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MADRAS RECORD OFFICE.

Government of Madras.

Public Works **DEPARTMENT.**

G.O. No. 2396-97 P.W.D Press
~~Mts.~~

Dated 20th September 1871.

Not to be folded or roughly handled

Read the following papers:—

No. 327. From the Consulting Engineer for Railways, to the Secretary to Government, Public Works Department, dated Madras, 16th July 1869, No. 216.

In compliance with the confidential instructions conveyed in the Order of Government, dated the 19th April 1869, No. 1,290, I have the honour to submit the following further observations upon the general question of Railway extension in this Presidency, with reference especially to the points noticed by the Government of India in their recent despatches to the Secretary of State.

2. I have endeavoured to supplement these observations with all the available statistical information regarding the population, trade, etc., of the districts through which the proposed lines of Railway will be carried. These statistics are tabulated as an Appendix* to this letter; but I regret to say that the information which I have been able to collect, especially as regards the existing traffic upon the various lines, is far from being as copious as could have been wished.

* *Vide* Appendix A.

3. A Sketch Map of Southern India is also submitted, in illustration of the observations contained in this letter. It has been prepared upon the same principle as that† which accompanied the Minute by His Excellency the late Governor-General, and shows the various lines of Railway which have been projected in this Presidency, with their gauges, and the order in which it is proposed that each successive portion of every line shall be undertaken.

† *Vide* despatch from Government of India, to Secretary of State, No. 24, dated 11th March 1869.

Enclosure No. 4.
Map No. 11.

4. *New considerations imported into the question of Railway extension.*—The papers lately received from the Government of India, and the measures that have been by that Government recommended to the Secretary of State, have given an entirely new complexion to the important question of Railway extension in India. Especially in the following respects has the consideration of the question been set free from conditions with which it was before embarrassed.

5. In the first place, the Government of India have pointed out that the substitution of the direct action of the State for that of Companies, in the construction of future lines of Railway in India, will generally lead to satisfactory results, and will secure both to the Government and to the people of India many and great advantages which the present system has failed to produce. In the case of Railways which it is proposed to carry through Native States, the Government have recorded their opinion that, as a general principle, it is undesirable to attempt their construction by the agency of Companies.

6. In the second place, the Government of India desire to lay down as a principle to be observed in the selection of new lines of Railway, that the requirements of British India, as a whole, shall form the paramount consideration, and that the interests of those parts of the country which have not yet been provided with Railways shall not in future be sacrificed either, on the one hand, from the idea that it is preferable to extend and improve existing Railways and to supplement them with branches, or, on the other hand, from any apprehension that the construction of the new lines may in some degree interfere with the traffic upon the existing lines.

7. In the third place the Government of India have recorded their opinion that, in a case where it may appear to be unadvisable on financial grounds to construct a Railway on the recognized Indian gauge of five and a half feet, a proposal to construct a cheaper line upon a narrower gauge should meet with favourable consideration.

8. The limits by which the consideration of this question were supposed to be bounded have also been greatly enlarged by the desire expressed by the Government of India, that the requirements of the country, for at least the next thirty years, shall be as far as possible foreseen and provided for in the proposed scheme of Railway extension, and that every new line henceforth projected shall be considered, and decided upon, in relation to its place in such a scheme.

9. *Division into three groups of all lines projected in this Presidency.*—After carefully reconsidering the question of Railway extension in Southern India, with reference to the altered circumstances indicated in these and other propositions of the Government of India, I am compelled to modify considerably the views which I previously expressed, and I have no hesitation in stating it to be my opinion that the gradual and methodical construction of a general system of lines, such as has been sketched out by the Government of India, will not only further the great national interests of British India, but will also provide in the most certain and satisfactory manner for the wants of every important part of this Presidency. In discussing the subject it will be convenient to divide the lines proposed for construction in this Presidency into three groups, according to their geographical positions:—

(1.) The Southern group, including all lines proposed within the districts lying to the south of Madras, excepting those on the West Coast;

(2.) The Western group, including all lines proposed on the West Coast, together with the extension from Bellary towards Dharwar; and,

(3.) The Northern group, including all lines to the north of Madras, with the exception of those on the West Coast.

10. *Southern Group.*—Taking, in the first place, the Southern group, I do not now hesitate to recommend the construction of a line which, starting from Madras in a southerly direction, shall pass by Cuddalore, Combaconum, and Tanjore, and thence by Madura to Tinnevelly and Tuticorin. In the report which I had the honour to submit on the 15th July 1868, this line was purposely omitted. In the year 1865, the Madras Government* intimated, under orders from the Secretary of State, that they would be obliged to withhold their countenance and support from any proposed line of Railway which had a tendency to withdraw traffic from any of the guaranteed lines; and there can be no doubt that the construction of a Railway between Madras and Tanjore would to a certain extent compete with both the Madras Railway and the Great Southern of India Railway. It will be hereafter† shown that such competition will probably be insignificant in extent.

Direct line from Madras to Tanjore and Tinnevelly.

* G. O., 27th March 1865, No. 842.

† *Vide* paragraph 18.

11. In the scheme which I laid before Government last year, it was proposed to provide for the requirements of the districts of South Arcot, Tanjore, Madura, and Tinnevelly,

(1.) By an extension from Conjeveram to Cuddalore of the Indian Tramway Company's narrow gauge line;

(2.) By a branch of the Great Southern of India Railway from Needamungalum to Combaconum; and,

(3.) By a branch of the same Railway, starting from Caroor and running southwards through Madura to Tinnevelly and Tuticorin.

It is, however, impossible to be blind to the fact that the carrying out of this scheme would provide only imperfectly for the wants of the districts in question. The scheme was in itself a compromise, as the question of Railway extension was then supposed to be clogged by the condition that no new line was to be brought forward which could in any manner compete with the traffic upon the guaranteed lines in existence or in progress. Pending the removal of that condition no complete or satisfactory scheme of Railway extension in those districts could have been submitted; but looking to the fact that the entire traffic between Madras and the South would have been diverted into a circuitous route, far from its natural course; that the distance between Madras and the principal southern* towns would have been nearly doubled; and that many of those towns would have been† left without any direct means of intercommunication—it is easy to see that the arrangements then proposed could not have been final.

	Distance in Miles.	
	Direct.	Via Erode.
* *E. G.*, Madras to Tanjore ...	194	362
,, to Combaconum	171	396
† *E. G.*, Cuddalore to Tanjore	94	419
Chellumbrum to Combaconum ..	47	479

12. The line now advocated will thus secure many important objects in addition to those which the scheme previously submitted was calculated to provide for; and, among the reasons for giving it the preference, attention must be paid to the fact that it will bring into direct Railway communication with Madras the very important Military station at Saint Thomas' Mount, the smaller station at Palaveram, and the large town of Chingleput the seat of the District Courts of Law.

13. In the papers* which accompanied the Order of Government now under reply, the construction of a direct line of Railway from Madras to Tanjore and Tinnevelly is distinctly suggested by the Government of India. It is, indeed, left an open question whether the terminus of the line should be at Madras or at Arconum; but on this point there is room for little doubt, inasmuch as Cuddalore, to which in either case the line must be taken, is equi-distant from Madras and from Arconum, so that the fixing of the terminus at Arconum would have the

* *Vide* despatch from Government of India, to Secretary of State, No. 25, 11th March 1869, paragraphs 26, 27, and 29.

effect of lengthening the journey between Madras and the South by forty-two miles, the distance between Madras and Arconum.

14. *Gauge.*—When the extension of the Tramway Company's line to Cuddalore and no further was under consideration, I recommended that the present narrow gauge of three and a half feet should be maintained throughout, as being sufficient for the limited traffic which the line was likely to attract; but the circumstances are greatly altered when it is proposed that the line shall start from the seat of the Local Government, and shall follow for 400 miles the principal commercial highway in Southern India. The Government of India* have recorded their decided opinion that the five and a half feet gauge should be adopted, "as far at least as the point from which the line to Pondicherry would leave it;" and there can be but little doubt that after it has been carried thus far upon the Indian standard gauge, it will be found advisable to continue it upon the same gauge to Combaconum and Tanjore, and thence to Madura and Tinnevelly.

* Despatch No. 25, paragraph 27.

15. With reference to that portion of the proposed Railway which lies to the south of the Great Southern of India Company's existing line, it will be seen that the Government of India have* suggested that the former proposals should be "reconsidered in relation to the general arrangements which would be most "convenient for the whole of the southern part of the Peninsula, taking into "consideration the opening of a new coast line from Arconum or Madras." The former proposal, as already mentioned, contemplated Caroor as the point of departure for the branch to Madura and Tinnevelly; but bearing in view the immense benefits which a direct line from Madras to Tanjore would confer upon the south-eastern provinces, and the probability that this line will before long be undertaken, it seems to me that without a doubt Tanjore, and not Caroor, should be the starting point of the extension to Madura and Tinnevelly.

* Despatch No. 25, paragraph 29.

16. When the question at issue, with regard to this portion of the proposed extension, was between Caroor and Trichinopoly as alternative points of departure, the selection of Caroor was recommended chiefly on account of its offering the shortest and most direct communication between Madras and the South, and partly on account of the large local traffic between Palghaut and Coimbatore on the one hand, and Dindigul and Madura on the other, which the adoption of this route was thought likely to secure. The first of these considerations now forms a leading argument in favour of the line from Madras direct to Tanjore and Madura; but the large local traffic to which I have alluded could not be induced to take the long circuitous route from Palghaut and Coimbatore by Erode and Tanjore to Madura. Of the importance of this traffic there is no doubt; and with a view to accommodate it, as well as to open out the extensive tract to the north-west of Madura, I recommend that the proposed southern line be supplemented by a branch which should run from Madura, through Dindigul and Darapooram to Coimbatore, a distance of about 140 miles. Besides accomplishing the foregoing objects, the construction of this branch would greatly facilitate access to the Pulney Hills, a

Branch from Madura to Coimbatore.

Proceedings of the Madras Government, Public Works Department, 20th September 1871.

sanitarium almost equal to the Neilgherries, and would bring Madura into direct communication with the Neilgherries and with the West Coast.

17. While I have no hesitation in advocating the location of the terminus at Madras, and the adoption throughout of the Indian gauge, I do not recommend the abandonment of the existing line between Arconum and Conjeveram. Upon the contrary, I think that its gauge should be increased to five and a half feet, and that the line should be extended from Conjeveram down the valley of the Palar to Chingleput, a distance of twenty miles. Besides bringing the districts of Cuddapah and Bellary and the Bombay Presidency into direct communication with the southern provinces, this extension would compensate for the error which was committed in carrying the Madras Railway at so great a distance from the wealthy towns of Wallajahbad and Conjeveram.

Reconstruction of narrow gauge line between Arconum and Conjeveram, and its extension to Chingleput.

18. I append* two statements, furnished by the authorities of the Madras Railway, showing the statistics of the through traffic in passengers and goods between that line and the Great Southern of India Railway during the year 1868. The traffic between the latter line and the stations on the Madras Railway west of Erode will, of course, not be interfered with by the construction of the proposed Railway from Madras to Tanjore; and the subjoined figures show that the whole remaining traffic (of which only a fraction will probably be affected) amounts to 2·36 per cent. of the passenger traffic, and to 2·60 per cent. of the goods traffic:—

* *Vide* Appendix B.

Through traffic between Madras and Great Southern of India Railways.

	Traffic to Great Southern of India Railway from stations east of Erode.		Traffic from Great Southern of India Railway to stations east of Erode.		Total traffic between Great Southern of India Railway and stations east of Erode.		Per centage borne by last column to total traffic on Madras Railway under each head.	
	No.	Receipts.	No.	Receipts.	No.	Receipts.	No.	Receipts.
Passengers, ordinary	6,105	7,011	5,392	6,882	11,497	13,893	0·58	0·83
Do, extraordinary	7,914	14,440	7,914	14,440	15,828	28,880	9·08	22·58
	14,019	21,451	13,306	21,322	27,325	42,773	1·29	2·36
Goods ... Tons	4,584	71,143	778	16,437	5,362	87,580	1·47	2·60

The amount of traffic which the construction of the proposed line will divert from its present course must therefore be inconsiderable.

19. *Agency by which these lines should be constructed.*—After giving the most careful consideration to the question of the agency by means of which it will be advisable to construct this line, I come to the conclusion that upon almost every ground its construction ought to be undertaken by the direct action of the State. I entertain no doubt that the line will be the most profitable of all similar undertakings in Southern India, existing or prospective; and on broad grounds of

public policy I see no reason why the Government should not hold in their own hands a work which promises to be so largely remunerative. The fact that it will skirt the French territory, and the certainty that a branch will be made to connect it with Pondicherry, form additional reasons for not inviting the interference of a Company. Although the line will pass through no Native State, it will traverse a large Zemindary lying to the south of Tanjore, that of Poodoocottah; and the experience gained on the Madras Railway Company's North-West Line shows that troublesome questions, most difficult of solution, are apt to arise between Zemindars and Railway Companies when the lines of the latter are carried into the estates of the former.

20. When the question was one of extending the Indian Tramway Company's line upon its narrow gauge of three and a half feet as far as Cuddalore, that Company was naturally looked on as the one to which the construction of the extension should be entrusted; but, as I have already pointed out, the proposal has now assumed a widely different shape, and under the altered circumstances it seems to me that it would be highly impolitic to invite this Company to extend their enterprize beyond its present limits, and so to create a new set of private vested interests in the southern provinces, and to hamper still more the future action of the Government. So far from now advocating any extension of this Company's line, I consider that it would be desirable upon all grounds to purchase from them the short piece of line between Arconum and Conjeveram, and then to widen it to the Indian gauge and to extend it to meet the proposed southern line at Chingleput.

21. The Great Southern of India Company, whose line now extends from Negapatam to Erode, a distance of 168 miles, have far stronger claims to consideration than the Indian Tramway Company; and in the event of its being determined that the proposed new line shall not be constructed by the direct action of the State I should advocate the concession of it to them, in preference to the Indian Tramway Company. There can be no doubt that the proposed line will, to some extent, interfere with the traffic on the existing line of the Great Southern of India Company, and it will pass through a tract of country to which they perhaps consider themselves to have established a claim. The length of the line from Madras to Tinnevelly, including the branches to Tuticorin and Arconum, will be about 470 miles, and the length of the branch line between Madura and Coimbatore about 140 miles, making in all about 610 miles. If this be added to the Great Southern of India Company's existing line, the total of about 780 miles will be well within the power of one Company to manage. No good object could possibly be gained by dividing this distance between two Companies; while, on the other hand, the unnecessary multiplication of separate interests in Indian Railways cannot be too strongly deprecated.

22. Should the concession to the Great Southern of India Railway Company of these most important lines be determined on, I would most strongly urge the necessity of including in the Contract the new provisions which* have been suggested by the Government of India. I allude both to the equal division, between the Government and the Company, of

* *Vide* despatch to Secretary of State, No. 24, paragraphs 18 and 20.

any excess of the net profits above the guaranteed rate of interest; and to the reservation to the Government of power to deprive the Company of the concession at any time, if the Government is not satisfied that the works are being carried out with proper economy. It also seems to me, that in the event of this concession being made to the Great Southern of India Company, a concession which will virtually place in their hands the entire carrying trade of five of the richest provinces in this Presidency, a stipulation should be entered into the Contract binding the Company to carry out, as part of their undertaking, any branch or supplementary lines which the Government may from time to time consider necessary to complete or to extend the system. It appears doubtful whether the old form of Contract, in spite of the apparent provision in the second clause, enables the Government to require this; and it is unnecessary to observe upon the impolicy of conceding to a Company the monopoly of all the main and best paying lines of communication, while the construction of the less remunerative branch and supplementary lines is left to devolve upon the State.

23. My recommendation, therefore, is, that the Indian Tramway Company be on no account allowed to extend their enterprize; that, if possible, their existing line be purchased from them with a view to its being reconstructed on the five and a half feet gauge, and extended to Chingleput; and that the whole of this system of lines be undertaken by the direct agency of the State. In the event of this last proposal being negatived, I recommend the concession of the lines to the Great Southern of India Railway Company, but upon conditions different in several respects from those contained in the old Contract.

24. *Short branches to Arcot, Vellore, Salem and Palghaut.*—In addition to the lines already sanctioned there are some others which must be included in the Southern group. In the first place, there are the four short branches which were previously proposed to connect the South-West Line of the Madras Railway with the large towns of Arcot, Vellore, Salem, and Palghaut. These branches must be upon the five and a half feet gauge, and their construction must of course be entrusted to the Madras Railway Company. There is also the extension of the line through Tinnevelly towards the south, to a point where it can meet the line which it is proposed to bring through the States of Cochin and Travancore. The two lines will meet at the Travancore frontier, near a place called Arambooly, about forty miles from Tinnevelly.

Line from Tinnevelly to Travancore frontier.

25. *Probable cost.*—It is, of course, impossible at present to estimate accurately the probable cost of these lines. When submitting, in August 1868, the survey for the extension from Caroor to Madura and Tinnevelly, the Chief Engineer of the Great Southern of India Railway estimated the outlay at £6,200 per mile, and in this office it was deemed advisable to raise that estimate to £7,000 per mile. To the south of Madura the two lines are identical; but to the north the line now proposed differs altogether from the one under consideration last year, and will be the more expensive, inasmuch as it will have to be carried across the Coleroon and the whole of the Tanjore system of irrigation. The width of the Coleroon, where the line would cross it, is about 2,300 feet, and allowing, what

experience has shown to be a fair estimate, namely, Rupees 175 per foot, the cost of bridging this river would be about £40,000. I consider that if a sum of £8,000 per mile be allowed for the cost of the whole line between Madras and Tinnevelly, and southwards to the Travancore frontier, a liberal margin will be left to meet the cost of the Coleroon bridge and all other contingencies. From Madura to Coimbatore, and from Conjeveram to Chingleput, a sum of £7,000 per mile will be ample. For the reconstruction of the portion between Arconum and Conjeveram a sum of £4,000 per mile should be allowed. And for the short branches to Arcot, Vellore, Salem, and Palghaut, I think that £6,500 per mile will be sufficient.

26. The entire cost of these lines may, therefore, be approximately taken as follows:—

Line of Railway.	Length in miles.	Cost per mile.	Total cost.
		£	£
Madras to Tinnevelly	400	8,000	3,200,000
Tinnevelly to Tuticorin	30	8,000	240,000
Tinnevelly to Travancore frontier	40	8,000	320,000
Madura to Coimbatore	140	7,000	980,000
Conjeveram to Chingleput	20	7,000	140,000
Branches to Arcot, Vellore, Salem, and Palghaut	14	6,500	91,000
Arconum to Conjeveram, (reconstruction)	19	4,000	76,000
Total...	663	.....	5,047,000

27. *Order of construction.*—With regard to the order of construction of the various portions of the proposed system, and the period within which each portion will probably be completed, I look upon the line which is proposed to connect Madras with the districts of Madura and Tinnevelly as a work of such very great importance that I am induced to urge the expediency of beginning its construction simultaneously at both ends. There will be no difficulty in the way of commencing work both at Madras and at Tuticorin, while by so doing both the cost of the line and the time required for its completion will be reduced. Taking the quinquennial periods which are adopted in the Minute by the late Governor-General, I would allot the execution of the work as follows:—

Between 1870 *and* 1875.

	Miles.
From Madras to Cuddalore	100
From Tuticorin to Tinnevelly ...	30
Short branches on Madras Railway, South-West Line	14

Between 1875 *and* 1880.

From Cuddalore to Tanjore	100
From Tinnevelly to Madura	100

Between 1880 *and* 1885.

From Tanjore to Madura	100
From Conjeveram to Chingleput	20

Between 1885 *and* 1890.

	Miles.
From Madura to Dindigul	40
From Arconum to Conjeveram, reconstruction	20

Between 1890 *and* 1895.

From Dindigul to Coimbatore	100
From Tinnevelly to Travancore frontier	40

So that the completion of the whole of these lines may be anticipated by the year 1895. It will be observed that the opening of each successive section brings each line of communication to a point which can, if necessary, be regarded as a temporary terminus.

28. *Western Group.*—The lines proposed by this Government for construction upon the West Coast consisted of—

(1.) An extension of the Madras Railway Company's South-West Line from Beypoor westwards to Cannanore;

(2.) A branch from the same line from Puttamby in a southerly direction to Cochin; and,

(3.) An extension of the Bellary branch in a westerly direction to Dharwar and Caroor.

29. The Government of India, looking forward to the future requirements of the country, have recommended the extension, both north and south, of the first and second of these proposed lines, so as to provide an unbroken chain of Railway communication along the West Coast of India, from Cape Comorin to Carwar, and eventually to Bombay and Kurrachee. The proposed extension from Bellary westwards to Dharwar and Carwar finds a place in the scheme which the Government of India have sketched out. At Carwar it will, of course, be connected with the West Coast system; and from Dharwar a line which is proposed to run in a northerly direction, through Belgaum, Kolapoor, and Ahmednugger, will unite it with both branches of the Great Indian Peninsula Railway.

Line along the West Coast between Carwar and Cape Comorin.

Line from Bellary to Dharwar and Carwar.

Line from Dharwar to the Great Indian Peninsula Railway.

30. There can be no doubt that the carrying out of such a scheme would provide a most important and useful means of communication along the entire western seaboard of the Peninsula; especially important when it is remembered that, with one or two exceptions, all the ports on this coast are closed to ocean traffic during three or four months in every year. So far as this Presidency is concerned, all its immediate and pressing wants were provided for by the construction of the lines included in the former proposal of this Government, but that proposal did not profess to comprise provision for the requirements of the country up to the end of the present century.

31. *Gauge.*—With regard to the important question of gauge, I observe that the Government of India* have suggested that all extensions in the Southern Mahratta country, and in Mysore, should be constructed upon a narrow gauge of three and a half feet. There can be no doubt as to the policy of adopting this suggestion, but its scope should be extended. Calicut is the natural terminus of the Madras Railway Company's South-West Line, and a break of gauge at Beypoor would form a serious inconvenience. To Calicut, therefore, the line should be carried upon the broad gauge of five and a half feet; but north of Calicut I should now advocate the exclusive adoption of the three and a half feet gauge.

* Despatch to Secretary of State, No 25, paragraphs 34 and 35.
Also letter to the Madras Government, No. 330-R., dated 18th March 1869.

32. The narrow gauge lines would in this case form an important and extensive system, traversing a large tract of country. If a line be drawn on the map from Bombay through Poona, Sholapore, Bellary, and Bangalore to Calicut, the enclosed space would be entirely reserved for narrow gauge lines, whose length would be in round numbers as follows:—

	Miles.
Bombay (Callian junction) to Calicut	560
Munmar to Dhoond (junction line between north-east and south-east branches of the Great Indian Peninsula Railway)	140
Dhoond to Dharwar	210
Bellary to Dharwar	140
Dharwar to Carwar	120
Bangalore to Toongabudra...	220
Total...	1,390

Besides the above, other lines will also in all probability be constructed within the Mysore State, and these would of course be on the narrow gauge.

33. Upon the lines proposed to the south of Beypoor, through the territories of Cochin and Travancore, the Indian gauge of five and a half feet should, I think, be adopted. These lines will intersect a remarkably fertile and populous country, and will unite many large and important towns. I have already recommended that this gauge should be adopted for the whole of the proposed line from Madras to Tanjore and Tinnevelly; and as the line through Cochin and Travancore will be joined to this on the south, and to the Madras Railway on the north, an alteration in the gauge would be highly unadvisable. It indeed seems to me that it would now be desirable to exclude, if possible, any other gauge than that of five and a half feet from the whole of that part of the Peninsula which lies to the south of the Madras Railway Company's South-West Line.

34. Referring to the remarks† of the Government of India, it is necessary to observe that for some distance south of Beypoor the Madras Railway runs parallel to the coast; and that, partly on this account, and partly on account of the extensive backwaters which stretch inland near Trichoor, it will probably be found inexpedient to allow the Cochin line to branch from the Madras Railway until Puttamby is reached, a distance of

† Despatch to the Secretary of State, No. 25, paragraph 30.

forty miles from Beypoor. It may be observed that the selection of Puttamby as the point of junction would also be the most convenient for traffic between Cochin and the East Coast; and that the proposed break of gauge at Calicut will probably make it less essential to have the junction at Beypoor.

35. *Agency for construction of these lines.*—I accept, in their entirety, the suggestions thrown out by the Government of India * with regard to the agency by which the construction of all these lines should be undertaken. The short piece between Beypoor and Calicut should be offered to the Madras Railway Company. It is desirable, on several grounds, that this Company's system should be continued to Calicut, and the second clause of the Contract, dated the 19th December 1855, seems to give the Government power to require such an extension. But should the Company object to undertake it, it can be constructed by the State. With this exception all the proposed lines of Railway which I have included in the Western group should be constructed by the direct agency of the State. The extensive but compact system of narrow gauge lines described above would thus be entirely under the control of the Government, and the line through the Native States of Cochin and Travancore would also be free from all interference on the part of private Companies.

* Despatch No. 25, paragraph 30.

36. *Probable cost.*—The cost of the various lines included in this group will, of course, vary greatly. The line from Puttamby to Cochin was surveyed last year by the Madras Railway Company, and the expense of its construction was then estimated at £10,000 per mile. To the south of Cochin the cost will be smaller, and £9,000 per mile, or even less, will be a liberal estimate. The cost of the short section between Beypoor and Calicut, including the bridge over the Beypoor river, will probably amount to nearly £100,000. For the narrow gauge line contemplated to the north of Calicut, an estimate at the rate of £5,000 per mile for the whole distance within the limits of this Presidency will, in my opinion, be ample. If the extension westward from Bellary to the Dharwar frontier is also undertaken on the three and a half feet gauge, as above recommended, I think that the cost may be fairly set down at not more than £4,500 per mile.

37. The entire cost of these lines, within the limits of this Presidency, may therefore be approximately set down as follows:—

Line of Railway.	Length in miles.	Cost per mile.	Total cost.
		£	£
Puttamby to Cochin	60	10,000	600,000
Cochin to Trevandrum	130	9,000	1,170,000
Trevandrum to Tinnevelly frontier	50	9,000	450,000
Beypoor to Calicut	7	.....	100,000
Calicut to Cannanore	50	5,000	250,000
Cannanore to Mangalore	90	5,000	450,000
Mangalore to Kondapur	60	5,000	300,000
Bellary to Dharwar frontier	75	4,500	337,500
Total...	522	.....	3,657,500

38. Dividing, as before, the time into periods of five years, it seems to me that the construction of the various lines may be advantageously undertaken as follows:—

Between 1870 *and* 1875.

	Miles.
From Puttamby to Cochin	60
From Beypoor to Calicut	7
Between 1875 *and* 1880.	
From Calicut to Cannanore	50
From Bellary to Hospett	35
Between 1880 *and* 1885.	
From Cochin to Quilon	90
From Hospett to Dharwar frontier ...	40
Between 1885 *and* 1890.	
From Quilon to Trevandrum	40
From Cannanore to Mangalore	90
Between 1895 *and* 1900.	
From Trevandrum to Arambooly ...	50
From Mangalore to Kondapur	60

Each section being so arranged as to carry each line of communication to a point which can conveniently be used as a terminus, if necessary.

39. *Northern Group.*—To the north of Madras the Government of India have suggested the construction of a Railway along the East Coast of the Peninsula, which will ultimately serve as a direct line of communication between Calcutta and Madras. Branches to Hyderabad on the one side, and to Masulipatam and Cocanada on the other, are also contemplated; and it is suggested that a commencement of the system might at once be made from the two last-named ports as separate starting points.

Direct line between Calcutta and Madras with branch to Hyderabad.

40. Upon full consideration I do not think it possible to advocate the construction of this system upon the Indian gauge of five and a half feet. Throughout its entire length the coast line will have to compete with the sea route, and as it would pass through or near several ports, it could depend upon securing little or no 'through' goods traffic. Although it would skirt a considerable extent of rich delta cultivation, it would have to compete in those places with a system of cheap inland navigation. Upon the other hand, the nature of the country and the large rivers which must be crossed would raise the cost of a first-class Railway to so high a figure as to render its financial success almost impossible.

41. *Gauge.*—The construction of these lines upon a narrow gauge seems, however, to be in every way deserving of consideration. Such lines would be well suited to all the requirements of the country, present and prospective; they could be executed at a comparatively low cost; and there is every reason to believe that they would be fairly remunerative works. I have suggested that on the West Coast a large tract of country should be entirely reserved for narrow gauge lines, and I cannot but think that a similar course should be followed on the East Coast also. If a line be drawn on the map from Calcutta to Nagpore, thence to Hyderabad, and thence to Madras, it seems to me that it would be highly expedient to

restrict all proposed lines of Railway within those limits to the gauge of three and a half feet. There would thus be formed an extensive system of lines of uniform gauge, whose length may be roughly estimated as follows:—

	Miles.
Tripetty (on North-West Line of Madras Railway) to Bezwarah	220
Bezwarah to Cuttack	500
Cuttack to Calcutta	240
Bezwarah to Hyderabad	160
Hyderabad to Nagpoor	300
Nagpoor to Cuttack	500
Samulcottah to Cocanada	10
Total...	1,930

It will be observed that neither of the large tracts, which I suggest should be reserved for narrow gauge Railways, includes within it any line that can properly be deemed of prominent importance in an Imperial point of view. They are all local or subsidiary lines, and the main highways of the empire are otherwise provided for.

42. I have ventured to modify in some slight degree the suggestions thrown out by the Government of India with regard to this group of Railways. So far as this Presidency is concerned, it seems to me to be advisable upon every ground that work should be begun at the point where the proposed system will be united to the North-West Line of the Madras Railway. That point will doubtless be Tripetty, an important station, situated at a distance of eighty-four miles from Madras. The Government of India suggest that separate commencements should be made at Cocanada and Masulipatam. The latter town has, however, so completely lost the position it formerly held among the eastern ports, that the advantage of constructing a branch to it may fairly be questioned. It is connected with Bezwarah by a navigable canal, and, in my opinion, the cost of a Railway may well be saved. The case of Cocanada is widely different, but unless it is intended to commence operations there and at Tripetty simultaneously, I strongly recommend that nothing should be done until the line has advanced as far north as Bezwarah. Except in special circumstances the utility of an isolated piece of Railway is very questionable; and in this instance there can be no doubt that the balance of advantage is decidedly in favour of working northwards from Tripetty. Independently of other considerations, it must be remembered that every mile of rail opened from Tripetty towards Nellore and the north will form a valuable feeder to the Madras Railway.

43. *Agency for construction.*—The Government of India have recommended that these lines should be undertaken by the direct agency of the State, and there can be no doubt as to the policy of such an arrangement. No existing Company has established a claim upon any part of the country through which they will pass, nor can any Company be injuriously affected by their construction. The Madras Railway Company will indeed be largely benefited, as the Guntoor cotton and other valuable produce which now travel by road to Madras will pass over eighty-four miles of their line; but this cannot be accepted as any reason for extending their system in this direction. On the contrary, that Company's system, which

with the lines now under construction extends over nearly 900 miles, has already reached its natural limits; while against giving to them any portion of the lines proposed on the East Coast there are at least two principal objections, (1) in the difference of gauge, and (2) in the fact that for a considerable distance the lines will run through Native States and Zemindaries.

44. *Probable cost.*—As the proposed lines will traverse districts in which no Railway operations have yet been undertaken, it is not easy to form an approximate estimate of their cost; but looking to the expense which has been incurred on similar lines elsewhere, and to the low rates of labour in most of the districts in question, I am of opinion that, if the bridges over the Godavery and Kistna rivers are specially provided for, a sum of £5,000 per mile will cover the cost of all these lines. For the two bridges in question, I think that the sums of £100,000 and £60,000 respectively may be allowed.

45. The entire cost therefore of these lines, so far as this Presidency is concerned, may be approximately taken as follows:—

Line of Railway.	Length in miles.	Cost per mile.	Total cost.
		£	£
Tripetty to Bezwarah	220	5,000	1,100,000
Bezwarah to Samulcottah	125	5,000	625,000
Samulcottah to Ganjam	265	5,000	1,325,000
Samulcottah to Cocanada	10	5,000	50,000
Bezwarah to Hyderabad	160	5,000	800,000
Bridge across Godavery	.....	.....	100,000
Do. Kistna	.....	.....	60,000
Total...	780	.....	4,060,000

46. *Order of construction.*—I have already said that, in my opinion, the construction of these lines should proceed northwards from Tripetty, the point at which they branch from the Madras Railway Company's North-West Line, and it seems to me that the execution of the various sections may be advantageously apportioned as follows:—

	Miles.
Between 1870 *and* 1875.	
From Tripetty to Nellore	70
Between 1875 *and* 1880.	
From Nellore to Ongole	70
Between 1880 *and* 1885.	
From Ongole to Bezwarah	80
From Samulcottah to Cocanada	10
Between 1885 *and* 1890.	
From Bezwarah to Toonee	160
Between 1890 *and* 1895.	
From Toonee to Chicacole	120
From Bezwarah to Sooriapett	80

	Miles.
Between 1895 *and* 1900.	
From Chicacole to Ganjam...	110
From Sooriapett to Hyderabad	80

47. *Apportionment of expenditure.*—The following tabular statement shows the order in which it is proposed to carry out the various lines which have been discussed in the foregoing observations:—

	Miles proposed for construction in the undermentioned periods.						Total.
	1870 to 1875.	1875 to 1880.	1880 to 1885.	1885 to 1890.	1890 to 1895.	1895 to 1900.	
Madras to Tanjore	100	100	...	...	...	...	200
Tanjore to Tinnevelly	...	100	100	...	...	...	200
Tinnevelly to Tuticorin	30	...	...	...	...	...	30
Tinnevelly to Travancore frontier	...	...	...	...	40	...	40
Madura to Coimbatore	...	...	...	40	100	...	140
Arconum to Chingleput	...	...	20	*19	...	...	39
Short branches on Madras Railway, South-West Line	14	...	...	...	...	...	14
Beypoor to Calicut	7	...	...	...	...	...	7
Calicut to Kondapur (Bombay frontier) ...	...	50	...	90	...	60	200
Puttamby through Cochin and Travancore to Tinnevelly frontier	60	...	90	40	...	50	240
Bellary to Dharwar frontier...	...	35	40	...	...	...	75
Tripetty to Ganjam	70	70	80	160	120	110	610
Bezwarah to Hyderabad	...	...	...	...	80	80	160
Branch to Cocanada	...	...	...	10	...	...	10
Total...	281	355	340	349	340	300	1,965

* Reconstruction.

48. Taking the quinquennial periods suggested by the Government of India, the cost of these lines will be distributed as follows:—

Section of Railway.	Group to which belonging.	Length in miles.	Cost per mile.	Total cost.
1870 to 1875.			£	£
Madras to Cuddalore	Southern...	100	8,000	800,000
Tinnevelly to Tuticorin	Do. ...	30	8,000	240,000
Branches on Madras Railway, South-West Line...	Do. ...	14	6,500	91,000
Beypoor to Calicut	Western ...	7	.....	100,000
Puttamby to Cochin	Do. ...	60	10,000	600,000
Tripetty to Nellore	Northern...	70	5,000	350,000
Total...		281	.....	2,181,000
1875 to 1880.				
Cuddalore to Tanjore	Southern...	100	8,000	800,000
Tinnevelly to Madura	Do. ...	100	8,000	800,000
Calicut to Cannanore	Western ...	50	5,000	250,000
Bellary to Hospett	Do. ...	35	4,500	157,500
Nellore to Ongole	Northern...	70	5,000	350,000
Total...		355	.....	2,357,500

Section of Railway.	Group to which belonging.	Length in miles.	Cost per mile.	Total cost.
1880 to 1885.			£	£
Tanjore to Madura	Southern...	100	8,000	800,000
Conjeveram to Chingleput	Do. ...	20	7,000	140,000
Cochin to Quilon	Western ...	90	9,000	810,000
Hospett to Dharwar frontier	Do. ...	40	4,500	180,000
Ongole to Bezwarah	Northern...	80	5,000	400,000
Bridge over Kistna	Do. ...	.....	.....	60,000
Cocanada to Samulcottah	Do. ...	10	5,000	50,000
Total...		340		2,440,000
1885 to 1890.				
Madura to Dindigul	Southern...	40	7,000	280,000
Arconum to Conjeveram (reconstruction) ...	Do. ...	19	4,000	76,000
Quilon to Trevandrum	Western ...	40	9,000	360,000
Cannanore to Mangalore	Do. ...	90	5,000	450,000
Bezwarah to Toonee	Northern...	160	5,000	800,000
Bridge over Godavery	Do. ...	.....	...	100,000
Total...		349		2,066,000
1890 to 1895.				
Coimbatore to Dindigul	Southern...	100	7,000	700,000
Tinnevelly to Travancore frontier	Do. ...	40	8,000	320,000
Toonee to Chicacole	Northern...	120	5,000	600,000
Bezwarah to Sooriapett	Do. ...	80	5,000	400,000
Total...		340		2,020,000
1895 to 1900.				
Trevandrum to Tinnevelly frontier	Western ...	50	9,000	450,000
Mangalore to Kondapur, Bombay frontier ...	Do. ...	60	5,000	300,000
Chicacole to Ganjam	Northern...	110	5,000	550,000
Sooriapett to Hyderabad	Do. ...	80	5,000	400,000
Total...		300		1,700,000
Grand Total...		1,965		12,764,500

49. An expenditure, therefore, of about twelve and three-quarters millions sterling, spread over thirty years, would suffice for the construction of all the lines of Railway which, so far as can be foreseen, are required to provide for the main wants of every important part of this Presidency. The construction of such a system of Railways would bring almost every town in the Presidency within less than fifty miles from a line of Railway. And, allowing a most liberal margin, this object would certainly be attained by the annual expenditure of half a million sterling for thirty years.

50. *Branch to Pondicherry.*—Before concluding this report I think it right to allude to two short lines of proposed Railway which have not found a place in the foregoing scheme. Of these the first is the branch which will connect Pondicherry with the main line between Madras and Tanjore. I am aware that, when it was proposed to extend to Cuddalore the Arconum and Conjeveram narrow gauge Railway, leaving the entire line in the hands of the Indian Tramway Company, the Madras Government* gave it as their opinion that it should

* G. O., 16th May 1867, No. 1,482.

be left "to the French Government to negociate with the Tramway Company for a junction from Pondicherry upon any terms which may appear expedient to both parties;" but the circumstances are greatly changed if, instead of forming part of a short isolated norrow gauge line, it is proposed that the Pondicherry branch shall be constructed upon the Indian gauge, and united to what will certainly be the principal thoroughfare in Southern India. The length of the branch will not exceed ten miles, and I cannot but think that upon every ground it would be undesirable to allow so short a junction to be under a system of control and management different in any degree from those which affect the main line. Whether the construction of the latter be undertaken by the direct action of the State, or through the agency of a Company, the branch should, in my opinion, be constructed in like manner, and upon exactly similar conditions; and, after construction, the management of both should be vested in the same hands.

51. *Branch line to Neilgherry plateau.*—The other line to which I allude is a branch, on Fell's system, to connect Coonoor and Ootacamund with the Madras Railway extension to Kullar. Considering the success which has attended the trial of that system on the Mont Cenis route, there can be little doubt that a proposal to bring the Neilgherry plateau into direct Railway communication with the rest of the Presidency will ere long be pressed upon the notice of Government. The novelty of the system and my ignorance of its practical details have prevented me from laying any formal proposal before Government, but I have every reason to believe that there would be no difficulty in adapting it to the Coonoor ravine. The length of the Mont Cenis line, from Saint Michel to Susa, is about forty-eight miles, the steepest gradient is 1 in 12, the average gradient is 1 in 25, and the cost is set down at £ 6,800 per mile. The distance from Kullar to Ootacamund by the new cart road is about twenty-eight miles, and the maximum gradient within that distance is, I believe, 1 in 17. Allowing liberally for contingencies the cost ought not to exceed £ 8,000 or £ 9,000 per mile.

APPENDIX A.

No. 1.

Proposed line from Madras to Tinnevelly and Tuticorin including Conjeveram and Pondicherry.

Districts traversed.	Average per square mile.	
	Population.	Revenue.
		Rs.
Madras	575	2,114
South Arcot...	256	784
French territory	1,177	3,030
Tanjore	464	1,822
Madura	235	639
Tinnevelly	399	1,251

Principal towns in each district through or near which the line will pass.

Districts.	Towns.	Population.
Madras	Madras ...	450,000
	Sydapet ...	7,524
	Saint Thomas' Mount ...	12,562
	Poonamallee ...	5,462
	Chingleput ...	5,618
	Madarantecum ...	3,302
	Utramallur ...	6,196
	Streepermatur ...	4,203
	Wallajahbad ...	3,578
	Conjeveram ...	40,228
South Arcot ...	Tindevanam ...	8,068
	Villapuram ...	5,212
	Tiruvady ...	3,068
	Cuddalore ...	39,153
	Punoorutty ...	5,464
	Porto-Novo ...	6,380
	Chellumbrum ...	14,354
Tanjore	Mayaveram ...	19,205
	Combaconum ...	33,765
	Manargoody ...	11,983
	Negapatam ...	18,311
	Vallam ...	6,573
Madura	Poodocottah ...	
	Tripatoor ...	
	Sevagunga ...	
	Madura ...	6,472
	Aroopacottah ...	39,872
	Tiroomangalam ...	8,978
Tinnevelly	Virdapatti ...	5,848
	Yellayarasanendal ...	9,363
	Puttapah ...	3,442
	Kilpattu ...	8,387
	Kandiaperi ...	4,222
	Ettukanar ...	5,800
	Palamcottah ...	3,304
	Tinnevelly ...	13,315
	Stavalangah ...	23,000
	Ottapedaram ...	3,324
	Tuticorin ...	3,834
French territory ...	Pondicherry ...	9,544
		42,930

Annual value of Exports and Imports at principal ports.

Names of Ports.	Exports.	Imports.
	RS.	RS.
Madras ...	2,45,01,322	3,37,65,258
Cuddalore ...	1,08,012	64,212
Negapatam ...	29,05,885	21,15,355
Keelakary ...	2,11,169	2,80,813
Tuticorin ...	1,05,88,805	19,82,754

Existing road Traffic on line.

Between what places.	Average daily number of carts.
Madras and Saint Thomas' Mount	799
Saint Thomas' Mount and Chingleput	738
Madras and Conjeveram	1,010
Tindivanum and Vicravandy	330
Tindivanum and Pondicherry	250
Vicravandy and Combaconum	558
Vicravandy and Trichinopoly	909
Pondicherry and Cuddalore	460
Pondicherry and Villapuram	438
Cuddalore and Porto-Novo	490
Cuddalore and Pinnanoor	520
Poodoocottah and Madura	125
Madura and Tinnevelly	1,000

No. II.

Proposed branch line from Madura to Coimbatore.

Districts traversed.	Average per square mile.	
	Population.	Revenue.
		RS.
Madura	235	639
Coimbatore	174	353

Principal towns through or near which the line will pass.

Districts.	Towns.	Population.
Madura ...	Madura	39,872
	Sholavandan	6,000
	Dindigul	8,951
	Palany	10,895
Coimbatore ...	Darapooram	5,092
	Kongiem	5,103
	Palladum	.....
	Coimbatore	24,051

Average daily number of carts between Madura and Dindigul 225

No. III.

Proposed lines on West Coast.

Territories or Districts traversed.	Average per square mile.	
	Population.	Revenue.
		RS.
Travancore	237	827
Cochin	552	1,199
Malabar	295	543
South Canara	200	541
Bellary	114	334

Principal towns through or near which the line will pass.

Territory or District.	Towns.	Population.
Travancore ...	Trevandrum	52,000
	Arambooly	
	Thalacoody	
	Kotar	
	Parracky	
	Shuchindrum	
	Alloor	
	Colachel	
	Erneel	
	Tiroovathancode	
	Kulculum	
	Tiroovataur	
	Coolithoray	
	Kottokal	
	Neyathencurry	
	Sherinkeel	
	Quilon	
	Kayanculum	
	Moothooculum	
	Kartigapully	
	Thalacurray	
	Manar	
	Allepy	
	Munchatikara	
	Vycum	
	Vatayar	
	Edapully	
	Paravoor	
Cochin ...	Trichoor	5,347
	Chittoor	8,000
	Kunnankoolum	6,000
	Ernacollum	8,833
	Cochin	5,211
	Muttenchary	10,000
	Tripoonitoray	3,500
Malabar ...	Ponany	5,967
	Calicut	37,000
	Quilandy	6,918
	Badagherry	5,911
	Tellicherry	18,500
	Cannanore	16,600
South Canara...	Mangalore	23,668
	Oodipee	3,208
	Moolkee	3,309
	Karkal	3,293
Bellary ...	Bellary	37,015
	Hospett	9,419
	Bellahoonsy	.....
	Hamsagra	.....
	Kumply	9,227
	Hurpunhully	6,308

More than 3,000 inhabitants in each.

Statistics of the existing road traffic on these lines are not available.

APPENDIX B.

Statement showing Statistics of through Passenger Traffic between the Madras (South-West and North-West Lines) and Great Southern of India Railways for the year ending 31st December 1868.

	PASSENGERS BOOKED FROM THE GREAT SOUTHERN OF INDIA RAILWAY, WESTWARD.										PASSENGERS BOOKED FROM THE GREAT SOUTHERN OF INDIA RAILWAY, EASTWARD.									
West.	First Class.		Second Class.		Third Class.		Total.				First Class.		Second Class.		Third Class.		Total.			
	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.			No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.		
		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.				Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		
Ordinary Traffic.	102½	1,753 1 0	252	1,773 2 4	5,750	3,435 14 0	6,104½	7,011 1 4			54	299 1 0	78	122 7 11	3,349	3,081 11 9	3,481	3,503 4 8		
Extraordinary do.	3	87 5 0	21	64 0 6	7,890	14,338 3 0	7,914	14,439 8 6			...	.....	4	7 4 0	2,457	1,638 11 10	2,461	1,645 15 10		
	105½	1,840 6 0	273	1,837 14 10	13,640	17,774 1 6	14,018½	21,451 6 10			54	299 1 0	82	130 3 11	5,806	4,720 7 9	5,942	5,149 12 8		

APPENDIX B.—*(Continued.)*

Statement showing Statistics of through Goods Traffic between the Madras (South-West and North-West Lines) and Great Southern of India Railways for the year ending the 31st December 1868.

West.	GOODS BOOKED WESTWARD TO GREAT SOUTHERN OF INDIA RAILWAY.													
	Special Class.		First Class.		Second Class.		Third Class.		Fourth Class.		Fifth Class.		Total.	
	Mds.	Amount.	Maunds.	Amount.	Maunds.	Amount.	Maunds.	Amount.	Maunds.	Amount.	Maunds.	Amount.	Maunds.	Amount.
		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.
	820 3/10	393 1 0	38,210 1/16	13,571 11 0	48,860 11/20	15,938 3 9	11,869 11/16	8,933 8 7	17,882 7/16	19,346 4 3	7,121 7/16	12,960 4 7	124,766 7/16	71,143 1 2

East.	GOODS BOOKED EASTWARD TO GREAT SOUTHERN OF INDIA RAILWAY.													
	Special Class.		First Class.		Second Class.		Third Class.		Fourth Class.		Fifth Class.		Total.	
	Mds.	Amount.	Maunds.	Amount.	Maunds.	Amount.	Maunds.	Amount.	Maunds.	Amount.	Maunds.	Amount.	Maunds.	Amount.
		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.
	.....	.....	42,732 1/2	7,996 7 4	8,385 11/20	1,861 5 8	17,826 13/16	5,904 6 4	3,068 13/20	1,474 3 6	283 1/4	238 10 10	72,296 13/20	17,475 1 8

No. IV.

Proposed lines north of Madras.

Districts traversed.	Average per square mile.	
	Population.	Revenue.
		Rs.
North Arcot...	299	602
Nellore	166	783
Kistna	154	696
Godavery	182	728
Vizagapatam (Survasiddi Taluk)	307	555
Ganjam	259	1,389

Annual value of Exports and Imports at principal ports.

Names of Ports.	Exports.	Imports.
	Rs.	Rs.
Colachel	40,298	23,480
Pattanam	12,641	146
Poovar	21,214	6,333
Poontooray	9,059	16,265
Anjengo	25,452	1,935
Tangacherry	74,388	13,806
Alleppy	13,48,044	5,37,748
Catoor	50,282	.....
Manacodum	73,785	.....

Annual value of Exports and Imports at principal ports.

Names of Ports.	Exports.	Imports.
	Rs.	Rs.
Narrakal	2,96,118	3,24,367
Cochin	85,78,217	38,54,185
Beypoor	7,64,588	27,199
Calicut	60,97,222	27,03,835
Tellicherry	20,62,383	7,63,047
Cannanore...	10,83,823	11,66,140
Mangalore...	26,56,537	16,74,147

Principal towns through or near which the line will pass.

Districts.	Towns.	Population.
North Arcot ...	Tripetty	8,598
	Kalastri	9,125
Nellore ...	Venkatagiri	6,989
	Goodoor	5,123
	Nellore	22,851
	Ongole	5,832
	Tanqutur	5,364
Kistna ...	Cheerala	7,956
	Baputla	9,949
	Guntoor	15,184
	Prattipaud	6,707
	Bezwarah	5,154
	Kondapilly	4,922
	Juggiapettah	8,327
	Nuzneed	5,561
	Masulipatam	27,763
Godavery ...	Ellore	19,910
	Rajahmundry	16,777
	Samulcottah	7,810
	Cocanada	10,477
	Coringa	6,833
	Peddapooram	8,938
	Pethapooram	8,006
	Dowlaishweram	5,890
	Toonee	5,588
Vizagapatam ...	Kassimcottah	16,220
	Anakapilly	13,333
	Vizagapatam	6,867
	Bimlipatam	15,192
	Vizianagrum	4,046
	Palkonda	8,147
Ganjam ...	Chicacole	11,125
	Calingapatam	.....
	Gopaulpoor	.....
	Berhampoor	20.278
	Ganjam	4,587
	Aska	

Annual value of Exports and Imports at principal ports.

Names of Ports.	Exports.	Imports.
	RS.	RS.
Masulipatam ...	12,33,496	1,07,182
Cocanada ...	56,38,264	5,80,278
Coringa ...	3,33,518	91,513
Vizagapatam ...	4,46,526	1,10,678
Bimlipatam ...	23,28,338	6,43,263
Calingapatam ...	4,97,992	975
Gopaulpoor ...	5,78,736	5,26,425
Moonsoorcottah ...	46,359	39,729
Ganjam ...	1,34,398	457

Proceedings of the Madras Government, Public Works Department, 20th September 1871.

Statement showing Statistics of through Goods Traffic between the Madras (South-West and North-West Lines) and the Great Southern of India Railways.—(Concluded.)

GOODS BOOKED FROM THE GREAT SOUTHERN OF INDIA RAILWAY, WESTWARD.

West.	Special Class.		First Class.		Second Class.		Third Class.		Fourth Class.		Fifth Class.		Total.	
	Mds.	Amount.	Maunds.	Amount.	Maunds.	Amount.	Maunds.	Amount.	Maunds.	Amount.	Maunds.	Amount.	Maunds.	Amount.
		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.
	.....	.....	40,606⅔	5,430 6 8	8,587½	2,438 15 8	15,129⅚	4,365 10 6	3,054½	1,832 14 7	1,504⅓	751 15 0	68,881⅓	14,819 14 5

GOODS BOOKED FROM THE GREAT SOUTHERN OF INDIA RAILWAY, EASTWARD.

East.	Special Class.		First Class.		Second Class.		Third Class.		Fourth Class.		Fifth Class.		Total.	
	Mds.	Amount.	Maunds.	Amount.	Maunds.	Amount.	Maunds.	Amount.	Maunds.	Amount.	Maunds.	Amount.	Maunds.	Amount.
		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.
	.....	.....	2,256⅔	1,097 9 5	5,074⅓	2,652 12 11	5,810⅓	3,514 1 10	6,456⅔	6,531 0 8	1,503⅓	2,641 4 10	21,190⅔	16,436 13 8

(Signed) R. B. ELWIN,
Agent and Manager.

(True Copy.)

(Signed) F. CHURCH,
Chief Auditor.

J. H. M. SHAW STEWART, Major, R.E.,
Consulting Engineer for Railways.

(Signed)

Existing Road Traffic on line.

Between what places.	Average daily number of carts.
Madras and Nellore ...	1,142
Tripetty and Kalastry	342
Kalastry and Naidoopett	444
Venkatagiri and Yaripett	419
Guntoor and Bezwarah	172
Bezwarah and Ellore	88
Bezwarrah and Masulipatam	215
Bezwarah and Hyderabad	384
Vizianagrum and Bowdara	549
Vizianagrum and Chittivalsa	1,160
Chittivalsa and Chicacole	2,111
Palcondah and Parvatipoor	3,169
Vizianagrum and Palcondah	2,614
Chittivalsa and Bimlipatam	685
Toonee and Vizagapatam	965
Vizagapatam and Vizianagrum	228
Vizagapatam and Kasipoor	861

(Signed) J. H. M. SHAW STEWART, Major, R. E.,
Consulting Engineer for Railways.

No. 328. Letter from the Consulting Engineer for Railways, to the Secretary to Government, Public Works Department, dated Madras, 7th September 1869:—

In their Order dated the 19th April 1869, No. 1,290, the Government did me the honour to call for an expression of my opinions on the several points noticed by the Government of India in their review of the recommendations made by this Government on the subject of Railway extensions in this Presidency. I had the honour of replying to that requisition upon the 16th July; but the supplement* to the *Gazette of India*, which reached me yesterday, contains the despatch† of His Grace the Secretary of State addressed to the Government of India upon the general subject of the extension of Railways in India; and I trust that the extreme and urgent importance of the interests involved in the questions at issue may be accepted as my excuse for venturing to again address the Government upon this subject. I first saw the despatch in question in the columns of a local newspaper, and I then addressed you demi-officially on several points therein alluded to; but now that the despatch has reached me through an official channel, I think it right to put my observations in official shape.

* 27th August 1869.

† No. 42, 15th July 1869.

2. From the 20th paragraph of that despatch I gather that it is proposed by the Home Government to extend the Indian Tramway Company's line from Conjeveram to Cuddalore, and the Great Southern of India Railway Company's line from Trichinopoly to Tuticorin; thus giving the preference to the system of lines originally proposed for the south-eastern districts of the Presidency over the alternative system suggested by the Government of India in their despatch, No. 25, dated the 11th March 1869. When I had the honour, fourteen months ago, of addressing the Government with reference to the question of extending the Railway system within this Presidency, I

On 15th July 1868.—*Vide* G. O., No. 2,967, 9th September 1868.

felt it then to be my duty to advocate the extensions from Conjeveram to Cuddalore and from Caroor to Tinnevelly and Tuticorin; and as the expression of my opinions may have tended, in ever so slight a measure, to confirm this Government and the Home Government in their views as to the policy of undertaking those lines, I feel it to be the more incumbent on me to explain, as clearly and as briefly as possible, the reasons which have led me to change my opinions.

3. I trust that it will not be held to be now too late, after the expression of the views of the Home Government, contained in the despatch to which I have alluded, to re-open the question. I beg most respectfully to urge that it is a matter of vital importance to secure the construction of the line which is best adapted to the present circumstances and the future prospects of the country, and that the loss of a few months, and the sacrifice of a little money, should not on any account be allowed to stand in the way of the fulfilment of that object. For months past I have given to this subject my most anxious and careful consideration, I have sought from all quarters for information and advice, and I have arrived at the conviction that the wants of the south-eastern provinces of the Peninsula in the matter of Railway communication can be provided for only by the construction of the line which was suggested and sketched out by the* Government of India under the denomination of the "East Coast Railway, Southern Section," and which, starting from Madras, would pass near Pondicherry to Cuddalore, and thence by Chellumbrum, Combaconum, and Tanjore, to Madura, Tinnevelly, and Tuticorin.

* Despatch No. 25, 11th March 1869, paragraphs 26, 27, and 29.

4. This suggestion of the Government of India is noticed in the despatch of His Grace the Secretary of State, and is objected to on the ground that "Railways "running parallel with the coast must necessarily come more or less into compe- "tition with the route by sea, and it would, therefore, seem expedient that such "lines should be deferred until the inland communications have been further "developed." I beg, however, to point out that the proposed line, stretching from Madras to Tinnevelly, can be considered to be a coast line only from the fact that it will form a link in the great chain of communication which is destined at some far distant day to connect Calcutta with Cape Comorin. Viewed by itself, with reference to the manner in which it will supply the wants of the districts through which it passes, I respectfully maintain that it can in no way be held to be open to the objections with which a coast line is properly chargeable. Throughout its whole length of more than 400 miles, it abuts only twice upon the coast, at Cuddalore and Tuticorin. So far as the trade of these two ports, especially Tuticorin, is concerned, the line will of course serve to convey to them the produce of the neighbouring country, but in every other respect it will be essentially a line of inland communication. The population and revenue returns and the statistics of the existing road traffic, which I had the honour of submitting with my letter† of the 16th July, seem to show conclusively that the extensive traffic which may be confidently expected upon this line of Railway is very different from what could be attracted to a mere coast line.

† No. 216, Appendix A.

5. When, in addressing the Government last year, I advocated the extension, on the one hand, of the Indian Tramway Company's line from Conjeveram to Cuddalore, and, on the other hand, of the Great Southern of India Railway Company's line from Needamungalum to Combaconum, it did not seem to me, as after the most attentive consideration it does now, to be absolutely impossible to restrict the extension of the Railway system in either direction within those limits. The orders of the Home Government,‡ which seemed to debar me from the consideration of any line which could possibly compete with the traffic upon existing Railways, had of course great weight in inducing me to abstain from bringing forward any recommendation for a direct line between Madras and Tanjore; but I have no hesitation in stating that I did not then properly appreciate the rich and populous nature of the country to the south of Cuddalore, the extent to which the traffic is already developed, and the shortness of the gap between Cuddalore and Combaconum. That gap is barely sixty miles in length; and I cannot state too positively my conviction that after Cuddalore and Combaconum shall have been respectively brought into connection with the Indian Railway system, one year will not pass before it is found necessary to arrange for uniting the two towns.

‡ *Vide* G. O., No. 842, 27th 1865.

6. Holding this opinion, as I do most firmly, I trust that I shall be excused if I venture to urge the importance of considering, in any measures which may now be taken, the absolute certainty (for such I cannot but regard it) that any line by means of which Cuddalore may become connected with Madras must inevitably be extended to Combaconum, and thence to the Great Southern of India Railway. Looking at the question from this point of view, it is my duty to express in the most decided and unequivocal manner my opinion that Madras itself, and not Arconum, should be the point of departure of the line which is to bring the Presidency town into direct communication with its richest provinces. And, as bearing on this point, I may mention that I took advantage of a recent visit to Conjeveram to ascertain the opinions held by the local officials of the line with regard to the direction in which the extension, if carried to Cuddalore, should be taken. The reply I received, and in the most decided manner, was that on no account should the Palar river be crossed near Conjeveram, but that the line should be carried down the valley of the river, through Wallajahbad, to Chingleput, whence it should proceed in a south-westerly direction, by Madranticum, towards Cuddalore. This opinion is the result of four years' experience, and of intelligent observation and inquiries as to the directions from which the greatest amount of traffic may confidently be expected. The circuitous nature of the route recommended for the extension is a clear proof of the importance attached to the great depôts situated on the direct line between Madras and the south and to the large traffic now in existence.

7. It is scarcely necessary to repeat here that it is due to a mere accident that the idea of a line between Arconum and Cuddalore was ever entertained; and that, but for that accident, it is hardly possible to imagine any valid reason being brought forward against the direct line of communication. I earnestly entreat that the question may be considered as if the short bit of line between Arconum and Conjeveram had no existence. In the letter which I addressed to

you on the 16th July, I recommended that after the construction of the main line from Madras to the south, the bit of narrow gauge between Arconum and Conjeveram should be reconstructed, and extended on the Indian gauge to meet the main line at Chingleput. Such a line would, in my opinion, accommodate a considerable local traffic, both in passengers and goods; but I would beg leave to withdraw that suggestion if it be held to stand in any degree in the way of the main southern line from Madras. It would be far better to abandon altogether the little bit of narrow gauge line than that its existence should constitute a reason for giving a wrong direction to what I cannot but look on as the most important line of Railway in the Presidency.

8. If the Government are pleased to attach weight to the arguments I have brought forward in support of a direct line of Railway between Madras and Tanjore, I would submit that three other conclusions follow therefrom almost as necessary corollaries:—

(1). That the line should be constructed on the Indian gauge of 5½ feet.

(2). That if it is thought inexpedient to employ the direct agency of the State, the whole line should be entrusted to the Great Southern of India Railway Company.

(3). That the Southern Extension of the Great Southern of India Railway Company's line should start from Tanjore, and not from either Caroor or Trichinopoly.

9. With regard to the first and the third of these points it seems to me scarcely necessary to add anything to what has been already urged in my letter* of the 16th July; but with regard to the second point, I did not perhaps state, as fully and clearly as I might have done, the objections which appear to stand in the way of any further concession to the Indian Tramway Company. In my previous letter,† when remarking upon the impolicy of inviting the Company to extend their enterprize, I pointed out that the creation of a new set of private vested interests in the southern provinces would in all probability greatly hamper the future action of the Government; I showed that the whole of the proposed southern lines would form a compact system, well within the power of one Company to manage; and I stated that, while no good object could possibly be gained by dividing the lines in question between two Companies, the Great Southern of India Railway Company had a much stronger claim upon the Government for the concession than any which the Indian Tramway Company could bring forward. But in addition to these objections, which are perhaps rather of a negative and a contingent nature, there are other positive and immediate objections which have presented themselves to me in the strongest light. In the first place there is a heavy additional expense which is involved by a separate Board of Management in England, and a separate agency in India. How much easier and cheaper it is to manage a large concern than a small one is shown by the following figures, taken from my letter‡ dated the 18th November 1868, which give the expenses of the Home Establishments of the various Railways in this Presidency for the half-

* Paragraphs 14, 15, and 16.

† Paragraphs 20 and 21.

‡ No. 418.

year ended 30th June 1868, and the proportion which those expenses bear to the working expenses and to the gross revenue of each line :—

Line of Railway.	Expense of Home Establishment.	Per-centage of—	
		Working Expenses.	Gross Revenue.
Madras Railway, South-West Line	9,736	0·98	0·42
Do., North-West Line	2,328	0·93	0·29
Great Southern of India Railway	6,500	3·71	1·74
Indian Tramway Company's Line	6,728	27·09	24·92

It may be accepted that on a short line the Indian expenses exceed those of longer lines in a similar ratio. Not only does the separate agency form a distinct charge; but, whatever may be the length of the line, each department requires its own head. The posts of Locomotive Superintendent, Chief Engineer, and Traffic Manager must be filled on every line, however short, or the efficiency of the departments must suffer. The Government of India§ have laid down that, with a view to proper and economical supervision, a Railway undertaking should have a length of at least 400 or 500 miles, and all experience goes to confirm this view.

§ Resolution of Government of India, 3rd December 1867, No. 1,050-R. *Vide* G. O., No. 61, 8th January 1868.

10. But besides these general reasons, based upon a desire to secure efficiency and economy, it is my duty to point out that there are special reasons which should influence the Government against entrusting to the agency of the Indian Tramway Company any extension whatever, in any direction, of their present short bit of line. These objections had not presented themselves to me when I addressed to Government last year, or I should then have dwelt upon them. The agreement between the Secretary of State and the Indian Tramway Company, under which the Company's operations were brought under the control of the Government, was not communicated to me till the 21st February 1868,* and it was not until I had been for some months in official connection with the Company that I was able to realize how ill adapted they are to the task of undertaking the construction and management of any important line of Railway in India. My experience has, however, convinced me, and I feel it my duty to place it on record, that such an undertaking, if entrusted to them, is likely to prove neither economical nor successful. I do not suppose that it is necessary for me to give details in order to prove what I assert; but I do not hesitate to assure the Government, an assurance which the Examiner of Railway Accounts can corroborate, that the concerns of this little Company, with a capital of £100,000, give almost as much trouble as either the Madras or the Great Southern of India Railway Companies. Both on public and private grounds, looking, on the one hand, to the interests of the State, and, on the other, to the amount of work likely to devolve on this office, I venture to deprecate any proposal which involves a further concession to the

* In G. O. No. 588.

Indian Tramway Company. I have already strongly advised the purchase from the Company of their little bit of existing narrow gauge line, and I can only here repeat that advice. Their capital amounts to only £100,000; and for this they receive from Government, in virtue of their agreement with the Secretary of State, interest at the rate of 3 per cent. per annum. This interest they receive even when, as was the case in the second half of the year 1868, their revenue did not cover their working expenses. Looking to the current value of Government Securities, I presume that the Company would not object to receive some £70,000 in Indian stock in full payment for their outlay. But even if it were necessary to recoup their outlay in full, I would not hesitate to recommend the payment to them of £100,000, on the very ground of economy, and for the interests of the State.

11. I have endeavoured to make the foregoing observations as brief as possible; but I trust that I have shown good reason for the recommendations which I brought forward in my previous letter :—

(1). As to the direction in which the Railway system should be extended to the south of Madras;

(2). As to the gauge upon which it should be extended; and,

(3). As to the agency by means of which the extension should be carried out.

I beg leave also to repeat my previously expressed hope that the important questions at issue may not be held to be finally and irrevocably settled by the proposals alluded to by His Grace the Secretary of State in his despatch to the Government of India.

MINUTE BY HIS EXCELLENCY THE PRESIDENT.

I.—The Government of Madras, in the month of September 1868, recommended to the Government of India the following scheme of railway extension in this Presidency :—

(1.) A broad gauge line from Caroor to Tinnevelly, by Dindigul and Madura, with a branch from Kytar to Tuticorin, to be executed by the Great Southern of India Railway Company.

(2.) A broad gauge line from Bellary to Dharwar, to be executed by the Madras Railway Company.

(3.) A narrow gauge railway from Conjeveram to Cuddalore, to be executed by the Indian Tramway Company, with a branch to Pondicherry.

(4.) Four short branch lines from the South-West Line of the Madras Railway Company to the towns of Arcot, Vellore, Salem, and Palghaut, to be executed by the Madras Railway Company.

(5.) A broad gauge line from Beypore to Cannanore by Calicut and Tellicherry, to be executed by the Madras Railway Company.

In addition to these five lines three others were contemplated, namely :—

(1.) A broad gauge line from Pothanoor, on the South-West Line by Coimbatore, to Kullar at the foot of the Neilgherry Mountains, to be executed by the

Madras Railway Company. This line was treated separately by the Government of India, and recommended for special sanction to the Secretary of State.

(2.) A branch line from the Needamungalum Station, on the Great Southern of India Railway, to Combaconum, to be executed by that Railway Company. The project was reserved for further local inquiry, the Government being in doubt whether it should be executed on the broad gauge or narrow gauge system.

(3.) A broad gauge line from Puttamby, on the South-West Line of the Madras Railway Company, to Cochin. The decision of Government respecting this line was deferred until better information could be procured respecting the permanency and value of the port of Cochin as a railway ocean-terminus.

II.—The views of the Government of India and of the Secretary of State on the proposals of the Madras Government may be gathered from a note by the Under-Secretary to the Government of India in the Department of Public Works, under date of December 30th, 1868, from a despatch from the Government of India to the Secretary of State, marked No. 25, of March 11th, 1869, and from a despatch from the Secretary of State to the Government of India, dated July 15th, 1869, No. 42.

(1.) The line in extension of the Great Southern of India Railway to Tinnevelly and Tuticorin is approved, and is awarded for execution to that Railway Company, but the point of departure from the existing line is referred for reconsideration, with a view to the eventual construction of an East Coast Trunk Line extending from Calcutta to Madras and from Madras southwards to the extremity of the Peninsula. This Great East Coast Line, regarded as desirable or inevitable by the Government of India, does not, however, meet with the same degree of countenance at the India Office, and is postponed to an indefinite future.

(2.) The line from Bellary to Dharwar is recognized as desirable; but in respect to this line, as well as to its extension to the coast at Carwar, the Government of India deliberate both as to the gauge on which they should be constructed and as to the agency by which they should be executed. The alternative concerning agency is between the Madras Railway Company and the State, at least with regard to the section from Bellary to Dharwar. The character of this line is discussed by the Government of India in connection with a projected West Coast Line from Bombay to the extreme south of India; but this West Coast Line is rather discountenanced by the Secretary of State.

(3.) The extension of the narrow gauge line from Conjeveram to Cuddalore with a branch to Pondicherry meets neither with the approval of the Government of India nor with that of the Secretary of State. The Government of India recognize a legitimate claim on the part of the French Government to railway communication of the nature best suited to serve the interests of Pondicherry. The same view has been embraced by the Secretary of State, who has dealt with the question separately and independently by sanctioning an arrangement under which the Tramway Company is transformed into the "Carnatic Railway Company," and undertakes the construction of a broad gauge railway from Arconum to Cuddalore, with a branch to Pondicherry as a separate work supported by the guarantee of the Government of India and by a pecuniary subsidy from France.

(4.) The four short branches on the South-West Line of the Madras Railway Company are sanctioned.

(5.) The extension of the South-West Line of the Madras Railway by that Company to Calicut is affirmed, but the further extension of the line northwards to Cannanore ought, in the opinion of the Government of India, to be dealt with in connection with the contemplated Great West Coast Line, which, it is stated, ought to be carefully reserved for the agency of the State.

It has been already stated that the proposed line from Pothanoor to the foot of the Neilgherries is accepted on all hands.

The connection of Combaconum with the Great Southern of India Railway is sanctioned, by implication in principle, by the Government of India, as it would form a necessary part of the southern section of the contemplated East Coast Line.

The line from Puttamby to Cochin is approved as part of the West Coast Line desired by the Supreme Government, while it is not rejected by the Secretary of State as an independent project.

III.—It may be stated, in general terms, that all the plans of railway extension, recommended by this Government, are approved in principle, but that considerable hesitation and divergency of opinion exist as to the scale and the agency of construction, while the Supreme Government appears inclined to give a greater development to a general scheme of railway communication on the coasts of the Presidency than the Secretary of State is disposed to adopt, at least at present.

IV.—The communications from the Government of India having been imparted to the Consulting Engineer for Railways, that officer submitted, in the months of August and September last, an altered and expanded system of railway extension in the Presidency, framed in harmony with the views and principles enunciated by the Supreme Government. The scheme propounded by Major Shaw-Stewart comprises the following particulars:—

(1.) A railway group connecting Madras directly with the southern districts, and those districts with the South-West Line of the Madras Company and the Western Coast. The main line would run from Madras to Arambooly in the extreme south of the Tinnevelly District near Cape Comorin, traversing Chingleput, Cuddalore, Chellumbrum, Combaconum, Tanjore, and Tinnevelly, with four branches—one from Chingleput to Arconum, one from a convenient point on the line to Pondicherry, a third from Madura to Coimbatore on the South-West Line passing through Dindigul, and a fourth from Tinnevelly to Tuticorin—the whole group to be on the Indian broad gauge of 5 feet 6 inches to be executed either by the State or by the Great Southern of India Railway Company, but by preference by the State. This group would supersede the former proposals of the Madras Government to extend the present narrow gauge line from Arconum to Conjeveram as far as Cuddalore with a branch to Pondicherry, leaving it in the hands of the Indian Tramway Company, and to carry the Great Southern of India Railway from Caroor to Tinnevelly with a branch from Kytar to Tuticorin.

(2.) A western railway group comprising a line from Bellary to Carwar on the Western Coast passing through Hooblee and Dharwar, and a coast line

running southwards by Mangalore, Cannanore, Tellicherry, Calicut, Beypore, Puttamby, Cochin, Quilon, and Trevandrum, and terminating at Arambooly, the last southern station of the Great East Coast Line, thus joining the ends of the railway girdle which the Supreme Government desire to cast round the whole Peninsula. Major Shaw-Stewart would construct the section of this group to the north of the South-Western Line of the Madras Railway Company, that is, all to the north of Puttamby on the narrow 3 feet 6 inches gauge, and all to the south of Puttamby on the broad gauge. The whole group ought, in his opinion, to be executed by the agency of the State.

(3.) A northern railway group comprising the Madras section of the Great West Coast Line and two branches. The main line would start from Triputty Station on the North-West Line of the Madras Railway Company, and proceed by Nellore, Ongole, Guntoor, Beswarra, Ellore, Rajahmundry, Samulcottah, Vizagapatam, Bimlipatam, Chicacole, and Ganjam, to the Bengal frontier. The first branch eastward to the interior would connect Beswarra, the head of the Kistna irrigation system, with the Hyderabad frontier, and terminate at the capital of the Nizam; the other would run from Samulcottah to Cocanada, the *debouche* of the Godavery Delta. The whole would be done by Government on the narrow gauge.

(4.) Major Shaw-Stewart also proposes that the line already sanctioned from Pothanoor to Kullar at the foot of the Neilgherry Hills should be carried up the steep Coonoor defile to the crest of the plateau, and be run into Ootacamund. The work would be undertaken by Government on Fell's System.

V. The project of southern railway extension by the Eastern Coast, submitted by Major Shaw-Stewart, has been already practically modified in two respects, (1), by the independent action of the Secretary of State; (2), by a resolution of the Madras Council in their recent discussion on this question.

VI.—The Secretary of State, acting in correspondence with the French Government, sanctioned, in the month of September last, an arrangement by which the "Carnatic Company" have undertaken the construction of a broad gauge line from Arconum to Cuddalore with a branch to Pondicherry, the Government of France guaranteeing, on account of the latter, a subsidy of £8,000 a-year for twenty years. The question of railway communication through South Arcot has thus been decided under influences over which this Government could exercise little control.

This Government desired to make the line one of a local restricted character—a narrow gauge of cheap construction in continuation of the present tramway running from Arconum to Conjeveram. It would have been extended to Cuddalore. The French Government, as they have now done, would have arranged with the Company for a branch to Pondicherry. The primary object was to benefit our own territory, but the French would have profited incidentally by the passage of the line within twelve miles from their port, while the English would have incidentally gained by the Pondicherry traffic thrown upon the new line as well as upon the South-West and North-West Lines of the Madras Railway Company.

It must be allowed, however, that this prudent project might naturally be unacceptable to the Government of Pondicherry and the Government of France.

Proceedings of the Madras Government, Public Works Department,
20th September 1871.

The policy of the French was to obtain a broad gauge line uniting their port and territory to the Madras Railway at Arconum, so that the northern cotton might come down from Bellary and be transmitted to Pondicherry without breaking bulk, in the interest of the mills and export trade of the place.

The Government of France were prepared to make a considerable pecuniary sacrifice to attain this advantage, which it is hoped may arrest the decay of an historical, though unimportant, dependency.

The English Government could not resist French representations without incurring the reproach of illiberality and jealousy. In this way we have seen the substitution of the Carnatic Company for the Tramway Company, and of the broad for the narrow gauge.

The same considerations have governed the direction of the line which determined the question of scale.

The broad gauge having been adopted for the South Arcot Line, this Government would probably prefer to abandon the Arconum and Conjeveram line altogether, and adopt the project recommended by Major Shaw-Stewart of a line running straight from Madras to Chingleput and Cuddalore; but this would defeat the capital object of the French, which is to place their port in connection with the interior without touching Madras.

The junction of the South Arcot Line with the Madras Line at some point to the west of Madras is an indispensable condition with them, and the concession is apparently one which the English Government could not in courtesy or generosity refuse. It must be admitted that the whole district of South Arcot benefits materially by a more direct access to the Central and Western Provinces provided by the junction at Arconum; nor does the opening of a direct communication between Pondicherry and the interior threaten the port of Madras with any serious rivalry, for Madras will still be considerably nearer the cotton-producing districts than Pondicherry. The merchants at Madras have more capital and stronger local connection in the country than the French, and the two ports, or rather roadsteads, are equally inconvenient for shipping goods. But the construction of a broad gauge line southwards from Arconum opens new questions.

If the South Arcot Line had been made on the narrow gauge, it might have remained a local line with a terminus at Cuddalore, and the Government of Madras would probably have undertaken the extension of the southern canal now open to Sadras as far south as the Coleroon, so as to place the capital in direct water communication with the delta of the Cauvery. That project must now probably be abandoned, for it would not be reasonable to run a State canal alongside a first-class guaranteed railway, or to break the through-traffic by transferring it from a first-class railway to a canal at Cuddalore, making a place so insignificant the permanent terminus of a line. The inevitable result of the concession to France is the adoption of two features, at least of the scheme recommended by the Consulting Engineer, which are both in harmony with the views of the Government of India:—

(1.) The Carnatic Railway must be continued from Cuddalore to the Cauvery Delta, and join the Great Southern of India Railway at Combaconum or Tanjore.

A more fertile district would thus be opened up than the country to the north of Cuddalore; more local traffic would be attracted, and the capital would be placed in direct connection with the populous, opulent, and food-supplying delta of the Cauvery. 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. The section between Combaconum and Tanjore is likely to be extremely remunerative; it would counterbalance the poorer sections to the north; and, as this Company has been created, the more scope and importance we can give to it the better, for a great enterprise can always be more cheaply and efficiently directed than a small one. Nor need the Great Southern of India Railway Company complain, if we regard the immense undertakings to the south which necessarily fall to their share.

(2.) The Carnatic Railway from Arconum to Cuddalore should be directed through Chingleput, and Chingleput should be eventually united by a direct line passing by St. Thomas' Mount to Madras. Unless this direct Madras branch is sanctioned, the local traffic of South Arcot with the capital will undoubtedly continue to run on the high roads, for it would never go round by Arconum while the through-traffic from Tanjore and the extreme south would either have to make a long and expensive detour on the railway, or be thrown off at some point or other upon the ordinary high way. It has been suggested to me by the Secretary for the Department of Public Works that this line, uniting Madras directly with the Carnatic Line in South Arcot, might be more advantageously joined to the Carnatic Line at Tindivanum, passing through Chingleput, in which case the Carnatic Line would pass to the westward of Chingleput, and that this line might be undertaken by the State on the narrow gauge. There would no doubt be the advantage of cheapness, but it seems to me, on the whole, that the other plan is preferable. As the Carnatic Railway Company has been created, and as its field of action is circumscribed, the Government will do well, I think, not to contract and embarrass its operations by introducing another gauge and another agency in the districts of Madras and South Arcot. It also appears desirable that the Carnatic Railway should pass through the best parts of the country and touch the larger towns, and that the direct line joining it to the capital should be as short as possible.

The modification of Major Shaw-Stewart's plans, introduced by the independent action of the Secretary of State, is only one of agency as far as South Arcot and all the country to the north of the Coleroon are concerned.

Under the suggestions here submitted, the lines remain the same with reference to direction and with reference to gauge; they are merely undertaken by the Carnatic Company instead of by the Great Southern of India Company or by the State. To the south of the Great Southern of India Line, however, the recent decision of the Madras Government has not only affected the agency but also the direction of the extension proposed by the Consulting Engineer.

Major Shaw-Stewart advises that the line should run direct south from Tanjore to Madura through the Poodoocottah State. The Government deprecate this course, which appears to sacrifice substantial interests to mere straightness. The proposed line would intersect one of the poorest regions in India—a region in which the Government have little direct concern.

It is too near the East Coast and too far from the better districts lying in the centre of the country. In lieu of this line from Tanjore to Madura by Poodoocottah, the Government, acting still in the spirit of the instructions of the Government of India which condemned Caroor, have selected Trichinopoly as the starting point of the southern extension, thus maintaining a sufficient directness in the through-communication from Madras to the extreme south of the Presidency without forsaking Government territory and the more favoured portions of the country. Starting from Trichinopoly the line would proceed, as originally proposed, to Dindigul, Madura, and Tinnevelly, throwing off a fork to Tuticorin at Kytar. Under this arrangement, the important branch line proposed by the Consulting Engineer from Madura to Coimbatore by Dindigul would become a branch or connecting line from Dindigul to Coimbatore. It would open up a new and important country, and form the direct *debouché* for the produce of the south of the Peninsula to the Western Coast.

It does not seem to me necessary at present to contemplate the extension of this line forty miles beyond Tinnevelly to Arambooly in the sand waste to meet a line from the western side of the ghauts which the Government of Travancore will probably not be disposed to construct.

These extensions would be entrusted, as previously settled, to the Great Southern of India Railway Company, with the interests of which they are closely identified. There seems to be no doubt that the line can be made and worked by that Company as cheaply as by the Government if maintained on the broad gauge, which all the authorities concur in advising.

VII. I now proceed to consider the western group of railways contemplated by the Consulting Engineer. Major Shaw-Stewart has connected the question of the extension of the line from Bellary to Dharwar and Carwar on the Western Coast with the question of a Great West Coast Line from Bombay to Cape Comorin, advocated by the Government of India. The language of the Government of India certainly countenances this association; but the former project is one of special use and pressing necessity, while the latter appears to me to be problematic and, at best, a remote contingency.

It is manifestly desirable to carry the cotton and other heavy produce of the country above the ghauts by the shortest line to the best port, and Carwar may be the proper ocean-terminus for such a line; but a line skirting the coast from town to town and from port to port seems to me to belong to a different category of communications, and I cannot affirm that it would be everywhere the method best adapted to the material wants and physical conformation of the coast regions of the Presidency.

Such a project makes a fair show on the map, and forms a specious feature in a general frame of railway communications for the Empire; but I venture to express my doubt as to its being conformable to local necessities or local condi-

tions or to the interests of Imperial finance. I would ask the Government to consider the configuration of the country between Mangalore and Trivandrum and the communications now existing, and then determine whether there is in nature, in the interests of trade, or in the habits and wants of the population, any warrant for laying down at present the plan of a general riparian railway. From Mangalore to Cannanore the narrow band of level, or diversified land between the mountains and the sea, is intersected by a network of creeks, river-mouths, and water-courses, offering every impediment which can render railway-works difficult and expensive, while the condition of the country is not such as to render it probable that they would be remunerative.

The local traffic is provided for in part by the use of coasting craft, which can keep the sea for nine months of the year, and which find shelter in the estuaries in which the coast abounds; in part it is carried on canals which are, however, not apparently susceptible of extension without disproportionate cost; in part on high roads which can be improved from Imperial and local sources. The Military station at Mangalore does not seem to justify any expenditure of State funds on the grounds of public policy. It comprises a single Native Infantry Regiment which might properly be withdrawn. From Cannanore to Tellicherry and Calicut the cultivated country expands to a greater width, and forms one of the most populous and thriving districts of India.

Cannanore is the British garrison of the Western Coast; though favourable to internal water-communication in parts, and furnished with canals of Native and European construction, the configuration of the ground would scarcely admit of a complete system of water-way behind the coast.

The space between Cannanore and Calicut is a proper field for railway communication. The same may be said of the country between Calicut and Beypore, the present unsatisfactory terminus of the Madras Railway. To the south of Beypore it is agreed, on all hands, that the Madras Railway should be united with the port of Cochin, and that can be done by a branch line from Puttamby to the Cochin backwater. But from the Cochin backwater to Trivandrum, a distance of 150 miles, what pretext would there be for a railway, parallel to the coast and parallel to the existing canals? What reason for the expenditure of £900,000, where a good safe, cheap, and natural method of circulation exists already? I can see none.

The water-route is open the whole way, except at one spot which is being pierced, and the system of canals and backwaters might be made suitable for steam navigation by a very slight expenditure of the surplus revenue of the country now accumulated in Government paper. South of Trivandrum the coast becomes higher, and recourse might be had again to railway communication, if there was any commensurate object; but the country becomes gradually poorer towards the Cape; there is no port, no important town, and the land-traffic between Travancore and Tinnevelly does not seem to me to require the maintenance of any means of communication superior to a good carriage-road. If the Government of Travancore choose, at some future period, to add railway communication to the channels which nature, aided by the simplest form of labour, has provided for the country, let them do so, but I could not inscribe such an extravagant

undertaking on a map of English projects, or hold out the least hope of financial support for such a purpose.

It seems to me that we shall do well to take the general scheme, contemplated by the Government of India and Major Shaw-Stewart, to pieces, and deal with the different sections in an unambitious but practical manner.

VIII. All concur in considering the extension of the line from Bellary westward to be desirable. That it should be continued to Carwar, there can be little doubt, but the benefits attached to the extension would not be suspended until the port on the Western Coast was reached; the produce of the country would meanwhile be evacuated towards the east and swell the traffic of the Madras North-West Line. I see no reason myself why the agency of the Madras Railway Company should not be adopted if the broad gauge was selected. The Company would probably make such a line cheaper, and work it cheaper than the Government.

But the Government of Madras do not stand alone in this matter. They cannot pronounce a decisive opinion. The question must be solved in connection with the agency and the gauge sanctioned in the Bombay Presidency, which will have the larger share of the complete work. Under the opinions expressed by the Government of India, and those no doubt entertained at Bombay (and for valid reasons as far as that Presidency is concerned), the plan of State railways and cheap railways will carry the day. We shall be safe in saying that we are perfectly ready to accept the prolongation of the line westward from Bellary on the narrow gauge by the agency of the State. That solution would certainly have one advantage; that the Capital Account of the Madras Railway Company would be sooner closed. With the proposed line beyond the Bombay frontier, we have no direct concern, nor with the section of the proposed coast line southwards from Carwar to the frontier of South Canara. It is difficult for me to imagine what purpose such a line is intended to serve. If I am well advised in striking out of the coast railway the rest of the country to the north of Cannanore, and all the country to the south of Cochin, only two sections remain for practical consideration at present; the section from Cannanore to Beypore, and the section from Puttamby to the Cochin backwater; the former entirely in British territory, the latter entirely in the territories of the Rajahs of Cochin and Travancore.

IX. The section of railway from Cannanore to Beypore falls naturally into two subordinate sections; that from Cannanore to Calicut, and that from Calicut to Beypore. Both were formerly awarded for execution, by this Government, to the Madras Railway Company; both are now awarded by the Consulting Engineer to the State, while the Government of India would apparently prefer to give the portion between Calicut and Beypore to the Madras Railway Company, reserving the portion between Cannanore and Calicut for Government.

The views of the Madras Government on this subject were embraced under very different influences and circumstances than those which exist at present. At that time the project of State agency in the construction of railways had not been declared and enforced, the advantages of narrow gauge lines at a low cost, worked by a new description of traction power, were not so well understood, and the necessity of strict economy in the application of the resources

of the State to public works, whether under the guarantee system or the loan system, was not so keenly felt. We can have little doubt now that it is desirable that the railway from Cannanore to Calicut should be undertaken by Government on the narrow gauge. The remaining section is certainly open to discussion; it might not unreasonably be given to the Madras Railway Company, which would thus obtain their definitive terminus at Calicut; but, on full consideration of all the circumstances, I hold that the State should undertake the whole line, and construct it on the narrow gauge from Cannanore up to the northern side of the Beypore backwater.

The terminus of the South-West Line of the Madras Railway Company would thus remain nominally at Beypore; the local traffic of the Malabar Coast line would begin at that place, and the backwater would remain unbridged until the State line was in full working and had proved its profitable character. In this way the State would construct and possess a complete local narrow gauge railway in a rich province, and not only a line of local utility but a feeder to the main trunk line and a communication valuable to the State as affording access to the English garrison at Cannanore. It would be hazardous to affirm that, with all these advantages, it would pay 4½ per cent. upon the outlay; but an important experiment would be made under favourable conditions with every regard to economy, a test would be applied which would afford a guide to subsequent operations, and a serious defect in the South-West Line would be substantially corrected. The extension of the South-West Line would be arrested, and the Capital Account of the Madras Railway Company would be closed—a result which the Government of India are desirous to attain in as many cases as possible.

X. The section of railway between Puttamby and Cochin would pass entirely through the territories of Cochin and Travancore. It might be constructed in such a manner as to be little onerous to these Native Governments, and yet highly beneficial to their respective countries and to the Madras Government. Both of the Native Governments have large accumulations of funded revenue. It could not be better expended than in a public work of this nature. Travancore possesses a reserve of £450,000, Cochin one of £170,000. The cost of the line about 60 miles in length on the narrow gauge would not exceed £360,000 at the rate of £6,000 per mile, of which £60,000 might perhaps fall to the share of Travancore, and be paid for out of surplus. The Government of Cochin could afford to appropriate from its reserve the sum of £100,000. Only £200,000 would remain to be provided for by loan to the Government of Cochin, and this amount would be advanced by the Supreme Government at 4½ per cent. The railway, passing as it does through an opulent country, could not fail to pay the interest on this £200,000 at once, but the Government of India would probably deem it becoming to undertake the liquidation of half the deficit on the interest of £200,000, should any deficit occur, in consideration of the benefit conferred on the Madras South-West Line.

In this way the line would, in all probability, be completed without costing the Government of India one farthing, and the South-West Line would be virtually provided with another ocean-terminus and a valuable feeder. I do not doubt that the line could be satisfactorily managed by the Cochin Government.

XI. In dealing with the northern group of railways contemplated by Major Shaw-Stewart, and which represents, with some judicious modifications, the Great East Coast Railway advocated by the Government of India, reflections arise similar to those which are suggested by the proposal of a Great West Coast Line. We may naturally ask whether railway communication alone responds and best responds to the physical character and material necessities of the country; whether it is of such manifest and pressing importance as to warrant the immediate sanction of any scheme of a speculative and prospective nature.

I propose to examine the question first in relation to local interests; secondly, in relation to the interests of Government.

XII. The coast country between Madras and the northern frontier of Ganjam comprises the following well defined physical and industrial sections:—

(1.) The delta of the Pennair river in the district of Nellore.
(2.) The delta of the Kistna river with the cotton-growing province of Guntoor in the Kistna or Masulipatam District.
(3.) The Great Delta of the Godavery river in the Godavery District.
(4.) The diversified belt of land along the shores of the districts of Vizagapatam and Ganjam, extending from Toonee on the northern verge of the Godavery Delta to the Chilka Lake, itself in connection with the delta of the Mahanuddy.

The first three sections are similar in character, though different in importance. Each is a district in which a larger area of fertile wet cultivation abuts in front upon the sea, and is backed by a comparatively arid and hilly region extending to the high plateaus of the interior. The wants of these great fields of food-production may be summed up under three heads:—

(1.) A *debouché* on the sea for foreign trade.
(2.) A communication with the interior for inland trade.
(3.) Access to the great home market of Madras.

XIII. The Pennair Delta is the least developed of the three rice-fields, but the irrigation works already existing, or sanctioned for early execution, will give an eventual extension of 120,000 acres. It is the granary of Madras. The natural outlet for the produce of the delta would be the roadsteads of Kistnapatam or Escapillay, and it is possible that in future commercial establishments may be created there; but it seems more probable that Madras will continue to offer the most convenient point of discharge for the Pennair Delta, with which it can be connected by a salt-water low level canal extending from the Presidency Town to the Kistnapatam backwater. Of this canal only twelve miles remain to be excavated, though much of the older part requires to be deepened. With an expenditure of less than three lacs, the food-stuffs of the Nellore District can be cheaply carried to Madras, where they will be alike available for the foreign market, the consumption of the capital, and the markets of the interior. The existing portion of the northern canal has always been regarded as a Local Fund work. The expenditure necessary to complete it might properly be defrayed from an Imperial loan secured on the local rates of the Madras and Nellore Districts, to which the profits of the canal would in that case be equitably appropriated.

The cost of this convenient access for Nellore to the capital would be £30,000.

A railway from Tripatty on the North-West Line to Nellore, the route suggested

by Major Shaw-Stewart, a distance of 70 miles, would, on the narrow gauge, reckoning £6,000 per mile, cost £420,000. The first would be remunerative directly, and could not possibly constitute the smallest charge on the Imperial revenue; the second would probably not pay more than two per cent. net, leaving a heavy permanent burden on the State. The canal is not only expedient but inevitable; it cannot stop where it stops now in the middle of the sand; it must be completed even if the railway is undertaken; the railway is artificial and superfluous; it is a work of supererogation.

It may be urged that the interests of the Nellore District, and especially of the Pennair Delta, are not exclusively identified with Madras, and that they have a claim to a more direct communication with the interior, such as would be afforded by the projected railway to Tripatty, or to some other point nearer Cuddapah on the North-West Line of the Madras Railway Company.

I do not think so; Nellore produces dry grains, rice, salt, and cattle. The districts of Cuddapah, Kurnool, and Bellary, are not likely to import dry grains which they grow in abundance; the development of the Toombuddra irrigation will yield them a full supply of rice. Salt would be most conveniently moved by the canal, and working cattle do not require railway carriage.

It appears to me that the high roads and the canal afford commensurate methods of intercourse and transport for the district of Nellore. It is scarcely necessary for me to allude to the plan of a fresh water canal from Cuddapah to Nellore for navigation and irrigation in connection with the higher works of the Madras Irrigation Company. No one now entertains the least hope that a fresh water navigable canal could be kept open even for half the year below Cuddapah, while the difficulties of level are such as to render the project expensive and unremunerative as a means of communication.

XIV. The delta of the Kistna, with 180,000 acres of irrigated land at present and great room for expansion, has its outlet seawards by the inconvenient roadstead of Masulipatam; or the distant port of Cocanada. It is said that goods might be advantageously shipped at Nizampatam or Chinna Ganjam. No expenditure would improve Masulipatam where vessels, on account of the shoal water, lie four or five miles from the shore unprotected. A union of the Kistna Delta with the Pennair Delta, and through the latter with Madras by a low level salt water-canal, would cheapen the food-supply of the capital, prevent gluts of the staple produce in the delta, equalize the price of rice over a large area of the country, and perhaps render Madras itself in part the *debouché* of the Kistna District. The canal would start from Kistnapatam backwater in the Nellore District, and strike the fresh-water navigation of the Kistna Delta on its southern verge at the backwater of Nizampatam.

This canal would be about 120 miles in length; there are no engineering difficulties whatever; it might be constructed for £210,000. A railway from Guntoor to Beswarra, the head of the Kistna irrigation system, would be 150 miles in length; it would cost, at a moderate estimate, £900,000, and it would be much less adapted for moving the masses of cotton and rice which are the capital products of the district. The canal would [illegible] the present coasting trade to

more than carry the insignificant passenger-traffic. Supplied with a line of coast communication by means of a low level canal, the Kistna District would still require an improved method of traffic with the interior. For this purpose Major Shaw-Stewart proposes a line from Beswarra to Hyderabad, the eastern section of which from Beswarra to the frontier of the Nizam's territory would be about 60 miles in length, and would fall to the share of the State, while the western section of about 80 miles would be executed by the Government of the Nizam.

This line in a different form was proposed on a former occasion by Major Shaw-Stewart, and was negatived by the Government of Madras.

The Consulting Engineer contemplated a line from Masulipatam itself to Hyderabad, and there did not seem to be at that time any prospect of co-operation on the part of the Native Government. Presented on a shorter and cheaper scale, with the certainty of aid from Hyderabad, now brought under more enlightened influences, the line has undoubted claims on the Government of Madras. The passenger-traffic might remain insignificant, but the grain of the delta and the salt of the coast would be carried up in large quantities for the supply of the Deccan; the salt-revenue of Madras would be benefited, and an alternative avenue of communication would be opened with the Military Station of Secunderabad, which has of late been almost abandoned. It cannot be affirmed that such a line would be at once directly remunerative, but it would undoubtedly become one of the main *debouchés* from the interior of India to the coast. Water communication by the Kistna river is impossible. The bed of the stream is broken by prolonged rapids and shallows which render it impracticable. A portion of the valley, 60 or 70 miles in length, is unexplored and uninhabited. It is as unknown as if it lay in the depths of Central Africa.

XV. The great irrigated delta of the Godavery, with 400,000 acres of wet cultivation, has its outlet to the sea by the port of Cocanada, its access to Central India by the Godavery, which will be soon rendered available for navigation and a communication with the Kistna District, and thus eventually with Madras, by the existing canals. To these channels of traffic the Consulting Engineer desires to add a railway from Beswarra to Samulcottah, 125 miles in length, with a branch line to Cocanada of 10 miles, making in all 135 miles, costing at a low computation £810,000.

I am at a loss to see any justification for this expenditure, or any prospect that it can become remunerative with the competition of the sea and the canals. The Government have laid out, and are annually laying out, considerable sums for the development of the united irrigation and navigation system of the delta; they will do well, in my humble judgment, to give the greatest possible extension and efficiency to these remunerative works before entering upon a new and speculative field of enterprise.

XVI. Under the system which I have briefly sketched out, the districts of Nellore, Kistna, and the Godavery, would be provided with a cheap, natural, and useful method of intercourse with each other, with the seaboard, and with the capital, through the instrumentality of canals, and with the interior by railway and river-communication.

It remains to be considered what can be done for the districts of Vizagapatam and Ganjam. In these districts in which the Zemindary system has a preponderating share, the Government does not possess an important revenue interest, though it must always have a deep concern in the general welfare of every part of the country. I do not see any prospect, at present, of a remunerative expenditure of State funds on communications of a superior kind. The coast region is not adapted for a continuous canal. The interior, though rich in parts, is, for the most part, rather poor; there are no centres of productive industry, no harbours, no Military stations with British troops, no reasons for unremunerative outlay, no grounds for believing that outlay could become profitable. The Government should rather devote itself, for some time to come, to the developments of local roads under the Local Funds Act, to the completion of the Great Northern Road, to the extension of irrigation works, especially in connection with the Rooskoolia river, and to some subordinate canal-works, such as the connection of the Chilka Lake with Gopaulpore, leaving the design and execution of railways to an after-age.

The Consulting Engineer, obeying the impulse of the Government of India, proposes a railway from Samulcottah to Ganjam, a distance of 265 miles at a cost of £1,590,000.

XVII. It may be contended that, even if the local interests of the East Coast districts of this Presidency do not demand the introduction of the railway system, the construction of a coast line is rendered imperative for Postal or Military purposes; in fact, that such a line is indispensable as a direct communication on English territory between the Supreme Government and the Government of Madras. I do not attach much significance to these considerations. The direct postal communication between Madras and Calcutta can be conducted by Koolburga, Hyderabad, Nagpoor, Jubbulpore, and Allahabad; and though even this line would involve a detour to Calcutta, it must not be forgotten that for half the year the Supreme Government is fixed at Simla, which is more accessible by a central route than by a coast one. In a Military point of view, it seems to me rather desirable that the communication should be firmly fixed through the Hyderabad territory; Secunderabad is the British garrison of the Deccan; communications both from north and south must be kept open to that capital point, and the policy and interests of the Hyderabad Government should be indissolubly welded with the policy and interests of the British Government. In the event of a rupture of the direct line through the Nizam's territory, and the isolation of the English force, there is still the alternative of the Great India Peninsular Railway. On the East Coast there are no English garrisons, no fortified places, no vulnerable points. In time of peace supplies to Vizagapatam and Cuttack, if these stations are maintained, can be carried by sea; in time of war there would really be nothing to attack, and nothing to defend; nor are there any elements of internal disturbance or rebellion, except the local quarrels of some hill tribes, now almost extinguished.

XVIII. The only feature in the project of the Consulting Engineer, which remains to be noticed, is the proposal for a light railway, on the Fell's Principle, from Kullar at the foot of the Neilgherry Hills to the summit of the plateau. On this point I have to remark that the Supreme Government have already made a

considerable sacrifice of revenue in sanctioning the construction of a branch from Pothanoor to Kullar. We can scarcely hope that it will be remunerative for a length of time. By the construction of this line, however, the distance to be traversed by ordinary road to the nearest sanitarium will be reduced to 17 miles, and the road will be available for every description of carriage. Ootacamund will, indeed, be 27 miles from the railway station; but this is not an exorbitant distance if we consider the convenience of the new ascent. There is no sufficient ground, in my opinion, for calling upon the State to accept any further financial obligation. There is little prospect, at present, of any material increase of European population or industry on the Neilgherries, and the present traffic is so insignificant that it could never yield any clear return whatever on any form of railway communication worked by steam engines. There has been a Company set on foot to establish a railway up the ghaut on the self-acting or balance principle, and this design may deserve every encouragement from Government, which does not involve a pecuniary guarantee; but I confess I am not sanguine respecting the success of the enterprise.

XIX. The scheme of railway extension, which I venture to recommend for submission to the Government of India at present, would, in conformity with the foregoing remarks, comprise the following lines:—

Lines.	Miles.	Cost per Mile.	Total.
		£.	£.
Carnatic Railway Company.			
Arconum to Tanjore (203 miles)	184	10,000	1,840,000
	19	4,000	76,000
	36	9,000	342,000
Branch from Chingleput to Madras	239	.....	2,258,000
Great Southern of India Railway Company.			
Trichinopoly to Tinnevelly	194	10,000	1,940,000
Branch from Kytar to Tuticorin	30	10,000	300,000
Branch from Dindigul to Coimbatore	100	10,000	1,000,000
	324	.....	3,240,000
Madras Railway Company.			
Four short branches	14	8,000	112,000
Branch from Pothanoor to Kullar	29	9,000	261,000
	43	.....	373,000
State Railways.			
Beypore to Cannanore	57	6,000	342,000
Puttamby to Cochin	60	6,000	360,000
Bellary to Bombay frontier	75	6,000	450,000
Beswarra to Hyderabad frontier	60	6,000	360,000
	252	.....	1,512,000

In all 858 miles at a gross cost of £7,388,000, of which 606 miles on the broad gauge would be constructed by Companies at a cost of £5,871,000 and 252 miles on the narrow gauge would be constructed at a cost of £1,512,000 by the State.

The amount of railway extension here contemplated might probably be carried out in the course of ten years in the under-mentioned order :—

In the quinquennial period from 1870 to 1875.

CARNATIC COMPANY.

	Miles.	Expenditure. £.
Arconum to Cuddalore	103	916,000
GREAT SOUTHERN OF INDIA COMPANY.		
Trichinopoly to Tinnevelly by Dindigul and Madura ...	194	1,940,000
Branch from Kytar to Tuticorin	50	500,000
MADRAS RAILWAY COMPANY.		
Four short branches	14	112,000
Pothanoor to Kullar	29	261,000
STATE.		
Beypore to Calicut	7	42,000
Puttamby to Cochin	60	360,000
	457	3,931,000

In the quinquennial perio from 1875 to 1880.

CARNATIC COMPANY.

	Miles.	Expenditure. £.
Cuddalore to Tanjore	100	1,000,000
Branch from Chingleput to Madras	36	312,000
GREAT SOUTHERN OF INDIA RAILWAY.		
Dindigul to Coimbatore	100	1,000,000
STATE.		
Calicut to Cannanore	50	300,000
Bellary to Bombay frontier	75	450,000
Beswarra to Hyderabad frontier	60	360,000
	421	3,452,000

Showing over the whole period of 10 years an average annual execution of 85¼ miles, and an annual average expenditure of £738,300.

XX. In the estimates of cost submitted above, I have not thought it right to set down any of the broad gauge lines at less than £10,000 per mile including rolling stock, except the branch line from Chingleput to Madras, the branch line from Pothanoor to Kullar, and the four short branches on the Madras South-Western Line, on all of which the charge for rolling stock will be insignificant. It is certainly possible that portions of these lines may be executed for £8,000 per mile, as anticipated by Major Shaw-Stewart, or even for less ; but other portions may exceed £10,000, and we must not forget that, before the lapse of ten years over which the expenditure is to be spread, the price of labour and of some materials may be considerably enhanced. In estimating the narrow gauge State railways at £6,000 instead of £5,000, suggested by the Consulting Engineer, including rolling stock, I assent to the opinion of the Secretary for the Department of Public Works, not without some apprehension that the estimate may prove insufficient. The narrow gauge of 3 feet 6 inches is specified in conformity with the views of the Supreme Government and the Consulting Engineer ; but I presume that a standard narrow gauge will be deliberately adopted by the Supreme Government after a careful study of the most recent models in Europe and America.

Proceedings of the Madras Government, Public Works Department, 20th September 1871.

XXI. The sentiments embodied in this Minute have not been expressed without some reluctance and hesitation, for I seem to decline the liberality of the Supreme Government which makes a larger offer of expenditure to Madras than I am disposed at once to accept. I believe, however, that the plan here submitted is most conformable to the real wants of the Presidency, to the interests of Imperial finance, and to sound policy in general. It may, indeed, be doubted whether there is much practical utility in planning public works for so remote a future as that suggested by the Government of India. It does not seem probable that schemes laid out by any intelligence, however penetrating and comprehensive, can command the assent of posterity with any degree of certainty. Many circumstances might, in the interval, arise which would prompt the modification, the transposition, the acceleration, or the delay of projects which we now frame and measure out on the most convincing grounds. Political incidents in India or abroad, the vicissitudes of Imperial revenue, alterations in the foreign market affecting the demand for Indian produce, the discovery of minerals in this country, mechanical inventions touching the construction of railways, or the nature of traction power, are only some of the causes which might shatter a scheme prescribed at present with the utmost sagacity for the welfare of India between the years 1895 and 1900, nor must the power of individual opinion be left out of consideration. Nowhere do men succeed each other so rapidly as in India; nowhere is the impress of personal will and judgment so quickly and deeply felt. Is it probable that the present Secretary to the Government of India in the Department of Public Works would have submissively followed the injunctions of a predecessor twenty years ago ? Is it probable that the Secretary of the next generation will obey the orders which emanate from the department now ? We are every day correcting the errors of those who went before us, and committing errors to be corrected in their turn. If, however, the Government of India are determined to have a wider horizon of premeditated work, I cannot suggest a more specious scheme than that prepared by the Consulting Engineer. If the East and West Coast railways are to be made hereafter, they will probably be made approximatively on the lines which he contemplates. They should not go nearer the sea, and they cannot well go nearer the mountains. I think it would be better to adjourn the serious consideration of these projects till two or three quinquennial periods have passed away ; but if I am obliged to sanction any projects of the kind, I have no objection to sanction these. The short sections of coast railway, which my restricted proposal includes, are essential parts of the more extensive design.

XXII. In the meantime, I deem it desirable that orders should be given in the Department of Public Works for the survey of the proposed line of canal between the Kistnapatam backwater in the district of Nellore and the backwater of Nizampatam in the Kistna District, with a view to the preparation of estimates, and that a Revenue-officer should be charged with the duty of estimating the amount of traffic now seaborne or carried on the common roads which might probably be transferred to an interior waterway. With such information we should be enabled to judge whether the proposed canal ought to be constructed from Loan Funds, guaranteed or the Imperial revenue as in the case of a State railway, or whether the expenditure might be secured on Local Funds. The same survey and inquiry might advantageously be made with reference to the means of completing

the canal system between Beypore and Cannanore and between Cannanore and Mangalore, which exists already in broken sections. The coast level is cut at various places by laterite spurs running out to the beach, but it would be desirable to ascertain definitively whether these impediments could be pierced or turned, and to have some rough estimate made of the expenditure which would be involved. The inquiry might be at first directed to the space between Cannanore and Mangalore.

XXIII. Should the views expressed above meet with the concurrence of my colleagues, and be submitted to the Government of India, the latter may perhaps deem the proportion of work inadequate, which is reserved for the agency of the State. If such should be the case, I can only urge that we have not yet got the same grounds in this Presidency for expecting great advantages from the substitution of State agency for independent agency which may exist elsewhere. The average cost of railways in India, as we are informed in these papers, has been £17,000 per mile.

The average cost of the dearest railway in the Madras Presidency has been £12,000 per mile. The cheapest line, the branch from the South-West Line to Bangalore, cost less than £8,000 per mile. The average cost of all the Madras railways has been about £10,531 per mile. As it appears that the Supreme Government would be satisfied with an average for the broad gauge of £11,000 or £12,000, it is apparent that companies of this Presidency have realized by anticipation more than the expectations of the Government of India. It is true that this Government has been fortunate in the companies with which it has had to deal, and especially with the gentlemen by whom the interests of these companies have been represented. We may hope to be as fortunate hereafter.

I see no reason to believe that the Department of Public Works will be able to construct better or cheaper, or to manage better or cheaper than the present agencies which have, on the whole, served the State with honesty, ability, and economy. Here the State can, in my humble opinion, only obtain one advantage by working for itself—the undivided benefit of any excess of return which the railways, constructed by departmental agency, may yield above the rate of interest at which the money is borrowed. That benefit may be remote and problematic, but it may be worth striving for, especially where new lines on new gauges have to be opened.

XXIV. It only remains for me to record the actual condition of the extensions contemplated by Company agency at the present moment.

The Carnatic Railway Company has commenced surveys of the line between Conjeveram and Cuddalore by Chingleput. A French survey of the direct line by Tindivanum already exists which will be of use to the Company.

A trial survey has been made of the whole extension from the present Great Southern of India line to Tuticorin. Detailed plans and estimates are in course of preparation; the materials and rolling stock are ordered, and in part shipped.

Plans and estimates have been prepared of the branch line of the South-West Line of the Madras Company from Pothanoor to Kullar, and the materials of the permanent way are coming out.

Plans and estimates have been prepared for a broad gauge line from Puttamby to Cochin by the Madras Railway Company, which would be available for the use of the State in laying out the projected narrow gauge line.

(Signed) NAPIER.

MADRAS, *June 5th*, 1870.

MINUTE BY THE HONOURABLE J. D. SIM.

HIS EXCELLENCY has entered so fully into the subject of the proposed extension of railway communication in this Presidency that no useful end would be served by my discussing it also.

2. I differ from His Excellency in the following points:—

I.—I am not prepared to advocate the construction of a railway from Bezwadah to Hyderabad. Before long, Hyderabad will be in direct communication with Madras and Bombay, and this seems to me sufficient for political purposes. Moreover, a line to Bezwadah would not, in my judgment, be of much value politically. We have no troops available near Bezwadah, and the line might be destroyed before a man or a gun could reach it. Commercially, the advantages seem to me unimportant. There will no doubt be a greater consumption of our salt; but nothing like "trade" can spring up for many years. Masulipatam can never be a port owing to its natural disadvantages. Bezwadah can hardly become an entrepot; for the Hyderabad country produces little that our own territories need; and the break from rail to canal or road will be a serious impediment to traffic. This line may, I think, be postponed for the present.

II.—I think the short line from Beypore (or rather a point a little east of Beypore) to Calicut should be constructed on the standard gauge and be entrusted to the South-West Railway Company. I cannot but regard Calicut, the capital of the district, as the proper and natural terminus of this railway. Beypore is still, as it always has been, a petty fishing village, and the inconvenience to travellers and traders which the distance of Beypore from Calicut, with a wide river to cross *en route*, entails is very great, and must cause loss to the railway. A narrow gauge line between Calicut and Beypore would be of comparatively small value, as it would entail break of bulk at the latter place.

III.—The proposal to construct a line between Calicut and Cannanore should, in my opinion, be deferred until the practicability and cost of completing the chain of communication by means of the backwaters has been properly ascertained. Cannanore is quite as good a port as Calicut, and I cannot see the advantage of connecting the two places by an expensive railway skirting the sea. Communications between the interior and the coast are what the district needs far more.

IV.—The line from the South-West Railway to Cochin, when undertaken, should, I think, be entrusted to that Company, and be formed on the standard gauge. The length in Travancore and Cochin is so small that the local traffic will not be diverted from the road or canal to the rail. I believe that the Madras Railway failed to compete successfully with carts until it reached a distance of 40 or 50 miles from Madras, as the expense of carting goods to the receiving station

and then of conveying them from the delivering station to the merchants' shop or warehouse more than counterbalanced the saving in mere conveyance by rail. The line will, therefore, be chiefly used by Foreign, Cochin, and Travancore produce intended to be conveyed to Madras stations by the south-west rail and by Madras produce intended for export at Cochin. The line will thus be virtually the terminal section of the south-west rail, and, unless the same gauge be adopted, the break, in so short a distance, will materially lessen its utility. The construction and working of so short a section by different agency are manifestly undesirable under these circumstances.

V.—The line from Trichinopoly to Tuticorin, with its branches to Coimbatore and Tinnevelly, should, I think, be on the narrow gauge. The experience gained on our existing railways shows indisputably that they are much in excess of the requirements of the country, and that a vast amount of capital has been wasted in constructing them on the standard gauge system. The difference of cost between the two systems is estimated at £4,000 per mile. Now as these lines aggregate 324 miles, the saving of capital by adopting the narrow gauge would be £1,296,000 and of annual interest £65,000. A broad gauge line would cost £3,240,000, and, supposing the gross traffic receipts to be equal to 5 per cent. on this sum, then the gross revenue would be £162,000; whereas, if the railway were on the more economical scale of a narrow gauge, the same traffic would yield 8½ per cent. on the capital outlay. The result would, therefore, be to convert a non-paying into a paying line. I submit, therefore, that the construction of this line on the broad gauge system should not be permitted, until it is conclusively shown that the narrow gauge will *not* suffice for the wants of the country, and will not yield the advantageous results which its advocates affirm. It is obvious that the objection of break of gauges, which, in this country, will, I believe, be found to be greatly over-rated, owing to the cheapness of labour, does not hold good in the case of lines of such length as these will be. If it be considered desirable to extend these lines to Negapatam and Erode, the present termini of the Great Southern of India rail, a third intermediate line of rail might be laid on the present permanent way, but it can hardly be expected that the through-traffic to Madras will be material.

In all other respects I entirely concur in His Lordship's opinions and recommendations, and I share His Lordship's apprehensions of the financial embarrassments and dangers likely to ensue from expending (as is apparently intended) vast sums in projects which cannot pay even the interest on their cost for years to come, while the resources of the country are made to supply its present needs only by recourse to as heavy taxation as can yet be safely imposed.

—— *March* 1871. (Signed) J. D. SIM.

MINUTE BY HIS EXCELLENCY THE PRESIDENT.

I.—In a Minute, dated June 5, 1870, I submitted to my colleagues a general view of the railway projects for the Presidency, with an expression of my sentiments on this subject.

II.—The scheme which I recommended embodied a broad gauge line through the districts of Chingleput, South Arcot, and Tanjore, uniting the Madras

Railway on the north to the Great Southern of India Railway, and an extension of the Great Southern of India Railway, also on the broad gauge, to Tuticorin and Tinnevelly.

III.—The Government have, in a recent Order, decided that both these lines or groups of railway are to be executed on the narrow gauge—a resolution which was cotemporaneously embraced by the Government of India.

IV.—With a view to this decision, which has my full concurrence, I think it right to record that the opinions on this point, expressed in my Minute above mentioned, were not opinions formed by this Government or by myself independently on the merits of the case.

V.—This Government have always been of opinion that the line or group of lines to the south of the Madras Railway and between it and the Great Southern of India line should be on the narrow gauge. They only waived that opinion in consequence of the adverse decision of the Viceroy and the Secretary of State prompted, as we had reason to believe, by the representations of the Government of France. Under altered views the question of gauge for these lines has been re-opened. We can only regard the definitive decision of the Government of India with satisfaction.

VI.—With regard to the gauge to be adopted on the extension of the Great Southern of India Railway southwards, I advised the adoption of the broad gauge on three grounds:—

(1.) On account of the convenience of the Company, and, as I believed, the economy of working, the same rolling stock being thus rendered available over the whole group of railways belonging to the Company.

(2.) On account of the adoption of the broad gauge on the Carnatic line, which I regarded as settled at that time.

(3.) On account of the engagements taken in London between the Secretary of State and the Great Southern of India Railway, which I presumed were definitively in favour of the broad gauge.

VII.—The first of these reasons no doubt continues to have some force, but may be, perhaps, outweighed by the advantages attached to the narrow gauge with regard to cheapness of original construction, cost of rolling stock, and maintenance. The second would disappear if the narrow gauge is adopted by the Carnatic Company. The third is a matter for settlement in London. If the Directors of the Company, in connection with the Secretary of State, agree to adopt the narrow gauge in the common interest of the Company and the country, this Government ought, I think, to approve it.

VIII. The only point, as far as I am aware in which I personally dissent from my colleagues and from the recent Proceedings of Government with reference to railway projects is, with reference to the Carnatic group. The decision of the Government has been to make Madras the starting point, and to carry the line through Chingleput southwards, abandoning the plan of a connecting line to the north-west from Chingleput, through Conjeveram, to Arconum, but leaving the existing line from Conjeveram to Arconum to be separately worked as long as it pays its expenses. I do not concur in this view. I think that Madras ought to

be the starting point, and that the line should proceed southwards through Chingleput; but I think that 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 up 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.

MADRAS,
3rd April 1871.

(Signed) NAPIER.

No. 329. ORDER THEREON, 20th September 1871, No. 2,396.

RAILWAY, No. 32.

ORDERED that these papers be forwarded to the Government of India, and that the attention of the Superintending Engineers of the 2nd and 7th Divisions, and the Revenue Department, be requested to paragraph 22 of the Minute of His Excellency the President.

(True Extract.)

Colonel, R.E.,
Secretary to Government.

To the Consulting Engineer for Railways.
" Superintending Engineers, 2nd and 7th Divisions.
" Revenue Department.

Ed. S. T. Angelis.

Public Works Department,

Ootacamund, 20th September 1871.

No.330.

No.2,397.

To

The SECRETARY to the GOVERNMENT of INDIA,
Public Works Department.

Sir,

In compliance with the wishes of the Government of India as conveyed in their Proceedings of the 3rd December 1867, No.1,050 - R., RAILWAY, No. 33. this Government, in a letter, dated 19th September 1868, No.2968, recommended the following extensions which, in their opinion, appeared necessary to develope the railway system in this Presidency :--

From Caroor by Madura and Tinnevelly to Tuticorin.
" Bellary to Dharwar.
" Conjeveram to Cuddalore.
Short branches from South-West Line to Arcot, Vellore, Salem, and Palghaut.
From Beypore to Cannanore.

2. The Neilgherry branch had previously been recommended by the Government of India to the Secretary of State, and having subsequently been sanctioned is now in progress of construction.

3. Since the submission of the above scheme arrangements have been entered into by the Secretary of State with the Great Southern of India Railway Company and the Carnatic Railway Company for the extension of their lines to Tuticorin and Cuddalore respectively, and the question of the location and gauge of the two extensions on which the views of this Govern-

ment are quite in accord with those of the Govern-

To Government of India, 14th February, 1871, No.457

From Government of India, 17th March 1871, No.469-R.

To Government of India 30th March 1871, No. 940.

ment of India has formed the subject of the correspondence marginally noted. The lines are proposed to be constructed on the 3 feet 3 inches gauge, and it has been determined to carry the extension of the Great Southern of India Railway from Trichinopoly via Dindigul to Madura and thence to Tuticorin, with a branch at Keel Munniachee to Tinnevelly. The Carnatic Railway will follow the general alignment of the Great Southern Trunk Road starting from Madras and running by or through Chingleput, Carangooly, Vicravandy, Villupporam, and Punrooty whence it will be carried to Cuddalore. Working plans and estimates for the Tuticorin extension are under preparation, and the trial survey of the Carnatic extension is in progress.

4. The views of the Government of India and of the Secretary of State on the other extensions proposed by this Government are recorded in the papers communicated with Proceedings, dated 23rd August 1869, No.20. The short branches proposed in connection with the Madras main line have been sanctioned; but the opinions expressed by the Government of India as to the principles which should

govern the selection of extensions of existing lines, or of altogether new lines, and the considerations which should determine the gauge of the railway and the agency to be employed, induced the Consulting Engineer (Major Shaw Stewart) to submit a modified and expanded scheme of railway extensions, the merits of which are discussed in the accompanying Minutes.

Letters, Nos. 216 and 283, dated 16th July 1869 and 7th September 1869.

5. Eliminating from the general scheme the Neilgherry branch, the extensions to Tuticorin and Cuddalore, and the short branches to connect stations on the South-West Line with neighbouring large towns, the Governor in Council has resolved on recommending the following further extensions :--

I.- The continuation by the Carnatic Railway Company of their line from Cuddalore to some point on the Great Southern of India Railway, probably Tanjore.

II.- The construction by the Great Southern of India Railway Company of a branch from Dindigul to Coimbatore.

III.- The construction by the State of a line on the narrow gauge from Bellary to the Bombay frontier.

IV.- The construction by the State of a line on the narrow gauge from Cannanore to Beypore.

V.- The construction by the State of a line on the narrow gauge between Puttamby and Cochin through the territories of Cochin and Travancore.

6. The considerations which have weighed with this Government in the selection of the extensions now proposed are so fully set forth in the Minute of His Excellency the President that it seems unnecessary to enter into any further explanations in this letter. His Excellency the Governor in Council trusts that the scheme presented will commend itself as meeting the requirements of trade and the convenience of the public, and as giving promise of leading to such a growth of traffic as will make the lines remunerative.

I have the honour to be,

Sir,

Your most obedient servant,

(Signed) J. CARPENDALE, Colonel, R.E.

Secretary to Government.

GOVERNMENT OF MADRAS.

1871

PUBLIC WORKS.

To

THE SECRETARY to the
GOVERNMENT OF INDIA.

Dated September 20th.

G.O., 20th September 1871.
No.2397

SEPTEMBER, No.330.

Statistical proposals in connection with the Railway Extensions in the Madras Presidency.

Appendix A

No 1

Proposed line from Madras to Tuticorin including Conjeveram and Pondicherry.

District	Area in Square Miles	Population	Revenue for
Madras	575	2,114	
South Arcot	256	784	
French Territory	1177	3,030	
Tanjore	1,164	1822	
Madura	235	659	
Tinnevelly	399	1251	

Principal towns in each District through which the Line will pass.

District	Towns	Population
Madras	Madras	415,000
	Egmore	7,320
	Saint Thomas Mount	10,610
	Poonamallee	3,460
	Chingleput	3,118
	Madrambaum	3,000
	Velloremallur	1,191
	Mooperumalur	4,208
	Wallajabad	3,378
	Conjeveram	10,000

	South Arcot	Tindevanum	8,068
		Villopuram	5,212
		Sirruvadye	3,068
		Coudalore	39,153
		Punnoorutty	5,464
		Porto Novo	6,380
		Chellumbrum	14,354
	Tanjore	Mayaveram	19,205
		Combaconum	33,765
		Mouvargudi	11,983
		Negapatam	18,311
		Vallam	6,573
	Madura	Poodoocottah	
		Dindigul	
		Shavagunga	6,472
		Madura	39,872

Pooparellah	2,178
Sreemangalam	3,818
Tinnevelly Vindapalli	1,316
Pellayarammedal	3,000
Pallapalli	5,857
Vilpalli	11,000
Kandiapuri	5,500
Collidaum	3,011
Palamcottah	13,313
Tinnevelly	23,000
Muvalangal	3,211
Ollapedaum	3,814
Sulleeum	7,500
French Territory Pondicherry	11,750

57

Annual value of Exports and Imports at principal ports.

Name of ports	Exports	Imports
Madras	215,11,322	357,65,255
Condilabaw	1,08,019	64,212
Negapatam	29,15,885	21,15,355
Pondicherry	2,11,164	7,81,813
Sulleeum	105,88,805	19,82,754

Existing road traffic in Line

Between what places	Average daily numbers passed
Madras and Saint Thomas Mount	779
Saint Thomas Mount and Chingleput	788

Madras and Seringapatam	110
Jindivanum and Viravandy	330
Jindivanum and Pondicherry	260
Viravandy and Cumbaconum	333
Viravandy and Pondicherry	707
Pondicherry and Cuddalore	116
Pondicherry and Villipuram	138
Cuddalore and Porto Nove	170
Cuddalore and Permacoil	391
Podicanallah and Madura	123
Madura and Tinnevelly	1,000

No II

Proposed Branch Line from Madura to Coimbatore.

Districts traversed	Average Per Square Mile	
	Population	Income
Madura	235	637
Coimbatore	174	353

Principal towns through or near which the line will pass.

District	Towns	Population
Madura	Madura	37,872
	Sholavandan	6,000
	Dindigul	8,951
	Palamy	10,395

Coimbatore	Dharapuram	3077
	Udumalpet	5103
	Pollachum	
	Coimbatore	24631

Average daily number of coolies between Madura and Pindigul	225

No III

Proposed Lines on the West Coast.

Territories or Districts traversed	Average Per square mile	
	Population	Revenue
Gravanore		
Coorlum	552	1,199
Malabar	295	543
South Canara	200	541
Bellary	114	334

Principal towns through or near which the line will pass.

Territory or District	Towns	Population
Gravanore		

	Badagherry	5,911
	Gellichherry	18,500
	Cannanore	16,600
South Canara	Mangalore	23,668
	Dodijee	3,718
	Moorkeu	3,309
	Harkal	3,793
Bellary	Bellary	37,015
	Hospett	9,419
×	Bellahonoy	———
×	Hamsagra	———
	Hampy	9227
	Hurpunhully	6308

Statistics of the coasting trade traffic on these lines are not available.

Cochin	Cochin	5,317
	Chittoor	8,000
	Himmanboolum	6,000
	Cornacollum	8,833
	Cochin	5,211
	Mondenchary	11,000
	Griporinitray	3,500
Malabar	Tanary	5,767
	Cadicut	37,000
	Quilandy	6,918

Annual value of Exports and Imports at principal ports

Names of ports	Exports	Imports
Narrakal	2,96,118	3,24,367
Cochin	55,78,207	38,34,185
Beypoor	7,64,588	21,199
Calicut	60,97,222	27,03,835
Tellicherry	20,62,383	7,63,047
Cannanore	10,83,823	11,66,106
Mangalore	26,56,337	16,74,107

No IV

Principal lines north of Madras.

Districts traversed	Average Per square mile	
	Population	Revenue Rs.
North Arcot	299	602
Nellore	166	783
Kistna	154	696
Godavery	182	728
Vizagapatam (Surrasidoli Valley)	317	555
Ganjam.	259	1,389

Principal towns through or near which the line will pass.

Districts

Districts	Towns	Population
Nellore	Gingellee	8,878
	Kalastri	9,176
	Venkatagiri	6,967
	Goodoor	5,123
	Nellore	22,851
	Ongole	5,832
	[illegible]	5,364
Ghistna	Ibraconda	7,951
	Bapatla	7,749
	Guntoor	15,184
	Pallajaud	6,107
	Begawaud	5,154
	Condapilly	4,922
	Juggiapettah	8,327
	Rajamud	5,561
	Mouslipatam	27,763
Godaverry	Cottoor	19,940

		Towns	Population
		Rajahmundry	16,777
		Samulcottah	7,810
		Ibraconda	10,477
		Ibringa	6,833
		Peddapoordam	8,738
		Pithapooram	8,006
		Dowlaishwaram	5,890
		Groone	5,588
Vizagapatam		Hapimottah	6,220
		Anakapilly	13,333
		Vizagapatam	16,867
		Bimlipatam	5,192
		Vizianagrum	14,016
		Palkonda	8,107
Ganjam		Chicacole	11,125
	×	Ibalingapatam	
	×	Gopaulpoor	
		Berhampoor	20,278
		Ganjam	4,587
	×	Aska	

Appendix A (64)

No. III

Annual value of Exports and Imports at principal ports.

Names of ports	Exports	Imports
Masulipatam	12,33,496	1,07,182
Cocanada	56,88,964	5,80,778
Coringa	3,33,548	91,613
Vizagapatam	4,16,596	1,16,678
Bimlipatam	23,78,335	6,43,263
Calinga patam	4,97,992	775
Goparaupoor	6,78,736	5,96,475
Moonooteeblah	46357	39,979
Ganjam	1,34,378	487

Capt. Engr.

Chief Engineer for the Parlicoor

Territories or Districts traversed.	Averages per square mile.	
	Population.	Revenue
Travancore	237	827

Principal towns through or near which the line will pass.

District	Towns	Population
Travancore	Trevandrum	52,000
	Aramboolz	
	Thalacoodz	
	Kolar	
	Parrackz	
	Thuckindrum	
	Alloor	
	Colachel	
	Ermeel	

Towns than 2,000 inhabitants in each.

Tiruvilwaucode
Calculum
Tiruvalam
Coolithoray
Kollobal
Nagalapuram
Sherumbal
Quilon
Kayancolum
Mootkoorcolum
Kartigapully
Shalacurray
Manar
Alleppy
Munchatiwara
Vycum
Valayar
Edapully

Annual value of exports and imports at principal ports.

Names of ports	Exports	Imports
	Rupees	Rupees
Colachel	40,298	23,480
Pattanum	12,641	146
Poovar	21,214	6,333
Poonloora	9,059	16,265
Anjengo	25,452	1,935
Vakgacherry	74,388	13,806
Alleppy	13,48,044	5,37,748
Cotoor	50,282	
Manacodum	73,785	

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Appendix B

Madras Railway.

Statement shewing Statistics of Through Goods Traffic between the Madras (South-West and North-West ...ies) and Great Southern of India Railways for the year ending the 31st December 1868.

Goods booked Westward to Great Southern of India Railway.

Special Class		1st Class		2d Class		3d Class		4th Class		5th Class		Total	
Maunds	Amount	Maunds	Amount	Maunds	Amount	Maunds	Amount	Maunds	Amount	Maunds	Amount	Maunds	Amount
820 9/10	393 1	38,210 31/40	13,571 11	48,866 61/80	15,938 3 9	11,869 31/40	8,933 8 7	17,882 1/16	11,246 4 3	7,121 7/16	12,960 4 7	124,667 1/80	74,143 1 2

Goods booked from the Great Southern of India Railway Westward.

Special Class		1st Class		2d Class		3d Class		4th Class		5th Class		Total	
Maunds	Amount	Maunds	Amount	Maunds	Amount	Maunds	Amount	Maunds	Amount	Maunds	Amount	Maunds	Amount
"	"	456 57/80	1,543 6 8	8,587 1/80	24,381 5 8	5,124 1/20	4,365 10	6,365 4/5	1,832 1/4	7,504 11/20	751 15 "	6,888 1/10	14,819 4 5

Goods booked Eastward to Great Southern of India Railway

Special Class		1st Class		2d Class		3d Class		4th Class		5th Class		Total	
Maunds	Amount	Maunds	Amount	Maunds	Amount	Maunds	Amount	Maunds	Amount	Maunds	Amount	Maunds	Amount
"	"	42,732 1/5	7,996 7 4	8,385 41/160	1,861 5 8	1,782 29/180	590 4 6	4,301 31/160	1,474 3 6	2,284/5	298 10	1,072 29/52	174 7 8

Goods booked from Great Southern of India Railway Eastward.

Special Class		1st Class		2d Class		3d Class		4th Class		5th Class		Total	
Maunds	Amount	Maunds	Amount	Maunds	Amount	Maunds	Amount	Maunds	Amount	Maunds	Amount	Maunds	Amount
"	"	2,256 37/180	1,097 9 5	5,507 3/16	2,652 12 11	5,810 1/80	2,514 1	106,458 37/160	8,593 1/16	2,641 4 10	211 9 3/5	131,456 13/80	15,426 12 8

Appendix B (continued).

Statement showing Statistics of Through Passenger Traffic between the Madras (South-West and North-West Lines) and Great Southern of India Railways for the year ending 31st December 1868.

West

Passengers booked Westward to Great Southern of India Railway

	1st Class		2d Class		3d Class		Total	
	No	Amount	No	Amount	No	Amount	No	Amount
Ordinary Traffic	102½	1,752 1 "	252	1,773 2 4	5,750	3,485 14 "	6,104½	7,011 14
Extraordinary "	3	37 5 "	21	64 " 6	7,890	4,338 3 "	7,914	14,439 8 6

Passengers booked from the Great Southern of India Railway Westward

	1st Class		2d Class		3d Class		Total	
	No	Amount	No	Amount	No	Amount	No	Amount
	41	227 9 "	94	144 10 10	3,691	3,398 15 6	3,826	3,771 34
	"	" " "	4	74 "	2,457	1,638 11 10	2,461	1,645 15 10

East

Passengers booked Eastward to Great Southern of India Railway

	1st Class		2d Class		3d Class		Total	
	No	Amount	No	Amount	No	Amount	No	Amount
Ordinary Traffic	64	299 1 "	78	122 7 11	3,349	3,081 11 9	3,481	3,503 4 8
Extraordinary "	"	" " "	4	1 7 4	2,457	1,638 11 10	2,461	1,645 15 10

Passengers booked from the Great Southern of India Ry Eastward

	1st Class		2d Class		3d Class		Total	
	No	Amount	No	Amount	No	Amount	No	Amount
	98	210 5 6	259	169 3 8	5,035	3,082 7 9	5,392	6,881 8 11
	3	37 5 "	21	64 " 6	7,890	14,338 3 "	7,914	14,439 8 6

(Signed) H. Church.
Chief Auditor

(Signed) R. D. Elwin
Agent and Manager

(True Copy)
Major R.E.
Com: Engr. for Railways

especially to the points noticed by the Government of India in their recent despatches to the Secretary of State.

2. I have endeavoured to supplement these observations with all the available statistical information regarding the population, trade, &c., of the districts through which the proposed lines of railway will be carried. These statistics are tabulated as an appendix to this letter; but I regret to say that the information which I have been able to collect, especially as regards the existing traffic upon the various lines, is far from being as complete as could have been wished.

* Vide Appendix A

3. A sketch map of Southern India is also submitted in illustration

* Vide despatch from Government of India to Secretary of State. No. 24 dated 11th March 1869. Enclosure No. 4. Map. No. 11.

of the observations contained in this letter. It has been prepared upon the same principle as* that which accompanied the Minute by His Excellency the late Governor General; and shows the various lines of railway which have been projected in this Presidency, with their gauges, and the order in which it is proposed that each successive portion of every line shall be undertaken.

New considerations imported into the question of Railway extension.

4. The papers lately received from the Government of India, and the measures which have been by that Government

Government recommended to the Secretary of State, have given an entirely new complexion to the important question of Railway extension in India. Especially in the following respects has the consideration of the question been set free from conditions with which it was before embarrassed.

5. In the first place the Government of India have pointed out that the substitution of the direct action of the State for that of Companies, in the construction of future lines of railway in India, will generally lead to satisfactory results, and will secure both to the Government and to the people of India many and great advantages

(81)

which the present system has failed to produce. In the case of railways which it is proposed to carry through Native States, the Government have recorded their opinion that, as a general principle, it is undesirable to attempt their construction by the agency of Companies.

6. In the second place the Government of India desire to lay down as a principle to be observed in the selection of new lines of railway that the requirements of British India, as a whole, shall form the paramount consideration, and that the interests of those parts of the country which have not yet been provided with railways

shall

shall not in future be sacrificed either on the one hand from the idea that it is preferable to extend and improve existing railways and to supplement them with branches, or on the other hand from any apprehension that the construction of the new lines may in some degree interfere with the traffic upon the existing lines.

7. In the third place the Government of India have recorded their opinion that, in a case where it may appear to be unadvisable on financial grounds to construct a railway on the recognized Indian gauge of 5 ½ feet, a proposal to construct a cheaper line upon a narrower gauge should meet

with favourable consideration.

8. The limits by which the consideration of this question were supposed to be bounded have also been greatly enlarged by the desire expressed by the Government of India that the requirements of the country for at least the next thirty years shall be as far as possible foreseen and provided for in the proposed scheme of Railway extension, and that every new line henceforth projected shall be considered, and decided upon, in relation to its place in such a scheme.

Division into three Groups of all lines projected in this Presidency

9. After carefully reconsidering the question of Railway extension in Southern India with reference to the

altered

altered circumstances indicated in these and other propositions of the Government of India, I am compelled to modify considerably the views which I previously expressed, and I have no hesitation in stating it to be my opinion that the gradual and methodical construction of a general system of lines such as has been sketched out by the Government of India will not only further the great national interests of British India, but will also provide in the most certain and satisfactory manner for the wants of every important part of this Presidency.

In discussing the subject it will be convenient to divide the lines proposed for construction in this Presidency into three groups, according to their geographical positions,

(1) the Southern group, including all lines proposed within the districts lying to the South of Madras, excepting those on the West Coast,

(2) the Western group, including all lines proposed on the West Coast, together with the extension from Bellary towards Dharwar, and

(3) the Northern group, including all lines to the North of Madras with the exception of those on the West Coast.

10. Taking in the first place the Southern group, I do not now hesitate to recommend the construction of a line which, starting from Madras in a southerly direction, shall pass by Cuddalore, Combaconum, and Tanjore, and thence by Madura to Tinnevelly and Tuticorin. In the report which I had the honour to submit on the 15th July 1868 this line was purposely omitted. In the year 1865 the Madras Government intimated, under orders from the Secretary of State, that they would be obliged to withhold their

Southern Group.

Direct line from Madras to Tanjore and Tinnevelly.

× G. O. 27th March 1865. No. 84.

countenance and support from any proposed line of railway which had a tendency to withdraw traffic from any of the guaranteed lines; and there can be no doubt that the construction of a railway between Madras and Tanjore would to a certain extent compete with both the Madras Railway and the Great Southern of India Railway. It will be hereafter shown that such competition will probably be insignificant in extent. In the scheme which I laid before Government last year, it was proposed to provide for the requirements of the districts of South Arcot, Tanjore, Madura, and Tinnevelly,—

× Vide para-graph 18.

(1) by an extension from Conjeveram to Cuddalore of the Indian Tramway Company's narrow gauge line, —

(2) by a branch of the Great Southern of India Railway from Needamungalam to Combaconum, — and

(3) by a branch of the same railway, starting from Cercoi, and running southwards through Madura to Tinnevelly and Tuticorin.

11. It is however impossible to be blind to the fact that the carrying out of this scheme would provide only imperfectly for the wants of the districts in question. The scheme

was

was in itself a compromise; as the question of Railway extension was then supposed to be clogged by the condition that no new line was to be brought forward which could in any manner compete with the traffic upon the guaranteed lines in existence or in progress. Pending the removal of that condition no complete or satisfactory scheme of Railway extension in those districts could have been submitted; but looking to the fact that the entire traffic between Madras and the South would have been diverted into a circuitous route, far from its natural course, — that the distance between

Madras

Madras and the principal southern towns would have been nearly doubled, — and that many of those towns would have been left without any direct means of intercommunication, — it is easy to see that the arrangements then proposed could not have been final.

12. The line now advocated will then secure many important objects in addition to all of those which the schemes previously submitted was calculated to provide for; and, among the reasons for giving it the preference, attention must be paid to the fact that it will bring into direct Railway communication with Madras the very important

* E. G.

	Distance in miles.	
	Direct	Vid Erode
Madras to Tanjore	194	362
—·— to Combaconum	171	296

* E. G.

	Distance in miles	
	Direct	Vid Erode
Cuddalore to Trujore	94	419
Chillumbrum to Combaconum.	47	479

important military station at St. Thomas' mount, the smaller station at Palaveram, and the large town of Chinglepet, the seat of the District Courts of Law.

13. * In the papers which accompanied the order of Government now under reply the construction of a direct line of railway from Madras to Tanjore and Tinnevelly is distinctly suggested by the Government of India. It is indeed left an open question whether the terminus of the line should be at Madras or at Arconum; but on this point there is room for little doubt, inasmuch as Cuddalore, to which in either case the line must be taken, is equidistant from Madras and from Arconum

* Vide despatch from Government of India to Secretary of State. No. 25. 11th March 1869 paragraphs 26, 27, 29.

Arconum; so that the fixing of the ter-
minus at Arconum would have the
effect of lengthening the journey between
Madras and the South by 42 miles, the
distance between Madras and Arconum.

14. When the extension of the
Tramway Company's line to Cuddalore
and no further was under consideration,
I recommended that the present narrow
gauge of 3½ feet should be maintained
throughout, as being sufficient for the
limited traffic which the line was
likely to attract: but the circumstances
are greatly altered when it is proposed
that the line shall start from the seat
of the Local Government, and shall
follow for 400 miles the principal com-
mercial highway in Southern India.

The

× Despatch
No 25.
paragraph 27.

The Government of India have recorded
their decided opinion that the 5½ feet
gauge should be adopted, "so far at
"least as the point from which the line to
"Pondicherry would leave it;" and there
can be but little doubt that after it
has been carried thus far upon the Indian
standard gauge, it will be found
advisable to continue it upon the same
gauge to Combaconum and Tanjore,
and thence to Madura and Tinnevelly.

15. With reference to that
portion of the proposed railway which lies
to the south of the Great Southern of
India Company's existing line, it will
be seen that the Government of India
have × suggested that the former proposals

× Despatch
No 25.
paragraph 29.

should

should be "reconsidered in relation to the
"general arrangements which would be
"most convenient for the whole of the
"southern part of the Peninsula, to bring
"into consideration the opening of a new
"coast line from Arconum or Madras".
The former proposals, as already mentioned,
contemplated Caroor as the point of
departure for the branch to Madura
and Tinnevelly; but bearing in view the
immense benefits which a direct line
from Madras to Tanjore would confer
upon the south-eastern provinces, and
the probability that this line will
before long be undertaken, it seems to
me that without a doubt Tanjore,
and not Caroor, should be the starting
point

point of the extension to Madura and
Tinnevelly.

16. When the question at
issue, with regard to this portion of the
proposed extension, was between Caroor
and Trichinopoly as alternative points
of departure, the selection of Caroor was
recommended chiefly on account of its
offering the shortest and most direct
communication between Madras and the
South, and partly on account of the large
local traffic between Palghaut and
Coimbatore on the one hand, and Dindigal
and Madura on the other, which the
adoption of this route was thought likely
to secure. The first of these considera-
=rations now forms a leading argument
in

in favour of the line from Madras direct to Tanjore and Madura; but the large local traffic to which I have alluded, could not be induced to take the long circuitous route from Palghaut and Coimbatore by Erode and Tanjore to Madura. Of the importance of this traffic there is no doubt; and with a view to accommodate it, as well as to open out the extensive tract to the north-west of Madura, I recommend that the proposed southern line be supplemented by a branch which should run from Madura, through (..) Dindigul and Dharapooram, to Coimbatore, a distance of about 140 miles. Besides accomplishing the foregoing objects, the construction of this branch would greatly facilitate

Branch from Madura to Coimbatore

facilitate access to the Pulney Hills, a sanatarium almost equal to the Neilgherries, and would bring Madura into direct communication with the Neilgherries and with the West Coast.

17. While I have no hesitation in advocating the location of the terminus at Madras, and the adoption throughout of the Indian gauge, I do not recommend the abandonment of the existing line between Arconum and Conjeveram.

Reconstruction of narrow gauge line between Arconum and Conjeveram, and the extension to Chingleput.

Upon the contrary I think that its gauge should be increased to 5½ feet, and that the line should be extended from Conjeveram down the valley of the Palar to Chingleput, a distance of 20 miles.

Besides

Besides bringing the districts of Cuddapah and Bellary, and the Bombay Presidency, into direct communication with the southern provinces, this extension would compensate for the error which was committed in carrying the Madras Railway at so great a distance from the wealthy town of Walljahbad and Conjeveram.

18. I append two statements furnished by the authorities of the Madras Railway showing the statistics of the through traffic in passengers and goods between that line and the Great Southern of India Railway during the year 1868. The traffic between the Calicut line and the stations on the Madras Railway west of Erode will of course not be interfered with by the construction of the proposed railway from Madras to Tanjore; and the subjoined figures show that the whole remaining traffic, (of which only a fraction will probably be affected,) amounts to 2·36 per cent of the passenger traffic, and to 2·60 per cent of the goods traffic.

* Vide appendix **B**

Through traffic between Madras and Great Southern of India Railway

	Traffic to Great Southern of India Railway from stations east of Erode.		Traffic from Great Southern of India Railway to stations east of Erode.		Total traffic between Great Southern of India Railway and stations east of Erode.		Percentage borne by last columns to total traffic on Madras Railway under each head.	
	No.	Receipts	No.	Receipts	No.	Receipts	No.	Receipts
Passengers ordinary	6,105	7,011	5,392	6,882	11,497	13,893	0·58	0·83
—Do— extraordinary	7,914	14,440	7,914	14,440	15,828	28,880	9·08	22·58
	14,019	21,451	13,306	21,322	27,325	42,773	1·29	2·36
Goods ——— tons—	4,584	71,143	778	16,437	5,362	87,580	1·47	2·60

The

the amount of traffic which the construction of the proposed line will divert from its present course must therefore be incon=siderable.

19. After giving the most careful consideration to the question of the agency by means of which it will be ad=visable to construct this line, I come to the conclusion that upon almost every ground no construction ought to be undertaken by the direct action of the State. I entertain no doubt that the line will be the most profitable of all similar undertakings in Southern India; existing or prospective; and on broad grounds of public policy I see no reason why the Government should not hold in their own hands a work

Agency by which these lines should be constructed.

which promises to be so largely remunerative. The fact that it will skirt the French territory, and the certainty that a branch will be made to connect it with Pondicherry form additional reasons for not inviting the interference of a Company. Although the line will pass through no Native State, it will traverse a large Zemindary lying to the south of Tanjore, that of Pudoocottah; and the experience gained on the Madras Railway Company's North West line shows that troublesome questions, most difficult of solution, are apt to arise between Zemindars and Railway Companies when the lines of the latter are carried into the estates of the former.

20. When the question was

one of extending the Indian Frammaz ... Company's line upon its narrow gauge of 3-½ feet as far as Cuddalore, that ... Company was naturally looked on as the one to which the construction of the extension should be entrusted; but as I have already pointed out the proposal has now assumed a widely different shape; and under the altered circumstances it seems to me that it would be highly impolitic to invite this Company to extend their enterprize beyond its present limits, and so to create a new set of private vested interests in the southern provinces, and to hamper still more the future action of the Government.— So far from now advocating any extension of this Company's line, I consider that it would be desirable

upon

upon all grounds to purchase from them the short piece of line between Arconum and Conjeveram, and then to widen it to the Indian gauge and to extend it to meet the proposed southern line at Chingleput.

21. The Great Southern of India Company, whose line now extends from Negapatam to Erode, a distance of 168 miles, have far stronger claims to consideration than the Indian Frammaz Company; and in the event of its being determined that the proposed new line shall not be constructed by the direct action of the State, I should advocate the concession of it to them, in preference to the Indian Frammaz Company. There can be no doubt

that

that the proposed line will to some extent interfere with the traffic on the existing line of the Great Southern of India Com=pany; and it will pass through a tract of country to which they perhaps consider themselves to have established a claim. The length of the line from Madras to Tinnevelly, including the branches to Tuticorin and Arconum, will be about 470 miles, and the length of the branch line between Madura and Coimbatore about 140 miles, making in all about 610 miles. If this be added to the Great Southern of India Company's existing line, the total of about 780 miles will be well within the power of one Company to manage. No good object could possibly

possibly be gained by dividing this distance between two Companies; while on the other hand the unnecessary multiplication of separate interests in Indian railways cannot be too strongly deprecated.

22. Should the concession to the Great Southern of India Railway Company of these most important lines be determined on, I would most strongly urge the necessity of including in the Contract the new provisions which have been suggested by the Government of India. I allude both to the equal division, between the Government and the Company, of any excess of the net profits above the guaranteed rate of interest; and to the reservation to the Government of power to deprive the Company

+ Vide despatch to Secretary of State No. 74. paragraphs 18 and 20.

Company of the concession at any time, if the Government is not satisfied that the works are being carried out with proper economy. It also seems to me that in the event of this concession being made to the Great Southern of India Company, — a concession which will virtually place in their hands the entire carrying trade of five of the richest provinces in this Presidency, — a stipulation should be entered into the Contract binding the Company to carry out, as part of their (—) undertaking, any branch or supplementary lines which the Government may from time to time consider necessary to complete or to extend the system. It appears doubtful whether the old form of Contract, in spite of the apparent provision in the second clause, (—) enables the Government to require this; and it is necessary to observe upon the impolicy of conceding to a Company the monopoly of all the main and best paying lines of communication, while the construction of the less remunerative branch and supplementary lines is left to devolve upon the State.

23. My recommendation therefore is, that the Indian Branch Company be on no account allowed to extend their enterprize; that if possible their existing line be purchased from them, with a view to its being reconstructed on the 5½ feet gauge, and extended to Chingleput; and that the whole of this system

estimated the outlay at £ 6,200 per mile, and in this Office it was deemed advisable to raise that estimate to £ 7,000 per mile. To the south of Madura the two lines are identical; but to the north the line now proposed differs altogether from the one under consideration last year, and will be the more expensive, inasmuch as it will have to be carried across the Coleroon and the whole of the Tanjore system of irrigation. The width of the Coleroon, where the line would cross it, is about 2,300 feet; and allowing what experience has shown to be a fair estimate, namely Rupees 175 per foot, the cost of bridging this river would be about £ 40,000. I consider that if a sum of £ 8,000 per mile be allowed for the cost of the whole line between Madras and Tinnevelly, and southwards to the Travancore frontier, a liberal margin will be left to meet the cost of the Coleroon bridge and all other contingencies. From Madura to Coimbatore, and from Conjeveram to Chingleput, a sum of £ 7,000 per mile will be ample. For the reconstruction of the portion between Arcotnum and Conjeveram a sum of £ 4,000 per mile should be allowed. And for the short branches to Arcot, Vellore, Salem, and Palghaut, I think that £ 6,500 per mile will be sufficient.

26. The entire cost of these lines may therefore be approximately taken

taken as follows:—

Line of Railway	Length in miles.	Cost per mile £	Total Cost £
Madras to Tinnevelly	400	8,000	3,200,000
Tinnevelly to Tuticorin	30	80	240,000
Tinnevelly to Travancore frontier	40	80	320,000
Madura to Coimbatore	140	7,000	980,000
Conjeveram to Chingleput	20	80	140,000
Branches to Arcot, Vellore, Salem and Palghaut	14	6,500	91,000
Arconum to Conjeveram (Reconstruction)	17	4,500	76,000
Total	663		5,047,000

27. With regard to the order of construction of the various portions of the proposed system, and the period within which

Order of Construction.

(17)

which each portion will probably be completed, I look upon the line which is proposed to connect Madras with the districts of Madura and Tinnevelly as a work of such very great importance that I am induced to urge the expediency of beginning its construction simultaneously at both ends. There will be no difficulty in the way of commencing work both at Madras and at Tuticorin, while by so doing both the cost of the line and the time required for its completion will be reduced. Taking the quinquennial periods which are adopted in the Minute by the Governor General, I would allot the execution of the work as follows:—

Between

Between 1870 and 1875

	Miles.
From Madras to Cuddalore	100
From Tuticorin to Tinnevelly	30
Short Branches on Madras Railway South-West Line	14

Between 1875 and 1880.

From Cuddalore to Tanjore	100
From Tinnevelly to Madura	100

Between 1880 and 1885

From Tanjore to Madura	100
From Conjeveram to Chingleput	20

Between 1885 and 1890

From Madura to Dindigul	40
From Arconum to Conjeveram reconstruction	20

Between 1890 and 1895

From Dindigul to Coimbatore	100
From Tinnevelly to Travancore frontier	40

So that the completion of the whole of these lines may be anticipated by the year 1895.

It will be observed that the opening of each successive section brings each line of communication to a point which can, if necessary be regarded as a temporary terminus.

Western Groups.

28. The lines proposed by this Government for construction in the West Coast consisted of

(1) an extension of the Madras Railway Company's South-West line from Beypoor westwards

to

to Cannanore,

(2) a branch from the same line from Pollamby in a southerly direction to Cochin, and

(3) an extension of the Bellary branch in a westerly direction to Dharwar and Carwar.

29. The Government of India, in giving forward to the future requirements of the country, have recommended the extension, both north and south, of the first and second of these proposed lines, so as to provide an unbroken chain of railway communication along the West Coast of India from Cape Comorin to Carwar, and eventually to Bombay and Ahmedabad.

Line along the West Coast between Carwar and Cape Comorin.

The

Line from Bellary to Dharwar and Carwar.

The proposed extension from Bellary westwards to Dharwar and Carwar finds a place in the scheme which the Government of India have sketched out. At Carwar it will of course be connected with the West Coast system; and from Dharwar a line which is proposed to run in a northerly direction, through Belgaum, Kolapoor, and Ahmednuggur, will unite it with both branches of the Great Indian Peninsula Railway.

Line from Dharwar to the Great Indian Peninsula Railway.

30. There can be no doubt that the carrying out of such a scheme would provide a most important and useful means of communication along the entire western seaboard of the — peninsula; especially important when

it

it is remembered, that, with one or two exceptions, all the ports on this coast are closed to ocean traffic during three or four months in every year. So far as this Presidency is concerned, all its immediate and pressing wants are provided for by the construction of the lines included in the former proposals of this Government, but that proposals did not profess to comprise provision for the requirements of the country up to the end of the present century.

31 With regard to the important question of gauge, I observe that the Government of India have suggested that all extensions in the Southern Mahratta country, and in Mysore, should be constructed upon a narrow gauge of 3½ feet. There can be no doubt as to the policy of adopting this suggestion, but its scope should be extended. Calicut is the natural terminus of the Madras Railway Company's South-West line, and a break of gauge at Beypoor would form a serious inconvenience. To Calicut therefore the line should be carried upon the broad gauge of 5-½ feet; but north of Calicut I should now advocate the exclusive adoption of the 3½ feet gauge.

Gauge.

* Despatch to Secretary of State No 25. paragraphs 34, 35. Also Letter to the Madras Government No 330 R. dated 18th March 1869.

32. The narrow gauge lines would in this case form an important and extensive system, traversing a large

tract

tract of country. If a line be drawn on the map from Bombay through Poona, Sholapore, Bellary, and Bangalore, to Calicut, the enclosed space would be entirely reserved for narrow gauge lines, whose length would be in round numbers as follows:—

	Miles
Bombay (Callian Junction) to Calicut	560
Munmar to Dhoond (Junction line between North-East and South-East branches of the Great Indian Peninsula Railway)	140
Dhoond to Dharwar	210
Bellary to Dharwar	110
Dharwar to Carwar	120
Bangalore to Tongabudra	220
	1390

Besides the above, other lines will also in all probability be constructed within the Mysore State, and these would, of course, be on the narrow gauge.

33. Upon the lines proposed to the south of Beypoor, through the territories of Cochin and Travancore, the Indian gauge of 5 ½ feet should I think be adopted. These lines will intersect a remarkably fertile and populous country, and will unite many large and important towns. I have already recommended that this gauge should be adopted for the whole of the proposed line from Madras to Tanjore and Tinnevelly; and as

the

the line through Cochin and Travancore will be joined to this on the south, and to the Madras Railway on the north, an alteration in the gauge would be highly inadvisable. It indeed seems to me that it would now be desirable to exclude, if possible, any other gauge than that of 5½ feet from the whole of that part of the Peninsula which lies to the south of the Madras Railway Company's South-West line.

34. Referring to the remarks of the Government of India it is necessary to observe that for some distance south of Beypoor the Madras Railway runs parallel to the coast; and that, partly on this account, and partly on account of the extensive backwaters which stretch inland near Pricheor, it will probably be found inexpedient to allow the Cochin line to branch from the Madras Railway until Puttambey is reached, a distance of 40 miles from Beypoor. It may be observed that the selection of Puttambey as the point of junction would also be the most convenient for traffic between Cochin and the East Coast; and that the proposed break of gauge at Calicut will probably make it less essential to have the junction at Beypoor.

× (Despatch to Secretary of State. No. 25. paragraph 30.)

35. I accept, in their ... entirely, the suggestions thrown out by the* Government of India with regard to the agency by which the construction of all these lines should be undertaken. The short piece between Beypoor and Calicut should be offered to the ... Madras Railway Company. It is desirable on several grounds that this Company's system should be continued to Calicut, and the second clause of the Contract dated the 19th December 1855 seems to give the Government power to require such an extension. But should the Company object to undertake it, it can be constructed by the State. With this exception all the

Agency for construction of these lines.

*Despatch No 25. paragraph 30.

(21)

proposed lines of railway which I have included in the Western group should be constructed by the direct agency of the State. The extensive but compact system of narrow gauge lines described above would thus be entirely under the control of the Government; and the line through the Native States of Cochin and Travancore would also be free from all interference on the part of private Companies.

Probable cost.

36. The cost of the various lines included in this group will of course vary greatly. The line from Puttamby to Cochin was surveyed last year by the Madras Railway Company, and the expenses of its construction

was

was then estimated at £10,000 per mile.
To the south of Cochin the cost will be
smaller; and £9,000 per mile, or even
less, will be a liberal estimate.
The cost of the short section between
Beypoor and Calicut, including the
Bridge over the Beypoor river, will
probably amount to nearly £100,000.
For the narrow gauge lines contemplated
to the north of Calicut an estimate at
the rate of £5,000 per mile for the
whole distance within the limits of this
Presidency will in my opinion be
ample. If the extension westward
from Bellary to the Dharwar frontier
is also undertaken on the 3-½ feet
gauge, as above recommended, I think
that

that the cost may be fairly set down at
not more than £4,500 per mile.

37. The entire cost of these
lines, within the limits of this Presi-
dency, may therefore be approximately
set down as follows:—

Line of Railway	Length in miles	cost per mile £0	Total cost £0
Pullamby to Cochin	60	10,000	600,000
Cochin to Trevandrum	130	9,000	1,170,000
Trevandrum to Tinnevelly frontier	50	do	450,000
Beypoor to Calicut	7	—	100,000
Calicut to Cannanore	50	5,000	250,000
Cannanore to Mangalore	70	do	450,000
Mangalore to Goudapur	60	do	300,000
Bellary to Dharwar frontier	75	4,500	337,500
Total	522		3,657,500

28. Dividing as before, the lines into periods of five years, it seems to me that the construction of the various lines may be advantageously undertaken as follows:—

Between 1870 and 1875

	Miles
From Pallamby to Cocanada	60
From Royapoor to Calicut	7

Between 1875 and 1880

From Calicut to Cannanore	50
From Bellary to Hospett	35

Between 1880 and 1885

From Cocanada to Quilon	90
From Hospett to Dharwar frontier	40

Between 1885 and 1890

From Quilon to Trevandrum	40
From Cannanore to Mangalore	70

Between

Between 1895 and 1900

From Trevandrum to Arambooly	50
From Mangalore to Honahar	60

Each section being so arranged as to carry each line of communication to a point to which can commercially be used as a terminus, if necessary.

Northern Groups.

39. The Government of India have suggested the construction of a railway along the East Coast of the Peninsula, which will ultimately serve as a direct line of communication between Calcutta and Madras.

(Direct line between Calcutta and Madras with Branch to Hyderabad.

To the north of Madras

Provinces

Branches to Hyderabad on the one side,
and to Masulipatam and Cocanada
on the other, are also contemplated;
and it is suggested that a commence-
ment of the system might at once be
made from the two coast named ports
as separate starting points.

40. Upon full consideration
I do not think it possible to advocate
the construction of this system upon
the Indian gauge of 5'-6" feet. . . .
Throughout its entire length the
coast line will have to compete with
the sea route, and as it would pass
through or near several ports, it
could depend upon securing little
or no 'through' goods traffic. . . .
Although it would entail a considerable

extent of rich delta cultivation, it
would have to compete in those places
with a system of cheap inland —
navigation. Upon the other hand
the nature of the country and the large
rivers which must be crossed, would
raise the cost of a first class railway
to so high a figure as to render its
financial success almost impossible.

Gauges

41. The construction of these
lines upon a narrow gauge seems —
however to be in every way deserving of
consideration. Such lines would be
well suited to all the requirements
of the country, present and prospective,
— they could be executed at a com-
paratively low cost, — and there is
every reason to believe that they would

be

be fairly remunerative works. I have suggested that on the West Coast a large tract of country should be entirely reserved for narrow gauge lines, and I cannot but think that a similar course should be followed on the East Coast also. If a line be drawn on the map from Calcutta to Nagpore, thence to Hyderabad, and thence to Madras, it seems to me that it would be highly expedient to restrict all proposed lines of railway within those limits to the gauge of 3½ feet. There would then be formed an extensive system of lines of uniform gauge, whose length may be roughly estimated as follows:—

	Miles
Tripetty (or North-West line of Madras Railway) to Bezwarrah	220
Bezwarrah to Cuttack	500
Cuttack to Calcutta	240
Bezwarrah to Hyderabad	160
Hyderabad to Nagpoor	300
Nagpoor to Cuttack	500
Samulcottah to Cocanada	10
Total	1,930

It will be observed that neither of the larger tracts which I suggest should be reserved for narrow gauge railways, includes within it any line that can properly be deemed of pre-eminent importance in an Imperial point of view. They are all local or subsidiary lines, and the main highways of the Empire are

otherwise

otherwise provided for.

42. I have ventured to modify in some slight degree the suggestions thrown out by the Government of India with regard to this group of railways. So far as this Presidency is concerned it seems to me to be advisable, upon many grounds that work should be begun at the point where the proposed system will be united to the North-West Line of the Madras Railway. That point will be double for the first 84 miles, an important station situated at a distance of 84 miles from Madras. The Government of India suggest that separate

separate commencements should be made at Cocanada and Masulipatam. The latter town has however so completely lost the position it formerly held among the eastern ports that the advantage of constructing a branch to it may fairly be questioned. It is connected with Bezwarra by a navigable canal, and in my opinion the cost of a railway may well be saved. The case of Cocanada is widely different, but unless it is intended to commence operations there and at Vizipelly simultaneously, I strongly recommend that nothing should be done until the line has advanced as far north as Bezwarra. Except in special

circumstances

circumstances the viability of an isolated piece of railway is very questionable; and in this instance there can be no doubt that the balance of advantage is decidedly in favour of working (...) northwards from Tripoli. Independently of other considerations, it must be remembered that every mile of rail opened from Tripoli towards Nalbous and the East the will form a valuable feeder to the Medrao Railway.

43. The Government of India have recommended that three lines should be undertaken by the direct agency of the State, and there can be no doubt as to the policy of such.

Agency for construction.

such an arrangement. No existing Company has established a claim upon any part of the country through which they will pass, nor can any Company be injuriously affected by their construction. The Medrao Railway Company will indeed be largely benefitted, as the Gundoor cotton and other valuable produce which now travels by road to Medrao, will pass over 84 miles of their line; but this cannot be accepted as any reason for extending their system in this direction. On the contrary that Company's system, which with the lines now under construction extends over nearly 900

miles

miles, has already reached its natural limits; while against giving to them any portion of the lines proposed on the East Coast there are at least two principal objections, (1) in the ... difference of gauge, and (2) in the fact that for a considerable distance the lines will run through a Native State and Zemindaries.

44. As the proposed lines will traverse districts in which no railway operations have yet been undertaken, it is not easy to form an approximate estimate of their cost; but looking to the expense which has been incurred

Probable cost.

on similar lines elsewhere, and to the low rates of labour in most of the districts in question, I am of opinion that, if the bridges over the Godavery and Kristna rivers are specially provided for, a sum of £ 5,000 per mile will cover the cost of all these lines. For the two bridges in question I think that the sums of £ 100,000 and £ 60,000 respectively may be allowed.

45. The entire cost there=fore of these lines, so far as this Presidency is concerned, may be approximately taken as follows:—

Reconstruction 1895 and 1900.

	Miles
Trichinopoly to Tanjore	110
Trichinopoly to Hyderabad	80

47. The following is an Apportionment of Expenditure.
abstract, showing the orders in which it is proposed to carry out the various lines which have been sanctioned in the foregoing observations:—

	Miles proposed for construction in the undermentioned periods.						Total
	1870 to 1875	1875 to 1880	1880 to 1885	1885 to 1890	1890 to 1895	1895 to 1900	
Madura to Tanjore	100	100	"	"	"	"	200
Tanjore to Tinnevelly	"	100	100	"	"	"	200
Tinnevelly to Tuticorin	30	"	"	"	"	"	30
Tinnevelly to Travancore frontier	"	"	"	"	40	"	40
Madura to Coimbatore	"	"	"	40	100	"	140
Arconum to Chingleput	"	"	20	19*	"	"	39
Port Cranbee on Madras Railway South-West Line	14	"	"	"	"	"	14
Beypoor to Calicut	7	"	"	"	"	"	7
Calicut to Coudapur (Bombay frontier)	"	50	"	90	"	60	200
Pullamby through Cochin and Travancore to Tinnevelly frontier	60	"	90	40	"	50	240
Bellary to Dharwar frontier	"	35	40	"	"	"	75
Trichy to Tanjore	70	70	80	160	120	110	610
Bezwarrah to Hyderabad	"	"	"	"	80	80	160
Branch to Cocanada	"	"	10	"	"	"	10
Total	281	355	340	349	340	300	1965

* Reconstruction

follows:—

Lines of Railway.	Length in miles.	cost per mile £	total cost £
Tuticorin to Bezwarrah	220	5,000	1,100,000
Bezwarrah to Tamulcottah	125	do	625,000
Tamulcottah to Ganjam	265	do	1,325,000
Tamulcottah to Cocanada	10	do	50,000
Bezwarrah to Hyderabad	160	do	800,000
Bridges across Godaverg	—	—	100,000
do do Kistna	—	—	60,000
Total	780	—	4,060,000

46. I have already said, that in my opinion the construction of those lines should proceed . . . northwards from Tuticorin, the point at which they branch from the

the Madras Railway Company's North-West line, and it seems to me that the execution of the various sections may be advantageously apportioned as follows:—

Between 1870 and 1875.

	Miles
From Tuticorin to Nellore	70

Between 1875 and 1880.

From Nellore to Ongole	70

Between 1880 and 1885.

From Ongole to Bezwarrah	80
From Tamulcottah to Cocanada	10

Between 1885 and 1890.

From Bezwarrah to Kurnool	160

Between 1890 and 1895.

From Kurnool to Chicacole	120
From Bezwarrah to Kurnool	80

Between

Orders of construction.

7

Reduction 1895 and 1900.

	Miles
From Chicacole to Ganjam	110
From Koriapolli to Hyderabad	80

47. The following table shows the order in which it is proposed to carry out the various lines which have been decided upon in the foregoing observations:—

	Miles proposed for construction in the undermentioned periods.						Total
	1870 to 1875	1875 to 1880	1880 to 1885	1885 to 1890	1890 to 1895	1895 to 1900	
Madras to Ganjam	100	100	"	"	"	"	200
Ganjam to Vizianagram	"	100	100	"	"	"	200
Vizianagram to Tuticorin	30	"	"	"	"	"	30
Vizianagram to Travancore frontier	"	"	"	"	40	"	40
Madura to Coimbatore	"	"	"	40	100	"	140
Arconum to Chingleput	"	"	20	19	"	"	39
Port Branches on Madras Railway South-West Line	14	"	"	"	"	"	14
Beypoor to Calicut	7	"	"	"	"	"	7
Calicut to Coudapur (Bombay frontier)	"	50	"	70	"	60	200
Pullambay through Cochin and Travancore to Vizianagram frontier	60	"	90	40	"	50	240
Bellary to Dharwar frontier	"	35	40	"	"	"	75
Vizipetty to Ganjam	70	70	80	160	120	110	610
Dezwarrah to Hyderabad	"	"	"	"	80	80	160
Branch to Cocanada	"	"	10	"	"	"	10
Total	281	355	340	319	340	300	1965

* Reconstruction

48. In fixing the quinquennial periods suggested by the Government of India the cost of these lines will be distributed as follows:—

Section of Railway	Gauge to which belonging.	Length in miles	Cost per mile £	Total Cost £
1870 to 1875				
Madura to Cuddalore	Southern	100	8,000	800,000
Tinnevelly to Tuticorin	—Do—	30	8,000	240,000
Branches on Madras Railway South-West Line	—Do—	14	6,500	91,000
Beypoor to Calicut	Western	7	—	100,000
Pullamby to Cochin	—Do—	60	10,000	600,000
Arcot to Vellore	Northern	70	5,000	350,000
Total		281		2,181,000
1875 to 1880				
Cuddalore to Tanjore	Southern	100	8,000	800,000
Tinnevelly to Madura	Southern	100	8,000	800,000
Calicut to Cannanore	Western	50	5,000	250,000
Bellary to Hospett	—Do—	35	4,500	157,500
Vellore to Ongole	Northern	70	5,000	350,000
Total		355		2,357,500
1880 to 1885				
Tanjore to Madura	Southern	100	8,000	800,000
Conjeveram to Chingleput	—Do—	20	7,000	140,000
Cochin to Quilon	Western	90	9,000	810,000
Hospett to Dharwar frontier	—Do—	40	4,500	180,000
Ongole to Nezwarrah	Northern	80	5,000	400,000
Bridge over Kistna	—Do—	—	—	60,000
Cocanada to Samulcottah	—Do—	10	5,000	50,000
Total		340		2,440,000
1885 to 1890				
Madura to Dindigul	Southern	40	7,000	280,000
Arconum to Conjeveram (Reconstruction)	—Do—	19	4,000	76,000
Quilon to Trevandrum	Western	40	9,000	360,000

Cannanore to Mangalore	Madras	90	5,000	450,000
Bezwarrah to Vooree	Northern	160	5,000	800,000
Bridges over Godaveri	—do—	—	—	100,000
Total		349		2,066,000

1890 to 1895

Coimbatore to Dindigul	Southern	100	7,000	700,000
Tinnevelly to Travancore frontier	—do—	40	8,000	320,000
Vooree to Chicacole	Northern	120	5,000	600,000
Bezwarrah to Koriapolli	—do—	80	5,000	400,000
Total		340		2,020,000

1895 to 1900

Trevandrum to Tinnevelly frontier	Madras	60	9,000	460,000
Mangalore to Hondapur Bombay frontier	—do—	60	5,000	300,000
Chicacole to Ganjam	Northern	110	5,000	550,000
Koriapolli to Hyderabad	—do—	80	5,000	400,000
Total		300		1,700,000
Grand Total		1,965		12,764,600

49. An expenditure of therefore of about twelve and three quarters millions sterling, spread over thirty years, would suffice for the construction of all the lines of railway which, so far as can be foreseen, are required to provide for the main wants of every important part of this Presidency. The construction of such a system of railways would bring almost every town in the Presidency within less than 50 miles from a line of railway. And, allowing a most liberal margin, this object would certainly be attained by the annual expenditure of half a million sterling for thirty years.

50. Before concluding this report I think it right to allude to two short lines of proposed railways which have not found a place in the foregoing reference. Of these the first is the branch which will connect Pondicherry with the main line between Madras and Tanjore. I am aware that, when it was proposed to extend to Cuddalore the Arcottah and Conjeveram narrow gauge railway, leaving the entire line in the hands of the Indian Tramway Company, the Madras Government

Branch to Pondicherry

"may Government gave it as their opinion that it should be left "to the Arcottah Govern-"ment to negociate with the Tramway "Company for a junction from Pondicherry "upon any terms which may appear "expedient to both parties." But the circumstances are greatly changed if, instead of forming part of a short isolated narrow gauge line, it is proposed that the Pondicherry branch shall be constructed upon the Indian gauge, and united to what will certainly be the principal thoroughfare in Southern India. The length of the branch will not exceed ten miles; and I cannot but think that upon every ground it

would

would be undesirable to allow so short a junction to be under a system of control and management different in any degree from those which affect the main line. Whether the construction of the latter be undertaken by the direct action of the State, or through the agency of a Company, the branch should in my opinion be constructed in the same manner, and upon exactly similar conditions; and, after construction, the management of both should be vested in the same hands.

31. The other line to which I allude is a Branch, on the Nilgherry system, to connect Coonoor and Dolcanmund with the Madras Railway

Branch Line to Nilgherry Plateau.

Railway extension to Mullar.

Considering the success which has attended the trial of that system on the Mont Cenis route, there can be little doubt that a proposal to bring the Nilgherry Plateau into direct railway communication with the rest of the Presidency will ere long be preferred upon the notice of Government. The novelty of the system, and my ignorance of its practical details have prevented me from laying any formal proposals before Government, but I have every reason to believe that there would be no difficulty in adapting it to the Coonoor ravine. The length of the Mont Cenis line,

from

from St. Michel to Susa, in about 18 miles: the steepest gradient in 1 in 12: the average gradient in 1 in 25: and the cost is set down at £ 6,800 per mile. The distance from Fuller to Polacammund, by the new cart road, is about 2.8 miles: and the maximum gradient within that distance is of Coliene 1 in 17. Allowing liberally for contingencies the cost ought not to exceed £ 8,000 or £ 9,000 per mile.

I have the honour to be

Sir,

Your most obedient servant

Madras
16th July 1869

[illegible] Major R. E.

Consulting Engineer for

Railways

No 1869 Dated

No 3045

From

The Secretary Engineer
for Railways

To

The Secretary to Govt
of India
Home Department

Sir,

I am directed to forward herewith a letter from the Secretary to Government, Madras, enclosing a copy of a letter from the Chairman of the Madras Railway Company, dated the 28th August 1869, on the subject of the Railway Extension in Tanjore.

2. I am to request that the papers may be returned.

I have &c

Madras
28 August 1869

My dear Colonel,

In the Madras Times newspaper of the 27th instant I have seen the Minutes of Argyll's despatch of the 15th July 1869, on the subject of Railway Extension in India. As far as I can judge in extenso from the Parliamentary papers issued on the 30th July.

From the 20th paragraph

No. [illegible]

From

The Envoy

of this despatch, and to record of which
is respectfully requested, that the sum
of £ [illegible] is inclusive to give the proper
to the system of exchange existing
prepared for the liabilities of the Civil Service,
Pensions, Charities, and Miscellaneous Services,
the Expenditure upon which is supplied by
the Government of India in this department
No 25 dated the 11th March 1859.

Name in which opinion
of the views which are now held by the
Government upon this subject, and

cannot but look upon the question as
one of the most great importance to the
future interests of Southern India.
The decision which may now be arrived
at will influence those interests for
many generations, and I trust that the
paramount importance of the question
may be accepted as my excuse for
adding a few further observations to
those which were contained in my letter
of the 16th ultimo. I have had those
observations in this demi-official shape,
as I presume that I have no right to

address

No.

From

The Council

(2

(161)

I have sought for information and
advice from everyone who I thought
capable of forming a sound opinion
on the subject, and I am convinced that
the proposed direction is a mistake,
that the proposed gauge is a mistake,
and that the proposed capacity is a
mistake.

It is the result of a most
accidental that the idea of a line between
Arcanum and Cuddalore was ever en-
tertained. The famous temples at
Conjeeveram induced the Indian Famine
Company

although the Government could not
be responsible from the Company the
knowledge of the above fact, I could not
resolved not through an official
channel.

Upon every ground,
I am most unwilling to depart from the
proposal to submit to the Indian
Famine Company the alternative from
Arcanum to Cuddalore of their present
short list of narrow gauge lines.
For even this part I have given to this
subject my most attentive consideration,

Company to choose for their first purpose
and a branch from Arcanum to
that place; and when the junction of
our line, Pondicherry to the Madras Railway
system was made in 1864-65 the Govt.
finding on the part of the Madras
Railway Company of any possible remedy,
and their would be ruin to the South
Coast traffic owing to forcing all that
of their line, ordered the Home Government
to prohibit any junction even by way
of Conjeveram. Had it not been for
these accidental circumstances the idea
of bringing the town and port of Cuddalore

into

into connection with Cuddalore and
Pondicherry by means of a circuitous
route through Arcanum and Conjeveram
could not possibly have been entertained.
The adoption of that route would
lengthen the distance from Madras to
those towns by one half, and would
leave all a distance from the railway the
most important intermediate places,
such as St. Thomas' Mount, Chingleput,
Cheddapattoo, &c., to the great detriment
of the future traffic. The Secretary of
State affirmed that a line of railway
running parallel with the coast must
was possible

necessarily come into competition with the route by sea, but whether, in this instance that fact is made sufficient or not, the objections of the various and traffic which accompanied my letter of the 11th July have no doubt that there is a fair road between Madras and the south should be effected by the Coast and Cuddalore. There can be known the country as mentioned in this point. We shall then consider that of the exhaustion from Cuddalore

6

to Cuddalore is now undertaken, it must be followed at no distant date by a direct line from Madras to the south, and on many grounds it [illegible] desirable the unnecessary expenditure of money on the former line. I [illegible] beg that the question may be considered as if the short line from Arcoonum to Cuddalore had no existence. It would be far better to abandon that altogether, than that its existence should form a reason for giving a wrong direction to the most important line of

railway

1

From

The Queen

railway in the Provinces. The cost of the existing line of this line has been £100,000; and as the shareholders are receiving only 3 per cent for their money I presume that they would gladly surrender their property upon receiving their money back in full, or even in part.

As to the proposed guarantee, it has come to the conclusion that any scheme for connecting Calcutta with Madras by means of a gauge other than that of 5½ feet is a mistake.

The Southern railway has been

(15)

al Calcutta. The more I consider the subject, the more does it seem to me impossible to believe that any scheme which proposes to connect Calcutta towards the north, and Combaconum towards the south, with the general Indian Railway system, leaving the broad wide between Calcutta and Combaconum an unbridged gap, can ever be finish. I think it must be accepted as certain that such a gap, in the richest garden lands in all India, could not long exist. And I cannot state too positively my conviction

(197

consider that the 3½ feet gauge will not then be equal to the heavy through traffic, and that the connection of Cuddalore towards the north by an isolated line on an exceptional gauge will be the source of inconvenience which could only be removed by a reconstruction of the line. On this point I beg to draw your attention again to the strong expression of opinion from the Government of India, with reference to the desire of the French Government to obtain a Railway connection with Pondicherry, by a line on the full

Indian gauge.

Vide their despatch No 25, paragraph 27.—

I have added that in my opinion the proposed agency will be a mistake. Whatever may be the arrangements finally determined on for connecting Railway communication between Madras and the southern provinces,— whether there is to be a direct line from Madras to Tanjore, or only a short circuitous branch to Cuddalore,— whether it is to be on the broad or the narrow gauge,— I cannot protest too strongly

From

The Secretary

strongly against the proposal to entrust
the construction to the Indian Tramways
Company.

I feel bound to remind that
the line in the course of construction from
Conjeeveram to Cuddalore, & beg to observe
that the employment of a separate Company
would add the expenditure of a large fore-
-provision, viz., for the construction and
management of another line, will
prove to be an argument the reverse
of economical. If, on the other hand,
a direct line to Tanjore, Trichinopoly and Tinjore

in

(2)

in to be undertaken, I beg to point out
the impolicy of entrusting its construction
and management to any private agency
save the Great Southern of India Railway
Company. My letter of the 16th ultimo
contains several remarks on this point;
but I wish now to draw your special
attention to the fact that my experi-
ence of the Indian Tramway Company
has convinced me that they are singularly
ill-adapted to the task of undertaking
the construction and management of an
important line of railway in India.
That the undertaking, if entrusted to
them

From

[illegible]

[illegible] is likely to prove neither economical nor successful may I think be gathered from the extravagant mode in which their home establishment is organized, and from the mistaken notions they entertain of the duties devolving on their Indian agency, as evidenced by the choice they have made. The absurd and extravagant expenditure on account of the London Board of Directors was shown in my Letter of the 3rd. December 1858, No. 1913; and with regard to the selection of Sir Colebrooke Hope,

I can only give you my unqualified opinion that, as the resident managing authority, they have no knowledge of their duties, little or no interest in their work, and are simply incompetent. Their entire want of success for which they are attended. The Indian Steamers Company's traffic operations may also be quoted as an argument against intrusting any additional undertaking to their management.

[illegible] from the
Secretary of State's Despatch that an offer
is to be made to the Great Southern of
India Railway Company respecting a line
from Trichinopoly to Tuticorin. I will
not here enter into any further con-
sideration of this part of the Southern
extension. As the Government of
Madras have already found land, the
selection of the route to the town of
Madura, to the Pearl Coast, from
Trichinopoly per Dindigul, and
to find a port on the shore of the Gulf
from Madura and Tuticorin. I will

only observe that the selection of a
Trichinopoly as the point of departure
is approved by the recommendation of
this Government. When the question
of adopting the direct line between
Madras and Tanjore had not been
brought forward, the rival claims
and advantages of the Trichinopoly
and the Carroor routes were fully
considered, and the preference given
to the latter.

If you think it advisable

S

I will again call to your
[illegible] for this subject. As the question
is one of such great importance,
and as it appeared to me probable
that the decision of this Government
would be formed and communicated
to the Government of Chili without delay,
I thought it right to send these few
words and the accompanying [illegible]

Believe me
My dear Colonel
Yours very faithfully
Palmerston

Colonel C. A. Pasley R.E.

more or less into competition with
the route by Sea, and it would
therefore seem expedient that such
lines should be deferred until the
inland communications have been
further developed. —

1713

Extract from the Duke of Argyll's despatch dated India Office, London, July 15. 1869. as given in the Madras Times newspaper of August 27. 1869.

x x x x x x

Paragraph 20. x x x

x x x And similar offers will likewise be made to the Indian Branches Company and to the Great Southern of India Railway Company, respecting lines from Coimbatore to Beddadore and from Trichinopoly to Tuticorin. With reference to your suggestion that lines running parallel to the Coast might be preferable to those hitherto proposed, I will only say that it appears to me to be at least doubtful whether railways along either the Eastern or Western Coasts can be among the number of lines which press for very early consideration. Railways running parallel with the Coast must necessarily com-

Minute by H E The President

1867 No. 1168

I The Government of Madras in the Month of September 1868 recommended to the Government of India the following Scheme of Railway Extension in this Presidency.

(1) A Broad Gauge Line from Cuddapah to Tinnevelly by Dindigal and Madura with a Branch from Nagpatam to Tuticorin, to be executed by the Great Southern of India Railway Company.

(2) A Broad Gauge Line from Bellary to Dharwar to be executed by the Madras Railway Company.

(3) A Narrow Gauge Railway from Conjeveram to Cuddalore to be executed by the Madras Railway Company with a Branch to Pondicherry.

(4) Four Short Branch Lines from the South West Line of the Madras Railway Company to the Towns of Arcot, Vellore, Salem and Palghaut to be executed by the Madras

Railways Companies.

(3.) A Broad gauge line from Palghaut to Coimbatore by Pollachy and Dhalicherry, to be executed by the Madras Railway Company.

In addition to these three lines three others were contemplated, viz: (1) A Broad gauge line from Pondicherry on the South Eastern line to Coimbatore to Cuddalore at the head of the Nellykoy Plantations to be executed by the Madras Railway Company - This line was treated separately by the Government of India and recommended for Special Sanction to the Secretary of State.

(2) A Branch line from the Vadakencopalum Station on the Great Southern of India Railway to Coimbatore to be executed by that Railway Company. The Project was viewed favourably as local requirements

2/

being in doubt whether it should be executed on the broad gauge or Narrow gauge System.

(3) A Broad gauge line from Pattamby on the South West line of the Madras Railway Company to Cochin. The decision of Government respecting this line was deferred until better information could be procured respecting the permanency and value of the Port of Cochin as a Railway Ocean Terminus.

II. The views of the Government of India and of the Secretary of State on the proposals of the Madras Government may be gathered from a note by the Under Secretary to the Government of India in the Department of Public Works under date of December 30th 1868 from a Despatch from the Government of India to the Secretary of State Number No 25 of March 11th 1869. and from a despatch from the

Secretary of State to the Government of India dated July 15th 1863 [illegible] 2.

(1) The line in extension of the Great Southern of India Railway to Tuticorin is approved and is awarded for execution to that Railway Company, but the kind of departure from the existing line is referred for reconsideration with a view to the Eventual Construction of an East Coast Trunk line extending from Calcutta to Madras and from Madras Southwards to the extremity of the Peninsula.

This Great East Coast Line regarded as desirable or inevitable by the Government of India does not however meet with the same degree of Countenance at the India Office.

And is postponed to an indefinite future.

(2) The Line from Bellary to Dharwar

is recognized as desirable but in respect to this line as well as to its extension to the Coast at Carwar the Government of India deliberate both as to the Purpose on which they should be constructed, and as to the Agency by which they should be executed. The Alternative concerning Agency is between the Madras Railway Company and the State, at least with regard to the Section from Bellary to Dharwar. The Character of this line is discussed by the Government of India in Connection with a projected West Coast Line from Bombay to the Extreme South of India, but this West Coast line is rather discountenanced by the Secretary of State.

(3) The Extension of the Narrow Gage Line from Conjeveram to Cuddalore with a branch to Pondicherry meets neither with the approval of the Government of India nor with that of the Secretary of State. The Government of India recognize a legitimate claim on the part of the French Government to

Railway Communication of the Nature best suited to serve the interests of Pondicherry. The same view has been embraced by the Secretary of State who has dealt with the question separately and independently by sanctioning an arrangement under which the Tramway Company is transformed into the "Carnatic Railway Company" and undertakes the Construction of a Broad Gauge Railway from Arconum to Cuddalore with a branch to Pondicherry as a separate work supported by the Guarantee of the Government of India and by a pecuniary subsidy from France

(4) The four short branches on the South West Line of the Madras Railway Company are sanctioned.

(5) The Extension of the South West Line of the Madras Railway by that Company to Calicut is approved, but the further Extension of the Line Northwards to Cannanore by the

in the opinion of the Government of India to be dealt with in connection with the Contemplated Great West Coast line which, it is stated, ought to be carefully reserved for the Agency of the State.

It has been already stated that the proposed line from Pothanoor to the foot of the Neilgherries is accepted on all hands.

The Connection of Combaconum with the Great Southern of India Railway is sanctioned by implication in principle by the Government of India, as it would form a necessary part of the Southern Section of the Contemplated East Coast line.

The line from Puttamby to Cochin is approved as part of the West Coast Line desired by the Supreme Government while it is not regarded by the Secretary of State as an independent Project.

III. It may be stated in general terms that all the Plans of Railway Extension recommended by this Government are approved in principle, but that Considerable hesitation and divergency

of opinion exist as to the Scale and the Agency of Construction, while the Supreme Government appears inclined to give a greater development to a General System of Railway Communication on the Coast of the Presidency than the Secretary of State is disposed to adopt, at present.

IV. The Communications from the Government of India having been imparted to the Consulting Engineer for Railways, that Officer submitted in the months of August and September last an Altered and expanded System of Railway Extension in the Presidency, framed in Harmony with the views and principles enunciated by the Supreme Government. The Scheme propounded by Major Shaw Stewart Comprises the following particulars.

(1) A Railway Group connecting Madras directly with the Southern Districts, and those Districts with the

South West Line of the Madras Company and the Western Coast. The Main Line would run from Madras to Arambooly in the extreme South of the Tinnevelly District near Cape Comorin traversing Chingleput, Cuddalore, Chellumbrum, Combaconum, Tanjore and Tinnevelly with four branches, one from Chingleput to Arcotum, one from a convenient point on the line to Pondicherry, a third from Madura to Coimbatore on the South West Line passing through Dindigul, and a fourth from Tinnevelly to Tuticorin, the whole group to be on the Indian broad Gauge of 5 ft 6 in to be executed either by the State or by the Great Southern of India Railway Company, but by preference, by the State. This Group would supersede the former proposals of the Madras Government to extend the present narrow Gauge Line from Arcotum to Conjeveram as far as Cuddalore with a branch to Pondicherry

the English would have incidentally gained by the Pondicherry traffic thrown upon the new line as well as upon the South West and North West lines of the Madras Railway Company.

It must be allowed however that this prudent project might naturally be unacceptable to the Governments of Pondicherry and the Government of France. The policy of the French was to obtain a broad strategic line uniting their port and territory to the Madras Railway at Arconum so that the Northern Cotton might come down from Bellary and be transhipped to Pondicherry without breaking bulk, in the interest of the Mills and Export trade of the place.

The Government of France were prepared to make a considerable pecuniary sacrifice to attain this advantage, which it is hoped may avert the decay of a historical though less important dependency.

and all to the South of Pattamby on the broad Gauge. The whole group might in his opinion, be executed by the Agency of the State.

(3) A Northern Railway Group comprising the Madras Section of the Great West Coast Line and two branches.

The Main line would start from Tripety Station on the North West Line of the Madras Railway Company and proceed by Nellore, Ongole, Guntoor, Bezwarra, Ellore, Rajamundry, Samulcottah, Vezagapatam, Bimlipatam, Chicacole and Ganjam to the Bengal frontier. The first branch eastward to the interior would connect Bezwara to the head of the Kistna irrigation System with the Hyderabad frontier, and terminate at the Capital of the Nizam, the other would run from Samulcottah to Cocanada the debouche of the Godavery Delta. The whole would be done by Government on the Narrow Gauge.

(4) Major Shaw Stewart also proposes that the line already sanctioned from Pottanoor to Kullar at the foot of the Neilgherry Hills should be carried up the Steep Connoor defile to the crest of the Plateau and thence into Ootacamund. The work would be undertaken by Government on Felle System.

V. The project of Southern Railway Extension by the Eastern Coast Submitted by Major Shaw Stewart has been already practically modified in two respects. (1) by the independent action of the Secretary of State. (2) by a resolution of the Madras Council in their recent discussion on this question.

VI. The Secretary of State acting in Correspondence with the French Government, sanctioned in the Month of September last, an arrangement by which the "Carnatic Company" have undertaken the Construction of a

The English Government could not resist French representations without incurring the reproach of illiberality and jealousy. — In this way we have seen the substitution of the Carnatic Company for the Tramway Company, and of the broad for the Narrow Gauge. The same Considerations have governed the direction of the line which determines the question of Scale. — —

The broad Gauge having been adopted for the South Arcot line, this Government would probably prefer to abandon the Arcanum and Conjeveram line altogether and adopt the Project recommended by Major Shaw Stewart of a line running straight from Madras to Chingleput and Cuddalore, but this would defeat the capital object of the French which is to place their port in connection with the Interior without touching Madras. — —

The junction of the South Arcot line with the Madras line at Tinde-

point to the West of Madras is an indispensable condition with them and the concession is apparently one which the English Government could with courtesy or generosity refuse. It must be admitted that the whole District of South East benefits materially by a more direct access to the Central and Western Provinces provided by the junction at Arconum, nor does the opening of a direct communication between Pondicherry and the interior threaten the Port of Madras with any serious disaster, for Madras will still be considerably nearer the Cotton producing districts than Pondicherry; the Merchants at Madras have more Capital and stronger local connections in the Country than the French and the two ports, or rather roadsteads are equally inconvenient for shipping goods. But the construction of a broad gauge line Southwards from Arconum opens new questions.

If the South West line had been made on the Narrow gauge it might

have remained a local line with a terminus at Cuddalore, and the Government of Madras would probably have undertaken the extension of the Southern Canal now open to Sadras as far South as the Coleroon, so as to place the Capital in direct water-communication with the Delta of the Cauvery. That project must now probably be abandoned, for it would not be reasonable to run a State Canal alongside a first class Guaranteed Railway, or to break the through traffic by transferring it from a first class Railway to a Canal at Cuddalore, creating a place so unsignificant the permanent terminus of a line. The inevitable result of the concession to France is the adoption of two features at least of the Scheme recommended by the Consulting Engineer which are both in harmony with the views of the Government of India.

(1) The Carnatic Railway Limited

be continued from Cuddalore to the Cauvery Delta and join the Great Southern of India Railway at Combaconum or Tanjore. A more fertile district would thus be opened up than the Country to the North of Cuddalore, more local traffic would be attracted and the Capital would be placed in direct Connection with the populous, opulent and good supplying Delta of the Cauvery.

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.

The Section between Combaconum and Tanjore is likely to be extremely remunerative, it would counterbalance the poorer Sections to the North, and as this Company has been created, the more scope and importance we can give to it the better, for a great enterprise can always be more cheaply and efficiently directed than a small one.

Nor need the great Southern of India Railway Company complain if we regard the immense undertakings to the South which necessarily fall to their share.

(2) The Carnatic Railway from Arcanum to Cuddalore should be directed through Chingleput, and Chingleput should be eventually united by a direct line passing by St Thomas' Mount to Madras - Unless this direct Madras branch is sanctioned the local traffic of South Arcot with the Capital will undoubtedly continue to run on the high roads, for it would never go round by Arcanum while the through traffic from Tanjore took the

extreme South would either have to make a long and expensive detour on the Railway, or be thrown off at some point or other upon the ordinary high way. It has been suggested to me by the Secretary for the Department of Public Works that this line, uniting Madras directly with the Carnatic line in South Arcot, might be more advantageously joined to the Carnatic line at Tindivanum passing through Chingleput, in which case the Carnatic line would pass to the Eastward of Chingleput, and that the line might be undertaken by the State on the Narrow Gauge - There would no doubt be the advantage of Economy, but it seems to me on the whole that the other plan is preferable - As the Carnatic Railway Company has been created, and as its field of action is circumscribed, the Government will do well, I think not to contract and embarrass its operations by introducing another Gauge and another Agency in the Districts of Madras and South Arcot.

It also appears desirable that the Carnatic Railway should pass through the best parts of the Country and touch the larger towns, and that the direct line joining it to the Capital should be as short as possible.

The Modification of Major Shaw Stewarts plans introduced by the independent action of the Secretary of State, is only one of Agency as far as South Arcot and all the Country to the North of the Coleroon are concerned.

Under the Suggestions here submitted the lines remain the same with reference to direction and with reference to Gauge, they are merely undertaken by the Carnatic Company instead of by the Great Southern of India Company or by the State. To the South of the Great Southern of India line, however, the recent decision of the Madras Government has not only affected the Agency but has also the direction of the Extension proposed by the Consulting Engineer.

Major Shaw Stewart advises that the line should run direct South from Sanore to Madura through the Poodoocottah State - The Government

deprecate this course which appears to sacrifice substantial interests to mere straightness. The proposed line would intersect one of the poorest regions in India, a region in which the Government have little direct concern.

It is too near the East Coast and too far from the better districts lying in the centre of the country. In lieu of this line from Tanjore to Madura by Pudoocottah, the Government acting still in the Spirit of the instructions of the Government of India which Condemned Caroor, have selected Trichinopoly as the starting point of the Southern Extension thus maintaining a sufficient directness in the through Communication from Madras to the extreme South of the Presidency without forsaking Government territory and the more favored portions of the Country. Starting from Trichinopoly the line would proceed as originally proposed to Dindigul, Madura and Tinnevelly, throwing off a fork to

Sattoor at Kyter. Under this arrangement the important branch line proposed by the Consulting Engineer from Madura to Coimbatore by Dindigul would become a branch or connecting line from Dindigul to Coimbatore - It would open up a new and important country road from the direct debouché for the produce of the South of the Peninsula to the Western Coast.

It does not seem to be necessary at present to contemplate the extension of this line 43 miles beyond Tinnevelly to Arambooly on the Sand Waste to meet a line from the Western side of the Ghauts which the Government of Travancore will probably not be disposed to construct -

These extensions would be entrusted as previously settled to the Great Southern of India Railway Company with the interests of which they are closely identified + there seems to be no doubt that the line can be made and worked by that Company as

cheaply as by the Government of Bombay is maintained on the Broad-gauge which all the authorities consider in advisable.

VII. I now proceed to consider the Western Group of Railways contemplated by the Consulting Engineer. Major Shaw Stewart has connected the question of the extension of the line from Bellary to Dharwar and Carwar on the Western Coast with the question of a great West Coast line from Bombay to Cape Comorin advocated by the Government of India. The language of the Government of India certainly countenances the association but the former project is one of special and pressing necessity, while the latter appears to me to be problematic and at best a remote contingency.

It is manifestly desirable to carry the cotton and other heavy products of the Country above the Ghauts by the shortest line to the Coast Ports, and

Carwar may be the proper Oceanic terminus for such a line, but a line skirting the Coast from town to town and from port to port seems to me to belong to a different Category of Communications and I cannot affirm that it would be everywhere the best adapted to the Material wants and physical conformation of the Coast regions of the Presidency.

Such a project makes a fair show on the Map and forms a specious feature in a General Scheme of Railway Communications for the Empire, but I venture to express very doubt as to its being conformable to local necessities or local conditions or to the interests of Imperial Finance. I would ask the Government to consider the Configuration of the Country between Mangalore and Trivandrum and the Communications now existing, and more determine whether there is in Nature in the interests of Trade or in the habits and wants of the population Any warrant for laying down at present the plan of a

General Riparian Railway.

From Mangalore to Cannanore the narrow band of level or diversified land between the Mountains and the Sea is intersected by a Network of Creeks, river Mouths, and Water Courses offering every impediment which can render Railway works difficult and expensive, while the condition of the Country is not such as to render it probable that they would be remunerative. —

The local traffic is provided for in part by the use of Coasting Craft which can keep the Sea for Nine Months of the Year, and which find Shelter in the estuaries in which the Coast abounds, in part it is Carried on Canals which are however not apparently susceptible of extension without disproportionate Cost, in part on high roads which can be improved from Imperial and local Sources. The Military Station at Mangalore does not seem to justify any expenditure of State funds on the Grounds of public policy. It comprises

a Single Native Infantry Regiment which might properly be withdrawn.

From Cannanore to Tellicherry and Calicut the cultivated Country expands to a greater width and forms one of the most populous and thriving districts of India. —

Cannanore is the British Garrison of the Western Coast, though favorable to internal water communication in parts, and furnished with Canals of Native and European construction the configuration of the Ground would scarcely admit of a complete System of Water Way behind the Coast. —

The Space between Cannanore and Calicut is a proper field for Railway Communication. The same may be said of the Country between Calicut and Beypore, the present unsatisfactory terminus of the Madras Railway. To the South of Beypore it is agreed on all hands that the Madras Railway should be united with the Port of Cochin, and that can be done by a branch line from Puttamby to the Cochin backwater. But from the Cochin backwater

to Trivandrum a distance of 150 Miles
What pretext would there be for a Railway
parallel to the Coast and parallel to
the existing Canals? What reason
for the expenditure of £ 900.000 where
a good Safe, Cheap and Natural Water
Circulation exists already. I can see none.

The Water Route is open the whole
way except at one spot which is being
pierced, and the System of Canals and
Backwaters might be made available
for Steam Navigation by a very slight
expenditure of the Surplus revenues
of the Country now accumulated in
Government Paper. South of Trivandrum
the Coast becomes higher and recourse
might be had again to Railway
Communication if there was any
commensurate object, but the Country
becomes gradually poorer towards the
Cape, there is no Port, no important
town, and the Land Traffic between
Travancore and Tinnevelly does not
seem to me to require the Maintenance

of any means of communication superior
to a good Carriage road. If the
Government of Travancore choose at
some future period to add Railway
Communication to the Channels which
Nature, aided by the simplest form of
Labour has provided for the Country,
let them do so, but I could not subscribe
such an extravagant undertaking on
a Map of English projects or hold out
the least hope of financial support
for such a purpose.

It seems to me that we should be called
to take the general Scheme contemplated
by the Government of India and
Major Shaw Stewart to Priced and
dealt with the different sections in an
unambitious but practical Manner.

VIII. All concur in considering the
extension of the Line from Bellary
Westward to be desirable. That it
should be continued to Canoor, there
can be little doubt, but the benefits
attached to the extension would not be

suspended until the point on the Western Coast was reached, the produce of the Country would meanwhile be evacuated towards the East and swell the traffic of the Madras North West Line. I see no reason myself why the Agency of the Madras Railway Company should not be adopted if the broad Gauge was selected. The Company would probably make such a line cheaper and work it cheaper than the Government.

But the Government of Madras do not stand alone in the Matter. They cannot pronounce a decisive opinion. The Question must be solved in Connection with the Agency and the Gauge sanctioned in the Bombay Presidency which will have the largest share of the complete work. Under the opinions expressed by the Government of India, and those, no doubt entertained at Bombay (and for valid reasons so far as that Presidency is concerned)

the Plan of State Railways and Cheap Railways will carry the day. We shall be safe in saying that we are perfectly ready to accept the prolongation of the line Westward from Bellary on the Narrow Gauge by the Agency of the State. That Solution would certainly have one advantage that the Capital account of the Madras Railway Company would be sooner closed. With the proposed line beyond the Bombay frontier we have no direct Concern, nor with the Section of the proposed Coast line Southwards from Canara to the frontier of South Canara. It is difficult for me to anticipate what purpose such a line is intended to serve. It can well be devised in striking out of the Coast Railway the rest of the Country to the North of Canara and all the Country to the South of Cochin, only two Sections remain for practical Consideration at present. The Section from Canara

to Beypore and the Section from Puttamy to the Cochin back water, the former entirely in British territory, the latter entirely in the territories of the Rajahs of Cochin and Travancore.

IX. The Section of Railway from Cannanore to Beypore falls naturally into two subordinate Sections, that from Cannanore to Calicut and that from Calicut to Beypore. Both were formerly awarded for execution by this Government to the Madras Railway Company, both are now awarded by the consulting Engineer to the State while the Government of India would apparently prefer to give the portion between Calicut and Beypore to the Madras Railway Company, reserving the portion between Cannanore and Calicut for Government.

The views of the Madras Government on this subject were entertained under very different influences and circumstances than those

which exist at present. At that time the project of State Agency in the Construction of Railways had not been declared and enforced, the advantages of Narrow Gauge lines at a low cost worked by a new description of traction power were not so well understood, and the necessity of strict economy in the application of the resources of the State to public Works, whether under the guarantee System or the loan System was not so keenly felt. We can have little doubt now that it is desirable that the Railway from Cannanore to Calicut should be undertaken by Government on the Narrow Gauge. The remaining Section is certainly open to discussion, & might not unreasonably be given to the Madras Railway Company which would then obtain their definitive terminus at Calicut but in full consideration of all the circumstances, I hold that the State

should undertake the whole line and construct it on the Narrow Gauge from Cannanore to the Northern side of the Beypore backwater.

The terminus of the South West line of the Madras Railway Company would thus remain nominally at Beypore, the local traffic of the Malabar Coast line would begin at that place and the backwater would remain unbridged until the State line was in full working and had proved its profitable character. In this way the State would construct and possess a complete local Narrow Gauge Railway in a rich province and not only a line of local utility but a feeder to the Main trunk line and a communication valuable to the State as affording access to the English garrison at Cannanore. It would be hazardous to affirm that with able thence

advantages it would pay four and a half per cent upon the outlay, but an important experiment would be made under favorable conditions with every regard to economy and test would be applied which would afford a guide to subsequent operations and a serious defect in the South West line would be substantially corrected. The extension of the South West line would be arrested and the Capital account of the Madras Railway Company would be cleared, a result which the Government of India are desirous to attain in as many cases as possible.

X. The Section of Railway between Puttamby and Cochin would pass entirely through the territories of Cochin and Travancore. It must be constructed in such a manner as to be little onerous to these Native Governments and for

highly beneficial to their respective Countries and to the Madras Government. Both of the Native Governments have large accumulations of funded revenue. It could not be better expended than in a public work of this Nature. Travancore possesses a reserve of £450.000. Cochin one of £170,000. The Cost of the line about 60 miles in length on the Narrow Guage would not exceed £360.000 at the rate of £6000 per Mile, of which £60,000, might perhaps fall to the share of Travancore and be paid for out of Surplus. The Government of Cochin could afford to appropriate from its reserve the sum of £100,000. Only £200,000 would remain to be provided for by loan to the Government of Cochin and this amount would be advanced by the Supreme Government at 4½ per cent. The Railway passing as it does through an opulent Country could well afford to pay the interest on the £200.000

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at once but the Government of India would probably deem it becoming to undertake the liquidation of half the deficit as the interest of £200,000, should any deficit occur, in consideration of the benefit conferred on the Madras South West line.

In this way the line would in all probability be completed without costing the Government of India one farthing, and the South West line would be virtually provided with another ocean terminus and a valuable feeder. I do not doubt that the line could be satisfactorily managed by the Cochin Government.

XI. In dealing with the Northern Group of Railways contemplated by Major Shaw Stewart and which represents with some judicious Modifications the Great East Coast Railway advocated by the Government

of Indian reflections arise similar to those which are suggested by the proposal of a Great West Coast Line. We may naturally ask whether Railway Communication alone responds and best responds to the physical Character and Material Necessities of the Country, whether it is of such manifest and pressing importance as to warrant the immediate sanction of any Scheme of Speculative and prospective Nature.

I propose to examine the question first in relation to local interests, secondly in relation to the interests of Government.

XII. The Coast Country between Madras and the Northern frontier of Ganjam comprises the following well defined physical and industrial Sections.

(1) The Delta of the Pennaur River in the District of Nellore.

(2) The Delta of the Kistna River with the cotton growing province of Guntoor in the Kistna or Masulipatam District.

(3) The great Delta of the Godavery River in the Godavery District.

(4) The Reverse[illegible] belt of land along the Shores of the District of Vizagapatam and Ganjam extending from Tonee on the Northern Verge of the Godavery Delta to the Chilka Lake, itself in connection with the Delta of the Mahanuddy.

The first three Sections are similar in character though different in importance. Each is a District in which a large Area of fertile wet Cultivation abuts in front upon the Sea and is backed by a comparatively arid and hilly region extending to the high plateaux of the interior

The wants of these great fields of food production may be summed up under three heads.

1. A debouché on the Sea for foreign trade.
2. A Communication with the interior. for inland trade.
3. Access to the great home Market of Madras.

XIII The Pennair Delta is the least developed of the three rice fields, but the irrigation works already existing or sanctioned for early execution will give an eventual extension of 120'000 acres. It is the Granary of Madras. The natural outlet for the produce of the delta would be the road stead of Pulicat or Escapillay And it is possible that a future commercial establishment may be created there, but it seems more probable that Madras will

continue to offer the most convenient point of discharge for the Pennair Delta with which it can be connected by a salt water low level canal extending from the Presidency town to the Kistnapatam Backwater.

Of this Canal only twelve miles remain to be excavated though much of the older part requires to be deepened. With an expenditure of less than three lacks the food stuffs of the Nellore District can be cheaply carried to Madras where they will be alike available for the Foreign Market, the Consumption of the Capital, and the Markets of the Interior. The existing portion of the Northern Canal has always been regarded as a local fund work. The expenditure necessary to complete it might properly be defrayed from an Imperial loan secured on the local rates of the

to Beswarra the head of the Kistna
irrigation System would be 150 Miles
in length, it would cost at a Moderate
estimate £ 900,000. And it would be
much less adapted for Moving the Piece
goods and rice which are the Capital
products of the District. The Canal
would take all the present Coasting
trade to Madras and probably part of
the Export trade, while the Railway would
do little more than carry the insignificant
Passenger traffic. " Supplied with a
line of Coast communication by Means
of a low level Canal, the Kistna District
would still require an improved System
of traffic with the interior - For this purpose
Major Shaw Stewart proposes a line
from Beswarra to Hyderabad,
the Eastern Section of which from Beswarra
to the frontier of the Nizam's territory
would be about 60 Miles in length and
would fall to the Share of the State
while the Western Section of about 80
Miles would be executed by the
Government of the Nizam.

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This line in a different form was
proposed on a former occasion by
Major Shaw Stewart and was negatived
by the Government of Madras.
The Consulting Engineer contemplated a
line from Masulipatam itself to
Hyderabad and there did not seem to
be at that time any prospect of Cooperation
on the part of the Native Government.
Presented on a shorter and cheaper
scale with the certainty of aid from
Hyderabad, now brought under more
enlightened influences, the line has
undoubted claims on the Government
of Madras.
The passenger traffic
might remain insignificant, but the
grain of the Delta and the Salt of the
Coast would be carried up in large
quantities for the supply of the Deccan,
the Salt revenue of Madras would
be benefitted and an Alternative
Avenue of Communication would
be opened with the Military Station
of Secunderabad which has of late been

almost abandoned. It cannot be affirmed that such a line would be of service directly remunerative, but it would undoubtedly become one of the Main Branches from the Interior of India to the Coast. Water Communication by the Kistna River is impossible. The bed of the Stream is broken by prolonged rapids and Shallows which render it impracticable. A portion of the Valley 60 or 70 Miles in length is unexplored and uninhabited. This as is known as of old lay in the depths of Central Africa.

XV. The Great irrigated Delta of the Godavery with 400,000 acres of Wet Cultivation has its outlet to the Sea by the Port of Coconada, its access to Central India by the Godavery, which could be soon rendered available for Navigation, and a Communication with the Kistna District, and thus eventually with Madras by the existing Canals. To these Channels of traffic the Consulting Engineer

desires to add a Railway from Bezwara to Samulcottah 125 Miles in length, with a branch line to Coconada of 10 Miles, making in all 135 Miles, Costing at a low Computation £810.000.

I am at a loss to see any justification for this expenditure or any prospect that it can become remunerative for the Competition of the Sea and for the Canals. The Government have laid out considerable and are annually laying out Sums for the development of the Irrigation and Navigation System of the Delta, they will do well, in my humble judgment to give the greatest possible extension and efficiency to these remunerative works before entering upon a New and Speculative field of Enterprize.

XVI: Under the System which I have briefly Sketched out, the districts of Nellore, Kistna and the Godavery would be provided with a Cheap, Natural and useful method of intercourse with each other, with the Seaboard and with the Capital, through the

instrumentality of Canals, & with the interior by Railway and river communication.

It remains to be considered what can be done for the districts of Vizagapatam and Ganjam. In these districts in which the Zemindary System has a preponderating share, the Government does not possess an important revenue interest though it must always have a deep concern in the general welfare of every part of the Country. I do not see any prospect at present, of a remunerative expenditure of State funds on Communications of a superior kind. The Coast region is not adapted for a Continuous Canal. The interior though rich in parts is for the most part rather poor, there are no centres of productive industry, no harbours, no Military stations with British troops, no reasons for unremunerative outlay, no grounds for believing that outlay could become profitable. The Government should rather devote itself for some

time to come to the development of local roads under the local funds act, to the completion of the Great Northern road, to the Extension of irrigation works especially in connection with the Rooshikoolia river, and to some subordinate Canal works such as the Connection of the Chilka Lake with Gopaulpore, leaving the direction and execution of Railways to an after age.

The Consulting Engineer, obeying the impulse of the Government of India proposes a Railway from Samulcottah to Ganjam, a distance of 265 miles at a cost of £1.590.000.

XVII. It may be contended that even if the best interests of the East Coast Districts of this Presidency do not demand the introduction of the Railway System, the construction of a Coast Line is rendered imperative for Postal or Military purposes: in fact that such a line is indispensable as a direct

Communication on English territory between
the Supreme Government and the Government
of Madras. I do not attach much
significance to these considerations.
The direct postal Communication between
Madras and Calcutta can be
conducted by Kotkurga, Hyderabad,
Nagpoor, Jubbulpore and Allahabad,
and though even this line would involve
a detour to Calcutta, it must not be
forgotten that for half the year the
Supreme Government is fixed at Simla
which is more accessible by a Central
route than by a Coast one. In a
Military point of view it seems to me
rather desirable that the Communication
should be firmly fixed through the
Hyderabad territory. Secunderabad
is the British garrison of the Deccan,
Communications both from North and
South must be kept open to that Capital
point, and the policy and interests of
the Hyderabad Government should
be indissolubly wedded with the policy
and interests of the British Government.

In the event of a rupture of the direct
line through the Nizam's territory, and
the isolation of the English force, there is
still the alternative of the Great India
Peninsular Railway. On the East
Coast there are no English garrisons,
no fortified places, no valuable points.
In time of peace supplies to Vizagapatam
and Cuttack, if these stations are
maintained, can be carried by sea,
in time of War there would really be
nothing to attack, and nothing to defend,
nor are there any elements of internal
disturbance or rebellion except the
local quarrels of some hill tribes, now
almost extinguished.

XVIII. The only feature in the project
of the Consulting Engineer which remains
to be noticed is the proposal for a light
railway on the Fell principle from
Kullar at the foot of the Neilgherry
hills to the summit of the plateau.
On this point I have to remark that
the Supreme Government have already
made a considerable sacrifice of

realisme in sanctioning the construction of a branch from Pollachie to Kullar. We can scarcely hope that it will be remunerative for a length of time. By the construction of this line however the distance to be traversed by ordinary road to the nearest Sanitarium will be reduced to 17 miles and the road will be available for every description of Carriage. Palacamund will indeed like 27 miles from the Railway Station, but this is not an Exorbitant distance if we consider the Convenience of the new ascent. There is no sufficient ground in my opinion for calling upon the State to accept any further financial obligation.

There is little prospect at present of any Material increase of European population or industry on the Neilgherries, and the present traffic is so insignificant that it could never yield any clear return whatever on any form of railway communication worked by Steam Engines. There has been a Company set on foot to

establish a railway up the Ghaut on the self acting or balance principle, but this design may deserve every encouragement from Government which does not involve a pecuniary guarantee, but I confess I am not sanguine respecting the success of the enterprise.

XIX. The scheme of Railway Extension which I venture to recommend for submission to the Government of India at present would in conformity with the foregoing Remarks comprise the following lines.

Carnatic Railway Company

Lines	Miles	Cost per Mile	Total
Arconum to Tanjore	(203) 184	10.000	1.840.000
	19	4.000	76.000
Branch from Chingleput to Madras	36	9.000	342.000
	239		2.258.000

Great Southern of India Company

Lines	Miles	Cost per Mile	Total
Trichinopoly to Tinnevelly	194	10.000	1.940.000
Branch from Kyper to Tuticorin	30	10.000	300.000
Branch from Dindigul to Coimbatore	100	10.000	1.000.000
	324		3.240.000

Madras Railway Company

Lines	Miles	Cost per Mile	Total
Four short branches	14	8000	112.000
Branch from Pothanoor to Kullar	29	9000	261.000
	43		373.000

State Railways

Lines	Miles	Cost per Mile	Total
Beypore to Cannanore	57	6000	342.000
Pattamby to Cochin	60	6000	360.000
Bellary to Bombay Frontier	75	6000	450.000
Beswarra to Hyderabad Frontier	60	6000	360.000
	252		1.572.000

In all 858 miles at a gross cost of £7.338.000. of which 606 miles on the broad gauge would be constructed by Companies at a cost of £5.871,200 and 252 miles on the Narrow gauge would be Constructed at a cost of £1.572,000 by the State.

The amount of Railway Extension here contemplated might probably be carried out in the Course of ten years in the undermentioned Order.

In the.

29) In the Quinquennial Period from 1870 to 1875

	Miles	Expenditure
(Carnatic Company) Arconum to Caddalore	103	916.000
(Great Southern of India Company) Trichinopoly to Tinevelly by Dindigul and Madura	194	1.940.000
Branch from Kyttar to Tuticorin	30	300.000
(Madras Railway Company) Four Short branches	14	112.000
Pothanoor to Kullar	29	261.000
(State) Beypore to Calicut	7	42.000
Pattamby to Cochin	60	360.000
	437	3.931.000

In the Quinquennial Period from 1875 to 1880

	Miles	Expenditure
(Carnatic Company) Cuddalore to Tanjore	100	1.000.000
Branch from Chingleput to Madras	36	342.000
(Great Southern of India Railway) Dindigul to Coimbatore	100	1.000.000
(State) Calicut to Cannanore	50	300.000
Bellary to Bombay Frontier	75	450.000
Beswara to Hyderabad Frontier	60	360.000
	421	3.452.000

Showing over the whole period of ten years an average Annual execution of 85 4/5 Miles and an annual average Expenditure of £738.300.

XX In the estimates of Cost submitted above, I have not thought it right to set down any of the Broad Gauge lines at less than £10.000 per Mile including rolling Stock, except the branch line from Chingleput to Madras, the branch line from Pattaoor to Kullar and the four short branches on the Madras South Western Line, on all of which the charge for rolling Stock will be insignificant. It is certainly possible that portions of these lines may be executed for £8000. per Mile as anticipated by Major Shaw Stewart or even for less, but other portions may exceed £10.000. And we must not forget that before the Lapse of ten years over which the Expenditure is to be spread the price of labour and of some Materials may be considerably enhanced.

In Estimating the Narrow Gauge State Railways at £6000. instead of £5000, suggested by the Consulting Engineer, including rolling Stock, I assent to the opinion of the Secretary for the Department of Public Works that there is some apprehension that the estimate may prove insufficient. The Narrow Gauge of 3 feet 6 in. is likely in Conformity with the views of the Supreme Government and the Consulting Engineer, but I presume that a Standard Narrow Gauge will be deliberately adopted by the Supreme Government after a

careful Study of the most recent Models in Europe and America.

XXI. The Statements embodied in this Minute have not been expressed without some reluctance and hesitation for I seem to decline the liberality of the Supreme Government which makes a larger offer of Expenditure to Madras than I am disposed at present to accept. I believe however that the Plan here submitted is most conformable to the real wants of the Presidency, to the interests of Imperial finance and to sound policy in General. It may indeed be doubted whether there is much practical utility in planning public works for so remote a future as that suggested by the Government of India. It does not seem probable that schemes laid out by any intelligence however penetrating and comprehensive can command the assent of posterity with any degree of Certainty. Many Circumstances must in the interval arise which would prompt the modification, the transposition, the acceleration or the delay of projects which we might now frame and measure out on the most convincing

grounds. Political incidents in India or abroad, the vicissitudes of Imperial revenue, alterations in the foreign Market affecting the demand for Indian produce the discovery of Minerals in this Country, Mechanical inventions touching the Construction of Railways, or the Nature of traction power are only some of the Causes which might shatter a Scheme ~~framed~~ prescribed at present with the utmost sagacity for the Welfare of India between the years 1895 and 1905.

Nor must the power of individual opinion be left out of Consideration. Nowhere do men succeed each other so rapidly as in India, nowhere is the impress of personal will and judgement so ~~keenly~~ quickly and deeply felt. Is it probable that the present Secretary to the Government of India in the Department of Public Works would have submitted followed the injunctions of a predecessor twenty years ago?

Is it probable that the Secretary

of the next generation will obey the ~~prescriptions~~ orders which emanate from the Department Now? We are every day correcting the errors of those who went before us, and committing errors to be corrected in their turn.

If however the Government of India are determined to have a wider horizon of premeditated work I cannot suggest a more specious scheme than that prepared by the Consulting Engineer. If the East and West Coast Railways are to be made hereafter they will probably be made approximately on the lines which he contemplates. They should not go nearer the Sea and they cannot well go nearer the Mountains. I think it would be better to adjourn the serious consideration of these projects till two or three Quinquennial periods have passed away, but if I am obliged to sanction any projects of the kind

I have no objection to sanction these. The short sections of Coast railway which my restricted proposal includes are essential parts of the more extensive design.

XXII. In the mean time I deem it desirable that orders should be given in the Department of Public Works for the Survey of the proposed line of Canal between the Kistnapatam back water in the District of Nellore and the back water of Nizampatam in the Kistna District with a view to the preparation of Estimates and that a Revenue Officer should be charged with the duty of estimating the amount of traffic now Seaborne or carried on the common roads which might probably be transferred to an interior Water way. With such information we should be enabled to judge whether the proposed Canal ought to be Constructed from loan funds guaranteed on the Imperial Revenue as in the case of

a State Railway or whether the expenditure might be secured on local funds - The same Survey and enquiry might advantageously be made with reference to the means of Completing the Canal System between Beypore and Cannanore and between Cannanore and Mangalore which exists already in broken sections. The Coast level is cut at various places by laterite spurs running out to the Beach but it would be desirable to ascertain definitively whether these impediments could be pierced or turned and to have some rough estimate made of the expenditure which would be involved. The enquiry might be at first directed to the space between Cannanore and Mangalore.

XXIII. Should the views expressed above meet with the concurrence of my Colleague and be submitted to the Government of India

the latter may perhaps deem the proportion of work inadequate which is reserved for the Agency of the State. - If such should be the case I can only urge that we have not yet got for the same grounds in this Presidency for expecting great advantages from the substitution of State Agency for independent Agency which may exist elsewhere. The average cost of Railways in India as we are informed in this respect has been £17000. per mile. The average cost of the dearest Railway in the Madras Presidency has been £12000. per mile. The cheapest line, the Branch from the South West line to Banganapalle, Cost, less than £5000 per mile. The average cost of all the Madras Railways has been about £ per mile. As it appears that the Supreme Government would be satisfied with an average for the broad Gauge of £11000. or £12000.

it is apparent that Companies of this Presidency have realized by anticipation more than the expectations of the Government of India. It is true that this Government has been fortunate in the Companies with which it has had to deal and especially with the Gentlemen by whom the interests of these Companies have been represented. We may not be so fortunate hereafter. I see no reason to believe that the Department of Public Works will be able to construct better or cheaper or to manage better or cheaper than the present Agencies which have, on the whole, served the State with honesty, ability, and economy. Here the State can, in my humble opinion, only obtain one advantage by working for itself the undivided benefit of any excess of return which the Railways constructed by departmental Agency may yield above the

rate of interest at which the money is borrowed. That benefit may be remote and problematic, but it may be worth striving for, especially where new lines or new stages leave the branch.

XXIV. Only remains for me to record the actual condition of the Extensions contemplated by Company Agency at the present Moment.

The Carnatic Railway Company has commenced Surveys of the line between Conjeveram and Cuddalore by Chingleput. A Trial Survey of the direct line by Tindivanum already exists which will be of use to the Company -

A Trial Survey has been made of the whole extension from the present great Southern of India line to Tuticorin, detailed Plans and Estimates are in course

of preparation, the Materials and rolling Stock are ordered and in Part shipped.

Plans and Estimates have been prepared of the branch line of the South West Line of the Madras Company from Pottanoor to Kullar, and the Materials for the Permanent way are coming out.

Plans and Estimates have been prepared for a Broad Gauge line from Puttamby to Cochin by the Madras Railway Company which would be available for the use of the State in laying out the projected Narrow Gauge Line.

Madras.
June 5. 1870.

A. Speed

Minute by H.E. The President. (2)

I. In a Minute dated June 5th 1870. I submitted to my Colleagues a general view of the Railway projects for the Presidency with an expression of my sentiments on this subject.

II. The scheme which I recommended embodied a broad gauge line through the Districts of Chingleput, South Arcot and Tanjore uniting the Madras Railway on the North to the Great Southern of India Railway and an Extension of the Great Southern of India Railway, also on the broad gauge to Tuticorin and Tinnevelly.

III. The Government have in a recent order decided that both these lines or groups of Railway are to be executed on the narrow gauge, a resolution which was contemporaneously embraced by the Government of India.

IV. With a view to this decision which has my full concurrence I think it right to record that the opinions on this point expressed in my Minute above mentioned were not opinions formed by this Government or by myself independently on the merits of the case.

V. This Government have always been of opinion that the line or group of lines to the south of the Madras Railway and between it and the Great Southern of India Line should be on the narrow guage. They only wavered that opinion in consequence of the adverse decision of the Viceroy and the Secretary of State just promulgated, as we had reason to believe, by the representatives of the Government of France. Under altered views the question of guage for these lines has been reopened.

We can only regard the definitive decision of the Government of India with satisfaction.

VI. With regard to the guage to be adopted on the Extension of the Great Southern of India Railway South wards I advised the adoption of the Broad guage on three grounds:

1. On account of the convenience of the Company and, as I think, the economy of working, the same rolling Stock being thus rendered available over the whole grunt of railways belonging to the Company.

2. On account of the adoption of the Broad Guage on the Carnatic Line, which regarded as settled at that time.

3. On account of the engagements taken in London between the Secretary of State and the Great Southern of India Railway

which I presumed were definitely
in favour of the Broad Gauge.

VII. The first of these reasons undoubtedly contains a certain force but one to be, perhaps, outweighed by the advantages attached to the Narrow Gauge with regard to cheapness of original Construction cost of Rolling Stock and Maintenance. The second would disappear if the Narrow gauge is adopted by the Lancaster Company. The third is a matter for settlement in London. If the Directors of the Company in connection with the Secretary of State agree to adopt the Narrow gauge in the common interest of the Company and the Country, the Government

ought, I think, to approve it.—

VIII. The only point, as far as I am aware in which I personally dissent from my Colleagues and from the recent proceedings of Government with reference to Railway Projects is with reference to the Lancaster group. The decision of the Government has been to make Kendal the starting point and to carry the line through Chorley[illegible] Southwards abandoning the idea of a connecting line from Clapham to the North West through Ingleton & Accrington, but leaving the existing line from Ingleton to Accrington to be separately worked as long as it pays its expenses. I do not concur in this

view. I think that Madras ought to be the starting point and that the line should proceed Southwards through Chingleput - but I think that Chingleput should be united to Coperecan by a branch line on two grounds.

1. Because the French Govt have always denied this connection in their interests and it seems to me that this is a measure of hostility concerning which the English Government ought properly naked to France having denied the question of Guage against the wishes of France.

2. Because the branch line from Chingleput to Conjeeram would set up a direct communication for the South and South West northwards and westwards without making the long detour by Madras which would also be altogether inconsistent & the convenience and welfare of the Province.

Napier.

Madras. April 3d. 1871.

No

His Excellency has entered fully into the subject of the proposed extension of Railway communication with this Presidency that he intends should be carried by every Dispatch conveying it also.

I shall hear from His Excellency in the following week.

I am next bound to advocate the construction of a rail road from Bangalore to Mysore but Mysore will be in direct communication with

Bangalore
The President
Railway Station
Sept 3. 1851

Readers & Bromsgrove, and this Locum &
has to Kidderminster for Political purposes.
A line to Reigate and would not, in
any point of view, be of much value Politically
We have no trades as with the new Reigate
and the line might be shortened before
a Mean or a Penny could reach it. Com-
mercially the advantages seem to me
unimportant. There will be no doubt be
a greater consumption of our salt. But
Nothing like "trade" can spring up for
many years. Market Gardens can never
be a part. any of the natural Agriculture
Reigate can hardly become one suita-
ble for the Agricultural County for Rich. Cobb
that our own territories would not

[illegible]

for the best from Rail & Canal or Work
will be a serious impediment to
traffic. This line may I think, be
best pursued for the present.

II. I think the Short line from Bey-
ford / or rather a point a little East
of Bey ford / Caliant should be
continued on the Standard Gauge
& be entrusted to the S.W. Railway
Co. if I cannot but be sure Caliant,
the Capital of the District, as the
perfect & natural terminus of
the Railways. Bey ford is the
it always has been a busy thriving
village & the inconvenience & trouble

and traders which the Extension of
Keyhaven, with a view to carry on
Iron & Pontoons is very great - and
would cause loss to the Railway.
A narrow passage runs between Cal-
-cot & Keyhaven would be of consider-
-able small value - ~~if Cal Cot Point~~
~~to Hill at Sea, it is to Hill~~
~~to Hill at Sea, to Keyhaven~~
~~Cal Cot~~ as it would entail
heavy of Hill at the latter place -

III. It has been proposed to construct a line
between Calicut & Keyhaven Cannonne should
in my opinion be deferred until the
practicability & cost of embanking the

2/ chain of communication by which
of the back waters has been boldly
ascertained. Cannonne is quite
as fast a boat as Calicut and I
cannot see the advantage of con-
-necting the two places by an Extension
Railway skirting the Sea coast. Com-
munication between the in-
terior and the coast as at present
the District needs for some.

IV. The line from the S.W. Railway to
Calicut - whose inducta to keep - should
I think be continued to the Can-
-nonne Range - and be formed on the Standard
Gauge. The length in Wasancore &
Gauge. The length of this Calicut is to include that to the Canal

traffic will not be diverted from the Road or Canal to the Rail. I believe that the Hereford Railway finished will be completed successfully in the early part until it reached a distance of 40 or 50 miles from Hereford: the Evidence of carting Coals to the Receiving Station and then of conveying them from the Receiving Station to the Embankment will be a hard Labour which more than counterbalanced the saving in the conveyance by Rail. Each Line will have from the Collieries Principally worked by Carriages Horses &c.

intended to be conveyed by Hereford Station by the S. W. Rail - and by Hereford Brecon intended for Export at Cardiff. The line will then be virtually the Termination of the S. W. Rail - and not a Station of the S. W. Rail - and unless the same Gauge be adopted the Goods, in a short a distance - will be materially lessen the utility - The Construction I know any thing of to short a Station by Railroad appears to be unnecessary under all the circumstances.

II. The Lines from Trichinfoly & Tuticorin with its branches & Coimbatore and Timevelly should be on

the Narrow Gauge. The Experience gained on the Existing Railways shows, conclusively that they are best in Cases of the Requirements of the Country - and that a great amount of Capital has been lost in constructing the Broad Gauge by Mistake. The Difference of cost between the two Systems is Estimated at £4000 per mile - Now in these lines aggregate 324 miles. The saving of Capital by adopting the Narrow Gauge would be £ 1,296,000. Amount of annual interest £63,000. A Broad Gauge line would cost £3,240,000. and disturbing the Present traffic would

3/ of a Broad & 5 per cent on the Stock, then the Income would be £162,000 - Charges of the Railway on the same Commercial Scale of a Narrow Gauge, the same traffic would yield 8 per cent on the Capital employed. The Conclusion therefore to be drawn is that in a Paying Line - Should there be found that the construction of the Line on the Broad Gauge System should be permitted until it is clearly shown that the Narrow Gauge will not suffice for the wants

of the country - and will not
yield the advantageous results which
it anticipated. During ~~the last~~
~~[illegible]~~ It is obvious
that the objection of lack of finance
- which in this country will
I believe be found to be chiefly
operative, owing to the abundance
of labour - does not hold good
in the case of lines of Rail Road
as there will be - If it be considered
desirable to ~~from~~ Extend these lines of Railroad

and Irrade, the present termini of
the G. S. of I. Rail. a third intermediate line of
Rail might be laid on the present
permanent way - but it can
hardly be expected that the traffic
to London will be materially
In all other respects I
entirely concur in His Lordship's
opinions & recommendations - And
I shall in His Lordship's absence bring
the financial Embarrassments
and dangers likely to ensue
from Extending Railroads [or is abbreviated] unless
in districts which cannot long

Enclosed that these papers be forwarded to the Government of India, and that the attention of the Superintending Engrs of the 2nd and 7th Divns and the Revenue Department be requested to para 22 of the Minute of His Excellency the President.

G. Aug. 23.

A

A. D.

I. D.

Secretary.

G. D.

Chief Engr for Rys

B. Engrs 2nd & 7th Divns

H. Rev Deptt

a Secrets 29/9/71.

even the interest on their cost for years to come - while the resources of the country and consequently its present needs may be taxed to an heavy taxation can only yet be carefully ~~established~~ understood.

A. D.

№ 2397.

To

The Secretary to the
Govt. of India. P.W.D.

Sir,

In compliance with the wishes of the Govt. of India as conveyed in their Proceedings of the 3d December 1867, №1050 R, this Government, in a letter dated 19th Sept. 1868, № 2968, recommended the following extensions which in their opinion appeared necessary to develope the Railway system in this Presidency.

From

From Karoor by Madura & Tinnevelly to Tuticorin.
" Bellary to Dharwar.
" Conjeeveram to Cuddalore.
Short branches from S.W. line to Arcot, Vellore, Salem & Salghaut.
From Beypore to Cannanore.

The Neilgherry branch had previously been recommended by the Govt of India to the Secretary of State and having subsequently been sanctioned is now in progress of construction.

Since the submission of the above scheme arrangements have been entered into by the Secretary of State with the Great Southern of India Railway Company and the Carnatic Railway Company for the extension of their lines

To Govt of India. 14th Feb/71. No 457
From do - 9 March/71. No 469.
To do. 30th do - " 960

to Tuticorin and Cuddalore respectively, and the question of the location and gauge of the two extensions, on which the views of this Govt are quite in accord with those of the Govt of India has formed the subject of the correspondence marginally noted - the lines are proposed to be constructed on the 3'.3" gauge, and it has been determined in carrying the extension of the Great Southern of India Railway from Trichinopoly via Dindigul to Madura and thence to Tuticorin, with a branch at Keel Mumniachee to Tinnevelly. The Carnatic Railway will follow the General

alignment of the great Southern Trunk Road starting from Madras and running by or through Chingleput, Caraingoly, Veeravandy, Villupooram and Punrooty whence it will be carried to Cuddalore. Working plans and estimates for the Tuticorin extension are under preparation and the trial survey of the Carnatic extension is in progress.

The views of the Govt. of India and of the Secretary of State on the other extensions proposed by this Govt. are recorded in the papers communicated with Proceedings dated 23d August 1869. No. 20. The short branches proposed in connection with the Madras main line have been sanctioned; but the opinions expressed by the Govt. of India as to the principles which should govern the selection of extensions of existing lines, or of altogether new lines, and the considerations which should determine the gauge of the Railway and the Agency to be employed, induced the Consulting Engineer (Major Shaw Stewart) to submit a modified and expanded scheme of Railway extensions the merits of which are

Letters Nos 216 of 16th July 1869
- 7th Sept. 1869 -

discussed in the accompanying minutes.

Eliminating from the general scheme the Neilgherry branch - the extensions to Tuticorin and Cuddalore, and the short branches to connect Stations on the South West line with neighbouring large towns, this Govt have resolved on recommending the following further extensions

I. The continuation by the Carnatic Railway Company of their line from Cuddalore to some point on the Great Southern of India Railway, probably Tanjore.

II. The construction by the Great Southern of India Railway Company of a branch from Dindigul to Coimbatore.

III. The construction by the State of a line on the narrow guage from Bellary to the Bombay frontier.+

IV. The construction by the State of a line on the narrow guage from Cannanore to Beypore.

V. The construction by the State of a line on the narrow guage between Pattambay and Cochin through the territories of Cochin and Travancore.

The considerations which have weighed with this Government in the selection of the extensions now proposed

+We should name some town as the terminus - "frontier" is vague -

Query Co Cient.
I still submit that the Madras Railway should run their line into Calicut. They should not be the first to a fishing village
V. I also still think that the Madras Railway Co should do this as one of the lines in their line JDS

29.4.41 III

are so fully set forth in the minute of His Excellency the President that it seems unnecessary to enter into any further explanations in this letter. His Excellency the Governor in Council trusts that the scheme presented will commend itself as meeting the requirements of trade and the convenience of the public, and as giving promise of leading to such a growth of traffic as will make the lines remunerative.

Hy Aug: 23d

Desp: 29/9/71 with plans
Copies of Do: 2396 of 1871-
Minutes of Railway Extension
Desp: 11/10/71

Copy (C)

Govt of 1871 Madras.

PUBLIC WORKS

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To The Secretary Committee Engrs
for Railways

Date

Recd.

20th Sept. 1871. 2396-2397

Nos. 377/(D)377

Railway Returns.

Railway Returns.

Railway Returns.

Railway Returns.