterway of about 1,000 feet.

9. The country over which I suggest that the branch to Tuticorin should be taken from Kytar is almost perfectly flat, and all cotton soil except a strip of red soil

about half way. I would recommend the station at Tuticorin being fixed in the centre of the town, where there is an excellent site, affording a clear way to the beach where a pier for the landing of Railway material might be constructed. The terminal ground selected by Mr. Carr is, I think, too far to the north, and not well adapted for the purpose.

10. The Chief Engineer's estimate, of £5,000 per mile, as the cost of constructing a Railway in the Tinnevely district is, I think, too low; I anticipate that there will be considerable difficulty in the matter of procuring labour and consider that £7,000 is more likely to be the cost per mile, including stations and rolling stock.

11. I had an opportunity of fully discussing the merits of the proposed lines with the Collector, Sub-Collector, and other Revenue officers of the district, and I am convinced of the importance of bringing the line direct from Madura to Tinnevely and Palamcottah, and having a branch line from Kytar, or the neighbourhood to Tuticorin for the following reasons:—

*First.*—It will be a great advantage to join the large and important towns of Madura and Tinnevely, the former being the most populous in Southern India, by the shortest line possible.

*Second.*—The trade along the present road amounts to 500 tons per diem, or 182,500 tons per annum, six times the amount from Tuticorin to the north, which cannot be computed at more than 30,000 tons per annum.

*Third.*—Although both lines are particularly favourable for the construction of a Railway, the one near the Trunk Road is the better, as less water-way will be required.

*Fourth.*—The proposed line runs through the centre of the cotton producing country, whereas the direct line to Tuticorin skirts the eastern edge of it.

*Fifth.*—It is inexpedient to take the line so far away from the important towns and productive talooks lying to the west of the present Trunk Road.

12. Mr. Carr appears to have been led away by delusive hopes of an immense increase of cotton cultivation, and of the importance of Tuticorin as a sea-port: as a matter of fact, the yield of cotton has decreased since 1862; and the improbability of Tuticorin becoming "a first class port," must now be admitted by the most sanguine.

13. Goods can certainly be landed in from four to eight feet of smooth water, but only after a pull of six or eight miles from the roadstead; this will, I fear, prevent the port being selected as "the first port of call in Indian waters for the Overland Mail vessels bound to Calcutta," as Mr. Carr anticipated would be the case.

14. That the trade between Tuticorin and Colombo will increase considerably when a Railway is brought to the former place, there can be no doubt.

15. Mr. Puckle states that the amount of cotton brought from the north cannot safely be estimated at more than 12,000 tons per annum. The salt traffic in the opposite direction from pans in the vicinity of Tuticorin amounts to 12,000 tons, and adding one-fourth as a fair proportion for general goods, I take 30,000 tons as the total amount of the existing trade.

16. From the most reliable returns obtainable, it is calculated that the average number of laden carts passing between Tinnevely and Madura is 1,000 or 500 tons per diem, or 182,500 tons per annum. On one occasion for a period of about two months, traffic was noted at Sattur, and the result was a daily average of 3,300 carts per diem, I consider, therefore, that the average named, of 1,000 per diem, is well within the mark.

17. With regard to the passenger traffic it is difficult to calculate with accuracy the amount that may be expected, but considering that the main towns, Madura and Tinnevely, have populations of 39,872 and 23,000, respectively, and that the valley of the Tambrapoorney, in which the latter is situated, is densely populated along its entire length by a wealthy people, a passenger traffic larger than that on the existing lines in this Presidency may confidently be anticipated. Along the entire line the population amounts to about 390 per square mile.

18. The returns available of traffic in merchandize are, however, so favorable, that in calculating the probable profit on the undertaking, the estimated receipts from passengers may be omitted altogether.

19. The total amount of goods passing north, south between Madura, Tinnevelly and Tuticorin, is, as I have shown, 212,500 tons per annum; presuming that this will be carried over 50 miles of the line at an average rate of  $1\frac{1}{2}$  pies per mile, and deducting 50 per cent. of the gross receipts for the expense of working, there appears a profit of Rs. 4,98,047.

20. The total length of the line will be about 125 miles, which I estimate will cost Rs. 70,000, per mile, including rolling stock; the total cost of the line would, therefore, amount to Rs. 87,50,000, a 5 per cent. guarantee upon which would come to Rs. 4,37,500, less than the anticipated profits from goods traffic alone.

21. I have given as a reason for taking the line along the Trunk Road, that the richness of the talooks, and the importance of the towns in the west, warrant this departure from the line chosen by Mr. Carr; in a Memorandum given me by Mr. Puckle, the Collector of Tinnevelly, he remarks as follows:—"In fixing on any line through this district special reference should, I think, be made to the large towns of Sivakasi and Streevaliputtur, and the rich country around them, they should not be left too far west. Sivakasi is a great centre of the cotton, tobacco, and chilly trade. Streevaliputtur is the largest town in the north, and has a considerable traffic in dry grains, chillies, etc., and the commodities exchanged for them. Streevaliputtur too is famous for its Pagoda, to which numbers of pilgrims resort, and the annual feast there is one of the largest in the district."

22. Mr. Puckle also observes, with regard to making Tuticorin the main point instead of Tinnevelly, "the town of Tuticorin is a poor place, with no real trade (excluding cotton); the number of vessels plying at the port has decreased year by year, and those that still ply only carry coolies and onions to Colombo, and bring back coolies, piece-goods, and cocoanuts from Colombo."

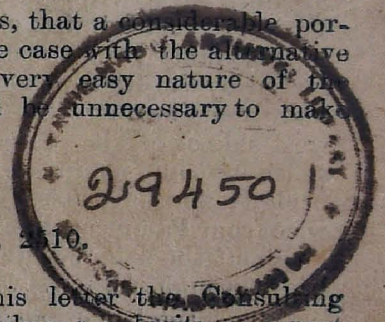
23. Another objection to the line taken by Mr. Carr is, that a considerable portion of it passes through zemindary lands, which is not the case with the alternative route. I may add, that I consider that on account of the very easy nature of the country through which the proposed line passes, it will be unnecessary to make another trial survey before the line is determined on.

ORDER THEREON, 5th August 1868, No. 2510.

RAILWAY, No. 16.

1. With this letter the Consulting Engineer for Railways submits a report from Captain Lindsay on the result of his inspection of the country between Madura and Tuticorin, in which he gives it as his opinion, after careful examination and enquiry, that the most favourable direction for the proposed line of Railway from Madura to the south would be that suggested by the Collector to the west of the route selected in 1862 by the Chief Engineer of the Great Southern of India Railway, and following the line of the Trunk Road as far as Kytar, with branches thence to Tinnevelly and Tuticorin.

2. Both routes are represented to be particularly favourable for the construction of a Railway, but while the one proposed by Mr. Carr would only skirt the great cotton field, and pass through a tract of country where not a single town exists, that recommended by the Collector and Captain Lindsay would go through the heart of the cotton producing district, and the centres of trade, postal towns, and Sub-Magistrate's stations, and, advancing in the direction of Tinnevelly and Palamcottah, would facilitate any extension that may hereafter be contemplated towards Travancore. It further appears that while the trade along the latter of these routes amounts to 500 tons per diem, or 182,500 tons per annum that from Tuticorin to the north, or in the direction formerly selected for the Railway, is computed at not more than 30,000 tons per annum, or only a sixth of the traffic on the other line.



3 The statistics which are furnished of the traffic passing north and south between Madura, Tinnevelly, and Tuticorin, give fair promise of the Railway, if carried in that direction, proving very remunerative. It is shown that the traffic in goods alone would nearly cover the interest at five per cent. upon the cost of construction and rolling stock, while the population of the country that will be benefited, and the wealth of the people living along the whole length of the valley of the Tambrapoorney, give reasonable ground for hoping that the passenger traffic will be larger than that on any of the lines in this Presidency.

Fully concurring in the views of the Collector and Captain Lindsay, the Government are satisfied that the line described by the latter is preferable to that selected by the Chief Engineer of the Great Southern of India Railway, and His Excellency the Governor in Council will be prepared to approve of its adoption.

RAILWAY DEPARTMENT.

*From*—Captain H. L. PRENDERGAST, R.E., Ag. Consulting Engineer, for Railways.

*To*—R. K. PUCKLE, Esq., Collector of Tinnevelly.

*Dated*—Madras, 20th January 1871.

*No.*—38.

I have the honour to request you will favour me with your opinion, as to the site selected by Mr. Logan for the Railway terminus to the west of the town of Tinnevelly. Captain Smith who lately inspected the whole line, tells me, that the Acting Collector had thought favourably of it, but I have not got this opinion on record; and I do not feel satisfied that the best position has been taken.

2. In sending a preliminary report to Government, on the location of the line to run from Kovilputty to Keel Manniachee and thence branch to Tinnevelly and Tuticorin, instead of having Kytar as the point of separation, I have observed that, as the traffic from the north, and from the east to the north of the river, will be served by the Railway and as all traffic south of the river will come upon the bridge, there remains only the western traffic on the north bank, that will come into the west side of of Tinnevelly town. Thus the principal traffic, both local traffic from south-east and south-west; and through traffic from Travancore will come by the bridge; and have as easy access to the Tetchanallur station, as to Tinnevelly. Likewise from Palamcottah cantonment and town, the distances to the two stations will be about the same; while to the west Tinnevelly station, the approaches will be bad, through the narrow and crowded streets of the town.

The Tetchanallur station is only about a mile distant from the west station; and though the latter would undoubtedly be of great convenience to the merchants of Tinnevelly, I consider it questionable whether two stations so near together are necessary and whether one station more to the east of the terminal site might not be preferable.

3. The detailed plans and estimates have not yet been sent to me for submission to the Government; and before reporting on this matter finally to the Government, I shall feel obliged by your letting me know, whether you have given your approval, to the two sites chosen by Mr. Logan, or what modification you would recommend.

*From*—M. M. MACGREGOR, Esq., Resident.

*To*—STEWART, Esq., Consulting Engineer.

*Dated*—Quilon, 14th June 1876.

I will write to you in short time about the railway.

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I see you take the Nagercoil route for granted, this would pass through a very poor part of Tinnevelly, a mere strip with the hills on one side and the sea on the other and would during all its course in Travancore be running parallel to the sea, or crossing the rivers near their mouths.



On the other hand suppose the line were taken from Tinnevelly via Sermadevi Ambasamudram and Thencausy it would pass through the richest and most densely populated part of Southern India.

It would then enter Travancore through the Ariyangavu pass which is, I believe, nowhere 1,800 feet above sea level and debouch into the heart of Travancore. As regards traffic there could be no comparison between the two routes, and the only question is whether the nature of the country would so far increase the cost as to counterbalance this.

There would be, I think, an enormous traffic in pilgrims from Madras, South Arcot, Tanjore, Trichy, and Madura going to Paupanasam and Thencausy. There would be a great coffee trade too, as the ghauts near Courtallam are being opened out in every direction and they would make Tinnevelly their port. Now the southern estates, which the Nagarcoil line could pass near have their own little port of Collachil which they would adhere to, so that they would contribute little or nothing to the railway receipts.

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I should be glad if you could send me any papers showing what the earnings of the different Madras lines are at present.

It seems to me that the Company would have great indirect advantages to expect from opening up into such a rich country as Travancore. The earnings of the extension would, I presume, be estimated simply at the charge on passengers and goods on the actual mileage of the extension traversed, but the receipts in the line in Tinnevelly Madura, &c., would be probably much augmented. Would aid be most effectual in taking shares, or in guaranteeing dividend.

I shall be in Travandram in the course of a week or so and shall be discussing the subject with the Dewan and I should be very glad of any hints you are able to give me.

I hope to be at Courtallam some time in July or August and should be happy to meet any one there who comes on behalf of the railway to prospect and I could greatly facilitate his movements.

From—R. K. PUCKLE, Esq., Collector of Tinnevelly.  
To—MACGREGOR, Esq., Resident, Travancore and Cochin.  
Dated—Courtallam, 21st August 1876.

I think that it would be very advisable for the railway company anyhow to continue their line from Tinnevelly up the river valley to Tenkasi passing through the rich villages of Pettah, Sutumalli, Kodaganallur, Kallur, Sermadevi, Kareikurichi, Kalladikurichi, Ambasamudram, Ambur, Alwarkurichi and Kadiyam—this alone would be, I think, the most profitable part of the line, as it is now the emporium from where grain and cloth are exported to Travancore on one side through the Ariyangow pass and to Tuticorin on the other for Ceylon—the trade in salt in return for timber too would be very considerable and the passenger traffic is likely to be excessive—the question of extension into Travancore might then be late considered as the line up to Tenkasi would occupy a good two years—send this to Shaw Stewart if you like I shall be very glad to consult with him in person when we meet in Madras. If this is done the Tinnevelly district will be pretty well traversed north and south, east and west by the rail.

From—M. M. MACGREGOR, Esq., Resident.  
To—STEWART, Esq., Consulting Engineer.  
Dated—Courtallam, 21st August 1876.

I was sorry to find that I had missed you here. I had no idea you were coming or I might have managed to meet you.

I enclose a note from Puckle from which you will see that he agrees with me in thinking that the country between Tinnevelly and Thencausy via the river valley would support a remunerative railway traffic. I am quite satisfied myself that a line from

Thencausy to Trivandrum would command an enormous traffic but in the absence of any approximate estimate of the cost of such a line it is impossible to say whether the traffic would suffice to pay.

The high road winds a good deal. But there are no zig zags or heavy gradients. Nothing on the scale of the bore or hill ghauts would be necessary. The country however is very broken and there would undoubtedly be heavy work. The country is naturally rich and would develop eventually a large local traffic.

I have not yet got anything definite from the Dewan and can hardly expect His Highness's Government to express themselves until matters assume a more definite shape. I shall, however, as I said before, be glad to have any information you can give me.

*From*—M. M. MACGREGOR, Esq., Resident.  
*To*—STEWART, Esq., Consulting Engineer.  
*Dated*—Trivandrum, 29th October 1876.

I was in hopes that we should have seen you down here with His Grace and that there would have been an opportunity of discussing railway extension.

I have just received the enclosed to-day, which gives the views of the Chief Engineer Mr. Barton. He is well acquainted with the country having himself worked out the traces of the new bandy roads. I came over the line with him all the way from Tinnevely a month ago.

I agree generally in his views, except in regard to the course the line should take in the Tinnevely district. I have no doubt myself that from Tinnevely it should go Sermadevi, 12 miles, 26,500 inhabitants, Kalladykurichy, 9 miles, 20,000, Paupanasam 6 miles, 10,000, Alwarkurichy, 6 miles, 12,000, Thencausy, 14 miles, 10,000. Not only is the population along that route such as to go a long way towards paying expenses in passenger traffic but there are several very sacred resorts of pilgrims which would attract travellers from a distance, and the direction would exactly suit the trade in grain and cotton piece-goods. Travancore and Malabar are largely supplied with the latter from the looms of Sermadevi (and its neighbouring towns) and Kallidykurichy and they require rice which this the granary of Southern India would supply and in exchange take betel nut, cocoanut produce, pepper and timber.

The stations at Charby's Hope and Camp George would no doubt be in uninhabited forests, but into them planters both European and native are swarming, all the produce they are raising is for export and they require an immense supply of labour, which would be constantly on the move as well as food to support this labouring population, machinery and manure for the estates, &c.

In addition to this there would be a great trade in timber and forest produce there being far the richest forest in Southern India. My opinion therefore is that railway stations in such localities would command infinitely more traffic than even the largest towns in such districts as Salem and North Arcot, besides which there would be the enormous through traffic inevitable between two wealthy districts with totally distinct climates and staple products which latter are largely exchanged.

I have only time to catch the post and send this in the chance of His Grace returning via Tuticorin.

P. S.—Mr. Barton's memo., dated 3rd March, was withdrawn by him, directly after he sent it in, and before I could record it, to enable him to resubmit it with a sketch and some corrections but it has only now been resubmitted. I explain this as you might otherwise wonder why I did not mention it before.

## PART II.

*Memorandum.*

From—W. BARTON, Esq., Chief Engineer, Trivandrum.

To—(not available)

Dated—Trivandrum, 3rd March 1876.

No.—963.

In 1873, some few months before I went on leave a communication was received from the British Government, on the subject of introducing a "Railway into Travancore."

2. The manner in which the matter was brought forward was such, as to render unnecessary—if not to prevent—any serious discussion; and when it came before me officially, I merely made such a report, as at the time seemed to answer the purpose of the enquiry.

3. Recently, however, the subject has been revived, His Highness the Maharaja, on his return from his tour to Bengal, discussed the matter fully and freely with me; and the Diwan in course of conversation mentioned that certain enquiries were about to be made of the South Indian Railway Company, and a reference to the British Government.

4. I have not yet been requested to give the matter any further consideration. I am desirous, however, of recording certain notes, which, I think, may be of use in considering the project at the outset.

5. I think it would be a mistake, altogether, to bring the railway into Travancore from Tinnevelly via the Aramboly pass. My opinion is, that, on due investigation, the Arienkavo pass will be found to be the proper route, and Covilputty, or a point near to it, the point of junction with the existing line of railway.

6. Via Arienkavo from Trivandrum to Tinnevelly, the nearest railway station at present open, would be the same distance as by the southern route, via Aramboly and would require about the same relative length of line to be newly constructed in either district 60 miles in Travancore, 35 in British territory.

7. But the Arienkavo line would bring the railway much nearer to the centre of Travancore, and at once, within easy reach of such important places as Quilon and Alleppey which, (were the southern route via Aramboly adopted) would hardly be beneficially influenced by the railway at all.

8. So far as the question of relative distances go, the following tables will be convincing:—

(1) From Trivandrum to the nearest point of existing railway is via Aramboly to Tinnevelly—95 miles via Arienkavo to Tinnevelly—95 miles

(2) From Trivandrum to Covilputty via Arienkavo would be 105 miles for purposes of railway construction, but would effect a saving of distance to stations north of Covilputty (that is, to Madura, Trichinopoly and Madras) of 35 miles over the route via Tinnevelly.

(3) From Quilon to Covilputty via Arienkavo supposing the railway opened would give 20 miles of reach plus 65 of rail, against 40 miles of water communication and 135 miles of rail via Trivandrum and Tinnevelly, a saving of 90 miles.

(4) From Alleppey to Covilputty, 60 miles of reach plus 55 miles of rail, via Arienkavo against 90 miles water plus 135 miles of rail via Trivandrum and Tinnevelly, a saving of 110 miles.

9. Even the important seaport of Cochin would be brought within 80 miles of the southern rail and connected with it at Arienkavo by a good road and water communication.

10. Again the Arienkavo route will work in, most admirably, with the whole system of the Travancore roads constructed and projected; the railway would hardly compete with our roads (except on the main line to Trivandrum) but on the contrary would assist in developing the traffic already being fast established.

11. The features of the country between Covilputty and Arienkavo are, I understand, very similar to those between Tinnevelly and Aramboly but more thickly populated and more highly cultivated, there would be no heavy bridge work on the British site such as must be undertaken on the southern route.

12. On the Travancore site, I believe, by a carefully selected line the cost of the railway from Arienkavo to Trivandrum would not exceed (to a very great extent) the cost of a line to Aramboly, and taken over the whole route and taking into account the large bridges required over the Tambrapoorni river in Tinnevely and the Coolitoray, the Nevattincaray and the Haramanay rivers on the southern route the cost of the two lines would, I believe, be pretty nearly equal.

13. On the Arienkavo route the chief obstacle to be overcome is the ghaut at Arienkavo which may be taken at 1,200 feet in elevation above sea level, of which, however, 200 might be cut out by a short length of tunnel through the crest, while the country about Shencottah being about 500 feet above the sea, would leave only 500 feet of elevation to be attained by an incline, and this, owing to the features of the hills, could be laid out with such easy gradients, as to present no difficulty in working the line with engines of the ordinary type. The ghaut work itself would not be very expensive.

14. No doubt the traffic through Aramboly at present exceeds that through the Arienkavo pass, and the country south of Trivandrum is much more highly cultivated than in the north; but taking into consideration the rapid manner in which land is being taken up in the districts north of Trivandrum the great impulse recently given to coffee planting on a large scale in the Colatoorpolay valley the existence of valuable forests lying unopened along the line of railway now advocated the central position of Arienkavo with the several roads conveying upon it the amount of traffic that must eventually be developed by that route, and its position with regard to any possible extension of the railway. I do not think it would be wise to adopt the Aramboly route without a thorough investigation of the alternative route I now advocate.

*P.S.*—For facility of reference, I give geographically an outline of the positions of the routes mentioned and the distances assumed for calculations.

*Memorandum.*

*From*—W. BARTON, Esq., Chief Engineer, Trivandrum.

*To*—(not available).

*Dated*—Trivandrum, 28th October 1876.

*No.*—4636.

In a Memorandum No. 963, dated 3rd March 1876, I recorded my views on the route which would probably be found the best for bringing a line of railway into Travancore. Since then I have been able to examine that route more carefully and to obtain information, which may help to advance the consideration of the subject a stage further.

2. All idea of the line being brought in, via Aramboly, seems to have been abandoned for good. Another point, namely, the existence of a low pass in the hills south of Arienkavo, (and consequently in a more direct line between Trivandrum and Tinnevely) has also been finally disposed of.

3. There certainly is no pass between Mahendragherry and Arienkavo lower than 3,500 feet above sea level and the features of the hills on their eastern slopes indicate that, only at enormous cost and loss of power by reverse gradients, could a line of railway be undertaken by any such route.

4. Trivandrum, for various reasons, must become for the present the terminus on the Travancore side, and the Arienkavo Pass being the accepted route, the question remaining to be decided, is the point which should be selected for the junction with the South Indian line.

5. I have had the opportunity of inspecting the country between Arienkavo and Tinnevely, and was much struck with the vast extent of highly cultivated land, and the large towns on the route taken through Courtalam, Patanasam, Ambasamudram, and Shermadevi, and favoured with much reliable information obtained on that tour, I am perfectly convinced that any railway whether made as an extension to the existing system, as a main line into Travancore, or as a loop line would be a certain success financially and in every other way, still, I have grave doubts

whether that is the proper route by which the junction between Travancore and the South Indian Railway should be effected. I still think, Covilputty or a point a few miles south of that station and shewn in the accompanying map is the proper point of junction.

6. I learn from the Revenue Survey maps, and published statistical returns (the records of the Madras Government) that a line taken direct from Shencottah to Covilputty will traverse the taluk of Tenkasi, through the greatest length. The taluk has for its dimensions, a length of 40 miles and an average breadth of  $8\frac{1}{2}$  miles; it contains a population of 122,000 which bears the proportion of 360 persons to each square mile. Along its route the railway would touch, or serve, the following important towns:—

Nuddavacoorehy, population 2,000, Shembarancovil, population 12,000, Koorvecolem, population 6,000, Kulloogoomullay, population 4,000, Ilangi, population 2,000, Kuddanelloor, population 6,500, Krishnapooram, population 2,300, Melagaram, population 1,500.

The country is perfectly free from every sort of natural obstacles to economical railway construction.

7. The distance to the Port of Tuticorin—a port open at seasons when the coast line of Travancore is closed—will be put 5 miles further by way of Covilputty, than via Tinnevelly, supposing the line to be taken that way.

8. It requires but to glance at the map, to see how ill-looking and inconvenient an arrangement it would be, if, what may be called, the heart of the Travancore country is to be reached from the main line by the round about way of Tinnevelly.

9. But I am ready to admit the importance of the consideration of getting a good paying line up to the frontier, and to extend this line into a territory new to railway experience, its conveniences and comforts, and, I believe, *profits*, in every way, to individuals and to the State itself.

10. I would therefore, with these few general remarks recorded, prefer to address myself chiefly to the consideration of matters connected with the portion of the line of railway within the territory of Travancore.

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From—N. NANOO PILLAY, Dewan.

To—J. C. HANNYINGTON, Esq., Acting British Resident, Travancore, etc.

Dated—Trivandrum, 25th November 1878.

No.—5416 of P.M. 1534.

I have the honour to acknowledge your letter No. 790, dated, 12th September last, forwarding copy of one from Mr. Pennington, No. 1305, dated 23rd August, in regard to the extension of the railway to Travancore.

2. The papers have been duly submitted to His Highness the Maharajah.

3. Though fully alive to the importance of placing Travancore in easy communication with the rest of India, His Highness still feels that a little state like this should not enter upon a project of such magnitude till we are satisfied that our engagements can be fully met without embarrassment to our finances and till we are in possession of sufficient data on which a judgment could be formed as to whether the advantages would be at all commensurate to the outlay.

4. Our Chief Engineer Mr. Barton has furnished a memorandum shewing probable cost and returns; but the figures, I believe, are not the result of accurate investigation, no regular surveys and estimates based thereon having been made to determine the approximate outlay, while in respect of anticipated returns, he has, I fear, gone beyond the mark in more than one item.

5. On Mr. Barton's return from leave steps will be taken to ensure reliable estimates of charges and receipts and in the meanwhile, I shall be obliged if you will kindly procure for me from the British authorities information on the following points:—

(1) The cost of construction per mile of the South Indian Railway metre gauge including rolling stock.

(2) The probable cost per mile of a similar line carried over ground such as the proposed Travancore line has to traverse, that is, over a hilly country.

(3) The charges of maintenance and working per mile of the South Indian Railway.

(4) The returns per day per mile on (a) passenger traffic, (b) on goods, giving also number of passengers and quantity of goods.

(5) The value of land per mile taken up by the railway, independent of charges of construction (a) where the land is waste, yet having to be paid for as private property, (b) where it is cultivated, either as garden land or paddy fields.

(6) Did the Company purchase the land or was value paid by Government.

(7) The Tinnevely traffic (passengers and goods) that now use our trunk road through Nagercoil, and the road from Shencottah to Quilon. This will be useful as a check on our own returns.

(8) During what months are the ports of Tuticorin and Negapatam closed, and could any of the sea-borne trade of those districts be expected to run into our ports of Quilon and Alleppy; and if so, to what extent.

(9) What is the charge of carrying at on of goods per mile on the South Indian Line.

(10) The average charge of conveyance of a passenger for the same distance.

(11) Who pays the Railway Police, Government or the Company and what are the charges for every ten miles?

(12) Any information that could be obtained in regard to the arrangements that are made in Mysore and the Nizams dominions for the levy of duty on articles going out or coming in by the railway will also be very acceptable.

6. I shall be obliged also if you could procure for me a copy of Mr. Danver's report on the working of Indian Railways, which, I believe, has lately been issued.

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