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MADRAS RECORD OFFICE.

Government of Madras.

Public works **DEPARTMENT.**

G.O. No. 13370. Press ~~Mis.~~

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Proceedings of the Madras Government, Public Works Department, 14th May 1872.

No. 463A. Read the following letter from the Consulting Engineer for Railways, to the Secretary to Government, Public Works Department, dated Madras, 26th April 1872, No. 202:—

In their Proceedings dated the 27th March 1871, No. 910, when passing orders with regard to the general direction to be followed by the Carnatic Railway between Madras and Cuddalore, the Government stated their opinion that opportunities should not be neglected of examining the country to the south of Cuddalore with a view of selecting the most favourable route for an extension to join the Great Southern of India Railway.

Subsequently, on the 14th September 1871,* authority was communicated from the Government of India for permitting the Carnatic Railway Company to undertake the surveys for an extension from Cuddalore to the Coleroon river; subject to the distinct proviso that the permission conveyed to the Company no claim to the concession for the construction of such extension.

* G. O., No. 2,334.

In like manner, on the 21st September 1871,† authority was communicated from the Government of India for permitting the Great Southern of India Railway Company, subject to a similar proviso, to undertake the survey of the country between their existing line and the Coleroon river. In conveying this authority, the Government of India desired that the question as to the best point for the bifurcation northward from the main line should be fully investigated.

† G. O., No. 2,414.

2. I have now the honour to lay before Government reports‡ from the Railway authorities giving the results of the examinations which have been made of the country between Cuddalore and the Great Southern of India Railway; and I trust that the information now submitted will enable the Government to determine the general direction of the proposed extension. Mr. Logan's report is accompanied by plans and sections, showing the result of the trial survey to the south of the Coleroon, and he has also submitted an estimate of the cost of that portion of the line. I have not sent these on with the report, as it seems better that they should be laid before Government, together with the corresponding documents for the portion to the north of the Coleroon, when received from the Carnatic Railway authorities. The object of the papers now submitted is to obtain a decision, if possible, on the general direction of the line.

‡ From Agent, Great Southern of India Railway Company, No. 4,366, dated 2nd February 1872.
From Agent, Carnatic Railway Company, No. 389, dated 2nd April 1872.

3. The question as to the point at which the proposed railway should join the existing line of the Great Southern of India Railway Company is now narrowed to a choice between Trichinopoly and Tanjore.

In the years 1868-69, when the advisability of making a branch to Combaconum was under discussion, Needamungalum and Tanjore were proposed as alternative starting points; but when, instead of constructing a short branch to accommodate the town of Combaconum, it was proposed to unite the Carnatic and the Great Southern of India Railways, Needamungalum dropped out of consider-

ation. The only argument in its favour was that a branch starting from it was the shortest and cheapest mode of bringing Combaconum into communication with the railway. The local traffic would not have been so well served by it as by a branch starting from Tanjore, and when it came to be considered as a link in the line of communication from north to south, a glance at the map was sufficient to show that the through traffic would suffer considerably from the unnecessary detour.

Trivellore is the only other point on the line at which it would be possible to suggest a junction, but the considerations which have just been mentioned against Needamungalum apply here with still greater force, in addition to which a line joining the Great Southern Railway at Trivellore would run northwards to Mayaverain, leaving the important town of Combaconum as far from the railway as it now is. Mr. Logan in his report* looks forward to the time when it will be found advisable to open up the tract of richly cultivated country between Mayaveram and Trivellore by a cross line between the two towns. I am inclined to agree with him in looking to this as a probable contingency; but it is clear that the point of junction for the line now under consideration must not be fixed to the east of Tanjore.

* Paragraph 15.

4. Between Tanjore and Trichinopoly, as alternative points of departure for the proposed line, the Great Southern of India Railway authorities give the preference altogether to Tanjore. Mr. Logan points* out that if the sole object in view were to secure the shortest possible communication between Madras and the Southern Provinces, a line in a north-easterly direction from Trichinopoly would be chosen; but he shows that it would pass through a comparatively poor and thinly populated country, and for a considerable distance through mere jungle. On the other hand, he points out that a line starting from Tanjore would pass through the most highly cultivated and most populous tract to the south of Madras. To decide the question, it seems sufficient to mention that a line starting from Trichinopoly would avoid the whole of the Cauvery Delta, and would pass at a distance from all the important towns in that district, such as Combaconum, Mayaveram, Chellumbrum, etc., which it is the chief object of the proposed railway to accommodate.

* Paragraphs 3 and 4.

5. Having fixed on Tanjore as the place from which the proposed line should bifurcate, Mr. Logan subsequently* raises the question whether the actual point of junction should be at the site of the present station, or some 3½ miles to the eastward. He remarks that the existing line rises 42 feet in those 3½ miles up to the Tanjore Station, and that goods sent from Negapatam and other eastward stations to the north and *vice versa* would be saved this rise if the junction station were fixed at a point from 3 to 4 miles east of the present station. On the other hand, he points out that whatever benefits such an arrangement might confer upon a small portion of the local traffic would be more than counteracted by the disadvantages resulting therefrom to the through traffic; and that it is also of importance not to miss any of the thickly populated tract between Tanjore and

* Paragraphs 13, 14, and 15.

Proceedings of the Madras Government, Public Works Department,
14th May 1872.

Combaconum. He has therefore decided on recommending that the point of junction should be as near to the present Tanjore Station as possible, and in this I entirely agree with him. Besides the arguments cited by Mr. Logan, it seems clear that the proposal to locate the junction 3 or 4 miles east of Tanjore would entail the cost of building and keeping up an extra station without any prospect of a proportional increase to the traffic.

6. Leaving Tanjore, the line of the trial survey has been carried over the Vennaur and Vettaur rivers to the proposed stations at Janpetta (8 miles from Tanjore, 3rd class) and Paupanassum (14 miles, 2nd class). It then crosses the Coodamurty river to the proposed station at Soondaraperoomaul Covil (17¼ miles, 3rd class). Then after crossing the Arselaur river it reaches the proposed station at Combaconum (23 miles, 1st class). Then without crossing any other large rivers, but being carried over a number of smaller streams and irrigation channels, it reaches successively the proposed stations at Tirruvadamardoor (28¼ miles, 2nd class); Auduthory (30½ miles, 3rd class); Cootalum (37 miles, 2nd class); Vydespooram (51¼ miles, 2nd class); Cornaud or Mayaveram (42½ miles, 2nd class); and Anigari Chuttrum (60½ miles, 3rd class). At 61 miles 7 chains the proposed line reaches the bank of the Coleroon river.

The gradients, as might be expected from the nature of the country, are very favourable. The ruling gradient is 1 in 200 for a short distance, but by far the greater part of the line is either level or nearly so.

7. Mr. Logan, in his report, gives some particulars regarding the traffic which may be expected to come into the line. He does not enter into elaborate statistics; and it is not necessary for me to follow him into the figures given in his report, as the Government are aware that this part of the line will pass through the richest and the most populous part of Southern India.

Before passing on to the portion of the line which lies to the north of the Coleroon, it is sufficient to say that the direction in which the trial survey has been carried by Mr. Logan has my entire approval. The Deputy Consulting Engineer has lately inspected the country in Mr. Logan's company, and, with the exception of one or two points upon which his suggestions have been adopted, he has expressed his entire general approval of the line which has been surveyed, and the proposals made with reference thereto.

The estimate submitted by Mr. Logan of the cost of the 61 miles 7 chains of railway between Tanjore and the Coleroon river amounts to Rupees 32,77,492. This includes provision for telegraph and for wire fencing for the whole line. The telegraph will probably be constructed by the State; and if one-half of the fencing can be dispensed with, the estimate will be reduced to Rupees 31,40,618, being at the rate of £5,108 per mile.

8. To the north of the Coleroon river thence to Cuddalore, I regret to say that no survey has yet been made. The engineering staff of the Carnatic Railway Company has been altogether employed in preparing the plans and sections for the line between Madras and Cuddalore, and it is only within the last few days that one Engineer has been detached to make trial surveys to the south of Cuddalore.

Mr. Dibblee, in his report, gives the result of the general examination which he has made of the country through which the proposed line will run, together

with such statistical information as he has been able to collect. His report is also accompanied by a sketch map on which are marked four routes which have been proposed with the view of uniting the Carnatic and the Great Southern of India Railways.

9. Route No. 1 leads from Panrooty in a south-westerly direction to Trichinopoly. This has been already discussed, and may be dismissed from consideration without further remark.

Route No. 2 unites Panrooty with Combaconum by the shortest possible line. There is not much to be said in favour of this line. Mr. Dibblee remarks that until the Coleroon is crossed it passes through a thinly populated tract. This remark is confirmed by the Deputy Consulting Engineer who has lately examined the line and pronounced it, in his opinion, far inferior to either of the routes Nos. 3 and 4. The Collector and Sub-Collector of South Arcot, in letters* herewith submitted, also pronounce against it.

* No. 204, 20th October 1871.
,, 496, 7th ,, ,,

Route No. 3 leads from Panrooty through Vullapollum to Chellumbrum, and thence over the Coleroon river to Sheally.

Route No. 4 joins Cuddalore with Chellumbrum, passing near Porto-Novo. From Chellumbrum it follows the same line as No. 3.

10. The only point which seems open to question is whether No. 3 or No. 4 route should be adopted; that is, whether from Chellumbrum the proposed line should join the Carnatic Railway at Cuddalore or at Panrooty.

In the Chief Engineer's report there is no preference given to either of these two routes. Mr. Fisher, in sending on Mr. Dibblee's report, seems to give the preference to No. 3, but he assigns no reason for so doing. The chief arguments in favour of each of these routes seem to be as follow:—

On the one hand, the adoption of route No. 3 will reduce by about 10 miles the length of the through journey between Madras and the south. This advantage will be gained at the cost of constructing some 9 additional miles of railway, and of increasing the working expenses of the portion between Panrooty and Cuddalore by making it a branch.

NOTE.—In Mr. Dibblee's report No. 3 is represented as entailing only 7 miles more new line than No. 4, and the length of the through journey by the latter is given as 12 miles more than by No. 3.
I have since learnt from him that, in order to preserve the ruling gradient of 1 in 140, it will be necessary, if No. 3 is followed, to make a detour which will lengthen the line by about 2 miles.

On the other hand, if route No. 4 be chosen, the length of the line to be constructed will be reduced by about 9 miles (and the Chief Engineer states his opinion that, mile for mile, the cost of the railway by either route will be the same); the town of Cuddalore will be placed on the main line instead of on a branch, and the railway can be taken either close to Porto-Novo, or within easy reach, by road and navigable river, of that seaport. It will be seen that the Revenue Officers attach great importance to bringing the line near Porto-Novo.

Another advantage which seems likely to result from the adoption of route No. 4 is the saving of a bridge over the Guddelum river. In their Proceedings* under date the 27th March 1871, the Government expressed the opinion that the

* G. O., No. 910, paragraph 7.

line should be taken across the Guddelum near Panrooty, and should skirt the right bank of the river to Cuddalore. An examination of the country makes it doubtful whether this is possible, unless with the additional cost of a tunnel through a range of laterite hills, which at one point prevent all access to Cuddalore along the south bank of the Guddelum. At present it seems probable that Cuddalore can be reached from Panrooty in one of two ways only; either by following the south bank of the Guddelum and tunnelling through the laterite hills, or by following the north bank and crossing the river lower down near Padricoopum. The latter course will probably be the cheaper, and if it be followed, route No. 4 will obviate all necessity for a second bridge over the Guddelum.

11. Upon the whole the balance of advantage is decidedly in favour of route No. 4, and I have no hesitation in recommending that, after crossing the Coleroon river, the line should be taken to Chellumbrum, and passing as near Porto-Novo as may appear desirable to Cuddalore, and thence to Panrooty. I have already asked the Agent to restrict all further examination and survey to the two routes which will pass through Chellumbrum, Nos. 3 and 4; but, with the approval of Government, I will now call on him to have the survey made of that line only which I have sketched out, namely, from Chellumbrum near Porto-Novo to Cuddalore. The portion between Cuddalore and Panrooty is included in the line which has been already conceded to the Carnatic Railway Company.

It is impossible, until further information is gained, to give a list of sites for stations on this part of the line. The ruling gradient will be the same as between Madras and Cuddalore, 1 in 140.

In roughly estimating the cost of this portion, it seems safe to count on it not exceeding the figure given in Mr. Logan's estimate for the portion south of the Coleroon, namely, £5,108 per mile, as the masonry works will be fewer and smaller than in Tanjore. It is, however, quite impossible to approach accuracy in estimating the cost until the line has been surveyed; and my object at present, as I have already said, is to obtain a decision on the general direction of the line, so as to ensure the survey being completed as soon as possible.

From the Agent of the Great Southern of India Railway, to the Consulting Engineer for Railways, dated Negapatam, 2nd February 1872, No. 4,366.

WHEN the question of gauge for the Southern Extension was discussed at the Council Chamber in March last, I represented that my Directors had raised capital for the construction of a railway on the same gauge as that adopted for the open line, and if it was decided to extend the line southwards on a narrow gauge a large portion of the capital thus raised would be lying idle. I submitted, therefore, that a further extension northwards should be conceded to the Great Southern of India Railway Company, so that the surplus capital might be made available.

2. When the Chief Engineer found he could set aside part of his staff to examine the district to the north of Tanjore, application was made to undertake a preliminary survey in that direction, and the sanction of Government was accorded.

3. I now submit, for the orders of Government, a report from the Chief Engineer giving the result of the survey. Mr. Logan informs me that for expenditure not detailed in his estimate he has taken a mileage proportion of similar expenditure as entered in his estimates for the Southern Extension.

From D. LOGAN, Esq., Chief Engineer, to W. S. BETTS, Esq., dated Trichinopoly, 27th January 1872.

HEREWITH I have the pleasure to forward plans and estimates for the proposed extension of our line towards Madras, intended to join the Carnatic Railway at the Coleroon on the borders of the South Arcot and Tanjore Districts.

2. As you are aware, when the preparation of the working plans and estimates for the Southern Extension drew to a close—this being the only work sanctioned by Government on which I could keep my staff employed—I asked and obtained permission to undertake a preliminary or trial survey and section through the northern part of Tanjore, and the plans and estimates now forwarded are the results of the investigations undertaken.

3. In selecting Tanjore or its neighbourhood as the point of bifurcation, I have been guided by the consideration that a line branching from that town and running in a north-easterly direction through Paupanassum, Combaconum, Mayaveram and Sheally up to Chellumbrum would run through by far the richest, most populous, and most cultivated part of the country lying at all within the range of a main line of communication between the south and Madras—I might safely say through the most cultivated and most populous tract of country south of Madras.

4. Glancing at the map, and looking merely to directness of communication, a continuation of the Southern Extension through Trichinopoly across the Cauvery and Coleroon rivers and so on in a north-easterly direction towards Cuddalore would best serve that end, but compared with the line selected for the trial survey now forwarded such a route would pass through a much poorer and less populous country, and a considerable portion through mere jungle. Indeed, the only advocates, of whom I have heard, for any approximation to this route, base their arguments on the allegation that along a good portion of it land could be had cheaply for the railway, while there would be a plentiful supply of firewood available for locomotives from the jungles.

5. The line leaving from Tanjore starts from a large and populous town, the capital of the district and the head-quarters of the Revenue, Judicial, Public Works and Police Departments, passes through or close to an almost continuous line of towns and villages as far as Mayaveram, while along the whole course to the river Coleroon it runs through rich and cultivated land.

6. To give some idea of the population between Tanjore and Combaconum, a distance by road of about 24 miles, I may state that, exclusive of those towns, the population of the villages on the road is about 18,000, while the inhabitants of the large villages lying within 5 miles on either side of the road number upwards of 67,000 in all within a belt of 10 miles over 85,000 people. Including Tanjore and Combaconum the population exceeds 155,000 along this route.

7. Combaconum is reputed one of the wealthiest and most sacred towns in Southern India. Its population is estimated at from 35,000 to 40,000, with a large and increasing trade. In addition to the annual flux and re-flux of pilgrims to and from its sacred places, there is the great Mamangum Festival which occurs every twelve years to which devotees go from all parts of the country. The last festival took place in 1862, and it was then estimated that no less than 500,000 people congregated at it. From Combaconum through Mayaveram (population 18,000) up to the northern limits of the Mayaveram Taluq, a distance of about 28 miles, a population of upwards of 61,000 exists within the limits of half a mile on each side of the main road, making an aggregate population along 52 miles (counting from Tanjore) of the proposed railway of about 216,000, or over 4,000 inhabitants per lineal mile. On the remaining 10 miles through the Sheally Taluq the population is not so dense, but there are several villages of importance, for instance, Sheally itself and Veedespooram, where a celebrated temple exists to which multitudes of pilgrims resort; and beyond, about 4 miles to the north of the river Coleroon, is the large and important town of Chellumbrum (about 15,000 inhabitants) with its celebrated temple, to which also numbers of devotees flock.

8. There are two festivals in the year at Chellumbrum, one in June and the other in December; at the former about 7,000 and to the latter about 15,000 people come. There is a large export trade in grain, which is shipped at Porto-Novo, principally for Colombo. A quantity of cloth is also made here, 1,300 looms being employed. Silk weaving is carried on by another 200 looms.

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9. Added to the large passenger traffic to be expected on so populous a line of country, there is fair reason to anticipate a very considerable traffic in goods, of which the chief items at present are rice and paddy, other grains, nuts, salt, silk, and cotton thread, cotton cloths, oils, iron, copper and brass vessels.

10. As some indication of the value of the traffic in the more important items just mentioned, I subjoin a statement furnished by the Revenue authorities of articles exported from, and imported into, Combaconum in the year 1870 :—

Name.	Value.	Remarks.
	RS.	
Silk thread	9,00,000	Goes to Cottalum, Andoothoray, Trichinopoly, etc. The raw material comes from Bangalore and Bengal. Value of silk cloth per 100 Rs. weight is— Corah or raw silk 10½, at 17 Rupees. Red or scarlet 25, at 36 ,, Yellow 25, at 34 ,,
Brass vessels	2,16,000	Sent to Madras, Salem, Conjeveram, Trichinopoly, Mayaveram, and all over Southern India. The vessels made in Combaconum are considered superior and much in demand everywhere. A seer of 25 Rs. weight costs 6 Annas. The raw material comes from Madras.
Cotton cloths	6,00,000	Sent to Trichinopoly, Mysore, Salem, etc.
Nana (dye root)	1,20,000	Goes to Madura, Cuddapah, Madras, etc.
Cotton thread	3,00,000	Imported from Madras.
Rice and paddy	3,60,000	
Other grains	1,80,000	
Oils	3,00,000	
Iron	60,000	Imported from Madras and Negapatam.
Copper	1,00,000	
Miscellaneous	7,20,000	

11. The exports from Mayaveram town in 1870 in paddy and rice and in silk and cotton cloths which are sent to Tanjore, Bangalore, Malabar, Madras, and elsewhere were valued at Rupees 5 lakhs, Rupees 3 lakhs (300,000). The imports during the same period were valued at Rupees 5 lakhs, the chief items being silk and cotton thread (from Negapatam and Madras); dye roots, brass and copper sheets (from Madras); tin, paddy, oils, salt, beetle nuts, brass vessels, cloths (from Madras and Negapatam); etc., etc. At Jampetta, between Tanjore and Combaconum, and at Cotalum and Conaud between Combaconum and Mayaveram, are the chief emporiums of the silk trade in the western and eastern parts respectively of the district.

12. I have not attempted to go into any elaboration of statistics, because I think sufficient has already been shown to support the statement that the line now surveyed follows the main sources of traffic for passengers and goods, and does not at the same time too far sacrifice the object of having a thorough main line of communication from north to south.

13. I have taken the Northern Extension line off the present railway, so as to make use of the present Tanjore Station, extended and enlarged, and leaving that have endeavoured to get round to the north as soon as possible into proximity with the towns and villages along the road from Tanjore to Combaconum; but it is a question for consideration whether it would not be more advisable to form the junction some little distance to the east of Tanjore so as to avoid running all goods coming from Negapatam and the east for the north and *vice versa* up-hill to Tanjore to be again lowered en-route to the north and east.

14. The present station at Tanjore stands about 60 feet above the general level of the ground (immediately to the north-east of the town) over which the proposed extension would run, while the level of the ground about 3½ miles east of Tanjore on the present open line is only 18 feet above the same, so that all goods from east to north and *vice versa* would be saved the difference in rise (42 feet) by having a junction station 3 to 4 miles east of the present Tanjore Depôt.

15. It may be said that to attempt to bring all the Negapatam and eastward traffic intended for Combaconum and the north so far west as Tanjore would be to entail so heavy a cost for transit so as to risk, if not ensure, its loss; but I think that it is important, on the other hand, not to compel the main line through traffic to be carried unduly to the eastward to accommodate the Negapatam side, while it is a matter of consequence to reach the populous road (Tanjore to Combaconum,) as nearly due north of Tanjore as possible to avoid leaving to one side (westward) some of the more important towns. Besides, I believe that in time it will be found advisable to open up the eastern tract of richly cultivated country lying between Trivellore and Mayaveram by a cross line joining these towns. When this is done the eastern portion of the district will have free access to the north without having to go round by Tanjore.

16. The line traverses wet cultivation throughout almost its whole length, necessitating a large number of irrigation culverts and waterways for which I have endeavoured to make ample but not extravagant provision in my estimates.

17. Upon the subject of the best kind of bridge over the Coleroon, I do not at present touch. During the carrying out of this survey permission was accorded by Government to our making out the land required for the Southern Extension and for a start to the collection of materials thereon, and I did not therefore keep the members of my staff from this more important work longer than was absolutely necessary to get up the preliminary plans and estimates as far as the river Coleroon, considering that I should not be justified in going into an examination of the Coleroon bed, etc., when more emergent work was waiting.

18. The total estimated cost of the $61\frac{7}{8\,0}$ miles of line up to the river Coleroon is Rupees 32,77,492, or an average of £5,366 per mile, including telegraph, rolling stock, stations and superintendence.

19. Iron wire fencing has been provided for the whole line; and this item can, of course, be considerably modified if Government will sanction the doing away with fencing except at towns and villages and their immediate neighbourhoods.

20. The permanent way and work of formation is the same as estimated for on the Southern Extension.

21. The plans sent are 30, 31, 32 a trial survey: $\frac{3\,0}{a}$ $\frac{3\,1}{a}$ $\frac{3\,2}{a}$ section of the line on a scale of 6 inches to one mile. The bridges, stations and other plans being the same as for the Southern Extension. I have not gone to the expense of furnishing duplicates, merely referring to the plans already forwarded by their respective numbers.

From the Agent and Manager of the Carnatic Railway Company, to the Acting Consulting Engineer for Railways, dated Madras, 2nd April 1872, No. 389.

I HAVE the honour to submit herewith the report of this Company's Chief Engineer upon the lines which he was requested to examine, with a view to connect the Carnatic and Great Southern Railways, starting from a point near Cuddalore as directed in your letter No. 62, 30th March 1871, and G. O., No. 910, dated 27th March 1871, together with a map showing the four lines of communication examined, with statistics relating to the population and probable traffic on those lines, respectively.

2. The Chief Engineer has abstained from offering any recommendation as to which of the lines should be selected by Government, owing to the uncertainty which exists as to the point at which this Company's junction with the Great Southern should eventually be made.

3. Adopting as the basis of my remarks the Minute of His Excellency the late Governor of Madras, wherein he states that "the line would naturally be undertaken by the Carnatic Railway Company, whether Combaconum or Tanjore should be selected as the southern terminus of the line, may be open to discussion. If Combaconum be chosen then the line from that place to Tanjore would become a branch of the Great Southern of India Railway, but it appears to me that the Carnatic Company should be permitted to occupy the whole ground up to the main line of the Great Southern of India Railway Company." I take leave to suggest that the line marked No. 3 on the map offers advantages which will recommend themselves to the favourable consideration of Government, but in the interest of this Company I feel bound to point out that should any circumstances incline the Government to decide upon a point of junction short of Tanjore, that would not be the line which would be recommended for their adoption for the following among other reasons.

Vide G. O., No. 2,396, dated 20th September 1871. Minute by His Excellency the Governor, paragraph VI, clause 1, also paragraph XIX, dated 5th June 1870.

4. As will be seen from the statistical returns accompanying the Chief Engineer's report, the portion of the line running south from Punrooty to the Coleroon is comparatively thinly populated, and its products trifling as compared with that portion of the district lying between the Coleroon and the Great Southern Company's present main line, and it is felt that it would be manifestly unfair, therefore, to give this Company the portion to construct, which would be comparatively unremunerative, while the richer and more lucrative length, for the complete development of which the intermediate portion is necessary, was given to another Company.

5. It may be further stated that the mileage from Madras to the Coleroon for instance is greater than can regularly be worked in this country by one engine and its attendant staff as one day's work, while it is not enough for two, and therefore dividing the management between Madras and Tanjore should the line be decided to be carried to that point *via* Combaconum as suggested by the route marked No. 3 would be calculated to entail an increase in the working expenses as compared with what would be necessary were the interest undivided; while an expensive work like that which will be necessary to bridge the Coleroon, costing probably over 2 lakhs of Rupees at or near the termination of one Company's property, would be calculated to create difficulty in the arrangement or division of through rates and fares with the other Company.

6. In the event therefore of any circumstances rendering the adoption of the opinions of the late Governor referred to in paragraph 3 inexpedient, the line which is recommended to the consideration of Government is that traced and described as No. 1; its construction will entail the same mileage as that by the route marked No. 3, while its cost per mile is estimated to be less than that of the other routes, and although the population and product are not so great as that of the other route referred to, there would be a saving of 31 miles upon the distance between Madras and Trichinopoly and all places south of that point.

7. I venture, while writing upon the subject of the location of the line, to allude further to the Minute of His Excellency Lord Napier before referred to, and especially to that part of it in which he submits that, "I think that Madras ought to be the starting point, and that the line should proceed southwards through Chingleput,

Vide Minute of His Excellency Lord Napier, dated 3rd April 1871, paragraph VIII., with G. O., No. 2,396.

but I think Chingleput should be united to Conjeveram by a branch line on two grounds:—

"(1). Because the French Government have always desired this connection in their interests, and it seems to me that this is a measure of friendly concession which the English Government might properly make to France, having decided the question of gauge against the wishes of France.

"(2). Because the branch line from Chingleput to Conjeveram would open a direct communication for the South Arcot District northwards and westwards without making the long detour by Madras which would not be altogether insignificant to the convenience and welfare of the province."

8. The negotiations for the construction of the proposed branch between Belpur and Pondicherry having been recently re-opened, I am led to understand that the authorities of the French Government will make it a *sine qua*, now that the connection with the interior at Arconum

be carried out as originally arranged in the provisional agreement entered into with the French Government in August 1868. I trust therefore the Government will be pleased at the same time favourably to consider this part of the subject, and sanction the construction of the short link between Conjeveram and Chingleput by which the value of the present open line will undoubtedly be increased and the percentage of its working expenses reduced, the interests of the Madras Railway Company will be conciliated, and greatly increased facilities will be afforded for the conveyance of passengers and mails between this part of Southern India and the interior of the country generally by means of the Madras Company's lines.

From the Chief Engineer, to the Agent and Manager of the Carnatic Railway Company, dated Madras, 26th March 1872, No. 165.

WITH reference to G. O., No. 910, and in compliance with the request contained in the Consulting Engineer's letter which accompanied it (paragraph 3), I have been collecting the statistical information with a view to a report on the best route for a line to form a connection between our sanctioned line and the Great Southern of India Railway.

2. Owing to there not being a map of a late date, and to the fact that the ordnance maps have the names of villages incorrectly spelt, I have found much difficulty in this. The taluq officials have expressed themselves unable to recognize the villages as written on the maps, even when the position of them was pointed out, nor have they been able to say what the names of the corresponding villages should be; my attempts to obtain information by correspondence with the Collectors have been therefore quite unsuccessful, and I have found it necessary to march through parts of the country myself, and send to all for the purpose of collecting the desired information on the spot.

3. I have now compiled the information there obtained and send herewith tables of population on either side of the several routes which have suggested themselves to me, with memoranda of the nature of the traffic which now exists in the principal towns and villages. The returns of population show the number of inhabitants, and the average per mile in each taluq within a distance of 2 miles on either side of routes which have been considered.

4. The existing road traffic found on the routes about to be considered was shown in Major Shaw-Stewart's report (see Proceedings of Government, 20th September 1871). I have had occasional accounts taken of bandies on the roads carrying produce and merchandize, and I find the proportion of traffic on the two important Trunk Roads (Nos. 8 and 9) to be the same as given by Major Shaw-Stewart.

5. I enclose a sketch map showing the various routes. No. I. is that which goes by the most direct course from Punrooty to Trichinopoly, which is the junction proposed on the Great Southern for their Southern Extension. No. II. is proposed to be taken from Punrooty by the shortest route to Combaconum and thence to Tanjore, following the direction of the present Trunk Road No. 9. No. III. from Punrooty diverges from the direct line and makes a detour to take in the town of Chedambrum, from thence following the course of Trunk Road No. 2 passes through Sheally, Mayaveram to Combaconum and Tanjore. No. IV. is from Cuddalore and follows a line nearer the coast along the Trunk Road No. 2 to Chedambrum, Sheally, Mayaveram, etc.

6. The route marked No. I. will require 94 miles of railway to be built, and will form the shortest and most direct connection between Trichinopoly and that vicinity and Madras, as well as the shortest routes over which through traffic from all places of the Southern Extension of the Great Southern Line. The most important villages on this line are Chendenar, Oolanderpet, Assanoor, Valsondah, Perambaloor, Ootalen and Seeringum.

7. The return of population shows that the Cuddalore Taluq of South Arcot is very fairly inhabited, being 696 per square mile; but that the remaining portion of South Arcot is very thinly peopled, being in Tirookohaloor 189 per mile and in Virdarchellum 272, from thence the population increases as Trichinopoly is approached.

8. The existing road traffic on this route is represented by a daily average of 909 bandies (Major Shaw-Stewart's report). By inquiries of the drivers, it was found that the larger proportion of the carts were conveying goods from Trichinopoly, Madura, etc., to Madras and *vice versa*. It is therefore to be concluded that for parts of this route the local traffic will be insignificant, but that for through traffic it is the most direct and natural course.

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9. The statement of total population appended gives the number and average per mile for a width of 4 miles, being two on either side of the line. The memorandum of traffic in the villages shows the nature of the present trade and the direction in which it is now carried on; as a rule, most of the trade is with Madras, there being a small proportion with other places, such as indigo with Cuddalore and Pondicherry, dry grain and oil seeds with Trichinopoly, and salt from Mercanum.

10. There are no engineering difficulties to be apprehended; a line with good gradients can be obtained throughout, while the provision for drainage will be less costly than on any of the other routes, as this line will cross the streams much nearer to their sources.

11. Route No. II. leaves the present sanctioned line at Punrooty taking the most direct course to Combaconum, following the line of the Trunk Road No. 9 passing Vullapullum, Palamcottah, Combaconum, Pavanasi to Tanjore.

12. The population returns for this route show it to be exceedingly scanty through Cuddalore, Chedumbrum, and Woodiarpollium, being 452, 382, and 246 per square mile for those taluqs respectively. For this portion of the line therefore (40 miles) but little local traffic can be expected, while the southern portion through the taluqs of Combaconum and Tanjore being most densely peopled will yield a very large return in this respect. The number of bandies using this Trunk Road is given as 558 daily average, and from my inquiries it is found that they conveyed chiefly traffic from Combaconum, Tanjore, and Negapatam to Madras, and to places on our present sanctioned line and *vice versa*. It would seem therefore that the through traffic by this route is not so great as on route No. I, and being consigned to places at shorter distances from the metropolis, it could afford being carried round by a detour with less danger of being checked in its development. The through traffic for Trichinopoly, Madura, etc., will have 20 miles longer carriage on this route than by No. I, 81 miles of new line will be required for No. II.

13. Route No. III. branches off at the same place as No. II. (Punrooty) and follows the same direction for about 17 miles to Vullupullum, at which place it makes a detour towards Chedambrum, from whence it follows the course of Trunk Road No. 2 through Sheally, Mayaveram, Combaconum, Pavanasi to Tanjore.

14. The same feature in this route as on No. II. presents itself; the first portion of the line goes through a thinly populated country from which little local traffic can be anticipated, that is, for the first 35 miles up to the town of Chedambrum; it will be seen from the returns, however, that from thence to Tanjore the numbers are exceedingly large.

15. The local traffic through these taluqs, Sheally, Mayaveram, Combaconum, and Tanjore, must necessarily be great, as the people are not only numerous but wealthy; the country is well-watered and productive, and there will always be paddy and rice to be exported. In addition to this there are many large temples in the principal towns to which the people flock in great numbers during the periodical festivals; a very large passenger traffic is consequently to be looked for.

16. The total length of line to be constructed by this route will be 94 miles, the northern portion of which can be built at as little cost as route No. I. The southern part, however, will be more expensive, passing as it does across the drainage of the delta which is intersected throughout by numerous branches of the rivers Cauvery and Coleroon and irrigation channels from them. The cost of masonry and bridges will form a most important item in the estimate.

17. Route No. IV. is to leave our sanctioned line at Cuddalore instead of at Punrooty, and will pass nearer the coast than any other to Chedambrum, from whence it will follow the same course as No. III. to Tanjore. By adopting this route, a shorter length of new line will be required than for No. III. and the works would be less expensive, a bridge over the river Guddulum being saved and the country being almost a perfect level. The working of the traffic also would be more economically performed between Cuddalore and Punrooty, as this portion would become a part of the main line instead of being a branch. Against these advantages must be considered the fact

that through traffic will be carried a greater distance than by any other route, 41 miles more than route No. I., 23 than No. II., and 10 more than No. III.

18. In dealing with this subject I have collected my statistics and information for the whole country down to Tanjore, although the Consulting Engineer's letter directs attention only to the river Coleroon, as I have felt there would be a difficulty in making a correct comparison between relative advantages in distances, traffic, etc., on the routes to Tanjore as compared with the direct through route to Trichinopoly.

19. The distances by the various routes and the length of line to be constructed are as follow :—

	Madras to Trichinopoly.	New line required.
By Route, No. I.	205	94
,, ,, No. II.	223	81
,, ,, No. III.	236	94
,, ,, No. IV.	248	87

20. In connection with the subject of through traffic the returns show that the through traffic from Trichinopoly, Madura, and towns on the Southern Extension of the Great Southern of India will amount to at least one-half more than that from Combaconum and towns in that vicinity to Madras, being 909 daily bandies in one case as against 558 in the other. The people of the south also will necessarily be more heavily taxed in respect of carriage of goods than others under the most favourable circumstances, the distances being greater. The extra distances in either case for through traffic would be as follows :—

	Route I.	Route IV.	Extra distance for through traffic.
Madras to Combaconum	259	194	65
Do. to Trichinopoly for the south	205	248	43

That is, the people of Combaconum would be prejudiced as regards through traffic in one case to the extent of 65 miles extra carriage, whilst those of Trichinopoly, Madura, and the south in the other would have 43 extra carriage for the larger quantity of goods.

21. I am not in a position at present to give definite estimates of the cost of the various routes, but from my observation of the country in passing through, I have little hesitation in saying that the construction of route No. I would involve an expenditure of from 10 to 15 per cent. less per mile than our sanctioned line throughout'; No. II. will cost the same; while Nos. III. and IV. would probably exceed the cost of our line to the extent of 10 to 15 per cent. per mile throughout. I am, therefore, of the opinion that the new line for No. I., although of a greater length than No. IV. could be built at the same gross cost; that it would involve a slight increase of expenditure over No. II., and a saving as compared with No. III.

22. I propose, with reference to the actual survey, that, as soon as some of the members of my staff have completed what is required for the survey, plans, and estimates of the sanctioned line, to run a line and levels along route No. III., pending instructions from Government as to which route should be adopted, as this line is for a part of its length common to two of the others, and a survey of it will be of use in the event of either Nos. II., III. or IV. being selected.

23. With the foregoing remarks, I think that the questions for consideration and on which the views of Government should be solicited are whether route No. I. requiring as it does as little expenditure as any of the others (No. II. excepted) should not be adopted out of consideration for the through traffic from Trichinopoly and the Southern Extension of the Great Southern of India Railway, which is greater than the through traffic that can be expected from elsewhere, but which latter will flow to this line in any case; whether on the contrary the expense being nearly the same the advantages to be derived from a larger local traffic in the district of Tanjore will not be such as to counterbalance the drawbacks of carrying Trichinopoly through traffic by a circuitous route. In the event of No. I. being rejected, and Nos. II., III. and IV. being alone considered, whether the saving in new line to be built and slight saving in cost of working expenses from Cuddalore to Punrooty are sufficient to counterbalance the inconvenience and cost of carrying the through traffic an extra distance of 12 miles as compared with No. III.

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ROUTE No. I.

Memorandum of Population within two miles on both sides of Road No. 8 from Punrooty to Trichinopoly.

Names of the Taluqs.	Number of Population.	Area.	Population per square mile.
Punrooty to boundary, Cuddalore Taluq	16,695	24	696
Tirookohaloor do.	17,997	95	189
Virdrachellum do.	21,740	80	272
Perambaloor do.	34,237	96	356
Musure do.	12,500	38	329
Trichinopoly do.	34,986	48	729

ROUTE No. II.

Memorandum of Population within two miles each side of Road No. 9 from Punrooty to Tanjore.

Names of the Taluqs.	Number of Population.	Area, square miles.	Average per mile.
Cuddalore Taluq...	36,133	80	452
Chedambrum do.	19,894	52	382
Woodiarpoliem do.	11,808	48	246
Combaconum do.	165,985	88	1,886
Tanjore do.	87,892	50	1,758

ROUTE No. III.

Memorandum of Population within two miles on each side of Routes from Punrooty via Chedambrum, Sheally, Combaconum to Tanjore.

Names of the Taluqs.	Number of Population.	Area.	Average per square mile.
From Punrooty to boundary of Cuddalore Taluq	36,133	80	452
Chedambrum Taluq *via* town Chedambrum	48,026	56	858
Sheally Taluq	39,891	52	767
Mayaveram do.	41,909	68	616
Combaconum do.	128,089	68	1,883
Tanjore do.	87,892	50	1,758

ROUTE No. IV.

Memorandum of Population within two miles each side of Road No. 2 from Cuddalore to Tanjore.

Names of the Taluqs.	Number of Population.	Area.	Average of square mile.
Cuddalore Taluq	.....	36	452
Chedambrum do.	49,114	64	767
Sheally do.	39,891	52	767
Mayaveram do.	41,909	68	616
Combaconum do.	128,089	68	1,883
Tanjore do.	87,892	50	1,758

Statement showing the Number of Villages, Houses, Population, chief Productions, Export, Import, Number of Bandies in each Village, Route No. 2.

Number of Villages.	Names of Villages.	Number of Houses.	Number of Population.	Number of Bandies in the Villages.	Chief Productions.	Export to—	Import from—
1	Punrooty	1,011	7,008	70	Paddy, gram, cotton, oil seeds, gingelly seeds, green gram, chillies, and coriander.	Madras.—Cotton, indigo, oil seeds, gingelly seeds, and gram; to Chellambrum, oil in dubbers.	Madras.—Bales of longcloths, chintz, iron and other articles, color roots from Negapatam.
2	Kuringipady ...	740	4,625	30	Paddy, indigo, cholum, raggy and manilla seeds.	Madras and Cuddalore.—Annually 300 bandies of indigo. Manilla seeds to Punrooty.	Cuddalore.—Cocoanut and salt. Salem.—Chillies, nut, and green gram.
3	Buvanaghree ...	1,138	7,086	25	Large quantities of paddy, raggy, cholum, indigo and manilla seeds.	Madras and Pondicherry.—Annually 100 bandies of indigo, and about 50 bandies of women's cloth. Combaconum and Chellumburum.—Cloth and manilla seeds.	Combaconum.—Brass vessels, chillies, coriander and tabacco. Salem.—Chillies, oil seeds, gram and garlic.
4	Chedumbrum ...	2,974	15,987	100	Only paddy	Punrooty, Cuddalore and other places.—Paddy in abundance.	Punrooty.—Oil and cloth. Madras.—Longcloth, chintz cotton thread, English articles and iron.
5	Sheally	768	4,086	70	Do.	Tanjore, Negapatam and Ceylon.—Large quantities of paddy and rice.	Cuddalore.—Dholl, gram, chillies, coriander and other articles. Madras.—Bales of longcloth and cotton thread.
6	Mayaveram... ...	4,130	20,295	50	Do.	Tanjore, Negapatam and Ceylon.—Large quantities of paddy and rice.	Cuddalore.—Dholl, gram, chillies, coriander, and other articles. Madras.—Bales of longcloth, etc.
7	Combaconum ...	8,678	43,000	200	Paddy, dye-roots and raggy ...	Madras, Conjeveram, and Cuddalore.—Brass vessels and dye-roots. Negapatam and Ceylon.—Paddy and rice, coriander. Mayaveram and to Chellumburum.—Silk thread, brass vessels, cotton cloths and different grains.	Madras.—English liquor, English articles, bales of longcloth, chintz, silk thread, cotton thread, iron and steel. Trichinopoly.—Different grains, garlic, saffron, oil in dubbers. Punrooty.—Oil in dubbers.

Value of merchandize bought and sold is given at Rupees 3,13,000 per annum.

A contract for the tolls at gates entering the municipal limits has been taken for Rupees 10,000 per annum.

ROUTE No. I.

Statement showing the Number of Villages, Houses, Population, principal Productions, Exports, Imports, and Number of Bandies in each Village.

Number of Villages.	Names of Villages.	Number of Houses.	Population.	Bandies in the Villages.	Principal Productions.	Export to—	Import from—
1	Orundoor	50	410	10	Raggy, gram, cotton, indigo, and tobacco.	Punrooty.—Raggy, gram, cotton, indigo in small quantities, and tobacco.	Maracanum. — Only salt. Punrooty.—Curry stuffs, cloths, etc.
2	Chindanore	210	1,350	25	Raggy, gram, cotton, indigo, tobacco, and manilla seeds.	Madras and Pondicherry.—Gram, manilla seeds, cotton, indigo and other grains.	Madras.—Chintz, cloths, iron and different articles.
3	Vesoroo	80	750	8	Paddy, gram, cholum, manilla seeds, coriander, other grains and tobacco.	Punrooty.—Different grains ...	Maracanum.—Only salt.
4	Cattang Coopum ...	240	2,030	30	Paddy, gram, cholum, manilla seeds, coriander, tobacco. All the above articles in large quantities.	Madras.—Cotton, indigo, gram, manilla seeds, coriander, raggy, gingelly seeds, and other articles.	Madras.—Chintz, cloths, iron and other articles. Maracanum.—Only salt.
5	Carakeeh	70	550	15	Raggy, paddy, manilla seeds, gram, oil sceds, gingelly seeds and cotton.	Punrooty.—Raggy, gingelly seeds, manilla seeds, and oil seeds.	Punrooty.— Cloths, curry stuffs and different articles. Maracanum.—Only salt.
6	Chummodoo	170	1,060	35	Large quantities of manilla seeds, raggy, gingelly seeds, oil seeds, and other grains.	Madras.—Raggy, manilla seeds, oil seeds, gingelly seeds, and other grains.	Madras and Pondicherry.—Cloths, iron, curry stuffs, cloves, cinnamon and other useful articles. Maracanum.—Only salt.
7	Terroonamanelloor ...	168	1,275	40	Rice, raggy, cholum, tobacco, chillies, cotton, dholl, gingelly seeds, oil seeds, and indigo.	Pondicherry.—Indigo, cotton, tobacco, cloths, and other grains. Madras.—Tobacco, cotton, indigo and gingelly seeds, skins, raggy, and paddy. Punrooty.—Cloths, oil, tobacco, cotton, indigo, skins, aggy, paddy, and different grains.	Punrooty.—Cloths and other sundries. Madras.—Iron, steel and other cloths.
8	Senthamungalum ...	491	4,281	35	Paddy, rice, raggy, tobacco, chillies, cotton, indigo, oil seeds, and gingelly seeds.	Pondicherry.—Tobacco, indigo and chillies. Punrooty.—Gingelly seeds and oil. Madras.—Indigo, cotton, and other articles.	Madras.—Different articles and cloths. Maracanum.—Only salt.

Statement showing the Number of Villages, Houses, Population, principal Productions, Exports, Imports, etc.—(Continued.)

Number of Villages.	Names of Villages.	Number of Houses.	Population.	Bandies in the Villages.	Principal Productions.	Export to—	Import from—
9	Paddoor	260	2,386	25	Paddy, raggy, cholum, tobacco, indigo, and cotton.	Madras.—Indigo and cotton. Pondicherry.—Tobacco and gingelly seeds.	Madras.—Cloths, iron, and different articles. Maracanum.—Only salt.
10	Sengcurethee ...	152	1,530	15	Paddy, raggy, cholum, manilla seeds, cotton and indigo in large quantities.	Madras.—Cotton, indigo, manilla seeds and gingelly seeds.	Madras.—Cloths and other articles. Maracanum.—Only salt.
11	Woolandoorpett ...	218	1,858	17	Paddy, raggy, cholum, oil seeds, gingelly seeds, manilla seeds in large quantities, cotton, indigo and tobacco.	Madras.—Cotton, indigo, gingelly seeds and tobacco. Punrooty.—Manilla seeds, cloths, and different grains.	Madras.—Chintz, iron and curry stuffs. Punrooty.—Different articles. Maracanum.—Only salt.
12	Sittamore	28	298	3	Raggy, cholum, and manilla seeds in small quantities.	*Nil*	*Nil.*
13	Assanoor	130	1,165	30	Paddy, raggy, cholum, manilla seeds, cotton, indigo, gingelly seeds, oil seeds and tobacco.	Pondicherry.—Indigo, manilla seeds, and tobacco. Madras.—Indigo, cotton, gingelly seeds and oil seeds.	Madras.—Different articles. Maracanum.—Only salt.
14	Monilum, alias Mongalum.	286	1,885	70	Paddy, raggy, cholum, manilla seeds in large quantities, tobacco, indigo, cotton, gingelly seeds, chillies, coriander, mustard seeds, gram for horses, green gram and dholl.	Madras.—1,000 bandies of tobacco and chillies, manilla seeds, and 500 bandies of raggy and cholum, 30 bandies of cotton, 10 bandies of indigo, 3 indigo manufacturies, 40 bandies of coriander, and a few bandies of different grains. Trichinopoly.—70 bandies of skins and hides to Vanyambody, cloths to Punrooty and Pondicherry, oil to Punrooty and Conjeveram, tobacco and and chillies to Conjeveram in large quantities, fibre to Madras, nearly 1,000 bandies annually.	Madras.—Chintz, cloths, iron, steel, nuts, and curry stuffs, pepper from Salem.
15	Cherrapaukum ...	414	3,047	40	Paddy, rice, cholum, cotton, indigo and other grains.	Madras.—Cotton, cotton seeds, fibre, indigo and chillies, paddy in large quanties to Veridrachellum.	Madras.—Chintz, cloths, iron, steel and different articles. Maracanum.—Only salt.
16	Venganoor	75	484	3	Raggy, cholum, cotton, manilla seeds in small quantities and different grains.	Punrooty.—Manilla seeds and different grains.	Maracanum—Only salt.
17	Dooroovom	300	2,800	30	Large quantities of cholum, gram, green gram, dholl, raggy, gingelly seeds, cotton, paddy, saffron, sugarcane, indigo and tobacco, a large quantity of cotton, carpets or weaving by weavers, four indigo manufacturies in Yariore.	Madras.—Gram, green gram, gingelly seeds, cotton, indigo, saffron, sheep skins, dholl and sugar in large quantities.	Madras.—Chintz, cloths, iron and different articles. Maracanum.—Only salt.
18	Vollaconda	171	1,156	20	Paddy, raggy, cholum, gram, cotton, indigo and tobacco.	Punrooty.—Cotton seeds and different sorts of grains.	Madras.—Cloths and different articles. Maracanum.—Only salt.
19	Parembalore	507	3,189	80	Large quantities of paddy, raggy, cholum, cotton, indigo, gram for horses, tobacco, sugarcane, etc.	Punrooty.—Indigo, cotton, cloths and different articles. Madras.—Sugar, cotton, indigo, gram, gingelly seeds, etc.	Madras.—Chintz, cloths and different articles. Maracanum.—Only salt.
20	Toorumungalum ...	126	1,067	23	Paddy, raggy, gram, oil seeds, gingelly seeds, manilla seeds, cotton and indigo.	Punrooty.—Paddy, raggy, cholum, and different grains.	Madras.—Cloths and different articles. Maracanum. —Only salt.
21	Iyalore	173	1,000	12	Paddy, raggy, cholum, cotton, indigo, manilla seeds, gingelly seeds and other various articles.	Madras.—Indigo, cotton, gingelly seeds and manilla seeds.	Madras.—Cloths and other various articles.
22	Kauray	232	2,054	40	Paddy, raggy, cholum, gram, and different sorts of grains, cotton, indigo, tabacco, sugarcane, garlic and saffron in large quantities.	Trichinopoly.—Country cloth, tobacco, and other grains.	Madras.—Chintz, cloths, iron, steel, and other articles.
23	Poodookurrechee ...	166	1,083	25	Paddy, raggy, cholum, manilla seeds, cotton and other articles.	Punrooty.—Paddy, raggy, cotton, and manilla seeds.	Madras.—Cloths and other articles.
24	Wootathoor	150	945	30	Paddy, raggy, and gram in large quantities.	Trichinopoly.—Paddy and gram.	Madras —Cloths, iron, and different articles. Maracanum.—Only salt.

Statement showing the Number of Villages, Houses, Population, principal Productions, Exports, Imports, and number of, etc.—(Concluded.)

Number of Villages.	Names of Villages.	Number of Houses.	Population.	Bandies in the Villages.	Principal Productions.	Export to—	Import from—
25	Moorcollum Choultry.	95	290	17	Paddy, raggy, cholum, gram, grain, and sugarcane in large quantities.	Sometimes paddy sent from this village to Veridrachellum and other places.	Madras.—Cloths, etc.
26	Samacavarum ...	145	429	20	Paddy, raggy, cholum, and sugarcane.	Madras.—Gram, paddy and cotton to Trichinopoly.	Maracanum.—Only salt.

From Trichinopoly to Madras, *via* Teranamanullore, lace cloths, shoes for natives, garlic, saffron, cigars, cotton, sheep skins, hides, empty soda water bottles, plenty of passengers, women's cloths, cocoanut oil in dubbers in carts.

From Madras to Trichinopoly, English liquors for shops, chintz bales for shops, Europe articles, passengers, silk cotton, silk thread, longcloth, bleached and unbleached mull pieces, globes and lusters, etc.

From Madura to Madras, lace cloths, dholl, green gram, black cumblies, etc., number of passengers passing through on traffic.

(Signed) F. L. DIBBLE,
Chief Engineer.

Proceedings of the Madras Government, Public Works Department,
14th May 1872.

From the Collector of South Arcot, to the Consulting Engineer for Railways, dated Cuddalore, 20th October 1871, No. 204.

In reply to your letter of the 3rd August last, No. 204, I have the honour to inform you that I have consulted my Sub-Collector Mr. Sharp, in charge of the three southern taluqs of this district, and have given the question of the extension of the Carnatic Railway to meet the Great Southern India Railway my best consideration and am of opinion that as regards this district the line should pass through, or as near as possible to, Tindevanum, Punrooty, Cuddalore, Chedambrum and Munnargudy to the Coleroon, and so by Mayaveram and Combaconum to the Great Southern of India Railway.

2. Tindevanum is the most important place in the north of the district ; a road from it leads to the large salt station of Merkanam, only about 25 miles off in one direction, while in the other the same road leads through Gingee and Trinomali to the Madras Railway at Samalpatti.

3. Villapuram is an important town, the head-quarters of a Tahsildar, and the nearest point of importance to the Pondicherry territory.

4. Punrooty is a large and populous village, two miles from Trivadi, the head-quarters of a Sub-Magistrate. It is the chief grain market of the centre of the district.

5. Cuddalore proper, that is Old Town, is only three miles from the head-quarters of the district at Munjakupum, and possesses a most excellent site for a terminus on the edge of a back-water, where large cargo boats can lie touching the wharves and discharge or take in goods. It will be a matter for consideration by the engineering staff whether a branch line shall run into Cuddalore and the main line be carried southwards from Punrooty, or whether the line shall go on from Cuddalore southwards. I am inclined to think the former plan will offer fewer engineering difficulties than the latter.

6. The next place of importance, Chedumbrum, is a place of pilgrimage, containing a population of 13,000 people, the Cusbah of a very wealthy taluq almost entirely covered with rice cultivation. About six miles from it on the sea is Porto-Novo, a very rising port, which should be connected with the railway by a good road or tramway. It is on the banks of the Vellaur river, which is navigable for large boats for two or three miles from its mouth, so that it might be connected with the railway by water if the railway crossed the river near enough to it. There are salt pans about 7 miles from Chedambrum.

7. Munnargudy is the head-quarters of a Deputy Tahsildar, and a place of some little importance. The railway would then have to cross the Coleroon, and this it might do on a bridge built on the lower anicut, or it might go straight south from Chedumbrum and cross the river by the existing bridge, as proposed by Mr. Sharp, and so to Mayaveram.

8. A shorter and easier line from Punrooty *via* Virdachellum to Combaconum might be adopted, but I do not think it would pay as well. The Chedambrum Taluq is the place of all others for a railway, because it has no metal for road-making, and is in consequence most difficult to travel through in wet weather, while it is by far the richest taluq of the district.

9. I am inclined to think that it would be good policy for the Company to make a branch line to Porto-Novo, as the facilities for landing and shipping goods are so great there, and it is so close to the Chedambrum Taluq ; nor do I think that they would ever have cause to repent making a line running from Tindevanum via Gingee and Trinomali to meet the Madras line. This would run through an easy country abounding in jungles which might supply firewood for the locomotives, and would be an immense boon to that part of the country. The old iron trade which formerly existed in the Trinomali Taluq would probably revive, and a portion of the district now much neglected and infested with robbers would be greatly benefited, in addition to which the Trinomali festival would be a source of considerable income.

10. I enclose a copy of my Sub-Collector's letter on the subject of the extension of the line.

From the Acting Sub-Collector of South Arcot, to the Collector of South Arcot, dated Ammapett, 7th October 1871, No. 496.

I HAVE the honour to report, with reference to your letter No. 565 of 8th August last, forwarding one from the Acting Consulting Engineer for Railways, and requesting to be informed what, in my opinion, will be the best route for the extension of the Carnatic Railway southwards from Cuddalore to meet the Great Southern of India Railway on the banks of the Coleroon.

2. I have consulted the District Munsif and Tahsildar of Chedambrum and my Sheristadar, and have had an opportunity of meeting one of the Great Southern of India Railway Engineers, who is now inspecting this part of the country with reference to the proposed Northern Extension of that line, and my views are as follow.

3. I presume it may be taken for granted that the Great Southern of India Railway will be extended north-east from Tanjore, or from some station close to it to Chedambrum, and that a coast line from Cuddalore to Negapatam would be out of the question, and the point to be considered is how best to connect Cuddalore and Combaconum.

4. Two routes present themselves for choice, one *via* Chedambrum and Mayavaram, the other *via* Shatiatope.

5. I think the former route should have the preference, though it would be probably more expensive by reason of its greater length, its passing through a richer and more cultivated country, and hence entailing on Government heavier charges for compensation, and through a tract in which the construction would be costlier from the absence of suitable material, it would run through a highly populated and busy region, and would touch at least two important towns, besides running to a great extent near the coast.

6. If this route were adopted, a course following more or less close by the Cuddalore-Negapatam road would probably be the best as far as this district is concerned, and the line could then, as suggested by the Great Southern of India Railway Engineers now working here, cross the Coleroon by means of the present bridge. This is some 20 or 24 feet wide, of which the narrow gauge line now sanctioned could only want some 6 or 9 feet, so that with suitable arrangement for fencing off the railway and for closing the bridge to ordinary traffic on the two or three occasions daily on which trains might cross, the convenience of the road travelling public would be but little interfered with.

7. A point for consideration in connection with this route is whether or not the railway should touch Porto-Novo. The Chedambrum road passes within about 3½ miles of it, and any thorough line which could be planned would involve some breakage of bulk, and the use of bandies in the shipment of goods, as the line could at best be taken only on the west side of the town, and the Custom-house, Merchants' godowns, and wharves of Porto-Novo are all on the east side, and if carts had to be loaded at all, it would matter little whether they went one or two or four miles. Moreover, I doubt if the direct north and south line, which would connect the larger ports, would take much traffic to or from Porto-Novo, which even now draws its goods for export principally from the west.

8. But again, the Vellaur river is navigable with facility from Mootalore (where the present road crosses it) to Porto-Novo, a distance of about three miles the greater part of the year, and one of the advantages of this port is that large boats can be loaded in the river and go out with facility to the vessels in the roadstead over a comparatively smooth bar and surf. It is a topic therefore for consideration whether a good station might not be established at the point where the railway would cross the Vellaur, and whether cargo boats might not be loaded there and discharge their contents on boardship and *vice versa* without any further breakage of bulk. It would then be necessary to make some arrangements about the customs, either by having a branch Custom-house at the Vellaur railway bridge, or by ruling that all cargo boats should stop at the present Custom-house on their way to and from the ships for examination, and the payment of the necessary duty and by establishing a Police boat in the river to prevent evasion.

9. Of course the advisability of connecting Porto-Novo with the direct main line by means of a bullock tramway is another point for consideration, especially when we remember the difficulty of making an ordinary tolerable road in that neighbourhood.

Proceedings of the Madras Government, Public Works Department, 14th May 1872.

No. 463B. ORDER THEREON, 14th May 1872, No. 1,339A.

RAILWAY, No. 68A.

G. O., No. 910, dated 27th March 1871.

IN reviewing the general direction of the Carnatic Railway between Madras and Cuddalore the Government directed that an examination of the country with the view of selecting the most favourable route for a prolongation of that line to form a junction with the Great Southern of India Railway should be taken in hand on the occurrence of an opportunity, and subsequently communicated the authority of the Government of India to the expenditure requisite for carrying out the investigation.

G. O., No. 2,334, dated 14th September 1871.
" " 2,414, " 21st " "

2. The Consulting Engineer now lays before Government the result of the examinations which have been made, and requests a decision on the general direction of the line in order that further preliminary operations may be expedited.

3. There are four alternative lines discussed in the papers submitted, diverging from Punrooty :—

No. I.—Direct to Trichinopoly with branch to Cuddalore.
No. II.—Direct to Combaconum and Tanjore, with branch as above.
No. III.—To Tanjore, *via* Chellambrum and Combaconum, with branch as above.
No. IV.—To Tanjore, *via* Cuddalore *(Porto-Novo)*, Chellambrum, and Combaconum.

4. The distances between Madras and Trichinopoly and the lengths of new line involved by each route being as follows :—

No. I.—Miles	205	New line,	94
No. II.—Do.	223	Do.,	81
No. III.—Do.	236	Do.,	94
No. IV.—Do.	248	Do.,	87

And there are two questions for consideration, first, as between route No. I. and routes Nos. II., III., and IV., whether (as put by Mr. Dibblee) "route No. I. requiring as it does as little expenditure as any of the others (No. II. excepted) should not be adopted out of consideration for the through traffic from Trichinopoly and the Southern Extension of the Great Southern of India Railway, which is greater than the through traffic that can be expected from elsewhere, but which latter will flow to this line in any case; or whether, on the contrary, the expenditure being nearly the same, the advantages to be derived from a larger local traffic in the district of Tanjore will not be such as to counterbalance the drawbacks of carrying Trichinopoly through traffic by a circuitous route." Or, secondly, No. I. being rejected, and Tanjore not Trichinopoly being selected as the point of junction with the Great Southern of India line from the northward, "whether the saving in new line to be built and slight saving in cost of working expenses from Cuddalore to Punrooty are sufficient to counterbalance the inconvenience and cost of carrying the through traffic an extra distance of 12 miles as compared with No. III.," or 25 miles as compared with No. II.

Proceedings of the Madras Government, Public Works Department, 14th May 1872.

5. It is unnecessary to rehearse in detail the arguments which have led the Railway authorities and the Consulting Engineer for Railways to throw out in the first instance the direct line to Trichinopoly, No. I.; and, secondly, to decide on No. IV. out of the three lines to Tanjore. Their reasons are stated at length in the papers submitted, and their decision is concurred in by the local Revenue authorities consulted. The only point on which the Government would have desired further information is with reference to the crossing of the Coleroon, which the engineering staff were unable to investigate from press of work in demarcation of land and collection of materials on the Southern Extension. But whether route III. or IV. be selected the same crossing will be common to both those lines, and accordingly the Government assent to the Consulting Engineer's proposal to restrict survey operations to No. IV.

(True Extract.)

Colonel, R.E.,
Secretary to Government.

To the Consulting Engineer for Railways.

Exd. E. C. Shunker.

Cons: Engrs Office

Railway Depart

No. 302

From,

Lieutt Colonel J. H. M. Shaw-Stewart R.E.
Consulting Engineer for Railways.
Madras.

To,

Colonel G. W. Walker
Ag. Secretary to Government
Public Works Department
Fort Saint George.

Sir,

In their proceedings dated

No. 910 the 27th March 1871, when passing orders with regard to the general direction to be followed by the Carnatic Railway between Madras and Cuddalore, the Government stated their opinion that opportunities should not be neglected of examining the country to the South of Cuddalore,

with

with a view of selecting the most favourable route for an extension to join the Great Southern of India Railway.

Subsequently, on the 14th September 1871, authority was communicated from the Government of India for permitting the Carnatic Railway Company to undertake the surveys for an extension from Cuddalore to the Coleroon river; subject to the distinct proviso that the permission conveyed to the Company no claim to the concession for the construction of such extension. G.C. No. 2334

In like manner, on the 21st September 1871, authority was communicated from the Government of India for permitting the Great Southern of India Railway Company, subject G.C. No. 2014

subject to a similar proviso; to undertake the survey of the country between their existing line and the Coleroon river. In conveying this authority, the Government of India desired that the question as to the best point for the bifurcation northward from the main line should be fully investigated.

2 I have now the honour to lay before Government reports from the Railway Authorities giving the results of the examinations which have been made of the country between Cuddalore and the Great Southern of India Railway; and I trust that the information now submitted will enable the Government to determine the general direction of the proposed extension

From Agent G.S. of India Ry. Company No. 4366 of 2d July 1872

From Agent Carnatic Ry. Company No. 3898 of 2d April 1872.

extension. Mr. Legard's Report is accompanied by plans and sections, showing the result of the detail survey to the South of the Coleroon; and he has also submitted an estimate of the cost of that portion of the line. I have not sent these on with the Report, as it seems better that they should be laid before Government together with the corresponding documents for the portion to the North of the Coleroon, when received from the Carnatic Railway Authorities. The object of the papers now submitted is to obtain a decision, if possible, on the general direction of the line.

3. The question as to the point at which the proposed railway should join the existing line of the Great Southern of India Railway Company, is now narrowed to a choice between Dindigul and Tanjore.

In the years 1868-9, when the advisability of making a branch to Combaconum was under discussion, Needamungalum and Tanjore were proposed as alternative starting-points, but when, instead of constructing a short branch to accommodate the town of Combaconum, it was proposed to unite the Carnatic and the Great Southern of India Railways, Needamungalum dropped out of consideration. The only argument in its favour was that a branch starting from it was the shortest and cheapest mode of

of bringing Combaconum into communication with the Railway: — The local traffic would not have been so well served by it as by a branch starting from Gairjore: and when it came to be considered as a link in the line of communication from North to South, a glance at the map was sufficient to show that the through traffic would suffer considerably from the unnecessary detour. ... ...

Tuticorin poly, as alternative points of departure for the proposed line, the Great Southern of India Railway Authorities give the preference altogether to Tanjore.

Mr. Logan points out that if the sole object were merely to secure the shortest possible communication between Madras and the Southern Provinces, a line in a North-easterly direction from Tuticorin would be chosen: but he shows that it would pass through a comparatively poor and thinly populated country, and for a considerable distance through mere jungle. On the other hand he points out that a line starting from Tanjore would pass through the most highly cultivated

Paragraphs 3-4

cultivated and most populous tract to the South of Madras. To decide the question, it seems sufficient to mention that a line starting from Tuticorin would avoid the whole of the Cauvery Delta, and would pass at a distance from all the important towns in that district, such as Combaconum, Mayaveram, Chellumbrum, which it is the chief object of the proposed railway to accommodate.

5 Having fixed on Tanjore as the place from which the proposed line should bifurcate, Mr. Logan subsequently raises the question whether the actual

Paragraphs 13, 14, 15.

point

point of junction should be at the site of the present station, or some 3½ miles to the eastward. He remarks that the existing line rises 42 feet in those 3½ miles, up to the Dangire station, and that goods sent from Negapatam and other eastward stations to the North, and vice versa, would be saved these rises if the junction station were fixed at a point from 3 to 4 miles east of the present station. On the other hand, he points out that whatever benefits such an arrangement might confer upon a small portion of the local traffic would be more than counteracted by the disadvantages resulting therefrom to the through traffic; and that it is also of importance not to miss any of the thickly populated tract between Dangire and Coimbatoor.

We have therefore decided on recommending that the point of junction should be as near to the present Dangire station as possible, and on this I entirely agree with him. Besides the arguments cited by Mr Logan, it seems clear that the proposal to locate the junction 3 or 4 miles East of Dangire would entail the cost of building and keeping up an extra station without any prospect of a proportional increase to the traffic.

Leaving Dangire, the line of the trial survey has been carried over the Vemaur and Vettaur rivers to the proposed stations at Jampette (8 miles from Dangire - 3rd Class) and

and Paupanassum (14 miles – 2nd Class). It then crosses the Coodamurty River to the proposed station at Soondaraperoo=maul Covil, (17¼ miles – 3rd Class). Then after crossing the Arselaur river it reaches the proposed station at Combaconum (23 miles – 1st Class). Then without crossing any other large rivers, but being carried over a number of smaller streams and irrigation channels, it reaches successively the proposed stations at Tirruvada=mardoor, (28¼ miles – 2nd Class) – Auduthoray, (30½ miles – 3rd Class) – Cootalum (37 miles – 2nd Class) – Cornaud or Myaveram (42½ miles – 2nd Class) – Vydespooram (51¼ miles – 2nd Class) – and Anigari Chuttrum (60½ miles – 3rd Class). At 61 miles 7 chains the proposed line reaches

reaches the bank of the Coleroon river.

The gradients as might be expected from the nature of the country, are very favourable. The ruling gradient is 1 in 200 for a short distance; but by far the greater part of the line is either level or nearly so.

7 Mr. Logan, in his report, gives some particulars regarding the traffic which may be expected to come into the line. He does not enter into elaborate statistics; and it is not necessary for me to follow him into the figures given in his report, as the Government are aware that this part of the line will pass through the richest and the most populous part of Southern India.

Before

Before passing on to the portion of the line which lies to the North of the Coleroon, it is sufficient to say that the direction in which the trial survey has been carried by Mr. Logan has my entire approval. The Deputy Consulting Engineer has lately inspected the country in Mr. Logan's company; and with the exception of one or two points, upon which his suggestions have been adopted, he has expressed his entire general approval of the line which has been surveyed, and the proposals made with reference thereto.

The estimate submitted by Mr. Logan of the cost of the 61 miles 7 chains of railway between Tanjore and the Coleroon River amounts

amounts to Rs: 32,77,492. This includes provision for telegraph, and for wire fencing for the whole line. The telegraph will probably be constructed by the State; and if one half of the fencing can be dispensed with, the estimate will be reduced to Rs: 31,40,618, — being at the rate of £ 5,108 per mile.

8 To the North of the Coleroon River, thence to Cuddalore, I regret to say that no survey has yet been made. The Engineering Staff of the Carnatic Railway Company has been altogether employed in preparing the plans and sections for the line between Madras and Cuddalore, and it is only within the last few days that one Engineer

Engineer has been detached to make trial surveys to the South of Cuddalore.

Mr. Dibblee, in his report, gives the result of the general examination which he has made of the country through which the proposed line will run, together with such statistical information as he has been able to collect. His report is also accompanied by a sketch map, on which are marked four routes which have been proposed with the view of uniting the Carnatic and the Great Southern of India Railways.

9 Route No. 1 leads from Panrooty in a South-westerly direction to Trichinopoly. This has been already discussed, and may be dismissed

dismissed from consideration without further remark.

Route No. 2 unites Panrooty with Combaconum by the shortest possible line. There is not much to be said in favour of this line. Mr. Dibblee remarks that until the Coleroon is crossed it passes through a thinly populated tract. This remark is confirmed by the Deputy Consulting Engineer, who has lately examined the line and pronounced it in his opinion far inferior to either of the routes No. 3 and 4. The Collector and Sub-Collector of South Arcot, in letters herewith submitted, also pronounce against it.

No. 204 - 20th Acts/71.
No. 496 - 7th Acts 1851.

Route No. 3 leads from Panrooty

Panrooty, through Vullapallum, to Chellumbrum, and thence over the Coleroon river to Sheally.

Route No. 4 joins Cuddalore with Chellumbrum, passing near Porto Novo. From Chellumbrum it follows the same line as No. 3.

10 The only point which seems open to question is whether No. 3 or No. 4 route should be adopted; that is, whether, from Chellumbrum, the proposed line should join the Carnatic Railway at Cuddalore, or at Panrooty.

In the Chief Engineer's report, there is no preference given to either of these two routes. Mr. Fisher, in sending on Mr. Dibblee's report, seems to give the preference

preference to No. 3; but he assigns no reason for so doing. The chief arguments in favour of each of these routes seem to be as follow:—

On the one hand the adoption of route No. 3 will reduce by about 10 miles the length of the through journey between Madras and the South. This advantage will be gained at the cost of constructing some 9 additional miles of railway, and of increasing the working expenses of the portion between Panrooty and Cuddalore, by making it a branch.

On the other hand, if route

Note. In Mr. Dibblee's report No. 3 is represented as entailing only 7 miles more new line than No. 4: and the length of the through journey by the latter is given as 12 miles more than by No. 3.

I have since learnt from him that in order to preserve the ruling gradient of 1 in 140 it will be necessary, if No. 3 is followed, to make a detour which will lengthen the line by about 2 miles.

route No. 4 be chosen, the length of the line to be constructed will be reduced by about 9 miles. — (and the Chief Engineer states his opinion that, mile for mile, the cost of the railway by either route will be the same): — the town of Cuddalore will be placed on the main line instead of on a branch: and the railway can be taken either close to Porto Novo, or within easy reach, by road and navigable river, of that seaport. It will be seen that the Revenue Officers attach great importance to bringing the line near Porto Novo.

Another advantage which seems likely to result from the adoption of route No. 4 is the

saving

saving of a bridge over the Cuddelum river. In their proceedings under date the 27th March 1871, the Government expressed the opinion that the line should be taken across the Cuddelum near Panrooty, and should skirt the right bank of the river to Cuddalore. An examination of the country makes it doubtful whether this is possible unless with the additional cost of a tunnel through a range of laterite hills, which at one point prevent all access to Cuddalore along the South bank of the Cuddelum. At present it seems probable that Cuddalore can be reached from Panrooty in one of two ways only: either by following the South bank of

+ G. C. No. 910. para 7.

of the Cuddelum; and tunnelling through the laterite hills; or by following the north bank, and crossing the river lower down, near Padricoopum. The latter course will probably be the cheaper: and if it be followed, route No. 4 will obviate all necessity for a second bridge over the Cuddelum.

11 Upon the whole the balance of advantage is decidedly in favour of route No. 4; and I have no hesitation in recommending that, after crossing the Colevoon river, the line should be taken to Chellumbrum, and passing as near Porto Novo as may appear desirable, to Cuddalore, and thence to Panrooty.

I

I have already asked the Agent to restrict all further examination and survey to the two routes which will pass through Chellumbrum, No. 3 and 4; but, with the approval of Government, I will now call on him to have the survey made of that line only which I have sketched out, namely from Chellumbrum, near Porto Novo, to Cuddalore. The portion between Cuddalore and Panrooty is included in the line which has been already conceded to the Carnatic Railway Company.

It is impossible, until further information is gained, to give a list of sites for stations on this part of the line. The

ruling

reeling gradient will be the same as between Madras and Cuddalore, 1 in 1400.

In roughly estimating the cost of this portion, it seems safe to count on it not exceeding the figure given in Mr Logan's estimate for the portion South of the Coleroon, namely £ 5,108 per mile; as the masonry works will be fewer and smaller than in Tanjore. It is however quite impossible to approach accuracy in estimating the cost until the line has been surveyed; and my object at present, as I have already said, is to obtain a decision on the general direction of the line, so as to insure the survey being completed

completed as soon as possible.

Madras
26th April
1852

I have the honour to be,
Sir,
Your Most Obt Servt.
J. Mantheimont Lt Col R.E.
Cons: Engr: for Railways

P. W. 1872 Depart
Proceedings for May
To Rome [illegible] No 2124
The Cons: Engr: for Rys
Madras

So
The Secy: to Govt
P W Depart.
Fort St George.

Dated 26.
Received 29 April 1872

No 202

Enclosures 8
plans 2
10

Submitting reports
from the Agents C L of P
and Cas Railways purport
ing the result of their
examination of the line
between Cuddalore and
Sanjore
No 1339 A: 14 May /72

Ch 4 [illegible]
R. 18.
Rec. 11 May /72
C 5 May /72 Cr. 10.

P.W. 1872 Depart

24

No. 4366. GREAT SOUTHERN OF INDIA RAILWAY.

AGENT'S OFFICE,

NEGAPATAM, February 2d 1872.

95

From

THE AGENT,

Great Southern of India Railway,

To The Consulting Engineer
for Railways
Madras

SIR,

When the question of Guage for the Southern Extension was discussed at the Council Chamber in March last I represented that my Directors had raised Capital for the construction of a railway on the same guage as that adopted for the open line, and if it was decided to extend the line Southwards on a narrow guage a large portion of the Capital thus raised would be lying idle. I submitted therefore that a further extension, northwards, should be conceded to the G. S. I. R. Company so that the surplus Capital might be made available

When the Chief Engineer found he could set aside part of his Staff to examine the district to the north of

From The Agent & Manager
Camatic Ry Co. Ld.
To His Cons. Engr. for Ry
Madras.
Dated 2d April 1872
Recd. 4 —
No. 389.

Forwards Chief Engineer's Report & Sketch map upon his examination of the Country from Cuddalore to Coleroon.

P.W. 2124/72

No.

GREAT SOUTHERN OF INDIA RAILWAY.

AGENT'S OFFICE,

NEGAPATAM, _____ 18

From

THE AGENT,

Great Southern of India Railway,

To

SIR,

Tanjore application was made to under-
take a preliminary Survey in that
direction, and the sanction of Government
was accorded

I now submit for the orders
of Government a report from the
Chief Engineer giving the result of the
Survey. Mr. Logan informs me that for
expenditure not detailed in his Estimate,
he has taken a mileage proportion of
similar expenditure as entered in his
Estimates for the Southern Extension.

I have the honor to be
Sir
Your most obt Servant

Agent

No 4366

From

The Agent
Great Southern Ry

To

The Agt Cons Engr
for Railway
Madras

Dated 2/2/72
Received 5/2/72

Forwarding
plans & Estimates
for Northern Extension

P.W. 2124/72

S P 16

Great Southern of India Railway
Chief Engineers Office
Tuchinopoly 27 January 1872

W S Betts Esquire

My dear Sir

Herewith I have the pleasure to forward plans and Estimates for the proposed Extension of our line towards Madras; intended to join the Carnatic Railway at the Coleroon on the borders of the South Arcot and Tanjore Districts.

2 - As you are ~~aware~~ when the preparation of the working plans and Estimates for the Southern Extension drew to a close, this being the only work sanctioned by Government on which I could keep my Staff employed I asked and obtained permission to undertake a preliminary or trial Survey and Section through the Northern part of Tanjore, and the plans and Estimates now forwarded are the results of the investigations undertaken.

In

3 In selecting Tanjore, or its neighbour-hood, as the point of bifurcation I have been guided by the consideration that a line branching from that Town and running in a North Easterly direction through Panpanassum, Combaconum Mayaveram and Sheally-up to Chellum-brum would run through by far the richest, most populous and most cul-tivated part of the Country lying at all within the range of a main line of Communication between the South and Madras; I might safely say through the most cultivated and most populous tract of Country South of Madras.

4 Glancing at the Map and looking mere-ly to directness of Communication a Con-tinuation of the Southern Extension through Trichinopoly across the Cauvery and Coleroon rivers and so on in a North Easterly direction towards Cud-dalore, would best serve that end but compared with the line selected for the trial survey now forwarded such a route would pass through a much poorer and less populous Country and a considerable portion through mere Jungle. Indeed the only advocates, of whom I have heard, for any approximation to

this

this route, base their arguments on the allegation that along a good portion of it, land could be had Cheaply for the railway while there would be a plentiful supply of firewood available for Locomotives, from the jungles. The line

5 The line leaving from Tanjore starts from a large and populous town the Capital of the District and the Head-quarters of the Revenue, Judicial, Public works and Police Departments, passes through or close to an almost Continuous line of Towns and Villages as far as Mayaveram while along the whole Course to the River Coleroon it runs through rich and Cultivated land.-

6 To give some idea of the population between Tanjore and Combaconum a distance by Road of about 24 miles I may state that exclusive of those Towns the population of the Villages on the road is about 18000 while the inhabitants of the large Villages lying within five miles on either side of the road number upwards of 67000 in all within a belt of 10 miles over 85000 people. Including Tanjore

Tanjore and Combaconum the popu-
lation exceeds 155000 along this route.-

7 Combaconum is reputed one
of the wealthiest and most sacred towns
in Southern India.- Its population is
estimated at from 35000 to 40000, with
a large and increasing trade. In ad-
dition to the annual flux and re-flux
of pilgrims to and from its sacred places
there is the great Mamangum Festival
which occurs every 12 Years to which
devotees go from all parts of the Country
The last Festival took place in 1862
and it was then estimated that no
less than 500,000 people congregated
at it.- From Combaconum through
Mayaveram (population 18000) up to the
Northern limits of the Mayaveram Talook
a distance of about 28 miles a population
of upwards of 61000 exists within the
limits of half a mile on each side of
the main Road, making an aggregate
population along 52 miles (Counting from
Tanjore) of the proposed Railway of about
21.6000 or over 4000 inhabitants per lineal
mile- On the remaining ten miles through
the Sheally Talook the population is not

so

so dense but there are several Villages of importance, for instance Sheally itself and Veedesvooram where a Celebrated temple exists to which multitudes of pilgrims resort: and beyond, about 4 miles to the North of the River Coleroon is the large and important town of Chellumbaram (about 15000 inhabitants) with its celebrated temple to which also numbers of devotees flock.

8 There are two festivals in the Year at Chellumbaram one in June and the other in December; at the former about 7000 and to the latter about 15000 people come. There is a large export trade in grain which is shipped at Porto-Novo principally for Colombo - a quantity of Cloth is also made here, 1300 looms being employed. Silk weaving is carried on by another 200 looms.-

9 Added to the large passenger traffic to be expected on so populous a line of Country there is fair reason to anticipate a Very Considerable traffic in goods of which the Chief items at present are Rice and Paddy, other grains, nuts salt-

Silk

Silk and Cotton thread. Cotton cloths. Oils. Iron Copper and Brass Vessels.-

10. As some indication of the value of the traffic in the more important items just mentioned I subjoin a statement furnished by the Revenue authorities of Articles exported from and imported into Combaconum in the Year 1870.

Name.	Value	Remarks
Silk thread	Rs 900000	Goes to Cotalum Andoothoray Trichinopoly &ca. The raw material comes from Bangalore and Bengal. Value of Silk cloth per 100 Rs weight is Corah or raw silk 10½ @ 17 Rs. Red or Scarlet 25 @ 36 . Yellow 25 @ 34 .
Brass Vessels	216000	Sent to Madras Salem Conjeveram, Trichinopoly, Mayaveram, and all over Southern India. The vessels made in Combaconum are considered superior and much in demand every where. A seer of 25 Rs weight costs 6 Annas. The raw material come from Madras.
Cotton Cloths	600000	Sent to Trichinopoly Mysore Salem &ca.
Nana (Dye root)	120000	Goes to Madura Cuddapah &c Madras &ca.
Cotton Thread	300000	Imported from Madras.

Name	Value	Remarks-
	Rs.	
Rice and paddy	360000	
Other grains	180000	
Oils	300000	
Iron	60000	Imported from Madras & Negapatam
Cotton	100000	
Miscellaneous	720000	

11:- The Exports from Mayaveram Town in 1870 in Paddy and Rice and in Silk and Cotton cloths which are sent to Tanjore, Bangalore, Malabar, Madras and Elsewhere were Valued at Rs 3 Lacs (300000 The imports during the same period were Valued at Rs 5 Lacs, the Chief items being Silk and cotton thread (from Negapatam and Madras) Dye roots, Brass and Copper Sheets (from Madras) Iron Paddy Oils Salt Betelnuts Brass Vessels Cloths (from Madras and Negapatam) &c &c. At Jamputta between Tanjore and Combaconum and at Cotalum and Conanad between Combaconum and Mayaveram are the Chief Emporiums of the Silk trade in the western and Eastern parts respectively of the District.

J.

12 I have not attempted to go into any Elaboration of Statistics because I think sufficient has already been shewn to support the Statement that the line now Surveyed follows the main Sources of traffic for passengers and goods and does not at the same time so far sacrifice the object of having a thorough main line of Communication from North to South.—

13 I have taken the Northern Extension line off the present Railway, so as to make use of the present Station, extended and enlarged—and leaving that have endeavoured to get round to the North as soon as possible into proximity with the towns and villages along the road from Tanjore to Combaconum but it is a question for consideration whether it would not be more advisable to form the Junction some little distance to the East of Tanjore so as to avoid running all goods coming from Negapatam and the East for the North and vice versa up hill to Tanjore to be again lowered en route to the North and East.—

14 The present Station at Tanjore stands about 60 feet above the general

level

level of the ground (immediately to the North East of the Town) over which the proposed Extension would run - while the level of the ground about 3½ miles East of Tanjore on the present open line is only 18 feet above the same so that all goods from East to North & Vice Versa would be saved the difference in rise (42 feet) by having a Junction Station 3 to 4 miles East of the present Tanjore Depot.

15 It may be said that to attempt to bring all the Negapatam and Eastward traffic intended for Combaconum and the North so far West as Tanjore would be to entail so heavy a cost for transit so as to risk if not endure its loss, but I think that it is important on the other hand not to compel the main line through traffic to be carried unduely to the Eastward to accomodate the Negapatam side while it is a matter of consequence to reach the populous road- Tanjore to Combaconum- as nearly due North of Tanjore as possible to avoid leaving one side (Westward) some of the more important towns. Besides I believe that in time it will be found advisable to open up the Eastern track of richly Cultivated Country

lying

lying between Trivellore and Mayaveram by a Cross line joining these towns. 10
When this is done the Eastern portion of the District will have free access to the North without having to go round by Tanjore.-

16 The line traverses wet Cultivation throughout almost its whole length necessitating a large number of irrigation Culverts and Waterways for which I have endeavoured to make ample but not Excessive provision in my Estimates-

15 Upon the subject of the best Kind of Bridge over the Coleroon I do not at present touch. During the carrying out of this Survey permission was accorded by Government to our marking out the land required for the Southern Extension and for a Start to the Collection of materials thereon and I did not think fit to keep the Members of my staff from this more important work longer than was absolutely necessary to get up the preliminary Plans and Estimates as far as the River Coleroon. Considering that I should not be justified in going into an Examination of the Coleroon bed -

bed &ca when more emergent work was waiting.

18 The total estimated cost of the 61 7/80 miles of line up to the river Coleroon is Rs 3277492 or an average of £ 5366 per mile including Telegraph rolling stock, Stations and Superintendence

19 Iron wire fencing has been provided for the whole line: and this item can of course be considerably modified if Government will sanction the doing away with fencing except at towns and Villages and their immediate neighbourhoods.-

20 The permanent way and work of formation is the same as estimated for on the Southern Extension.-

21 The plans sent are 30.31.32 a trial survey: 30/a 31/a 32/a Section of the Line on a scale of 6 inches to one mile. The Bridges & Stations and other Plans being the same as for the Southern Extension. I have not gone to the expense of furnishing duplicates, merely referring to the Plans already forwarded by their respective numbers.-

Yours faithfully

[signature]

Chief Engineer

Carnatic Railway Co. (Limd.)
No. 389 Agent & Manager's Office.
Madras 2d April 1872.

From J. T. Fisher Esqre.
Agent & Manager
Carnatic Railway Co. Ld.

To Major H. L. Prendergast R.E.
Ag. Consulting Engineer for Rys.
Madras.

Sir.

I have the honor to submit herewith the report of this Co's. Chief Engineer, upon the lines which he was requested to examine, with a view to connect the Carnatic and Great Southern Railways, starting from a point near Cuddalore as directed in your letter No. 62. Mch 30. 1871. and G. O. 910. dated 27 March 1871, together with a Map, shewing the four lines of communication examined, with statistics relating to the population and probable traffic on those lines respectively.

2. The Chief Engineer has abstained from offering any recommendation as to which of the lines should be selected by Govt. owing to the uncertainty which exists, as to the point at which this Co's junction with the Great Southern should eventually be made.

3. Adopting as the basis of my remarks the minute of H. E. the late Governor of Madras, wherein he states that "The line would "naturally be undertaken by the Carnatic Ry Co. "whether Combaconum or Tanjore should be "selected as the Southern terminus of the line may

Vide G. O. No. 2396. dated 20th Septr/71. Minute by H.E. the Govt. Para VI. Clause 1. also para XIX dated June 5. 1870.

"may be open to discussion. If combaconum
"be chosen, then the line from that place to
"Tanjore would become a branch of the Great
"Southern of India Railway but it appears to me
"that the Carnatic Co: should be permitted to
"occupy the whole ground up to the main line
"of the G.t Southern of India Railway Co." I
take leave to suggest that the line marked
No 3. on the Map: offers advantages which
will recommend themselves to the favorable
consideration of Govt, but in the interest of
this Co: I feel bound to point out, that
should any circumstances incline the Govt:
to decide upon a point of junction short of
Tanjore, that would not be the line which
would be recommended for their adoption,
for the following among other reasons.

4. As will be seen from the Statistical
returns accompanying the Chief Engineers
report, the portion of the line running
south from Punnoly to the Coleroon, is
comparatively thinly populated, and its
products trifling as compared with that
portion of the district lying between the Coleroon
and the Great Southern Co's present main
line, and it is felt that it would be
manifestly unfair therefore to give this Co:
the portion to construct, which would be
comparatively unremunerative, while the
richer and more lucrative lengths, for the
complete development of which the intermedi-
ate portion is necessary was given to an-
other Company.

5. It may be further stated, that the
mileage

mileage from Madras to the Coleroon for
instance, is greater than can regularly be
worked on this Country by one Engine and its
attendant staff as one days work, while it
is not enough for two; and therefore during
the management between Madras & beyond,
should the line be decided to be carried
to that point via Combaconum as suggest-
ed by the route marked No 3. would be
calculated to entail an increase in the
working expenses, as compared with what
would be necessary were the interest un-
divided while an expensive work like that
which will be necessary to bridge the Coleroon
Costing probably over two lacs of Rupees at
or near the termination of one Co: properly,
would be calculated to create difficulty in
the arrangement or division of the rates
and fares with the other Co:

6. But the event therefore of any circum-
stances rendering the adoption of the opinions
of the late Governor referred to in para 3.
independent the line which is recommended
to the consideration of Govt is that traced
and described as No 1. its construction will
entail the same mileage as that by the
route marked No 3. while its cost per mile
is estimated to be less than that of the other
routes, and as the population and pro-
duce are not so great as that of the other
route preferred to there would be a saving
of 31 miles upon the distance between
Madras and Tpichinopoly and all places
South of that point.

7.

7. I venture while writing upon the subject of the location of the line to allude further to the minute of H. E. Lord Napier before referred to, and especially to that part of it in which he submits that "I think that Madras ought to be the starting "point, and that the line should proceed "Southwards thro' Chingleput; but I think "Chingleput should be united to Conjeveram "by a branch line on two grounds.

"Because the French Govt have always "desired this connection on their interests, and "it seems to me that this is a measure of "friendly concession which the English "Govt might properly make to France, "having decided the question of guage "against the wishes of France.

"2. Because the branch line from "Chingleput to Conjeveram would open up "a direct communication for the South "Arcot District northwards and Westwards "without making the long detour by Madras "which would not be altogether insignifi- "cant to the convenience and welfare of the "province."

Vide minute of H. E. Lord Napier dated 3d April 1871 Para VIII with G.O. 2396.

8. The negotiations for the construction of the proposed branch, between Belpeir and Pondicherry, having been recently re-opened, I am led to understand that the authorities of the French Govt will make it a sine qua non now, that the connection with the interior at Arconum be carried out, as originally arranged in the provisional agreement entered into with

with the French Govt in August 1868 I trust therefore the Govt will be pleased at the same time favorably to consider this, the subject, and sanction the construction of the short link between Conjeveram and Chingleput by which the value of the open line will undoubtedly be increased the percentage of its working expences reduced the interests of the Madras Ry Co will be conciliated, and greatly increased facilities will be afforded for the conveyance of Passengers and Mails between the part of Southern India and the interior of the Country generally by means of the Madras Co's lines.

I have the honor to be
Sir
Your most Obedt Servant
for J. Fisher
Agent & Manager

Carnatic Railway Company, Limited,

Chief Engineer's Office,

Madras, 26th March 1872

No. 165

J. S. Fisher Esqre.
Agent & Manager

My dear Sir

With reference to G. O. No. 910 and in compliance with the request contained in the Consulting Engineer's letter which accompanied it, (para 3) I have been collecting the Statistical information with a view to a Report on the best route for a line to form a connection between our Sanctioned line and the Great Southern of India Railway.

2 Owing to there not being Maps of a late date and to the fact that the Ordnance Maps have the names of Villages incorrectly spelt, I have found much difficulty in this. The Talug Officials have expressed themselves unable to recognise the Villages as written on the Maps even when the position of them was pointed out, nor have they been able to say what the names of the corresponding Villages should be; My attempts to obtain information by Correspondence with the Collectors have been therefore, quite unsuccessful, and I have found it necessary to march through parts of the Country myself and send to all, for the purpose of collecting the desired information on the spot.

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3. I have now compiled the information there obtained and send herewith Tables of Population on either side of the several routes which have suggested themselves to me, with Memoranda of the nature of the traffic which now exists in the principal Towns and Villages. The Returns of Population show the number of inhabitants and the average per mile in each Talug within a distance of two miles on either side of Routes which have been considered.

4. The existing Road Traffic found on the Routes about to be considered, was shown in Major Shaw Stewart's Report (see Proceedings of Government 20th September 1871). I have had occasional accounts taken of bandies on the Roads carrying produce and Merchandize, and I find the proportion of traffic on the two important Trunk Roads (No. 849) to be the same as given by Major Shaw Stewart.

5. I enclose a Sketch Map showing the various Routes: No. I is that which goes by the most direct course from Punrooty to Trichinopoly, which is the Junction proposed on the Great Southern for their Southern Extension: No. II is proposed to be taken from Punrooty by the shortest route to Combacoumm, and thence to Tanjore following the direction of the present Trunk Road No. 9: No. III from Punrooty, diverges from the direct line and makes a detour

to

to take in the Town of Chedumbrum, from thence following the course of Trunk Road No. 2 passes through Sheally, Mayaveram to Combaconum and Tanjore: No. IV is from Cuddalore and follows a line nearer the Coast along the Trunk Road No. 2 to Chedumbrum, Sheally, Mayaveram &c.

6. The Route marked No. I will require 94 miles of Railway to be built and will form the shortest and most direct connection between Trichinopoly, and that vicinity, and Madras as well as the shortest routes over which through traffic from all places of the Southern extension of the Great Southern line. The most important Villages on this line are Chindenar, Oolanderpet, Assanoor, Volsondah Perambaloor, Ootalen and Seeringum.

7 The Return of Population shows that the Cuddalore Taluq of South Arcot is very fairly inhabited being 696 per square mile; but that the remaining portion of South Arcot is very thinly peopled, being in Tirookohaloor 189 per mile and in Virdrachellum 272; from thence the population increases as Trichinopoly is approached.

8. The existing Road Traffic on this route is represented by a daily average of 909 bandies (Major Shaw Stewart's Report). By inquiries of the drivers, it was found that the larger proportion of the carts were conveying goods from Trichinopoly, Madura &c. to Madras and vice versa. It is therefore to

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to be concluded that for parts of this route the local traffic will be insignificant, but that for through traffic it is the most direct and natural course.

9. The Statement of total Population appended, gives the number and average per mile for a width of 4 miles being two on either side of the line. The Memorandum of Traffic in the Villages shows the nature of the present trade and the direction in which it is now carried, as a rule most of the trade is with Madras there being a small proportion with other places - the chief Indigo with Cuddalore, & Pondicherry; dry grain and oil seeds with Trichinopoly, Salt from Mercaum.

10. There are no engineering difficulties to be apprehended - a line with good gradients can be obtained throughout, while the provision for drainage will be less costly than on any of the other routes - as this line will cross the Streams much nearer to their Sources.

11. Route No II leaves the present sanctioned line at Punroody taking the most direct course to Combaconum following the line of the Trunk Road No 2 passing Vellapullum, Palamcottah, Combaconum, Pavanasi, to Tanjore.

12. The Population Returns for this route show it to be exceedingly scant through Cuddalore, Chedumbrum, and Mordianpollium, being 162, 382 and 246 per Square mile for these Talugs respectively

For

For this portion of the line therefore (forty miles) but little local traffic can be expected, while the Southern portion through the Talugs of Combacoum and Tanjore being most densely peopled will yield a very large return in this respect. The number of bandies using this Trunk Road is given as 558 daily average and from my inquiries it is found that they conveyed chiefly traffic from Combacoum, Tanjore and Negapatam to Madras and to places on our present sanctioned line and vice versa. It would seem therefore that the through traffic by this route is not so great as on Route No I and being consigned to places at shorter distances from the Metropolis it could afford being carried round by a detour with less danger of being checked in its developement. The through traffic for Trichinopoly, Madura &c will have 20 miles longer carriage on this route than by No I. Eighty one miles of new line will be required for No II.

13. Route No III branches off at the same place as No II (Punrooty) and follows the same direction for about 17 miles to Vullapullum at which place it makes a detour towards Chedumbrum, from whence it follows the course of Trunk Road No 2 through Sheally, Mayaveram, Combacoum, Pavanasi, to Tanjore.

14 The same feature in this Route as on No II presents itself, the first portion

portion of the line goes through a thinly populated country from which little local traffic can be anticipated that is for the first 35 miles up to the Town of Chedumbrum, it will be seen from the returns however, that from thence to Tanjore the numbers are exceedingly large.

15. The local traffic through these Talugs, Sheally Mayaveram Combaconum and Tanjore, must necessarily be great, as the people are not only numerous but wealthy, the country is well watered and productive and there will always be paddy and rice to be exported. In addition to this there are many large Temples in the principal Towns to which the people flock in great numbers during the periodical festivals, a very large passenger traffic is consequently to be looked for.

16. The total length of line to be constructed by this route will be 94 miles, the Northern portion of which can be built at as little cost as Route No. I. The Southern part however, will be more expensive, passing as it does accross the drainage of the delta which is intersected throughout by numerous branches of the Rivers Cauvery and Coleroon and irrigation channels from them. The cost of Masonry and Bridges will form a most important item in the Estimate.

17. Route No. IV is to leave our sanctioned line at Cuddalore instead of at

at Punrooty, and will pass nearer the Coast than any other, to Chedumbrum, - from whence it will follow the same course as No. III to Tanjore. By adopting this route a shorter length of new line will be required than for No. III and the works, would be less expensive, a Bridge over the River Guddulum being saved and the Country being almost a perfect level. The working of the Traffic also would be more economically performed between Cuddalore and Punrooty, as this portion would become a part of the Main line instead of being a branch. Against these advantages must be considered the fact that through traffic will be carried a greater distance than by any other route, 41 miles more than Route No. I, 23 than No. II and 10 more than No. III.

18. In dealing with this Subject I have collected my Statistics and information for the whole country down to Tanjore - although the Consulting Engineer's letter directed attention only to the River Coleroon, as I have felt there would be a difficulty in making a correct comparison between relative advantages in distances, traffic &ca on the routes to Tanjore as compared with the direct through route to Trichinopoly.

19. The distances by the various routes and the length of line to be constructed are as follows.

Madras to Trichinopoly - new line reqd.

by Route No. I	205	94

	Madras to Trichinopoly	new line reqd
by Route No II	223	81
" III	236	94
" IV	248	87

20. In connection with the subject of through traffic the returns show that the through traffic from Trichinopoly, Madura and Towns on the Southern extension of the G. S. I will amount to at least one half more than that from Combaconum and towns in that vicinity to Madras being 909 daily bandies in one case as against 558 in the other. The people of the South also will necessarily be more heavily taxed in respect of carriage of goods than others under the most favorable circumstances the distances being greater. The extra distances in either case for through traffic would be as follows.

	Route I	Route IV.	Extra distance for through traffic
Madras to Combaconum	259	194	65
Do to Trichinopoly for the South	205	248	43

that is, the people of Combaconum would be prejudiced as regards through traffic in one case to the extent of 65 miles extra carriage, whilst those of Trichinopoly, Madura and the South in the other, would have 43 extra carriage for the larger quantity of goods.

21. I am not in a position at present to give definite Estimates of the Cost of the various routes but from my observation of the Country in passing through, I have little hesitation in saying that the construction of

of route N°I would involve an expenditure of from 10 to 15 % less per mile than over sanctioned line throughout:- N°II will cost the same; while N°s III & IV would probably exceed the cost of our line to the extent of 10 to 15 % per mile throughout. I am therefore of the opinion that the new line for N°I although of a greater length than N°IV could be built at the same gross cost: that it would involve a slight increase of expenditure over N°II and a saving as compared with N°III.

22. I propose, with reference to the arterial Survey, that as soon as some of the Members of my Staff have completed what is required for the Survey, plans and Estimates of the sanctioned line, to run a line and levels along Route N°III pending instructions from Government as to which route should be adopted: as this line is for a part of its length common to two of the others and a Survey of it will be of use in the event of either N°II, III or IV being selected.

23. With the foregoing remarks I think that the questions for consideration and on which the views of Government should be solicited, are; whether Route N°I beginning as it does as little expenditure as any of the others (N°II excepted) should not be adopted out of consideration for the through traffic from Guichinopoly and the Southern Extension of the Great Southern of India Railway, which is greater than the through traffic that can be expected from

from elsewhere but which latter will flow to this line in any case: whether on the contrary the expense being nearly the same the advantages to be derived from a larger local traffic in the District of Tanjore will not be such as to counterbalance the drawbacks of carrying Trichinopoly through traffic by a circuitous route. In the event of No. I being rejected, and Nos. II, III & IV being alone considered, whether the saving in new line to be built and slight saving in cost of Working expenses from Cuddalore to Punrooty are sufficient to counterbalance the inconvenience and cost of carrying the through traffic an extra distance of 12 miles as compared with No. III. rr 25 [illegible]

— as compared with No. II —

I remain
My dear Sir
Yours truly

Fred. S. Dobblee
Chief Engineer.

Statement Shewing the number of Villages, Houses, Bandies in each Villages Route No. 2. & 3. [illegible]

Chedumbaram in but on route No. 2.

No. of Villages	Names of Village	No. of Houses	No. of Population	No. of Bandies in the Village	Chief Production
1	Punnuratty	1011	7008	70	Paddy, Gram, Cotton, Oil Seeds, Gingly Seeds, Green Gram, Chillies and Coriander.
2	Kuringepady	740	4625	30	Paddy, Indigo, Cholum, Ragg and Munela Seeds.
3	Buvanaghree	1138	7086	25	Large quantities of Paddy, Raggy, Cholum, Indigo and Manela Seeds
4	Chedumburum	2974	15987	100	Only Paddy

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Route No. I

Memorandum of Population within two Miles on both sides of Road No. 8 from Punrooty to Trichinopoly.

Names of the Talugs		No. of Population	Area	Population per Sqr. Mile
Punrooty to boundary Cuddalore Talug		16,695	24	696
Tirookohaloor	Do.	17,997	95	189
Virdrachellum	Do.	21,740	80	272
Perambaloor	Do.	34,237	96	356
Musure	Do.	12,500	38	329
Trichinopoly	Do.	34,986	48	729

Route No. II

Memorandum of Population within 2 Miles each side of Road No. 9 from Punrooty to Tanjore.

Names of the Talugs		No. of Population	Area Sqr. Miles	Average per Mile
Cuddalore Talug		36,133	80	452
Chedumbrum	Do.	19,894	52	382
Woodiarpolem	Do.	11,808	48	246
Combaconum	Do.	1,65,985	88	1,886
Tanjore	Do.	87,892	50	1,758

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Route N° III

Memorandum of Population within two Miles on each side of Routes from Cumrooty via Chedumberum Sheally, Combaconum to Tanjore.

Names of the Taluqs	N° of Population	Area	Average per Sqr Mile
From Cumrooty to boundary of Cuddalore Taluq	36,133	80	452
Chedumberum Taluq via town Chedumberum	48,026	56	858
Sheally Taluq	39,891	52	767
Mayaveram Do.	41,909	68	616
Combaconum Do.	128,089	68	1,883
Tanjore Do.	87,892	50	1,757

Route N° IV

Memorandum of Population within two Miles each side of Road N° 2 from Cuddalore to Tanjore.

Names of the Taluqs	N° of Population	Area	Average per Sqr Mile
Cuddalore Taluq		36	452
Chedumberum Do.	49,114	64	767
Sheally Do.	39,891	52	767
Mayaveram Do.	41,909	68	616
Combaconum Do.	128,089	68	1883
Tanjore Do.	87,892	50	1,758

Fred. Dobbs

P.W. 2124/72

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Papulation, Chief production, Export, Import, number of

Export to	Import From
Madras, Cotton, Indigo, oil-seeds, Gingly Seeds & Gram to Chellumbaram Oil in Dubbs	Madras Bales of Longcloths Chintz, Iron and other articles Color roots from Nagapatam
Madras & Cuddalore Annually 10 Bandies of Indigo. Manela Seeds to Punnuretty	Cuddalore Cocanut & Salt. Salam Chillies, Nut and Green Gram.
Madras & Pondicherry Annually 100 Bandies of Indigo, and about 50 Bandies of Women Cloth, Combaconum & Chellumburum Cloth & Manela Seeds, ~~Salam Chillies~~	Combaconum Brass Vessels, Chillies, Coriander & Tobbacco Salam Chillies, Oil Seeds, Gram & Garlic
Punnuretty, Cuddalore and other places Paddy in abundance,	Punnurooty Oil & Cloth Madras longcloth, Chintz Cotton thread, English articles and Iron.

5	Seally	768	4,086	70	Only Paddy	Tanjore, Nagapatam and Ceylon Large quantities of Paddy & Rice	Cuddalore Doll Gram Chillies Coriander and Other articles, Madras Bales of Long Cloth and Cotton thread.
6	Myavaram	4,130	20,295	50	Only Paddy	Tanjore. Nagapatam, and Ceylon Large quantities of Paddy & Rice	Cuddalore Doll, Gram Chillies Coriander and other articles Madras Bales of long Cloth &c
7	Combaconum	8,678	43,000	200	Paddy, Dyeroots and raggy	Madras, Cunjeeveram & Cuddalore Brass Vessels and Dyeroots: Nagapatam and Cylon, Paddy and Rice, Coranadu, Myaveram and to Chellumburum, Silk thread, Brass Vessels, Cotton Cloths & Different grains,	Madras English liquor, English articles, Bales of long cloth; Chintz, Silk thread, Cotton thread, Iron & Steel Trichinopoly Different grains, Garlic, Soffrens, oil in Dubbers, Punneretty oil &c

Value of Merchandise bought and Sold is given at Rs. 3,13,000 per Annum

A Contract for the Tolls at Gates Entering the Municipal Limits has been taken for Rs. 10,000 per Annum

Fred S Dibblee
Chief Engineer

Route No. I

Statement Shewing the number of Villages, Houses, Population, Principal Productions, Exports, Imports & Numbers of Bandies in each Villages. —

No. of Villages	Names of Villages	No. of Houses	Population	Bandies in the Villages	Principal productions	Export to	Import from
1	Orundoor	50	410	10	Raggy, Gram, Cotton, Indigo & Tobacco —	Punnooty — Raggy, Gram, Cotton, Indigo in small quantity, & Tobacco —	Maraccanum — only salt — Punnooty — Curry stuffs Cloths &c. —
2	Chindanore	210	1,350	25	Raggy, Gram, Cotton, Indigo, Tobacco & Manilla seeds —	Madras & Pondicherry — Gram, Manilla seeds, Cotton, Indigo and other grains —	Madras — Chintz, Cloths, Iron and different articles —
3	Vesoroo	80	750	8	Paddy, Gram, Cholum, Manilla seeds, Coreander, other grains & Tobacco.	Punnooty, Different Grains —	Maraccanum, only Salt —
4	Callangcoopum	240	2,030	30	Paddy, Gram, Cholum, Manilla seeds, Coreander, Tobacco, all the above articles in large quantities —	Madras, Cotton, Indigo, Gram, Manella seeds, Coreander, Raggy, Gingely seeds & other articles —	Madras, Chintz, Cloths, Iron & other articles — Maraccanum, only Salt —
5	Carakeek	70	530	15	Raggy, Paddy, Manilla seeds, Gram, Oil Seeds, Gingely seeds & Cotton —	Punnooty — Raggy, Gingely seeds, Manilla seeds, & oil seeds —	Punnooty — Cloths Curry stuffs & different articles — Maraccanum, only Salt —

10	Sengcurethee	152	1530	15	Paddy, Raggy, Cholum, Monella seeds, Cotton, & Indigo in large quantities —	Madras, Cotton, Indigo, Monella seeds & Gingly seeds —	Madras — Cloths, and other articles — Maracanum, only Salt —
11	Woolandoorpett	218	1858	17	Paddy, Raggy, Cholum, Oil seeds, Gingly seeds, Monella seeds in large quantities — Cotton, Indigo & Tobacco.	Madras — Cotton, Indigo, Gingly seeds & Tobacco — Punrooty — Monella seeds, Cloths, & different grains —	Madras — Chintz, Iron, & Curry stuffs — Punrooty different articles — Maracanum, only Salt —
12,	Sittamore	28	298	3	Raggy, Cholum, & Manella seeds in small quantities —	Nil	Nil.
13	Assanoor	130	1,165	30	Paddy, Raggy, Cholum, Monella seeds, Cotton, Indigo, Gingly seeds, Oil seeds & Tobacco —	Pondicherry, Indigo, Monella seeds & Tobacco — Madras Indigo, Cotton, Gingly seeds & Oil seeds —	Madras — different articles — Maracanum, only Salt —
14	Monilum alias Mongalum —	286	1,885	70	Paddy, Raggy, Cholum, Monella seeds in large quantities, Tobacco, Indigo, Cotton, Gingly seeds, Chillies, Correander, Mustard seeds, Gram for Horses, Green gram & Doll —	Madras 1000 Bandies of Tobacco & Chillies, Monella seeds & 500 Bandies of Raggy & Cholum, 30 Bandies of Cotton, 10 Bandies of Indigo, 3 Indigo Manufactory, 40 Bandies of Correander & a few bandies of different grains — Trichenopoly 70 Bandies of skins & Hides to Vanyambody, Cloths to Punrooty & Pondicherry, Oil to Punrooty & Conjeeveram, Tobacco & Chillies to Conjeeveram in large quantities — Fibre to Madras — nearly 1000 Bandies annually —	Madras, Chintz, Cloths, Iron, Steel, Nuts & Curry stuffs — Pepper from Salem —

6	Chummodoo	170	1,060	35	Large quantities of Manella seeds, Raggy, Gingely seeds, oil seeds, & other grains –	Madras, Raggy, Manella seeds, Oil seeds, Gingely seeds, & other grains,	Madras & Pondicherry Cloths, Iron, Curry Stuffs, Cloves, Cinnamon and other useful articles – Maracanum, only Salt –
7.	Terroonamanelloor.	168	1275	40.	Rice, Raggy, Cholum, Tobacco, Chillies, Cotton, Doll, Gingely seeds, oil seeds, & Indigo –	Pondicherry, Indigo, Cotton, Tobacco, Cloths, & other grains – Madras – Tobacco, Cotton, Indigo & Gingely seeds, Skins, Raggy, & Paddy – Punrooty – Cloths, Oil, Tobacco, Cotton, Indigo, Skins, Raggy, Paddy, & different grains –	Punrooty, Cloths, & other sundries – Madras – Iron, Steel, and other Cloths –
8	Senthamungalum	491	4,281	35	Paddy, Rice, Raggy, Tobacco, Chillies, Cotton, Indigo, oil seeds, & Gingely seeds –	Pondicherry, Tobacco, Indigo, & Chillies – Punrooty – Gingely Seeds & oil – Madras, Indigo, Cotton & other articles –	Madras – different articles & Cloths – Maracanum – only Salt –
9	Paddoor.	260	2,386	25	Paddy, Raggy, Cholum, Tobacco, Indigo, & Cotton –	Madras – Indigo, & Cotton – Pondicherry Tobacco & Gingely seeds –	Madras – Cloths, Iron, & different articles – Maracanum, only Salt –

15	Cherrapankum	414	3047	40	Paddy, Rice, Cholum, Cotton, Indigo & other grains	Madras, Cotton, Cotton seeds, Fibre, Indigo & Chillies. Paddy in large quantities to Veridra=chellum.	Madras, Chintz, Cloths, Iron, Steel & different articles. Maracanum, only Salt.
16	Venganoor	75	484	3.	Raggy, Cholum, Cotton, Monella seeds, in small quantities & different grains	Punrooty, Monella seeds & different grains.	Maracanum, only Salt.
17	Dooroovom	300	2,800	30	Large quantities of Cholum, Gram, Green gram, Doll, Raggy, Gingly seeds, Cotton, Paddy, Saffron, Sugar=cane, Indigo and Tobacco, a large quantities of Cotton, Carpets or Wearing by weavers, & Indigo Manufactured in Yariore.	Madras, Gram, Green Gram, Gingly seeds, Cotton, Indigo, Saffron, Sheep Skins, Doll & Sugar in large quantities.	Madras, Chintz, Cloths, Iron & different articles. Maracanum, only salt.
18	Vollaconda	171	1,156	20.	Paddy, Raggy, Cholum, Gram, Cotton, Indigo & Tobacco.	Punrooty, Cotton seeds, & different sorts of grains.	Madras, Cloths & different articles. Maracanum, only salt.

19	Parembalore	507	3189	80	large quantities of Paddy, Raggy, Cholum, Cotton, Indigo, Gram, Horses, Tobacco, Sugar-cane &ca	Punrooty-Indigo, Cotton, Cloths & for different articles - Madras-Sugar, Cotton, Indigo, Gram, Gingly seeds &ca	Madras-Chintz, Cloths & different articles - Maracanum, only Salt -
20	Toorumungalum	126	1067	23	Paddy, Raggy, Gram, Oil seeds, Gingly seeds, Monella seeds, Cotton & Indigo -	Punrooty-Paddy, Raggy, Cholum, & different grains -	Madras-Cloths & different articles - Maracanum, only Salt -
21	Tyalore	173	1000	12	Paddy, Raggy, Cholum, Cotton, Indigo, Monella seeds, Gingly seeds & other various articles -	Madras-Indigo, Cotton, Gingly seeds & Monella seeds -	Madras, Cloths & other various articles -
22	Kauray	232	2,054	40	Paddy, Raggy, Cholum, Gram & different sorts of grains - Cotton, Indigo, Tobacco, Sugarcane, Garlic & soffern in large quantities -	Trichenopoly - Country Cloth, Tobacco, & other grains -	Madras-Chintz, Cloths, Iron, steel, & other articles -
23	Poodookurrechee	166	1,083	25	Paddy, Raggy, Cholum, Monella seeds, Cotton & other articles -	Punrooty, Paddy, Raggy, Cotton, & Monella seeds	Madras-Cloths & other articles -
24	Wootathoor	150	945	30	Paddy, Raggy, & Gram, in large quantities -	Trichenopoly, Paddy, & Gram -	Madras, Cloths, Iron, & different articles - Maracanum, only Salt -

25	Moorcollum Choultry	95	290	17	Paddy, Raggy, Cholum, Gram, & Sugarcane in large quantities	Sometimes Paddy sent from this Village to Veridra=chellum, & other places –	Madras, Cloths &ca
26	Samacavarum	145	429	20	Paddy, Raggy, Cholum, & Sugar=cane –	Madras – Gram, Paddy & Cotton to Trichenopoly –	Maracanum, only salt –

From Trichenopoly to Madras via Tiranamanullore, Lace Cloths, Shoes for Natives, Garlic, Saffron, Cygars, Cotton, Sheep skins, Hides Empty Soda water bottles, Plenty passengers, Women Cloths, Cocoanut oil in Dubbers in Carts –

From Madras to Trichenopoly, English Liquors for shops, Chintzbales for shops, Europe articles, Passengers, Silk Cotton, Silk thread, Long Cloth, Bleached & Unbleached Mull pieces, Globes and Lustres &ca –

From Madura to Madras, Lace Cloths, Doll, Green Gram, Black Cumbelies &ca, Numbers of Passengers passing through on Traffic –

Fred S Dibble
Chief Engineer

P.W. 2124/72.

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No. 204

From,
J. G. Garstin Esqre
Collector, Sth Arcot

To,
Major C. L. Prendergast R.E.
Officiating Consulting Engineer
for Railways
Madras

Sir,

In reply to your letter of the 3rd August last, No. 204, I have the honor to inform you that I have consulted my Sub Collector Mr. Sharp in charge of the 3 Southern Talugs of this District, & have given the question of the extension of the Carnatic Railway to meet the G. S. I. Railway my best consideration, & am of opinion that as

regards this District the line should pass through, or as near as possible to, Tindevanum, Panruti, Cuddalore, Chidambram & Manargudi to the Coleroon, and so by Mayaveram & Combaconum to the G. S. I. Railway.

2. Tindevanum is the most important place in the north of the District; a road from it leads to the large salt station of Merkanam only about 25 miles off in one direction, while in the other the same road leads through Gingee & Trinomali to the Madras Railway at Samalpatti.

4. Vittupuram is an important town the head quarters of a Tahsildar, & the nearest point of importance to the Pondicherry territory.

5 Panruti is a large & populous village 2 miles from Trivadi, the head quarters of a Sub Magistrate. It is the chief grain market of the centre of the District.

6. Cuddalore Proper, that is Old Town, is only 3 miles from the head quarters of the District at Munjakupam, & possesses a most excellent site for a Terminus on the edge of a backwater where large Cargo boats can be touching the wharves & discharge or take in goods. It will be a matter for consideration by the Engineering Staff whether a branch line shall

shall run into Cuddalore and the main line be carried Southwards from Panruti, or whether the line shall go on from Cuddalore Southwards. I am inclined to think the former plan will offer fewer engineering difficulties than the latter.

7. The next place of importance, Chedambram, is a place of pilgrimage, containing a population of 13,000 people, the Cusbah of a very wealthy Talug almost entirely covered with rice cultivation — About 6 miles from it on the Sea is Porto Novo, a very rising port which

should be connected with the railway by a good road or tramway. It is on the banks of the Vellar river, which is navigable for large boats for 2 or 3 miles from its mouth, so that it might be connected with the railway by water if the railway crossed the river near enough to it. There are Salt Pans about 7 miles from Chedambram.

8. Manargudi is the head quarters of a Deputy Tahsildar, & a place of some little importance. The railway would then have to cross the Coleroon & this it might do on a bridge built on the Lower Anicut, or it might go straight south from Chedambram & cross the river by the existing bridge as proposed by Mr. Sharp & so to Mayaveram —

9. A shorter & easier line from Panruti viâ Virdachellam to Combaconum might be adopted, but I do not think it would pay as well. The Chedambram Talug is the place of all others for a railway, because it has no metal for road making & is in consequence most difficult to travel through in wet weather, while it is by far the richest talug of the District.

10. I am inclined to think that it would be good policy for the Company to make a branch line to Porto Novo as the facilities for landing & shipping goods are so

great there, & it is so close to the Chedambram Talug; nor do I think that they would ever have cause to repent making a line running from Tindevanum viâ Gingee & Trinomali to meet the Madras line. This would run through an easy country abounding in jungles which might supply firewood for the locomotives, & would be an immense boon to that part of the Country. The old iron trade which formerly existed in the Trinomali talug would probably revive, and a portion of the District now much neglected & infested with robbers would be

greatly benefitted, [illegible] addition to which the Trinomali festival would be a source of considerable income.

11. I enclose a copy of my Sub Collector's letter on the subject of the extension of the line.

Rec'd 26th October /71.

P. Dr. 2124/72

Have the hon'ble
Sir
Your most obedient Servt

Sd/ [illegible]
Coll's Office
Cuddalore
20th October 1871.

J H Garstin
Collector

[illegible]
Mo. W. Dm.

P W Dept.

No. 1339 A

Proceedings of the Madras Government
Under date the 14th May 1872
Read the following

From the Cons. Engr. for Rys. Madras } H.E. No. 202 of 26 April 1872.

In reviewing the general direction of the Carnatic Railway between Madras and Cuddalore the Government directed that an examination of the country with the view of selecting the most favorable route for a prolongation of that line to form a junction with the Great Southern of India Railway should be taken in hand on the

G.O. No. 910 of 27 Mar/1871.

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[illegible]

the occurrence of an opportunity and subsequently communicated the authority of the Govt. of India to the expenditure requisite for carrying out the investigation.

G. O. No. 2334 of 14th Sept
" " 2414 of 21st — do

The Consulting Engineer now lays before Govt. the result of the examinations which have been made and requests a decision on the general direction of the line in order that further preliminary operations may be expedited.

There are four alternative lines discussed in the papers submitted, diverging from Punrooty.

No.

No. 1. Direct to Trichinopoly with branch to Cuddalore.

" II. Direct to Combaconum and Tanjore, with branch as above.

" III. To Tanjore, via Chellumbrum and Coombaconum with branch as above.

" IV. To Tanjore, via Cuddalore (Porto Novo) Chellumbrum and Coombaconum.

The distances between Madras and Trichinopoly and the lengths of new line involved by each route being as follows.

No. 1.	Miles 205	new line	94
II.	223		81
III	236		94
IV.	248		87

And

And there are two questions for consideration 1st as between Route No I and Routes II, III & IV whether, (as put by Mr Dibbs) "Route No I requiring as it does as little expenditure as any of the others (No II excepted) should not be adopted out of consideration for the through traffic from Trichinopoly and the Southern Extension of the Great Southern of India Railway, which is greater than the through traffic that can be expected from elsewhere but which latter will flow to this line in any case. Or whether as on the contrary, the expenditure being nearly the same, the advantages to be derived from a larger local traffic in the District of Tanjore will not be such as to counterbalance the drawbacks of carrying Trichinopoly through traffic by a circuitous route - Or 2nd No I being rejected, and Tanjore not Trichinopoly being selected as the point of junction with the Great Southern of India line from the Northward, "whether the saving in new line to be built and slight

slight saving in cost of working expenses from Cuddalore to Tanroody are sufficient to counterbalance the inconvenience and cost of carrying the through traffic an extra distance of 12 miles as compared with "No III" or 25 miles as compared with No II.

It is unnecessary to rehearse in detail the arguments which have led the Railway Authorities and the Consulting Engineer for Railways to throw both in the first instance the direct line to Trichinopoly, No I, and secondly to decide on No IV out of the three lines to Tanjore. Their reasons are stated at length in the papers submitted and their decision is concurred in by the local Revenue authorities. The only point on which the Government would have desired further information is with reference to the crossing of the Coleroon which the Engineering staff were unable to investigate from want of work in demarkation of land

No. 2124

Govt. of {1872} Madras.

PUBLIC WORKS.

To the Consulting Engr.
for Railways

Encl 5

14th May 1872. No. 1339 A

Nos. 46314 & 46313

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land and collection of
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extension - But whether
route III or IV be selected
the same crossing will
be common to both these
lines, and accordingly
the Government
assent to the Cons.
Engineers proposal to
restrict survey operations
to No IV.

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To
The Cons. Engineer
for Railways with
two plans

Dec/no 7/6/72.

No. 2124

Govt. of {1872} Madras.

PUBLIC WORKS.

To The Consulting Engr. for Railways

Encl 8

No. 14 May 1872. No. 1339 A

Nos. 46311 & 46313

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