

MADRAS RECORD OFFICE.

Government of Madras.

Revenue
and DEPARTMENT.

G.O. No.	24678	Press
		Mis
Dated	24-9-18	

Not to be folded or roughly handled

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*Proceedings of the Madras Government, Revenue Department,
24th September 1868.*

No. 385. Read the following Proceedings of the Madras Government in the
Public Works Department:—

Communicating orders passed on papers re-
garding extension of Railways in the Madras } (Here enter 19th September 1868, No. 2,967.)
Presidency.

No. 386. ORDER THEREON, 24th September 1868, No. 2,478.

Miscellaneous.

Ordered to be recorded.

(True Extract.)

(Signed) H. SEWELL,
Acting Under Secretary to Government.

Exd. F. R. Bantleman.

*Proceedings of the Madras Government, Public Works Department,
19th September 1868.*

Read the following papers:—

No. 353. From the Consulting Engineer for Railways, to the Secretary to Government, Public Works Department, dated Madras, 15th July 1868, No. 248.

1. As directed by Government in their Order, dated the 8th January last, No. 61, I have the honor to submit the following report on the general question of the requirements of this Presidency, as regards the extension of its Railway system, under the conditions indicated by the Government of India in their Proceedings dated the 3rd December 1867, No. 1,050-R.

2. In compliance with the desire of Government, I have placed myself in communication with the Board of Revenue, and, either directly or through the Board, with the Collectors of all the districts in the Presidency. With the Board of Revenue I have discussed the question of Railway extension in all its bearings, and I am able to say that the views expressed in the following report meet with their general concurrence and support.

3. In dealing with the question, I have taken each of the existing lines in the Presidency, and have discussed seriatim all the extensions which have been proposed in connection with them. The statements of the population, the revenue, and the trade at the principal sea-ports, have been obtained from the revenue authorities; and the calculations of the outlay upon the different lines, and of the probable returns, have been made as accurately as was possible.

4. A map accompanies the report, showing at a glance the existing lines of Railway, and the extensions proposed.

5. One of the characteristics of the South-West Line of the Madras Railway, which cannot fail to strike every traveller, is the persistent manner in which it avoids all the large towns near which it passes. Arcot, Vellore, Salem, Coimbatore, and Palghaut, with others, which it is unnecessary to name, are left at distances of from 3 to 5 miles from the line of Railway. The western terminus of the line is an almost uninhabited sand bank, separated by a broad tidal river from the village from which it takes its name, and by a distance of 7 miles from the wealthy and populous town of Calicut. Even the eastern terminus was selected with so little regard to the requirements of the Presidency Town, that as a Goods' Terminus it was abandoned four years ago, and upon the completion of the new station near the People's Park, it will also cease to be used as a passenger terminus.

6. It is unnecessary to discuss the reasons which led to this careful avoidance of the chief centres of traffic. That it has been detrimental to the success of the Railway, to the advancement of the country, and to the convenience of the public, admits of no doubt; and any scheme for the general extension of the Railway system, which fails to provide for the connection of these old established centres of trade with the existing lines, must, in my opinion, be defective.

7. In the cases of Arcot, Vellore, Salem, and Palghaut, I think that the best mode of effecting their union with the line of Railway is to construct light branches upon the Indian gauge of 5½

feet. This mode of supplementing the operation of a line of first class Railway would, in general, be open to serious objections. Constructed, as such branches would be, with a view to carry at a low rate of speed locomotives and rolling stock of slighter dimensions than those of the main line, they would necessitate the maintenance of two classes of rolling stock, between which the separation ought to be maintained as inviolably as if the two lines were constructed upon different gauges, so that little or no advantage would result from the uniformity of gauge.

8. The branches which I have named are, however, so short, and the rate of speed which must be maintained upon them is so very low, that I can see no objection to the employment upon them of the ordinary rolling stock of the Madras Railway, provided that a special light locomotive be provided for the sole service of each branch.

9. As regards the cost of these branches, there is, with one exception, no difficulty of any magnitude to be encountered; and, in my opinion, the average outlay will not be under-estimated at Rupees 65,000, or £6,500 per mile. The distance of Arcot, or rather of Rancepett, (for I would not propose to carry the rail across the Palar here,) is four miles from the station at Ammoor; the distance of Vellore from the station at Cautpady is also four miles; the distance of Salem from the station at Sooramungalum is three miles; and the distance of Palghaut from the station at Kauvalpad is also three miles. The total length of the four branches will therefore be 14 miles; and the aggregate cost, at the rate quoted above, will be Rupees 9,10,000, or £91,000.

10. The exceptional difficulty to which I alluded is the crossing of the Palar river by the Vellore branch, and I have no doubt that the Government bridge, which now spans the river between Vellore and the Railway, might be given over, in part at least, to the rail, as the road traffic, after the construction of the branch, will be very small.

11. The average population and revenue per square-mile of the talooks in which each of these branches is situated are as follow:—

Names of Talooks.	Area in square-miles.	PER SQUARE-MILE.	
		Average population.	Average land revenue.
Arcot	394	349	721
Vellore	268	554	654
Salem	993	320	451
Palghaut	695	402	389

In considering these figures, it should be borne in mind that the last column represents land revenue only; and that, in the case of each talook, the proposed branch will traverse by far the most populous and wealthy tract, so that the average population and revenue for the whole talook do not fairly represent the figures for that small portion which will be most directly affected by the branch.

12. The population of the four towns is as follows:—

Arcot	9,189
Vellore	19,374
Salem	50,560
Palghaut	8,820

13. There is every reason to believe that these branches will, from the very first, prove remunerative undertakings. From small beginnings the net profits on the South-West Line of the Madras Railway have increased year by year, and are now gradually and steadily approaching the amount of the guaranteed interest. Each of these short branches will connect the line with a large centre of trade, and there can be little doubt that from the date of first opening the traffic, already considerably developed, would not fall short of the average on the main line.

Branch to Coimbatore and the foot of the Neilgherry Hills.

* No. 164, 3rd June 1868.

14. The case of Coimbatore has already formed the subject of a special report,* and as it is included in the branch to the foot of the Neilgherry

Hills, the construction of which the Madras Railway Company have, in their agreement, dated the 19th December 1855, contracted to execute, it is scarcely necessary to enter here into more than very general details.

15. The distance of Coimbatore from the station at Poothanoor is nearly five miles, and the entire length of the branch to Kullair, at the foot of the Coonoor Ghaut, will be 36 miles. This branch should, in my opinion, be constructed upon the Indian gauge, and its dimensions should correspond with those of the main line in all respects, with the exception that the masonry works may be constructed to carry one line of rails only. The cost may be fairly estimated at Rupees 90,000, or £9,000, per mile, giving a probable total outlay of Rupees 32,40,000, or £324,000.

16. The returns furnished by the Revenue Authorities show that the population of the tract of country traversed by the branch averages 483 to the square-mile, while the revenue averages Rupees 680 per square-mile.

17. The population of Coimbatore, the only large town through which the branch passes, is 24,051. The present population of the Neilgherry Hills is reported as being under 40,000.

18. Inasmuch as the construction of this branch will greatly facilitate communication with the important Military sanatorium at Wellington, and with the much frequented hill stations of Ootacamund, Coonoor, and Kotagherry, it might properly be classed as a political line; but I entertain very little doubt that its success, as a commercial line, will be such as to soon relieve the State from all liability on account of interest guaranteed on the outlay involved in its construction.

19. In the special report to which I have above alluded, it is shown that the present traffic will, on the opening of this branch, yield a net profit of above 3 per cent. on the outlay; and I think that there are few lines in India upon which the growth of the traffic may be calculated on with as much confidence and certainty as upon this.

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20. In order, as far as possible, to remove the inconvenience and the hindrance to traffic which the unfortunate selection of the present western terminus has occasioned, two extensions along the west coast have been proposed. Of these, one leaves the main line at Shoranoor or Puttamby, and is taken in a southerly direction through Trichoor to the port of Cochin, or rather to Ernacollum, on the east side of the Cochin back-water; while the other is taken from Beypoor in a north-westerly direction to Cannanore, passing through the large towns of Calicut, Quilandy, Buddagerra, Mahé, and Tellicherry. Both of these proposals have, on several occasions, been brought to the notice of Government, and have been favorably reviewed.

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

21. As regards the respective advantages of undertaking the two extensions, I quote the following remarks from a letter† addressed by the Collector of Malabar to the Board of Revenue, in which Mr. Ballard enters fully into the subject:—

“1. *Cochin Extension*.—The extension to Cochin will give a western coast ocean terminus open at all seasons, and an important sea-port town as a south-west terminus, thereby greatly increasing the prospects of through-traffic.

“2. The local advantage to British Cochin will be enormous, and the Native State of Cochin will be a great gainer.

“1. *Calicut and Cannanore Extension*.—The extension from Beypoor to Cannanore will traverse a wealthy country, with a population of 680 souls to the square-mile, producing staples largely required at a distance, and not producing staples largely required at Home; in other words, in a position to interchange largely.

“2. The natural stations of the line will be a series of populous and busy towns at convenient distances, as under:—

From Beypoor to Calicut	...	...	...	...	...	...	...	7
Thence to Quilandy...	...	...	...	...	...	...	...	15
Do. Badagerry	...	...	...	...	...	...	...	14
Do. Tellicherry	...	...	...	...	...	...	...	12
Do. Cannanore	...	...	...	...	...	...	...	13

“3. The intercoastal trade between these towns alone now reaches a value of about 42 lakhs per annum, whilst there is besides active and increasing inland communication.

“The total Exports and Imports (coastal and over sea) of the towns of Malabar show an average value of Rupees 3,63,39,112 per annum.

“4. Politically the line will give direct rail communication with the important Military station of Cannanore, and probably enable two European detachments to be called in from out-stations to head-quarters. Socially, it will have stations at the Administrative, Judicial, and Commercial capitals of North and South Malabar, put them in communication, and vastly facilitate their communication with other parts of the Province.

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“5. In an engineering point of view the only feature of any magnitude to be encountered is the bridging of the Beypoor river. All the other rivers are now bridged for cart traffic. The lie of the country is level, good and cheap material for building, &c., abounds, material from Europe will be landed with no cost for land carriage, fuel will be obtained abundantly and cheaply. Both construction and working will probably be more than ordinarily economical.

	Rs.	
* Extension to Cochin	45,50,000	“Finally, the double extension will materially affect the usefulness and success of both branches. Seventy-two* lakhs of Rupees would amply suffice to complete both extensions:
Do. to Calicut and Cannanore broad gauge to Calicut and narrow gauge north	26,20,000	

“3½ to 4 per cent. may confidently be looked for at starting, and the enormous advantages the undertakings would confer on this province might thus be gained at a cost of some Rupees 72,000 to 1,00,000 for a few years to make up a guarantee of 5 per cent. per annum. The payment of this would soon doubtless cease to be necessary by the returns giving 5 per cent; and the expended money's worth would be amply returned to Government in the increase to the general revenues that the stimulus to the province afforded by the extended Railways would certainly induce, and the other incidental advantages that would accrue.

“Moreover, it should be particularly borne in mind, in coming to a decision on these undertakings, that they should not be judged as new schemes. They are, indeed, only important parts, without which the Madras Railway's western line cannot be looked upon as in any way complete.

“No one, on reaching Beypoor for instance, can fail to be astonished at seeing passengers and goods turned out on the south bank of an unbridged river, seven miles to the north of which is the town to which more than 95 per cent., if not all of them, are destined. Beypoor is a terminal station and nothing besides.

“It is only wonderful that, with such grievous disadvantage, the Madras Railway takes as good a place as it does in a financial point of view amongst the Railways of India. The effect of the completions proposed will assuredly tend to raise it in the scale.

“I trust these considerations may induce Government to use all their influence in bringing about the speedy commencement of the undertakings.”

22. The survey of the Cochin branch has been already* authorized, and I understand that a good line from Puttamby to Ernacollum has been secured. It was found impossible, or nearly so, to leave the main line at Shoranoor, owing to the hilly and intricate nature of the country immediately to the south, and even at Puttamby the hills necessarily interfere with the gradients of the branch, and tend to raise its estimated cost. The length of the proposed extension will be about 60 miles, and the results of the trial survey have gone to show that its probable cost will exceed Rupees 1,20,000, or £12,000, per mile, giving a total outlay of about 75 lakhs of Rupees, or about £750,000.

* Vide G. O. 4th October 1867, No. 3,079.
Do. 8th November „ „ 3,471.

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23. Almost the entire line will lie within the territories belonging to the Rajahs of Cochin and Travancore, and there is every reason to anticipate that the undertaking will meet with full and cordial support from their Highnesses. When the proposal to connect Cochin with the Madras Railway came forward nearly four years ago, His Highness the Rajah of Cochin offered* to make over to the Company whatever land should be required for the Railway, and it is probable that His Highness the Rajah of Travancore will afford equal assistance in the carrying out of a work which will confer so vast a benefit upon his territory.

* Vide G. O. 13th December 1864, No. 800.

24. The average population per square-mile of those portions of the Cochin territory, through which the proposed line of Railway passes, is 484, and the average revenue is Rupees 670.

25. The population of the principal towns near which the line passes is as follows:—

Trichoor	...	...	...	...	5,347
Ernacollum	...	...	...	...	8,833
Cochin	...	...	...	...	5,211

26. The average tonnage and value for the last five years of the Exports and Imports at the port of Cochin is as follows:—

	Tons.	RS.
Export ...	99,160	68,75,155
Imports ...	97,814	51,50,932

Branch to Calicut and Cannanore.
* 16th May 1867, No. 1,482.

27. In their Order* to which I have alluded above, the Government fully recognized the importance of this extension, but looking to the number of streams which the line would intersect they questioned whether it should take the form of an engine Tramway on the 3½ feet gauge, leaving the rivers unbridged, or of a continuous line of first class Railway, with bridges.

† No. 179 A, 16th June 1868.

28. In his letter† to the Board of Revenue, from which I have already quoted, the Collector of Malabar states that, in his opinion, the whole of the extension should be constructed upon the Indian gauge, but in any case he deprecates a break of gauge at Beypoor, and says that “if the question of extension at all “or not turns upon the point, I would advocate broad gauge to Calicut, a break “there, and narrow gauge north to Cannanore.” Mr. Ballard is very strongly opposed to leaving any of the rivers unbridged, “whether a broad gauge Railway “or an engine Tramway is ultimately determined on. Suitable bridges are an “indispensable part of either scheme.” I cannot but agree with Mr. Ballard; but I am decidedly of opinion that to construct the extension upon any other gauge than that of the main line would be a mistake. The South-West Line of the Madras Railway has been carried across the Peninsula upon a gauge of 5½ feet, passing, as it does, often through wild uninhabited tracts, and when it is a question of extending it through, perhaps, the richest and the most densely populated country in the whole Presidency, it would be a matter for regret if the gauge were altered to 3½ feet.

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29. As regards the rivers which will be crossed by the line, I agree with Mr. Ballard that the bridging of the Beypoor river is the only work of real magnitude, and that to leave it and the other streams unbridged would be to leave the Railway half finished, and to deprive the district of a great portion of the advantages which the construction of the line will confer upon it.

30. The bridge across the Beypoor river has been estimated to cost between three and four lakhs of Rupees, or between £30,000 and £40,000. Several rather considerable streams occur upon the remainder of the line; but the level nature of the country, and the ease with which materials can be landed at almost any point are so favorable to the construction of a Railway, that Rupees 1,00,000, or £10,000, per mile, is, in my opinion, a very liberal estimate of its cost. The distance to Cannanore from the north bank of the Beypoor river is about 60 miles, so that the total outlay, including the Beypoor bridge, would probably fall within 64 lakhs of Rupees, or £640,000.

31. This estimate is considerably in excess of what Mr. Ballard, in the extract from his letter which I have quoted above, assumes to be the probable cost. He reckons that 72 lakhs of Rupees would suffice to complete both extensions to Cochin and to Cannanore. I have set them down at 75 and 64 lakhs respectively, the total being 139 lakhs, or nearly double Mr. Ballard's estimate. The difference is mainly due to the fact, that in the case of the Cochin branch Mr. Ballard assumed Mr. Smart's rough estimate of 45½ lakhs, which is greatly below the probable cost, as ascertained by a survey; and in the case of the Cannanore branch, Mr. Ballard's estimate provides for a narrow gauge line at Rupees 30,000 per mile. My estimate provides for a first class line on the Indian gauge, but I do not believe that a line on the 3½ feet gauge could be constructed in Malabar at much below double the rate assumed by Mr. Ballard. The line between Arconum and Conjeveram has cost Rupees 48,000 per mile; and considering the number of streams to be bridged, a similar line to Cannanore would, I think, cost at least Rupees 55,000 per mile.

32. The returns furnished by the Collector show that the population of the tract of country, traversed by the proposed extension, averages 680 to the square-mile; while the revenue from all sources averages Rupees 2,459 per square-mile.

33. The population of the principal towns on the Cannanore extension, and the average value of Exports and Imports, as furnished by the Collector, are as follow:—

Names of Towns.	Population.	AVERAGE TONNAGE AND VALUE FOR THE LAST FIVE YEARS.			
		Exports.		Imports.	
		Tons.	RS.	Tons.	RS.
Calicut	37,000	99,197	52,69,226	91,459	49,90,952
Quilandy	6,918	12,782	2,22,499	13,340	2,07,349
Badagherry	5,911	21,808	14,63,632	21,803	6,48,394
Tellicherry	18,500	57,741	19,97,078	58,533	21,30,215
Cannanore	16,600	77,315	19,80,293	77,236	25,92,748

I am not able to give the returns for the French town of Mahé.

34. The western section, between Coimbatore and Beypoor, is at present decidedly the worst paying portion of the Madras Railway Company's line, and

there can be little doubt that the construction of either of these extensions will cause a considerable development of both local and through traffic. The question at issue is whether the probable increase will in either case be sufficient to justify the great expense which must be incurred.

35. In the case of the Cochin extension, the answer to this question hinges entirely on one point, viz., on the probability that Cochin will continue to maintain its position as an ocean port, available at all times of the year for vessels of considerable size. This point seems at present to be so uncertain that I scarcely feel competent to give an opinion as to the policy of undertaking the extension. The recent action of the sea near Cochin seems to show that the condition of the port is liable to sudden and extensive changes, and without the certainty of finding there a good harbour, the main argument in favor of an imperial guarantee upon a branch to Cochin is removed.

36. It should be remembered that the line to Cochin throughout almost its entire length lies within the territory of foreign states; that the expense of constructing it will be considerably above the average; that part of its course, between Puttamby and Trichoor, runs through a hilly and comparatively unprofitable tract; and that although from Trichoor southwards the country is wealthy and populous, and would derive great benefits from the Railway, yet those benefits would be reaped by a population which does not in any manner contribute to the Exchequer from which the guarantee is taken.

37. On the other hand, the line from Beypoor northwards to Cannanore lies exclusively within British territory, with the exception, perhaps, of a short distance where it might have to pass through Mahé; the cost of constructing it will probably be considerably below the estimated expense of the Cochin branch, and the entire line passes through a far richer and more thickly populated tract than does the Cochin branch. The northern extension will connect, with the existing Railway system, five large towns, of which three, Calicut, Tellicherry, and Cannanore, are each much larger and more important than any of the towns which will be affected by the southern extensions. In the matter of Exports and Imports, the trade of Calicut alone is nearly equal to that of Cochin.

38. Placing out of consideration all question of the special advantages which its connection with the port of Cochin has been expected to confer upon the Madras Railway, it seems to me that of the two proposed extensions, that to the north is certain to prove the more beneficial both to the interests of the Madras Railway Company, and to the progress and prosperity of British India; and I entertain little doubt that the traffic returns from it would, in a short time, very nearly cover the interest guaranteed on its cost. The probable traffic on the northern extension cannot be correctly estimated from that on the present western section of the Railway between Coimbatore and Beypoor. Not only is the line at present deprived of a proper terminus — a want which greatly affects all traffic, through and local, in passengers and goods — but to the north of the Beypoor river the character of the country undergoes a considerable change, and the line passes into a tract more populous and fertile than that to the south of the river.

39. The Members of the Board of Revenue are not sanguine that the guarantee will be covered by the returns from either of these lines; they are of

opinion that the construction of the Cochin line should not be undertaken unless the maintenance of the port of Cochin can be placed beyond all reasonable doubt; but they attach much importance to the extension of the existing line from Beypoor as far as Calicut, to which point they think it should be taken, whether or not it may be deemed advisable to carry out in full either of the extensions which have been proposed to Cochin and to Cannanore. In this latter opinion I entirely concur.

Madras Railway, North-West Line. 40. The experience gained upon the South-West Line of the Madras Railway was not thrown away when the North-West Line was undertaken, and the Railway runs at a convenient distance from all the large and important towns.

41. The only extension of the Extension from Bellary to Hooblee or Dharwar. North-West Line which would, in my opinion, prove remunerative is one westward from Bellary to Hooblee or Dharwar. The extensive tract of rich cotton-growing country round Hooblee is at present untapped by any line of Railway. A glance at the map will show that there are at least three points from which Dharwar can be brought into connection with the Indian Railway system. I allude to Sholapoor, Bellary, and Bangalore. The respective lengths of the branch lines, which would be required to connect Dharwar with these points, are in round numbers:—

	Miles.
Sholapoor	190
Bellary	140
Bangalore	280

42. Besides its greater length, the Sholapoor line is open to the objection that it would be carried across the main drainage of that part of India. It would have to cross the Beemah, the Kistna, the Gutpurba, and the Mulpurba, besides many smaller streams. Part of its course, how much I cannot exactly say, would be within territory not belonging to the British Government; and it would have to be carried through a great extent of hilly country.

43. To the extension from Bangalore its great length is, of course, an objection, the more so as for two-thirds of its course it would be within the territory of the Rajah of Mysore. A great part of the line, too, would pass through a comparatively poor and thinly-peopled country.

44. To the proposed extension from Bellary none of the objections which have been enumerated apply. This line is considerably the shortest of those by which Dharwar can be brought into connection with the Indian Railway system, and it would be carried through a favorable country. Leaving Bellary, it would make for Coodatanny, and thence, round the head of the large Darojeo tank, and through a naturally easy pass in the Soondoor hills, to Hospett, whence it would run parallel with the Toongabudra river, near Narraindaverkarry, Ballahoonsy, Tumberhully, and Humpsagra, a few miles to the west of which it would cross the Toongabudra, and then by Dambul and Unnikaira to Hooblee or Dharwar. About 75 miles, or one-half of its length, is in the Bellary District, the remainder being in Dharwar. The whole line lies within British territory. Through almost its entire length it

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passes through a fertile, populous, and highly cultivated country. The Toongabudra is the only large river which it would be carried across.

Further extension to Carwar.

45. It does not properly devolve upon me to discuss the extension from Dharwar or Hooblee to the westward; but there can be little doubt that a line from either of those places to Carwar is much required, and it would seem right that the construction of it should be offered to the Company which undertakes the connecting link between Bellary and Dharwar. The length of this line would be about 120 miles, making a total length from Bellary to Carwar of about 260 miles.

46. The cost of the line between Bellary and Dharwar will be liberally estimated at Rupees 1,00,000, or £10,000, per mile, including the bridge over the Toongabudra river. Between Dharwar and Carwar a considerably higher rate must be allowed, on account of the difficulty of the country, the scarcity of labor, and the high price of provisions. Taking these into account, I think that Rupees 1,50,000, or £15,000, per mile, must be allowed. At these rates the entire cost of the line of Railway between Bellary and Carwar would amount to 320 lakhs of Rupees, or to £3,200,000.

47. The average population and revenue of the talooks in the Bellary District through which the extension would pass are as follow:—

Name of Talooks.	Area in square-miles.	PER SQUARE-MILE.	
		Average population.	Average land revenue.
Bellary	985	131	278
Hospett	540	138	279
Huvenhugully	623	119	207

It should be borne in mind that the last column represents land revenue only; and that in each talook the proposed line will traverse by far the most populous and wealthy portions, so that the population and revenue of the tract immediately affected by the Railway is far from being fairly represented by the average figures for the whole of the extensive talooks.

48. The population of the towns in the Bellary District, near which the line passes, is as follows:—

	RS.
Bellary	37,015
Hospett	9,419
Bellahoonsy	
Humsagra	

49. The statistics for those portions of the Dharwar and Canara Districts, which the proposed extension will traverse, I have not been able to ascertain; but from the information which I have gathered with regard to the remunerative prospects of the line, I am inclined to regard it as the most promising project for Railway extension in the whole of Southern India, with the single exception of the proposed line from Caroor through Madura and Tinnevely to Tuticorin.

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50. The returns from the North-West Line of the Madras Railway have been steadily rising of late years. During the past half-year ended the 30th June 1868, they have, for the first time, yielded a surplus over and above the amount of guaranteed interest; and I see every reason to believe that the extension from Bellary westward would prove still more remunerative than the existing line.

Extension of the Bangalore branch.

51. It does not, of course, lie within my province to discuss any extension of the Railway system in Mysore, but that territory is so situated in the very heart of this Presidency, and the interests of the two are so intimately connected, that it is impossible, in making a general report upon the extension of Railways within the Presidency, to avoid making some allusion to the requirements of Mysore.

52. I learn from the Agent of the Madras Railway Company that, in his own opinion and in that of the Company's principal officials, the most desirable extension of the system of the Madras Railway is one westward from Bangalore, either towards Hassan viâ Toomcoor, or towards Mysore. Mr. Elwin also stated his decided opinion that any line which it may be considered advisable to construct in connection with the Madras system should be of the recognized Indian standard gauge.

53. In the course of a long discussion upon the subject with the Commissioner and the Chief Engineer of Mysore, I gathered that three general schemes for the extension of the Railway system were under consideration. Of these, I have already alluded to one, viz., the extension from Bangalore in a north-westerly direction towards Dharwar. This line would, of course, be constructed upon the Indian gauge. The second scheme is the construction of a local line, also upon the Indian gauge, in a westerly direction from Bangalore towards Toomcoor and Hassan, leaving the construction of branches, if found necessary, for future consideration. The third scheme provides Mysore with a net work of lines upon the 3½ feet gauge. From Bangalore, where it meets the Madras Railway, the proposed narrow gauge line goes westwards to Coongul, where it bifurcates, one line going north-west to Shemoga, with branches to Hassan, Chickmoogloor, and Sucklaspoor; and the other line going south-west to Seringapatam and Mysore, with branches into Coorg and Wynaad.

54. As this last named branch will bring the advantages of Railway communication to one of the most valuable, but most inaccessible, provinces in this Presidency, I think an expression of my opinion on the subject will not be out of place.

55. Mr. Bowring was so good as to place at my disposal the whole of the statistics of traffic which had been collected from different parts of the Mysore territory, and a careful consideration of them led me to the opinion that, with the exception of, perhaps, one short line from Bangalore to the westward, none of the currents of trade in Mysore is at present of sufficient strength to justify the construction of a first class Railway on the recognized Indian gauge.

56. Considering the scarcely passable character of the natural boundaries with which Mysore, including Coorg and Wynaad, is almost every where surrounded, and the necessarily limited extent to which the traffic within those boundaries may be expected to increase, I am of opinion that it forms the very place of all others suited to a system of narrow gauge lines, complete in itself, and

connected at one point only with the Indian Railways on the standard gauge. Such a system has been already suggested, and it seems to me to be exactly suited to the present wants and the probable future requirements of Mysore and the adjoining provinces of Coorg and Wynaad.

57. The length of the system above alluded to is about 461 miles; and allowing what seem to me to be very liberal rates, Major Sankoy has estimated the total cost to be below 250 lakhs of Rupees, or two and a half millions sterling.

58. It may be objected that Coorg and Wynaad are situated so much nearer to the west than to the east-coast of India, and are, or are soon likely to be, so well provided with cart-roads leading to the several ports upon the west coast, that little if any of the produce grown within their limits is likely to find its way by Railway to the east coast.

59. Taking the case of Wynaad, with which alone I have to deal, I feel sure that this opinion is not well founded. The distance of Manantoddy from Bangalore, by the proposed narrow gauge Railway, is about 186 miles. From Bangalore to Madras the distance is 216 miles. The carriage of a ton of Coffee from Manantoddy to Madras, according to the rate now in force between Bangalore and Madras of 18 Pies per mile, would come to Rupees 37-11-0. But the Railway Company would, of course, lower their rate to secure their traffic. At present they carry Coffee between Bangalore and Beypoor at 9 Pies per ton per mile; and the adoption of this rate would reduce the cost of sending Coffee from Manantoddy to Madras to Rupees 18-13-6 per ton. The distance from Manantoddy to the nearest shipping ports, Tellicherry and Calicut, is nearly 60 miles, and few of the Wynaad plantations are situated within a shorter distance from the coast. I understand that the cost of sending Coffee to the coast for shipment often amounts to much more than Rupees 40 per ton, so that even at the higher rate it is probable that the crop would be attracted to the rail.

60. The fact that the west coast is practically closed during four months in the year should also prove a strong argument in favor of the rail. The difficulty experienced in sending Coffee to the coast for shipment at the proper time is well illustrated in the case of the Munzerabad planters, whose estates lie at a distance of about 80 miles from Mangalore. Although a good road leads from Munzerabad to the port, a great proportion of the Munzerabad Coffee is sent by road to Bangalore, a distance of about 140 miles, with a Railway journey thence of 216 miles to Madras the nearest port.

Extension of Indian Tramway Company's line from Conjeveram to Cuddalore.

61. Another line, which is indirectly connected with both lines of the Madras Railway, is the extension of

the Indian Tramway Company's line in a southerly direction from Conjeveram. The short line belonging to this Company was constructed upon a gauge of 3½ feet, and extends at present from Arcunum to Conjeveram, a distance of barely 19 miles. A proposal to extend it to Cuddalore, a distance of about 80 miles, has already* been favorably received by

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

Government; and under certain conditions I think that its construction can hardly fail to be successful.

62. The existing line, as might have been foretold of so short a piece of isolated narrow gauge Railway, has not proved a financial success, although in other respects the management has been successfully conducted. The receipts upon it have done little more than cover the working expenses; and in order to insure the proper maintenance and working of the line, it has recently been deemed advisable to guarantee a minimum dividend of 3 per cent. upon the Company's paid up Capital, until such time as the extension to Cuddalore shall be taken in hand.

63. In their order above quoted the Government stated that they did not consider the condition of those portions of the Presidency, which would be traversed by the proposed extension, to be such as would warrant the construction of an expensive line of first class Railway, but that they would be prepared to support any proposal for extending it upon its present scale. I am satisfied that the views then expressed by Government were correct, and that the construction of a line of Railway to Cuddalore on the Indian gauge, involving as it would the alteration and re-construction of the existing portion between Arcunum and Conjeveram, would not be remunerative. At the same time, I think there is every reason to expect a sufficient amount of traffic to support an extension of the line upon its present gauge and scale. When extended to Cuddalore the line will be about 100 miles in length, and will not only form a valuable feeder to the Madras Railway, but upon its own merits will give a fair test of the degree of success likely to attend the construction, under favorable circumstances, of a narrow gauge line. I see every reason to believe that the result will be successful.

64. The probable cost of the extension, supposing it to be carried out on the 3½ feet gauge, will be about Rupees 50,000, or £ 5,000, per mile. The cost of the portion between Arcunum and Conjeveram has averaged about Rupees 48,000, or £ 4,800, per mile; and considering that the Palar river must be crossed by the extension, I do not think that it will be constructed for less than the sum I have named.

65. The average population and revenue of the talooks through which the extension will be carried, are as follow:—

Names of Talooks.	Area in square-miles.	PER SQUARE-MILE.	
		Average population.	Average revenue.
Arcot...	394	359	721
Wandiwash ...	412	323	664
Tindevanum ...	773	207	539
Cuddalore ...	417	414	936

It should be remembered that the figures in the last column represent land revenue only.

66. The population of the only towns of importance on the line of the extension is—

Tindevanum	8,063
Cuddalore...	39,153

*Proceedings of the Madras Government, Public Works Department,
19th September 1868.*

67. During the year 1867-68 the value of the Exports and Imports at the port of Cuddalore were as follow :—

Exports	...	...	...	...	...	310,907
Imports	...	...	...	...	...	34,077

68. The line of the extension will pass close to the French territory, and there is no doubt that a branch will be constructed to connect it with the populous sea-port of Pondicherry. I have not been able to get accurate returns of the population and the trade of Pondicherry, but they must be considerable, and will certainly tend to swell the traffic on the line.

Great Southern of India Railway Extension to
Madura and Tuticorin.

69. The longest and by far the most important of the extensions which have been proposed in connection with the Great Southern of India Railway Company's line, is one which was projected to take its departure from the main line at Caroor or at Trichinopoly, and, passing through the districts of Madura and Tinnevely, to secure to them the advantages of ready access to the sea, and of free intercommunication with the rest of India.

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

70. The proposal has already received* the strong support of this Government, and in August 1867 instructions for the prosecution of the requisite surveys and inquiries were sent from

† G. O. 4th October 1867, No. 3,079.

England†. After a preliminary investigation of the advantages offered by the alternative routes from Trichinopoly and

‡ G. O. 14th February 1868, No. 520.

Caroor to Madura, the route from Caroor was finally decided upon‡; and the trial survey of the portion of the line as far as Madura has now been completed, and will, I believe, be soon laid before Government.

71. The survey of the southern portion of the extension, between Madura and Tuticorin, was made in 1862 by Mr. Carr, the then Chief Engineer of the Great Southern of India Railway Company; and although it will probably be found advisable to select finally a line somewhat to the westward of that followed by him, the results of his survey may be accepted as being fully demonstrative of the suitable nature of the country for the construction of a Railway.

§ No. 1,031, 14th April 1868.

72. I quote, as follows, from a letter§ received from the Collector of Tinnevely:—

“A line direct from Madura to Tuticorin would pass through the poorest part of the district (mostly Zemindary), where there is not a single town. It would skirt the extreme last of the cotton fields without passing through them, and would miss carrying rice from the valley of the Tambrapurni, and timber from the hills. I think there can be no doubt that if the Railway follows the present line of Trunk Road from Madura as far south as Kaitar, and from thence branches off to Tuticorin and Palamecottah, it will secure many important advantages. It will pass very much along the crest of the water-shed and so avoid much bridging. It will pass through Vindapatti, Sattur, and Kaitar, all centres of trade, Postal towns, and Sub-Magistrate's stations, and will not be far from Sivakasi on the west, and Ettiapooram on the east, the country between growing cotton and tobacco and requiring much rice and salt; this route will advance

*Proceedings of the Madras Government, Public Works Department,
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“the line straight to Tinnevely and Palamecottah and render a future extension towards Travancore more feasible.

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

73. The line surveyed by Mr. Carr ran nearly direct from Madura to Tuticorin; and since Mr. Puckle's letter was received a thorough examination of the country has been made by the Deputy Consulting Engineer, Captain Lindsay, the result of which, as will be seen by his report, which I have this day submitted to Government, places beyond doubt the advisability of following the route indicated by Mr. Puckle.

74. The latest returns show, that of the whole trade from Madura southwards only one-seventh goes to Tuticorin, the remainder going to Tinnevely and Palamecottah. The actual figures are 30,000 tons between Madura and Tuticorin per annum, and 182,000 tons between Madura and Tinnevely. Keeping in view this tendency of the traffic, there can, I think, be no doubt that the extension should run from Madura to Kytar or Kuddamboor, whence branches should be taken to Tinnevely and Tuticorin, respectively.

75. The cost of constructing a line of Railway along the route selected by Mr. Carr was roughly estimated in 1862 by that gentleman at Rupees 50,000 per mile. I do not think that this estimate can now be accepted as sufficient. The main line of the Great Southern of India Railway Company has cost nearly Rupees 80,000 per mile, and although the proposed extension will run through a remarkably easy country, crossing in its entire length only two large streams, the Vygay and the Vypar, I do not think that it will be safe to calculate on the cost amounting to less than Rupees 80,000, or £8,000, a mile.

76. The distance from Caroor to Madura is about 84 miles, from Madura to Tinnevely about 96 miles, and the distance from Kytar to Tuticorin is about 30 miles. The entire length required to bring both Tinnevely and Tuticorin into connection with the existing Railway system will certainly not exceed 210 miles. The probable cost of the line will, therefore, be about 168 lakhs of Rupees, or £1,680,000.

77. The average population and revenue in the talooks traversed by the proposed extension, are as follow:—

Names of Talooks.	Area in square-miles.	AVERAGE PER SQUARE-MILE.	
		Population.	Land Revenue.
			RS.
Caroor	599	233	423
Dindigul	...	251	275
Madura	...	435	575
Tiroomangalum	360	348	505
Sattur	508	403	562
Sankaranainarcovil	480	311	406
Ottapedaram	...	514	333
Tinnevely	295	621	1,533

The figures in the last column represent land revenue only, and that the proposed line will run through the richest and most populous tract in each talook.

78. The population of the principal towns near which the line will pass is as follows :—

Vadasendoor	...	...	...	...	...	4,102
Dindigul	...	...	...	...	...	8,951
Sholavandan	...	...	...	...	...	6,000
Madura	...	...	...	...	...	39,872
Tiroomangalum	...	...	...	...	...	5,848
Aroopakottah	...	...	...	...	...	8,978
Virdupatti	...	...	...	...	...	9,363
Yelayarasanendal	...	...	...	...	...	3,442
Puttapah	...	...	...	...	...	8,387
Kilpattu	...	...	...	...	...	4,222
Kandiaperi...	...	...	...	...	...	5,800
Ettukannar	...	...	...	...	...	3,304
Palamecottah	...	...	...	...	...	13,315
Tinnevelly	...	...	...	...	...	23,000
Itavalangul	...	...	...	...	...	3,324
Ottapedaram	...	...	...	...	...	3,834
Tuticorin	...	...	...	...	...	9,544

79. The average value of the Exports and Imports at Tuticorin, during the last five years, is as follows :—

						RS.
Exports	...	...	...	...	...	1,05,88,805
Imports	...	...	...	...	...	19,82,754

80. On the existing line of the Great Southern of India Railway Company the return from the traffic has seldom amounted to much more than 3 per cent. on the Capital expended, but this cannot be fairly compared with the probable return from the extension. Upon the existing line there is comparatively little goods traffic, whereas it seems probable that on the extension the return from the goods traffic alone would nearly cover the interest guaranteed on the outlay. There is little doubt that this line is likely to prove the most remunerative of the projects for Railway extension which have been proposed in Southern India.

81. The only other extension of the Great Southern of India Railway, which it is necessary to discuss here, is a branch from the Needamungalum station to the town of Combaconum. The advisability of constructing a branch Railway along this line has been lately brought forward by the Collector of Tanjore chiefly on account of the great expense incurred in maintaining a metalled road in suitable condition to carry the heavy traffic which passes between Combaconum and the Railway.

82. Mr. Morris's proposal, as I understand it, is that a line of light Railway on the Indian gauge should be laid over the existing road and bridges between Combaconum and Needamungalum; that the line should be constructed by the Great Southern of India Railway Company; that a minimum rate of interest of 5 per cent. upon the outlay should be guaranteed from the District Road Funds; and that the traffic on the line should be worked by a light locomotive, but in other

respect by the Company's ordinary rolling stock. Mr. Morris calculates that ten feet in width of the existing road-way will be sufficient for the light Railway, and that an adequate width for cart traffic will remain. He proposes that Government should provide land for straightening the road where necessary, also for stations and approaches to bridges. The cost of the line is estimated at Rupees 40,000, per mile giving a total for the 15 miles of Rupees 6,00,000, or £60,000.

83. Upon full consideration I cannot recommend the construction of a light Railway on the Indian gauge between Combaconum and Needamungalum. In the case of the branches to Arcot, Vellore, Salem, and Palghaut, I have proposed the construction of lines of this description, but the circumstances are different. The longest of those branches is 4 miles in length, while the Combaconum branch is 15 miles. There can be no doubt that for the service of a light line of this length, passing as it would over numerous bridges built for cart traffic, not only should lighter locomotives be employed, but that the whole rolling stock should be constructed of much slighter dimensions than that of the main line.

84. The chief argument in favor of a light Railway on the Indian gauge, over a narrow gauge line, consists in the freedom which the former is supposed to enjoy from the disadvantages inseparable from a break of gauge, inasmuch as the rolling stock of one line could be used upon the other. But, in practice, this argument falls through; for while, on the one hand, the use on the light Railway of the heavy rolling stock belonging to the main line would entail the haulage of an unnecessary amount of dead weight, to the detriment alike of the traffic receipts and of the permanent way; on the other hand, the use upon the main line of the light rolling stock, mixed up indiscriminately with its own heavy stock, would certainly subject the former to ruinous strains and shocks.

85. There can, however, be no doubt that upon a line of this length it will be practically impossible, so long as the gauge is uniform, to preserve inviolable the separation between the two classes of rolling stock. It cannot be expected that more than two light locomotives, with a proportional quantity of light rolling stock, would be provided and maintained for the special service of the branch: and, especially when the necessarily low rate of speed is considered, there can be little doubt that in feast time, or whenever from any other cause a pressure of traffic occurred, the temptation to invade the light line with the heavy locomotives and rolling stock of the main line could hardly be withstood.

86. For these reasons, I am altogether opposed to the scheme of connecting Combaconum with the main line by means of a light Railway on the Indian gauge. My opinion is either that the branch should be constructed upon the Indian gauge, and upon the scale and general dimensions of the main line of the Great Southern of India Railway Company; or, if constructed as a light Railway, that it should be upon the narrow gauge of 3½ feet. In the former case, it would be worked with the same locomotives and the same rolling stock as the main line; in the latter case, a separate class of light locomotives and rolling stock would be maintained for its service, and all temptation to use indiscriminately on either line the two classes of stock would be removed.

87. The decision between the alternative lines rests upon two considerations; first, the prospect of an extension of the light Railway system within the Tanjore

district, in continuation of the Combaconum branch; and second, the probable amount of traffic on the branch.

88. The experience of the Arconum and Conjeveram narrow gauge line has clearly shown the inadvisability of constructing a short piece of isolated Railway on a gauge peculiar to itself. That line, which has now been unsuccessfully worked for more than three years, is four miles longer than the Combaconum branch; and unless there is a prospect of an early and extensive development of the narrow gauge system within the Tanjore District, I think that all idea of constructing the branch upon any but the Indian standard gauge may be abandoned.

89. As regards the probable amount of traffic upon the branch, I think that there is every reason to anticipate most favorable results. The figures given below show that the Combaconum Talook, in which most of the branch lies, is one of the richest and most populous in the Presidency; and considering the wealth and importance of the town of Combaconum, I have little doubt that a broad gauge line will be in no way too much for the traffic.

90. The difference in the probable cost of the two alternative lines to which I have alluded would be considerable. Although, I think, that the rate quoted by Mr. Morris, of Rupees 40,000, or £4,000, per mile, for the light broad gauge Railway is below the mark, the cost of a narrow gauge line, constructed over the existing roadway and bridges, should be kept within this limit. On the other hand, considering the number of streams which would have to be bridged, I do not think that a first class Railway could be constructed at a lower cost than Rupees 90,000, or £9,000, per mile. The total cost of the latter would, therefore, be Rupees 13,50,000, or £135,000, as compared with Rupees 6,00,000, or £60,000, for the narrow gauge line.

91. Taking every thing into consideration, I am inclined to recommend the cheaper alternative, if the branch is likely to form the nucleus of an extensive narrow gauge system: otherwise I think the broad gauge should be adopted. In any case, I think, it is clear that Combaconum should be brought into connection with the main line.

92. The average population and revenue of the talooks through which the branch will run are as follow:—

Names of Talooks.	Area in square miles.	AVERAGE PER SQUARE-MILE.	
		Population.	Land Revenue.
Combaconum	311	910	RS. 2,194
Manargudi	298	496	1,319

93. The population of the town of Combaconum, the only place of importance on the branch, is 33,765.

Railway between Madras and Calcutta.
94. The question of constructing a line of Railway between Calcutta and Madras, running parallel to the east coast, has been mooted by more than one of the Collectors through whose districts it would pass, and is warmly advocated by

Mr. Minchin, the Collector of Vizagapatam. The length of such a line would be 1,050 miles; and considering the nature of the country through which it would pass, and the numerous large rivers across which it must be carried, I do not think that a figure lower than Rupees 1,20,000, or £12,000, per mile, can be quoted as its probable cost. The total outlay upon the line would, at this rate, exceed 1,250 lakhs of Rupees, or twelve and a half millions sterling; and when it is borne in mind that the sea route runs parallel to the line, competing with it throughout its length, and that a good road is under construction between Calcutta and Madras, I think that all discussion as to the policy of constructing a Railway may be postponed.

Political lines of Railway.
* No. 3, 16th January 1868.
Vide G. O., 5th May 1868, No. 1,408.

95. Referring to the Secretary of State's* Despatch on the subject of Railway extension in India, and to the distinction therein drawn between

commercial and political Railways, I would observe that all the lines of Railway which have been as yet alluded to in this report, with one exception, may be classed as commercial lines, inasmuch as the arguments in favor of or against their construction are altogether based upon the probability of their returning a fair rate of remuneration upon the outlay. The exception alluded to is the line from Poothanoor, through Coimbatore, to the foot of the Neilgherries, which might fairly claim to be considered as a political line; but as there is good reason to anticipate that the traffic upon it will yield a fair return for the outlay, I do not propose to remove it from the commercial lines.

96. There is, however, one line of a purely political character to which the Board of Revenue have requested me to draw the attention of the Government, and the importance of which I concur with them in estimating highly. I allude to a line of Railway which will connect Secunderabad either with the sea coast or with some point in the Railway system of this Presidency, and which will serve as an alternative line to the proposed branch of the Great Indian Peninsula Railway from Koolburga.

97. To effect this object three lines have been suggested; the first, from Masulipatam, passing near Bezvada, Condapilly, Nundigaum, Juggiapett, and Sooriapett; the second, from Cuddapah, passing near Dhoor, Chagulmurry, Nundial, Moorcondah, and Jeddacherlah; the third, from Auspree, passing near Kurnool to Moorcondah, from which point it would coincide with the second line.

98. The length of the first line is about 205 miles, of which distance 105 miles lie within the Kistna District, and 100 miles within the Nizam's territory. The country through which it passes affords remarkable facilities for the construction of a Railway. There are no hills to be encountered, and only two streams of any size, the Moonair and the Moosee, to be crossed. The cost would probably not average more than Rupees 75,000, or £7,500, per mile, amounting to a total sum of not much more than 150 lakhs of Rupees, or one and a half millions sterling.

99. The length of the second line is about 216 miles. Of this 111 miles lie within the Cuddapah and Kurnool Districts, and 105 miles within the Nizam's territory. This route was surveyed in 1863 by Mr. Going, an Engineer in the

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service of the Madras Railway Company, and his report forms one of the enclosures to the Secretary of State's* Despatch, conveying his decision as to the line to be adopted for the Madras and the Great

Indian Peninsula Railways between Sholapoor and Gooty. Mr. Goings's report, as to the character of the country, is generally favorable, though two large rivers, the Pennair and the Kistna, must be crossed. He estimates the cost to the south of the Kistna at Rupees 40,000, or £4,000, per mile, and to the north at Rs. 70,000, or £7,000. These estimates may have been sufficient five years ago; but considering the great rise in prices caused by the extensive operations of the Madras Railway Company, and the Madras Irrigation and Canal Company, I think that a considerable increase is necessary, especially to the rate given for the part of the line to the south of the Kistna. I do not think that the entire line would cost less upon an average than Rupees 80,000, or £8,000, per mile. This would give a total sum of somewhat under 175 lakhs of Rupees, or one and three-quarters millions sterling.

100. The length of the third line is about 190 miles, of which 85 miles lie within the Bellary and Kurnool Districts, and 105 miles within the Nizam's territory. The cost may, I think, be fairly set down at the same figure which has been taken for the second line, viz., Rupees 80,000, or £8,000, per mile, giving a total of a little over 150 lakhs of Rupees, or one and a half millions sterling.

101. In point of distance, therefore, the three lines are nearly equal, while in point of cost there is likely to be but little difference, the lines from Masulipatam and from Auspree being each likely to cost some £200,000 less than the line from Cuddapah.

102. It is not altogether easy to estimate fairly the comparative advantages of the three lines. The line from Masulipatam would bring Hyderabad into direct connection with the east coast of India; and although Masulipatam itself is not a good port, the line would be connected with Cocanada by means of the canal from Bezwada. Taken in connection with the branch of the Great Indian Peninsula Railway from Koolburga, the Masulipatam line would unquestionably tend to open out the Hyderabad territory more thoroughly than either of the alternative lines.

103. On the other hand, the two remaining lines would both act as feeders to the Madras Railway. The line from Cuddapah would pass, south of the Kistna, through a remarkably fertile tract of country, and the line from Auspree would connect the important town of Kurnool with the Railway system.

104. Upon the whole, I am inclined to give the preference to the line from Masulipatam; and I think that any sum by which the traffic receipts from the line might fail to reach the amount guaranteed as interest upon the outlay will be a cheap price to pay for a second communication by rail with the important Military station of Secunderabad, and for the opening out of the Hyderabad territory, the commercial and social advantages of which latter measure can hardly be over-rated.

105. As regards the distribution of the projected lines of Railway among the Companies to be entrusted with their supervision, I think that, with two exceptions, the whole of the extensions and branches to which I have alluded should be

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divided among the three Companies which have already embarked their Capital in Railway enterprizes within this Presidency; and this for two reasons: both because it is, on public grounds, desirable to limit as far as practicable the number of separate interests in the Railway system of the Presidency; and because, in justice to itself, each Company should be allowed to complete its undertaking, without interference from others, by the construction of such branches and extensions as may be required to develop the traffic of the districts in which it has commenced its work.

106. For these reasons I would entrust to the Madras Railway Company the construction of the extension from Bellary westward to Dharwar and Carwar. I am convinced that the interests of this Company would suffer very greatly if the construction of this line were to be given to another, and necessarily a rival Company. I do not think that the Madras Railway Company would be gainers by the extension of the line westward beyond Dharwar; but there can be no doubt that a line *must* be made between Dharwar and Carwar, and the construction of this section by another Company would deal so heavy a blow to their interests, that the Madras Railway Company would, I am convinced, be anxious to undertake it. The fact that part of the extension lies within the Bombay Presidency can make no difference in a matter of this nature. Apart from this solitary fact, there can be no doubt that upon every ground the Madras Railway Company is the one best suited and best entitled to carry out the work; and it cannot be for a moment imagined that the just claims of a great corporation should be slighted for such a mere accident.

107. The branch from Coimbatore to the foot of the Neilgherry Hills already forms part of the Madras Railway Company's contract. The short branches to Arcot, Vellore, Salem, and Palghaut, should of course be entrusted to the same Company; and whichever of the extensions on the west coast is undertaken, it should also be carried out by the same Agency.

108. Should these proposals be acceded to, the length of line which would then form the Madras Railway Company's undertaking would be as follows:—

	Miles.
South-West Line	407
Bangalore branch	85
North-West Line	309
Bellary branch	32
Extension to Dharwar and Carwar	260
Neilgherry branch	36
Extension on West Coast	60
Short branches on South-West Line	14
	<hr/> 1,203

The Company's lines will then form a very compact system, the length of which will exceed only slightly the maximum named by the Government of India.

109. The extension from Caroor southwards, and the branch from Needamungalum to Combaconum, should, of course, be entrusted to the Great

Southern of India Railway Company. This Company's undertaking would then consist as follows:—

	Miles.
Line from Negapatam to Erode	168
Extension from Caroor to Tinnevely and Tuticorin	210
Branch to Combaconum	15
	393

Indian Tramway Company. 110. The proposed extension from Conjeveram to Cuddalore will, of course, be constructed by the Indian Tramway Company, who will then have a continuous line of 100 miles in length, on the narrow gauge of 3½ feet.

111. Of the various extensions to which I have alluded in this report there remains the proposed line from Hyderabad to Masulipatam, and the system of narrow gauge lines for Mysore, which will be connected with the Madras Railway at Bangalore, and which, as I have shown, will affect the interests of Wynaad.

112. The first of these might either be entrusted to a separate Company; or, as suggested by the Secretary of State in the case of lines belonging to the political class, it might be constructed by means of direct Government Agency.

113. The proposed system of lines in Mysore should also be given to a separate Company. I do not think that it would be to the advantage of the Madras Railway Company to extend their undertaking in this direction, especially if the projected lines are to be constructed upon a gauge different from what has been adopted as the Indian standard. A reference to the papers printed with the Order of Government, dated the 25th September 1866, No. 3,061, will show that the Indian Tramway Company have already applied for permission to construct a line in a westerly direction from Bangalore, and in the event of a system of narrow gauge lines being adopted, the claims of that Company to carry out the work should not be lost sight of.

114. I have already intimated the order in which I place the several proposed extensions as regards the importance and the remunerative character of each, and in the same order, I think, they should be taken up. I attach the greatest importance to the southern extension from Caroor, and after that to the western extension from Bellary. Both of these should be taken up at once, and completed, the former within four years, and the latter within six years. Next to these I would place the Neilgherry branch, which should be carried out within two years; and the extension of the Indian Tramway Company's line to Cuddalore, which should occupy about four years. The branch to Combaconum, and the short branches on the Madras Railway Company's South-West Line should be easily finished within two years. Of the proposed extensions on the west coast I think the line to Cannanore should be first taken in hand. It should be opened to Calicut as speedily as possible; after which the rest of the extension could be proceeded with leisurely. Lastly comes the Hyderabad and Masulipatam line, the construction of which may well be spread over a period of five years.

115. The order in which I would place the lines, and the amount which might be spent annually on each, are shown in the following table:—

Order.	Name of Extension.	Total estimated cost.	Number of years under construction.	Annual outlay.
		£.		£.
1	From Caroor to Tinnevely and Tuticorin	1,680,000	4	420,000
2	From Bellary to Dharwar and Carwar.	3,200,000	6	533,000
3	From Coimbatore to foot of Neilgherry Hills	324,000	2	162,000
4	From Conjeveram to Cuddalore	405,000	4	100,000
5	From Neeclamungalum to Combaconum.	135,000	2	68,000
6	Short branches on South-West Line, Madras Railway	91,000	2	45,000
7	From Beyoor to Calicut and Cannanore	640,000	6	110,000
8	From Masulipatam to Hyderabad	1,470,000	5	295,000
	Total annual outlay		..	1,730,000

Showing a total annual outlay on the proposed extensions of less than one and three-quarters millions sterling. Upon the supposition that a sum of between seven and eight millions sterling can be made available for the extension of the Railway system generally throughout India, I feel sure that if a fourth part of that sum were allotted to this Presidency, its claims would not be over-rated.

No. 354. From the Consulting Engineer for Railways, to the Secretary to Government, Public Works Department, dated Madras, 20th July 1868, No. 219.

1. Referring to paragraph 22 of my letter, dated the 15th instant, No. 248, I have the honor to state that I have learnt from the Chief Engineer of the Madras Railway Company that, by the adoption of somewhat steeper gradients and other modifications from what was first proposed, he has been able to make a considerable reduction in the estimated cost of the branch between Puttamby and Cochin so that the cost per mile, including rolling stock, &c., may be assumed at about Rupees 1,00,000, or £10,000, per mile. This will reduce the probable total cost of the line from 75 lakhs to 60 lakhs, or to £600,000.

2. I do not think that the arguments for and against the construction of the line are, to any considerable extent, affected by this reduction in its estimated cost. If the maintenance of Cochin as an ocean port, available throughout the year for large vessels, be placed beyond reasonable doubt, the construction of the line will probably be deemed advisable, whether its cost amounts to the larger or the smaller estimate: but if, on the other hand, the doubts as to the future condition of Cochin are deemed to be well founded, it will not be easy to show good reason for the expenditure of even the smaller sum.

*Proceedings of the Madras Government, Public Works Department,
19th September 1868.*

3. In paragraph 107 of my letter above referred to, I omitted to allude, as I meant to have done, to the Contract executed with the Madras Railway Company on the 19th December 1855. In Clause I. of that Contract the Company agree to carry out the branch to the foot of the Neilgherry Hills when called upon to do so; and Clause II. empowers the Government to require the Company to make any extensions of their line which may seem desirable to Government. This latter clause seems to provide for such extensions as the short branches of the South-West Line alluded to in the above quoted paragraph.

No. 355. Minute by the Right Honorable the President.
(Here enter 5th September 1868.)

No. 356. Minute by the Honorable H. D. PHILLIPS.
(Here enter 8th September 1868.)

No. 357. Minute by the Honorable A. J. ARBUTHNOT.
(Here enter 9th September 1868.)

No. 358. ORDER THEREON, 19th September 1868, No. 2,967.

RAILWAY, No. 32.

1. The above report by the Consulting Engineer for Railways, on the extensions which appear to him necessary to give full development to the Railway system of this Presidency, is submitted in pursuance of the Orders of Government under date the 8th January 1868, No. 61.

From Caroor to Tinnervelly and Tuticorin.
From Bellary to Dharwar.
From Conjeraram to Cuddalore.
Short branches to Arcot, Vellore, Salem, and Palghat.
From Beylore to Calicut and Cannanore.

2. The Government fully approve of the extensions marginally described, and will recommend them to the Government of India. The construction of the projected line from Coimbatore to the foot of the Neilgherry Hills has been

already recommended by the Government of India to the Secretary of State.

3. His Excellency the Governor in Council concurs with Major Shaw Stewart in thinking that, until the doubts which have lately been thrown upon the capabilities of Cochin as an ocean port have been removed, it would be premature to press for the extension of the Madras South-West Line from Pattamby in that direction. The recent action of the sea near Cochin, and the protective measures which have in consequence been rendered necessary, suggest the propriety of a deliberate professional opinion being obtained on the capabilities of the Cochin backwater as a harbour, and the value and prospects of that port, as well as of the anchorage at Narakal. The Government, accordingly, resolve to take advantage of the approaching visit of the Master Attendant of Madras to Cochin, to request him and the Consulting Engineer for Railways, and an Engineer, whom the Agent and Manager of the Madras Railway Company will be requested to name, to investigate the present circumstances and future prospects of the port, and to submit the result for the information of Government.

*Proceedings of the Madras Government, Public Works Department,
19th September 1868.*

4. The Government are unable to support the proposal to construct a line of Railway from Masulipatam to Hyderabad. A great part of it would be within the territories of a foreign Government, and, while having no useful connection with any existing line, its terminus on the coast would be at a port which neither offers any advantages in the present, nor expectations in the future.

5. The Government concur in the expediency of carrying out the proposed extension from the Needamungalum station on the Great Southern of India Railway to Combaconum; but, considering the difference of opinion which appears to exist as to the manner in which this extension should be effected, His Excellency in Council resolves to communicate paragraphs 81 to 93 of the Consulting Engineer's report to the Board of Revenue, with a request that they will, in communication with the Collector, report fully on the subject, stating whether this extension will be susceptible of considerable expansion hereafter for local wants.

6. The Government are not prepared to advocate at present the extension of the Bellary branch of the North-West Line beyond Dharwar, though they agree with Major Shaw Stewart in considering that the right of the Madras Railway Company to be entrusted with carrying it out at any future time should be recognized.

7. The Government do not deem it necessary to enter upon the subject of the extension of the Railway system in Mysore, as the consideration of the requirements of that territory properly devolves on the Mysore Government.

Ordered that the following letter be sent:—

(Here enter No. 2,968, dated 19th September 1868.)

(True Extract.)

Colonel, R. E.,

Secretary to Government.

To the Consulting Engineer for Railways.
" Board of Revenue.
" Master Attendant of Madras.
" Revenue Department.

Ed. S. T. Augustin.

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Comm. L. orders passed on
papers regarding extension of
Railways in the Madras Presidency

From B. of Revenue 3rd July /74
No. 2352.

No. 2478. 24th Sept.

RECORDED.

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No. 385-386.