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REPORT

OF THE

GANGES BRIDGE COMMITTEE.



CALCUTTA :

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APPENDIX A¹.

No. 10252—10264 (Railways), dated 28th December, 1906.

RESOLUTION—By THE GOVERNMENT OF INDIA, DEPARTMENT OF COMMERCE AND INDUSTRY.

The question of the most suitable site for the erection of a bridge across the river Ganges near Calcutta, with the object of affording the metre gauge systems north of that river direct access to the country to the south, has been under consideration for some years past. Hitherto two proposals have been discussed:—the erection of a bridge at Sara, which would link up the metre and broad gauge sections of the Eastern Bengal State Railway, and the construction of a bridge at Godagiri, which would more directly serve the interests of the Bengal and North-Western Railway Company. A third proposal has now been put forward by the Railway Board, to the effect that a bridge should be made at Rampur Boalia, connected by short links with the nearest stations on the Ranaghat-Katihar and Eastern Bengal State Railways, and affording direct access to Calcutta by means of a new metre gauge line to be laid *viâ* Ranaghat and Meherpur.

2. This proposal has not hitherto been considered by the Government of India and, in view of the important engineering, administrative, traffic, and financial questions involved, and the complexity of the issues, they are of opinion that there is not at present sufficient information available to enable them to decide definitely as to the most satisfactory solution of the problem. Further, they are unwilling to approach the Secretary of State again in respect of this matter until the commercial community has had the fullest opportunity of criticising the scheme now put forward by the Railway Board, and of expressing their views on the question as a whole. For these reasons, the Government of India have decided to appoint a small Committee to which the whole question of the bridging of the Ganges will be referred. The Committee will consider and report on the three schemes outlined in the first paragraph of this Resolution, and will also state their views on the general question of the bridging of the river. They will be empowered to make such enquiries as they may deem necessary, in order to arrive at a decision on the question referred to them.

The Governor General in Council trusts that the Committee will, at the conclusion of this inquiry, find themselves in a position to recommend, for the approval of the Secretary of State and the Government of India, a scheme for the settlement of this important and complex question, which will be satisfactory to the different interests concerned.

3. The Committee will be constituted as follows:—

President.

Mr. G. Moyle, M.I.C.E., Director of Railway Construction.

Members.

The Hon'ble Mr. W. A. Inglis, Secretary to the Government of Bengal, Public Works Department.

Mr. Norman McLeod, Messrs. McLeod and Company, Bengal Chamber of Commerce.

A representative of the Bengal National Chamber of Commerce.

Mr. F. G. Dumayne, Vice-Chairman, Port Commissioners.

An officer of a non-State Railway in India to be appointed by the Government of India.

Secretary.

Mr. J. H. Lovell, Deputy Consulting Engineer for Railways, Calcutta.

4. The Committee will assemble directly after the Christmas holidays, and it is hoped that they will be in a position to submit their report by the end of February.

5. A copy of a note prepared by the Railway Board for the information of the Committee, setting forth the details of the scheme which they favour, is appended to this Resolution.

Ordered that a copy of this Resolution be forwarded to the Government of Bengal, to the Government of the United Provinces of Agra and Oudh, to the Government of Eastern Bengal and Assam, to the Home and Finance Departments, to the Secretary to the Railway Board, and to the President and Members of the Committee.

Ordered also, that it be published in the Supplement to the *Gazette of India*, for general information.

BRIDGING THE GANGES.

Brief memorandum by the Railway Board on the alternative schemes for providing direct railway communication between Northern Bengal and Calcutta.

The question of bridging the Ganges north of Calcutta has been under the consideration of the Government of India for some years; but no definite conclusion has yet been arrived at as to the site at which the crossing should be made.

2. In 1903 detailed investigations were made as to the feasibility of building a bridge at Sara, a scheme favoured by the mercantile community of Calcutta who, it is believed, couple with it the conversion to standard gauge of the metre gauge lines of the Eastern Bengal State Railway which lie to the north of the river.

3. Since then, however, a standard gauge line has been constructed from Ranaghat to Godagiri, on the south of the Ganges, and the construction of a metre gauge link from Godagiri to Katihar on the north is now in progress. To connect these two lines a proposal has been put forward for bridging the river at Godagiri.

4. A vast net-work of metre gauge railways occupies the country to the north of the river extending from the extreme east of Bengal to the north of the United Provinces, and it may be taken as certain that, whether a bridge be built at Sara or Godagiri, conversion of existing gauge to a greater or lesser extent, according to the position of the bridge, will be claimed by the commercial community as a natural sequence, if the full benefit of bridging is not to be lost.

5. Moreover, it is clear that the provision of a bridge at either of the crossings named would not meet satisfactorily the full requirements of trade as a permanent arrangement, and the Railway Board feel confident, therefore, that the building of a bridge at one site would eventually be followed by the building of a bridge at the other.

6. This, coupled with the conviction that the entry of the metre gauge to Calcutta cannot long be postponed, make it necessary to consider the feasibility of adopting an alternative scheme, which, while anticipating the latter event, will also satisfy the full legitimate needs of trade at the minimum of cost to the State.

7. The Railway Board believe that the only practical way of solving this problem is by constructing, at the cost of the State, a bridge at or near Rampur Boalia, by connecting it on the north with the metre gauge lines on either side and by continuing the metre gauge into Calcutta.

8. Such is the general review of the case and such the solution proposed by the Board of the difficulties of the situation arising out of the various interests which it is necessary to meet. It is, however, desirable that the main considerations which have influenced the Board in arriving at the conclusions they now put forward, should be set forth more in detail.

9. There are three aspects of any scheme designed to satisfy the requirements of the existing situation, which must be regarded in considering its relative merits and judging its claims to preference over others. Of these the first and most important is the *financial* aspect.

10. Assuming a bridge to be built at Sara, transshipment of traffic beyond the river would still be necessary under existing conditions between the broad and metre gauge stock, and this disadvantage could only be removed by the conversion of the metre gauge lines of the Eastern Bengal State Railway which, as mentioned above, is already regarded by the public as the logical sequence of the connecting of the two gauges at the river.

11. Similarly crossing the Ganges at Godagiri by a bridge would mean transshipment of traffic between the stock of the two gauges, a disadvantage for the removal of which the only practical means available would lie (given that the conversion of the metre gauge north of the Ganges would in this case be quite beyond the sphere of practical politics) either in the conversion of the newly-built Ranaghat-Godagiri Railway to metre gauge and the extension of the metre gauge from Ranaghat to Calcutta, or in the construction of an entirely new and independent State metre gauge line between Godagiri and Calcutta, the construction of which would be fully justified financially, fed, as the line would be, by the heavy traffic of a railway of the magnitude of the Bengal and North-Western Railway.

12. The alternative scheme, providing as it does for a single bridge at a point about equi-distant from the two railway systems seeking to cross the river, and readily connected with both by short links which do not appreciably affect the through distance, together with a double metre gauge line to the south of the river, bisecting the country which lies between the two standard gauge lines and terminating in Calcutta, would at once remove the difficulty of transshipment, open out a new tract of country, and anticipate the entry of the metre gauge into Calcutta.

13. On the hypothesis, therefore, that to satisfy the requirements of trade efficiently and fully a bridge built at Sara would also necessitate the building of a bridge at Godagiri, it will at once be apparent that the scheme of a single bridge at Rampur Boalia, if it succeeds in establishing its claim fully to meet the needs of trade, has a substantial financial advantage. Put into figures the approximate cost of the two alternatives may be taken as follows:—

	Rs.
(i) Cost of bridges at Sara and Godagiri <i>plus</i> the cost of converting the metre gauge lines of the Eastern Bengal State Railway, and the cost of extending the metre gauge from Godagiri to Calcutta	670 lakhs.
(ii) Cost of bridge at Rampur Boalia <i>plus</i> cost of connections on the north with the metre gauge lines on either side, and the cost of a double metre gauge line to Calcutta	390 „
(iii) Saving to be effected by the adoption of the Rampur Boalia scheme	280 „

or approximately 3 crores of rupees.

14. The next aspect which calls for consideration is the *commercial* aspect, or, in other words, that which concerns the ability of the schemes to meet the requirements of trade. The alternative scheme of the Rampur Boalia Bridge will, it is certain, prove to be no less efficient commercially than the combined Sara and Godagiri bridges scheme, and, in addition, it gives promise of securing advantages to trade which are absent from the latter.

15. There can be no question but that the provision of an additional line from the north to Calcutta and the opening to railway communication of new country, are solid advantages to the trade of the Port. This additional line would, on the eastern side, divert from the standard gauge the whole of the tea and jute traffic coming by rail from Northern Bengal by the Sara route, and as the increase in lead would be approximately nine miles only, the Railway Board are prepared to agree that no greater charge shall be levied upon traffic carried by the new route than what it would have to pay if a bridge were built at Sara. The carriage through to destination of this traffic

in metre gauge wagons would have the result of placing the standard gauge stock at the entire disposal of the traffic coming from Eastern Bengal and Assam *via* Goalundo and Khulna, and would thus insure this traffic against the inconvenience to which it is now liable in times of pressure (an inconvenience which would be accentuated; rather than otherwise, in the event of the provision of a bridge at Sara) by reason of the demands of the traffic from the north.

16. On the western side, the additional line would provide a more direct route to Port than will be available under present conditions when the Katihar-Godagiri link is completed. Trade would be relieved of the present transshipment of a heavy grain traffic at Mokameh, where the river is causing considerable trouble, and Calcutta would be placed in direct communication with Oudh and the fertile area of Tirhut which the Bengal and North-Western Railway system serves. This would also tend to relieve the strain on the East Indian Railway and release a certain amount of its stock for general use.

17. With regard to terminal arrangements, there is no reason to suppose that there will be any practical difficulty, which is not susceptible of removal, in providing them, and, moreover, it has to be noted that they will be equally necessary whichever of the two alternatives for bridging the Ganges is adopted unless transshipment is imposed at Godagiri. The Port of Madras has, at the present time, lines of both gauges running into it, and Karachi has, for some time past, been pressing for the entry of the metre gauge into its port.

18. There remains the *engineering* aspect to consider. Here the advantage lies unquestionably with the Rampur Boalia site. The Ganges is notoriously a difficult river to bridge, owing to the conditions of the soil, the width of the river, and the readiness with which it deviates from its course. The Sara site, though declared to be quite practicable, is admittedly a difficult one. That at Godagiri is better, though not free from difficulty. At Rampur Boalia the conditions are favourable, as at that point the river traverses a straight reach, from which it has not varied for a century, and both in building and maintenance the site is preferable to that at either Sara or Godagiri.

19. To summarize, the objects to be gained by the adoption of the Rampur Boalia scheme are as follows :—

- (i) It can be carried out at a comparatively reasonable cost.
- (ii) It will provide a new route for tea and jute from Northern Bengal to be carried through to destination in its own special stock.
- (iii) It will render available a large number of wagons for the exclusive use of the traffic from Eastern Bengal and Assam *via* Goalundo and Khulna.
- (iv) It will, by relieving the standard gauge section of the Eastern Bengal State Railway of the present *via* Sara traffic, enable it to deal more expeditiously with the *via* Goalundo and Khulna traffic.
- (v) It will, by providing a new and independent route for the present *via* Sara traffic, enable it to be dealt with more expeditiously.
- (vi) It will effectively meet the present difficulties of transshipment at Sara and Godagiri without the imposition on trade of any extra charge for freight.
- (vii) It will afford railway facilities to a new area between Rampur Boalia and Ranaghat.
- (viii) It will relieve pressure on the East Indian Railway at Mokameh, and make a larger number of wagons available for the general traffic of that line.

F. B. UPCOTT.
W. H. WOOD.
T. B. WYNNE.

19th December, 1906.

APPENDIX A³.

From the Secretary, Ganges Bridge Committee, to the Secretary, Railway Board.

With reference to the Railway Board's memorandum accompanying the Department of Commerce and Industry's Resolution No. 10252—10264, dated 28th December 1906, I am directed by the Committee to ask you to request the Railway Board to depute some one to explain the scheme given therein with special reference to paragraph 17, on page 134.

From the Secretary, Railway Board, to the Secretary, Ganges Bridge Committee.

I am directed by the Railway Board to acknowledge the receipt of your letter No. 42, dated 10th January 1907, and to say that as the Government of India do not desire to take part in the enquiry as to the bridging of the Ganges in any way so far as any particular scheme is concerned, the Railway Board consider it would be undesirable for their representative to attend the Committee as advocating a particular proposal.

From the Secretary, Ganges Bridge Committee, to the Secretary, Railway Board.

With reference to your No. R. C. 177 D.-2 of the 11th January 1906, the Committee have instructed me to say that the tenour of letter No. 42, dated the 10th January, appears to have been misunderstood. There was no intention of asking for the deputation of an officer to advocate the scheme put forward by the Railway Board, but merely that some officer conversant with the scheme might attend for the purpose of explaining it in more detail.

2. You will observe from paragraph 2 of the Government of India Resolution No. 10252—10264, dated the 28th December 1906, appointing the Committee, that the Committee is required to "report on the three schemes outlined in the first paragraph of this Resolution," and again in paragraph 1 it is said "a third proposal has now been put forward by the Railway Board" and without the explanation now asked for the Committee will be unable to comply with the instructions of the Government of India.

3. The Committee trust that the Railway Board will, with this further explanation, see their way to helping them in this question.

From the Secretary, Railway Board, to the Secretary, Ganges Bridge Committee.

I am directed by the Railway Board to acknowledge the receipt of your letter No. 67, dated the 12th January 1907, and to say that the Board are very willing to assist the Committee so far as they properly can and with a view to seeing how far they can help the Committee will be glad to know what are the precise points on which the Committee desire explanation. On receipt of this information the Railway Board will give the matter their further immediate consideration.

From the Secretary, Ganges Bridge Committee, to the Secretary, Railway Board.

With reference to your letter No. R. C. 17—1-2, dated 14th instant, and in continuation of my No. 106, dated 16th January, the Committee have directed me to state that the following are the points on which they would be much obliged if the Railway Board would kindly give them further information :—

[See next page.]

From the Secretary, Railway Board, to the Secretary, Ganges Bridge Committee.

With reference to your letter No. 153, dated 19th January 1907, I am directed by the Railway Board to send you herewith the enclosed statement which shows on the left hand side the questions asked by the Ganges Bridge Committee and on the right hand side is the Railway Board's explanation as desired by the Committee.

Questions asked of the Railway Board by the Ganges Bridge Committee.

Replies of the Railway Board.

I. (Paragraph 1 of Railway Board's memorandum accompanying Government of India Resolution No. 10252-10264, dated 28th December 1906).

The Committee would be obliged if the Railway Board would kindly inform them what reasons prevented the Government of India from arriving at a decision in connection with the Ganges bridge and why Mr. Spring's proposals were unacceptable.

II. (Paragraph 2). Will the Board be pleased to give their reasons for the belief expressed in paragraph 2 of their memorandum that the mercantile community of Calcutta demand not only a bridge at Sara but couple with it the conversion of the metre gauge lines north of the Ganges to standard gauge (see paragraph 4 also in this connection.)

The inference to be drawn from this paragraph is that the Katihar-Godagiri-Ranaghat route was projected after Mr. Spring had submitted his report. Is it not a fact that the Ranaghat-Moorshedabad section of this route had actually been commenced when he made his investigations and that he treated the route as, for all practical purposes, existing?

III. (Paragraph 3). By whom and when was the proposal to bridge the river at Godagiri put forward and on what grounds was it advocated?

IV. (Paragraph 5). The Committee will be glad to know why a bridge at Sara will not meet all requirements, seeing that the Godagiri traffic would only be diverted a few miles.

I. The papers sent to the Committee by the Department of Commerce and Industry include all the despatches which have passed between the Government of India and the Secretary of State, which despatches will give the information desired by the Committee.

II. The Railway Board found the belief expressed in paragraph 2 of their memorandum on the remarks made by the commercial representatives at the meeting which the Railway Board had with the Bengal Chamber of Commerce in July last.

III. The proposal to construct a bridge over the Ganges at Godagiri was made by the Bengal and North-Western Railway. The grounds upon which the Bengal and North-Western Railway made their proposal were that they had experienced extreme difficulty in maintaining a ferry service *via* Mokameh in consequence of the action of the river Ganges upon the approaches to the necessary ghats and that the construction of the bridge would remove the very serious disabilities under which the public suffered in consequence of the unreliability of the service *via* this route.

IV. The Railway Board in offering the desired explanations do not more than possible desire to draw inferences from the question, but from the terms of this question it would appear that the Committee do not fully realize that the Board have an equal duty to traffic arising from the country west of the proposed site for the Sara Bridge as to that from the east. With this preliminary remark the Board's answer to the question is that after careful consideration they are of opinion that in the general interests it is not desirable that the traffic arising from one part

should be carried a further distance than is necessary but of the direct route in order that the traffic from another part should enjoy a more direct transit to destination. In suggesting that the bridge should be in the vicinity of Rampur Boalia together with the construction of the necessary connecting works, the Board are of opinion that the interests of the traffic as a whole arising on the north bank of the Ganges is given impartial treatment in its access to the Port of Calcutta.

V. (Paragraph 6). Will the Board kindly state the grounds on which their conviction is based that the entry of the metre gauge into Calcutta cannot be long postponed?

V. The Board view the fact of the existence of the very large metre gauge mileage on the north bank of the Ganges together with the extensions in the increase of such mileage at present under construction as also the further proposals for increase of metre gauge railways in the same territory makes the conversion of the metre gauge lines north of the Ganges to 5' 6" gauge a proposition which does not come within the scope of practical consideration. They therefore had to consider whether in making their proposal that vast area was to be permanently under the disability of having for all time to submit to its traffic being transhipped before it could reach its destination at Calcutta. For these reasons the Board considered the only practical way of removing such a serious disability was to adopt a scheme for removing the necessity of transshipment by bringing the metre gauge into Calcutta.

VI. (Paragraph 7). Do the Board consider the construction of the metre gauge lines into Calcutta an essential feature of their scheme for a bridge at Rampur Boalia or do they recommend that site irrespective of gauge questions?

VI. A perusal of the Railway Board's note will show that they consider the construction of the metre gauge into Calcutta an essential feature of their scheme for a bridge in the vicinity of Rampur Boalia as it will provide a new route for traffic north of the Ganges to Calcutta while at the same time directly interesting the metre gauge systems of Northern India in Calcutta trade.

VII. (Paragraph 8). Will the Board be pleased to detail the various interests which in their opinion it is necessary to meet and to indicate their relative importance?

VII. The Railway Board are not sure that they understand this question, but the Board in using the expression in paragraph 8 of their memorandum, published with the Resolution of Government on the 23th December 1906—

“difficulties of the situation arising out of the various interests which it is necessary to meet”

had in mind the very large traffic in various commodities which now have to run the risk of delays caused by floods and damage to ghats by the river Ganges, also the public inconvenience arising therefrom and the substantial expense put upon the railways in consequence of such difficulties, also the very substantial loss that the commercial community suffer by want of reliability in the transportation of the commodities in which they are interested.

VIII. (Paragraph 10). Under the assumption made and assuming also that the existing broad gauge line Damukdia line Poradah was replaced by a metre gauge line

VIII. The Board are of the opinion that the cost would be approximately the same with the disadvantage of losing the opportunity of opening out new country which

and that the metre gauge is continued from Poradah to Calcutta, would the cost be greater or less than that to be incurred under the Board's proposal for a new metre gauge line Rampur Boalia to Ranaghat and on to Calcutta?

IX. (Paragraph 11). How again would the cost of replacing the existing broad gauge line Lalgola to Ranaghat by a metre gauge line, to be continued on to Calcutta, compare with the cost of the Board's proposals?

X. (Paragraph 12). Would not the "alternative scheme" take a very large traffic from the abandoned routes? For instance would not the capital invested in the existing double line Ranaghat to Poradah and also in the single line Ranaghat to Lalgola become to some extent unproductive and for the present at least lost capital?

What are the prospects of the new tract of country to be opened out and is the district of sufficient importance on the population and trade basis to contribute sensibly to the revenue of the double metre gauge line proposed?

Is not the tract already served to some extent by the Ganges, and two railways which enclose it, and by navigable rivers intersecting it?

XI. (Paragraphs 14 and 15). The additional line referred to is taken to be the proposed metre gauge line from Rampur Boalia to Calcutta. What solid advantage would the port of Calcutta get by the construction of the new line Rampur Boalia to Ranaghat?

The Board say that the rates levied will be the same, whether the Sara scheme or their own is adopted, for tea and jute traffic now carried *via* Sara. It will presumably be admitted that through communication for this particular traffic could be established *via* Sara at very much less cost than under the Board's scheme; and it will also be admitted, perhaps, that the adoption of the Board's scheme would mean loss of capital expended on existing lines, *vide* question on paragraph 12. In other words, adding the cost of transportation and maintenance to total interest charges the cost of taking the jute and tea to Calcutta by the Board's route would be greater than by the Sara route. Consequently there would be a loss on tea and jute traffic; on whom would the loss fall and, accepting the fact that there would be a loss, would it not stand in the way of future reductions in rates which might otherwise become possible?

Considering that the traffic from Goaldoo and Khulna is carried over a single track line, the capacity of which must be limited, would all the broad gauge rolling stock released by the admission of the metre gauge to Calcutta be required to meet it?

Do the Board consider that the existing metre gauge stock on the Eastern Bengal State Railway and the Bengal and North-Western Railway will suffice to work the traffic to Calcutta, or that considerable ad-

would be secured at the same cost if the Railway Board's proposed alignment was adopted.

IX. This would involve the building of a bridge at this site and together with a bridge at Sara the cost would far exceed the cost of the Board's proposals.

X. In all cases of the construction of an alternative route such route diverts from existing routes a certain amount of traffic, but the experience of constructing new railways in India is that they help to develop the country through which they pass and prove in a very surprising way the wisdom of their construction. It is to be remarked that the Committee's proposal as involved in question No. 4 would have the same effect upon the Ranaghat-Lalgola line as the Board's proposal.

XI. The Committee are correct in assuming that the additional line referred to is the proposed metre gauge line from Rampur Boalia to Calcutta, but the Committee have omitted to consider the advantages to be derived from opening up the country by the construction of the new lines on the north of the Ganges joining up at Rampur Boalia. The construction of these lines together with the bridge as proposed by the Railway Board are, in view of the additional fact that they offer an alternative route, certain to give to the port of Calcutta substantial advantages. As regards the remarks of the Committee in paragraph 2 of question XI respecting the rates, it is not admitted that through communication for tea and jute traffic could be established *via* Sara at very much less cost than under the Board's scheme, as under the proposal to construct a bridge at Sara one of two things must be done, *viz.*, the continuation of transshipment of the whole of the traffic together with its attendant expenses and inconvenience or the alteration of the gauge from metre to broad north of the Ganges. The Railway Board do not admit the loss anticipated. In the Committee's question no reference is made to the additional traffic that would come to Calcutta if the metre gauge system secured an entrance to the Port. No credit is also given to the development that would occur with the prompter delivery of jute and tea owing to the provision of an additional route for it to Calcutta. The Railway Board are not aware that the cost of bringing the Bengal-Nagpur Railway into Calcutta has ever been put forward as a reason for not reducing rates, although the traffic before its entrance was being carried by the East

ditions to the stock of both lines would not be necessary?

Do they consider that the cost of extra metre gauge stock likely to be required would be less than extra broad gauge stock in the event of transshipment from gauge to gauge?

Have they considered that metre gauge stock entering Calcutta termini might be subjected to long detentions, the brunt of which is at present borne by broad gauge stock and also tend to increase detentions of broad gauge stock?

Indian Railway *via* Asansol. The argument and deduction in the latter part of paragraph 2 of question XI being for the reasons given in the Board's opinion based upon a wrong premise no further remark is necessary thereon, except to say that in the Board's opinion if the bridge is built at Sara another will have to be built at Godagiri resulting in an unnecessary capital expenditure together with high maintenance charges involving serious consideration as to whether traffic will not have to bear heavier transport charges to meet such unnecessary expense.

With respect to paragraph 3 of question XI, such broad gauge rolling stock as is released under the Railway Board's proposal would be available for use on any portion of the broad gauge railway requiring such a stock. As to paragraph 4 of question XI, the Board are of opinion that under their scheme so much better use will be made of the metre gauge stock that the detentions and inconvenience now suffered by the public and the railways caused by transshipment will be substantially, if not entirely, removed and traffic requirements met without additions to such stock, but the Board hope that the development of the trade will be so substantial as to warrant from time to time an increase of such stock—the same as is done on all railways.

Paragraph 5 of question XI is, the Board think, answered by their previous remarks, but their opinion is that it will be less.

As regards paragraph 6 of question XI, the Board have some difficulty in understanding upon what this part of the question is based as it appears to be entirely conjecture. They do not anticipate that any greater detention will take place as regards metre gauge stock than is the case with broad gauge stock, and would remind the Committee that under their scheme the existing very serious detentions arising at the point of transshipment will be obviated.

XII. (Paragraph 16). Would trade be relieved of the present transshipment at Mokameh?

Does not the Board assume that the Bengal and North-Western Railway and Eastern Bengal State Railway between them are in a position to force the traffic now carried *via* Mokameh to the new Rampur Boalia route and that the East Indian Railway will tamely submit to the deprivation of this traffic?

If there is competition for this traffic will it not result in heavy loss to Government; not only because rates will be reduced but because the cost of transportation by the new route will be very much higher than *via* Mokameh, both on account of extra mileage and in actual cost of working?

XII. It is no part of the Railway Board's scheme that the ferry at Mokameh shall be closed, but if the bridge is built in the vicinity of Rampur Boalia, there is no doubt that a large part of the traffic which now is transhipped by means of this ferry will pass over such bridge and thereby the trade will be relieved of the transshipment.

As regards paragraphs 2 and 3 of question XII, the Railway Board think that the Bengal and North-Western and Eastern Bengal State Railways will naturally influence as much traffic as possible from and to their respective systems *via* the bridge at Rampur Boalia, but in this connection the Railway Board would remark that every year alternative routes are opened which more or less affect the traffic passing by existing routes and the conflict suggested in the Committee's enquiry is not in actual experience found to arise.

XIII. (Paragraph 17). The Committee have been much impressed with the serious

XIII. The Railway Board in making their proposals have looked upon the matter from

difficulties which have to be met in introducing both gauges at the Calcutta termini and would be obliged if the Board can indicate how such difficulties may in practice be overcome. Have they included in their estimate the further cost of providing for large extensions to meet the probable congestion and have they also included the receiving, despatching and marshalling yards in connection with large termini such as Chitpore and the Docks?

Has the cost of handling traffic in the termini been considered in relation to the cost of transshipment between the two gauges?

The Committee would feel obliged if the Board would kindly explain how the conditions at Madras, where the two gauges converging from the north and south respectively meet in a small mixed gauge yard at the Harbour, form any basis for the solution of the very difficult problem at Calcutta, where both gauges will approach from one direction and have to serve several termini, some of them very large and complicated in working?

the broad standpoint of removing from the very large and growing traffic coming into Calcutta from the north of the Ganges the serious disadvantage of transshipment. They consider that if the general lines of their proposal are approved it will be found in working out the actual details of terminal arrangements that a very large portion of the existing traffic can be dealt with right through to destination without break of gauge and without any substantially increased expenditure in terminal facilities over and above what it will be necessary to provide if the metre gauge is permanently excluded from Calcutta. It may be necessary in certain instances to tranship parcels of traffic into broad gauge wagons, but even this the Railway Board think will only be a temporary matter as it is to be remembered that if their proposal is carried out the traffic which will come down in metre gauge wagons will substantially reduce the traffic which now has to be dealt with in broad gauge wagons. The Railway Board gather, from the remarks of the Committee in question XIII, that they have considered the difficulties of introducing the metre gauge as being in addition to the present traffic dealt with by broad gauge, whereas the advent of the metre gauge will materially relieve the broad gauge. If the Railway Board's proposals are adopted in principle the details of working out terminal arrangements would be proceeded with concurrently with the construction of the bridge which will take not less than 4 years to build.

As regards paragraph 3 of question XIII the Railway Board referred to Madras as a case of a Port raising no objection to the access of the metre gauge as well as the broad gauge into their city and harbour. They do not suggest that in some particulars the cases of Calcutta and Madras are comparable but felt it incumbent upon them to refer to it as there seems to be in the minds of some people strong aversion to the metre gauge having any access to the port of Calcutta.

XIV. (Paragraph 18). On what grounds have the Board based their opinions that Rampur Boalia is unquestionably the best site for a bridge and that the Sara site is admittedly a difficult one?

XIV. In paragraph 18 of the Board's memorandum attached to the Resolution of Government, dated 28th December 1906, the reason for considering the Rampur Boalia site as being a good one for the construction of a bridge are shortly but accurately given. The Board do not think they can usefully add to this. As regards the Sara site being a difficult one from the experience of maintaining the ferry service between Sara and Damukdia the Board are of opinion that the action of the river at this part is more varying and will involve the construction of greater protection works than will be necessary in the vicinity of Rampur Boalia.

APPENDIX A².

From the Secretary, Railway Board, to the Secretary, Ganges Bridge Committee.

With reference to my letter of the 31st January 1907, I am directed to inform you with reference to question XIII and the Board's explanation given

thereto, that the Board have instructed Mr. F. A. Hadow, one of the Assistant-Secretaries of this office, to attend the Committee with a memorandum of further particulars in connection with the terminal arrangements they have in mind.

Mr. F. A. HADOW, Assistant Secretary to the Railway Board, appeared before the Committee on the 5th February, 1907, and read the following note:—

I have been instructed by the Railway Board to attend before the Committee to give the following further information respecting the terminal arrangements connected with the proposed advent of the metre gauge into Calcutta. This information is in continuation of the explanation already given by the Railway Board in reply to the Committee's question No. XIII.

The Railway Board understand that the Committee desire more detailed information regarding how terminal arrangements in Calcutta would be dealt with if the metre gauge was extended to that place.

The Board can only deal with the question on broad lines as there has been no time to work out a scheme in every detail.

On broad lines their scheme is as follows:—

The rail-borne traffic to Calcutta may be divided under three heads:—

- (1) Traffic that now proceeds direct by rail to destination for immediate use without any intermediate warehousing.
- (2) Traffic that is warehoused pending sale, local use or export.
- (3) Traffic that is dealt with locally, delivery being taken at local Calcutta railway stations from where it is carted to destination.

Traffic under (1) brought by metre gauge to Calcutta would require the same access to destination as the now existing broad gauge.

Traffic under (2) need not be carried to the same destination as at present by the broad gauge.

If warehouse accommodation is provided in the vicinity of the existing centres of trade, traffic brought into Calcutta by the metre gauge could be dealt with for warehousing purposes independently of the existing broad gauge.

With warehouses provided so that consignments could be delivered into, and taken away from, such warehouses by both metre and broad gauges the existing conditions would be preserved, and as regards other means of conveyance than railway it is a matter of no consequence by which gauge the article is delivered into warehouses from which it is subsequently taken away.

Traffic under (3) can be dealt with locally, quite independently of the broad gauge.

The various localities to which traffic desires access are:—

- (a) The mills situated on the banks of the river between Naihati and Chitpore.
- (b) The tea warehouses at the docks.
- (c) The Kantapukur grain warehouses at the docks.
- (d) Consignments to and from places on the Strand Road and the shipping sheds at the docks.
- (e) The local traffic to Chitpore.
- (f) Passenger and local goods traffic to Sealdah.

Dealing in turn with each area—

- (a) The mills situated on the bank of the river between Naihati and Chitpore.

As a broad gauge proposition the Eastern Bengal State Railway have, for some time, advocated the necessity of a river face line to serve the mills between these two points.

Under present arrangements there is delay to traffic and considerable risk in having to shunt all wagons for this area from the down main line across the up main line.

The provision of a river face loop would enable all the traffic to the mills between Naihati and Chitpore to be dealt with without in any way interfering with the free running of the main lines.

The construction, therefore, of river face lines between Naihati and Chitpore, capable of taking both broad and metre gauge wagons, would provide better broad gauge access as well as good metre gauge access. Sidings would be short and traffic would be dealt with more expeditiously.

(b) The tea warehouses at the docks.

(c) The Kantapukur grain warehouses at the docks.

With certain structural alterations the Railway Board are of the opinion that direct access can be given in these localities to a sufficient number of sheds necessary to deal with the traffic brought by the metre gauge, and such alterations would in no way preclude both gauges having access to such sheds.

(d) Consignments to and from places on the Strand Road and the shipping sheds at the docks.

Part of such traffic would be dealt with at the warehouses previously referred to, and as regards the remainder it is to be remembered, in connection with the terminal arrangements, that they have not to be provided in the course of a few months, but considerable time must necessarily elapse before it is necessary to make any commencement with them, and the Railway Board, with the assistance of the experienced administration of the Port Commissioners, are confident that a very practical arrangement will be found capable of being carried out.

(e) Local traffic to Chitpore.

(f) Passenger and local goods traffic to Sealdah.

The traffic to these localities can be dealt with separately, independently of the broad gauge. In the light of these remarks, the terminal arrangements required, in the first instance, would be—

(1) A river face line from Naihati to Chitpore available for both broad and metre gauges, together with warehouse and station accommodation at Chitpore.

(2) A main metre gauge line, Naihati to Sealdah.

(3) A branch from Sealdah to the grain sheds and tea warehouses at the docks.

This would involve no immediate necessity to introduce the metre gauge along the Port Trust Railway nor at the docks themselves, except so far as concerned access to the grain sheds and the tea warehouses.

In considering the terminal arrangements it is important to remember that, under the regulations of the Port Commissioners, only imported traffic is dealt with at the jetties; all export traffic being dealt with at the docks.

At the present moment it would appear that a large number of persons view the suggested advent of the metre gauge into Calcutta with anxiety because of its novelty, but the Board hold a strong opinion that, like many other cases viewed from a distance, such anxiety will substantially disappear as time goes on and with a closer acquaintance with the actual facts.

To prevent any misunderstanding the Railway Board think it desirable to state quite clearly that under their proposal the whole of the railway giving access to Calcutta from the Bengal and North-Western system, as also the bridge over the Ganges, will be owned and worked as a State railway. The Bengal and North-Western system will, as at present, stop at Katihar; the traffic between that junction and Calcutta being worked by the Eastern Bengal State Railway.

1. Q. (*Major Shelley*).—Can you kindly say what is the difference between the traffic classed as (1) and that classed as (3) in the note by the Railway Board so far as railway transport is concerned?—I understand that the only difference is that (1) does not require any further transportation once it is delivered.

2. Q. Could you illustrate what such traffic would be?—Under (1) I should put jute going to the mills, while (3) refers to traffic for delivery straight away to the consignee which is removed by cart or boat.

3. Q. As regards jute which is delivered into godowns alongside the Port Commissioners' railway, does that come under (1), (2) or (3)?—I take it that would come under (3) because it wants transportation after delivery. I don't mean to say that the railway carry it; it is delivered locally, but it requires further transportation.

4. Q. Then as regards the traffic under class (2), the Railway Board's idea, as I understand it, is that you propose to duplicate the warehouses, if the metre gauge cannot be brought into the existing warehouses? That would be an enormously expensive arrangement and as it includes private warehouses, would the owners be prepared to duplicate their warehouses?—That is a point I am not instructed upon.

5. Q. I gather from the note that the Railway Board have not yet had their proposals investigated at site; is this correct?—I am unable to say.

6. Q. (*Mr. Dumayne.*)—Have you personally made an inspection of the arrangement at the Kidderpore Docks?—No.

7. Q. Have the Railway Board made any inspection and recorded an opinion favourable to the introduction of the metre gauge after examination?—I cannot say whether they have personally examined it or not.

8. Q. Are you aware that the trade approve of the policy of centralising certain classes of goods at certain places in order to minimise the local charges?—I don't think that the question is relevant.

(Plan shown to witness.)

9. Q. Have you seen these depôts?—No.

10. Q. Do you know the purpose of these depôts, is it to minimise the local charges?—I am here to give answers on behalf of the Railway Board; I presume they know the purposes of the depôts.

11. Q. Are you prepared on behalf of the Railway Board to admit that there is an advantage in centralisation?—I am not instructed to answer on that point.

12. Q. Have the Railway Board authorised you to describe any system of mixed gauge working at any place in India?—No.

13. Q. Can you tell us whether the Railway Board had before them any figures showing how much traffic is handled direct from the railway wagons to ships, and how much is temporarily deposited awaiting sale?—I cannot say.

14. Q. Have the Railway Board any plan, or considered what alterations would be necessary in warehouses at the docks and jetties to allow of the introduction of the mixed gauge?—I understand the point has been considered. I don't know in how much detail.

15. Q. No plans have been made public that you can speak of?—I have not seen any.

16. Q. Are there any plans or arrangements for the use of the same locomotives for metre and broad gauges, in shunting?—I do not think so, but I understand the Board's scheme was to keep the two apart as far as possible, and not have the mixed gauge more than is necessary.

17. Q. Have they made any inspection of the jetty premises where the import foreign trade is dealt with, and, if so, do they think a mixed gauge is possible there?—They don't propose a mixed gauge at the jetties at present.

18. Q. Would they be prepared to admit that there is no possibility of an extension of the lines at the jetties?—I don't know.

19. Q. You are aware that the conditions at the Strand Road and the river face are inelastic?—Yes.

20. Q. Are you aware that the same inelastic conditions exist in certain parts of the line between the jetties and Cossipore?—The Railway Board do not propose to bring the metre gauge south of Chitpore.

21. Q. Are the Railway Board aware that the jute centres for the sale of jute are a considerable distance south of Chitpore?—I think they are aware of that.

22. Q. Then their scheme would contemplate a considerable expense in cartage from their terminus to the trade centres?—They contemplate the warehouses for jute at Chitpore.

23. Q. And if the trade did not want the warehouses at Chitpore and their warehouses are further south, the trade would be bound to follow and go to Hatkholah and Ruthtolla?—No doubt.

24. Q. You are prepared to admit that the trade would have to look to its own vested interests?—I am not prepared to say what the opinion of the Board is on this point.

25. Q. Are you aware that the trade now insists upon delivery at Hatkholah and Ruthtolla, and that difficulty is sometimes found to give delivery there?—I presume the Railway Board are aware of that.

26. Q. Any scheme for Chitpore would mean an attempt to move the trade out of its present locality; would you be prepared to admit that?—I am not instructed upon the point. I presume they have considered it.

(The witness was here shown a plan of the docks with the arrangement of lines and crossings.)

27. Q. Would you be disposed to admit that the introduction of a third rail would greatly multiply our difficulties in shunting, and would greatly delay the despatch of business; the introduction of a third rail to this scissors crossing increases the number of crossings from 8 to 21?—If it has to be done in that way, it would no doubt.

28. Q. Do you know of any other way: imagine a number of mixed gauge wagons standing upon those sidings: as a railway man do you not think that would mean a good many difficulties?—No doubt it would.

29. Q. Have you yourself ever seen a position so complicated on the mixed gauge?—No.

30. Q. (Plan shown.) You see that those three lines stand between the two sheds, can you say how any extension is possible?—At a moment's notice it is difficult to answer the question.

31. Q. The sheds on one side have cost 12 lakhs of rupees, and those on the other side probably 10 lakhs: I ask you to consider the fact that it is impossible to move the sheds; that question is too serious to consider; you have to work in the narrow space between, and I ask you as to the feasibility of working the mixed gauge there?—The Railway Board certainly consider it could be done, and that the metre gauge could be brought in.

32. Q. Presuming that it can be done, now let us see how it could be done?—I am not prepared to answer that point.

33. Q. Presuming that it could not be done, would you be prepared to admit on behalf of the Railway Board that it would be a very serious inconvenience and expense to the trade if you attempted to set up two tea warehouses, one at some distance from the other?—No doubt it would be if it was impossible to discharge both broad and metre gauge wagons into the one shed.

34. Q. The separation would be a serious inconvenience to the trade?—No doubt.

35. Q. In fact it would render very difficult the weekly sales that are held?—No doubt.

36. Q. Brokers would have to make their inspection and draw their samples at different places?—No doubt.

37. Q. Have the Railway Board prepared any estimate of the cost of these arrangements, including the alteration to sheds on the introduction of the metre gauge?—I am not aware.

38. Q. Would you be prepared to admit that it would cost a considerable sum of money?—Yes.

39. Q. Seeing that there are about 80 miles of line in the dock premises now, and that a third rail for metre gauge working to be really useful would have to be carried over the whole of that ramification of line—I understand that the Railway Board's idea is that the metre gauge would relieve the broad gauge to a very large extent, and that possibly that would entail some alterations in the existing broad gauge arrangements.

40. Q. Yes, but have they considered that both the broad gauge and metre gauge have to be handled in the same shed?—I believe they have considered that.

41. Q. Therefore there will have to be facilities over broad and metre gauges, by a suitable line and crossings?—Yes.

42. Q. Have they considered the difficulties that would result if a depôt was fairly full of grain and seeds, say, if you had to shunt the metre gauge wagons to A or B shed, and if you had to make way by removing the broad gauge wagons there standing on the line?—I cannot say how much they have considered.

43. Q. Have they considered that when wagons arrive at a junction it is sometimes not known whether they will be put into the depôt, or go direct to the ships?—I presume they know that.

44. Q. Have you noticed that the estimate for bringing the metre gauge into the yard at Chitpore, Budge Budge and other places outside the dock premises, amounts to 172 lakhs of rupees?—It is not proposed to extend the metre gauge to Budge Budge at present.

45. Q. Omitting Budge Budge, it would amount to something over 150 lakhs of rupees, to go to Chitpore, Sealdah, etc. Have you noticed that the estimates are very heavy?—Yes.

46. Q. The interest, maintenance and municipal charges upon that expenditure would practically mean an increased charge upon the trade?—Yes, possibly.

47. Q. It would be direct if it was made by the Port Commissioners, and indirect if it was made by the State?—Yes.

48. Q. If these new works meant an extra cost of two to three hundred lakhs, which would be distributed only over a tonnage of about 500,000 tons per annum, it would be a very heavy charge I presume?—I am not instructed on the point.

49. Q. The capital expenditure would be largely increased without making any corresponding increase in the volume of traffic?—The Railway Board conclude that there would be a large increase in the traffic.

50. Q. Where would it come from? It is merely taking *via* Rampur Boalia the same traffic which comes to us now?—The Railway Board have said in their replies to questions that the traffic would increase very much.

51. Q. Do the Railway Board say that the existing broad gauge system into Calcutta is not sufficient for the traffic?—I have not got definite instructions upon that point.

52. Q. Are you aware that, even with the existing works, the complaint is that there is not sufficient traffic for accommodation?—I am not aware of that.

53. Q. Are you aware that the wheat and seeds trade has not, during the past two years, filled more than one-quarter of the accommodation provided for it?—I presume the Board are aware of that.

54. Q. If you accept the statement that only one-fourth of the accommodation is occupied then you agree that the expenditure is profitless?—Yes.

55. Q. The effect of further expenditure is to accentuate the difficulty as to the financial position?—I don't think the Board considered that; in fact, they cannot or they would not make the proposals they have put forward.

56. Q. Briefly, then, my point is that there are established depôts for all the trade; to cheapen the cost it is desirable to concentrate the trade as much as possible, and to make the most of the existing facilities without incurring further capital expenditure. Does not your proposal tend to make separations,

greater difficulties and delays, at an increased cost?—I think the Railway Board would certainly answer "no" to that.

57. Q. (*Mr. Kar.*)—I suppose the broad gauge has greater carrying capacity than the metre gauge?—Yes.

58. Q. The Railway Board's proposal is to carry the traffic of both the Bengal and North-Western Railway and Eastern Bengal State Railway on the metre gauge from Rampur Boalia downwards?—Yes.

59. Q. There is a broad gauge line from Damukdia downwards, and another from Ranaghat to Lalgola. Don't you think, instead of making a metre gauge line, the money would be better spent in giving more rolling stock to the existing lines?—The Board think their solution is the better one.

60. Q. According to the Railway Board's proposal would it be preferable to alter the existing broad gauge arrangements south of the Ganges in order to admit the metre gauge into Calcutta?—As to that I should like to say that the Board's first proposal is to have a bridge at Rampur Boalia, the bringing in of the metre gauge follows from that, and the bridging of the river at Rampur Boalia does not follow from the bringing in of the metre gauge.

61. Q. Would it not be better to abandon the idea of a bridge at Rampur Boalia with all its accompanying inconveniences and expenses and the subversion of the existing arrangements south of the Ganges, and have a bridge somewhere else?—The Board think their solution of avoiding transshipment by bringing the metre gauge across at Rampur Boalia and so into Calcutta is the best one.

62. Q. In view of the difficulties and complications apprehended, don't you think that transshipment from wagon to wagon would be preferable to the introduction of the metre gauge south of the Ganges?—The Board have stated that, in their opinion, it will be necessary to bring the metre gauge into Calcutta some time or other, and that the present is an opportunity for bringing forward the point with advantage.

63. Q. (*Mr. McLeod.*)—On behalf of the Railway Board can you give us any assurance that there will be no change of policy in working the line from Katihar to Calcutta?—I can; that is quite definite; there will be no change of policy, it will be constructed and managed by the State.

64. Q. Bearing in mind the constitution of the Railway Board as a Department of the Government of India, is there any reason to believe that a future Railway Board may not hold different views regarding the working of the proposed metre gauge between Katihar and Calcutta termini? If one Railway Board fix a policy, no future Railway Board can reverse it?—That is what I understand to be the case.

65. Q. You have said that the present intention is only to bring the metre gauge into Chitpore; what about the jute trade and the presses? Does the Railway Board's proposal embrace sidings into jute presses?—Not south of Chitpore.

66. Q. That would mean that if it was meant to introduce the metre gauge all the presses would require to duplicate their warehouses inside their premises?—The Railway Board consider it would not be necessary; it could be done without a mixed gauge, in other ways.

67. Q. What other ways?—I cannot say; the Railway Board's scheme is that there should be very little mixed gauge, if any at all.

68. Q. How does the Railway Board propose to get into the presses?—I should have said there will be as little as possible mixed gauge; in any case the loop from Naihati to Chitpore is not mixed gauge. The sidings from that loop would be very short, but the principle is to do as little as possible with the mixed gauge.

69. Q. If they could not bring in the mixed gauge, all the mills and presses would require to duplicate their godowns or increase transshipment; is that not so?—I am not prepared to answer that question.

70. Q. You said that it is only intended to partially introduce the metre gauge into the termini of Calcutta?—I do not remember that; I said the metre gauge and broad gauge would be kept apart as much as possible, that that is the idea of the Railway Board. I do not think the point can be answered on

a general question. At Sealdah it might be found to be more advantageous to keep the metre gauge station entirely separate; this is a matter to be settled when the details are gone into.

71. Q. If, however, it is found impossible to bring the mixed or separate metre gauge into Calcutta into the termini of the port, would not that necessitate transshipment from the metre gauge to the broad gauge?—Where?

72. Q. At any point—No doubt, if it is impossible.

73. Q. The Railway Board lay great stress on the avoidance of transshipment, and so if you have transshipment somewhere their argument partially fails to the ground?—The Board do not admit that transshipment will be necessary at termini. They say the metre gauge can be brought into the termini.

74. Q. Can you tell us why the Railway Board are so anxious to bring the metre gauge into Calcutta?—The Railway Board think that it will have to come sooner or later. I don't think it is correct to say that they are anxious to bring it in, it is a necessity of the future.

75. Q. Have there been any representations made by any important mercantile bodies suggesting the introduction of the metre gauge into Calcutta as a necessity?—I am not instructed upon that point.

76. Q. You cannot tell us whether they consider it an urgent matter?—I do not think they consider it so urgent that they would propose it if this scheme had not been brought forward.

77. Q. Do they consider the bridging of the Lower Ganges an urgent matter?—Yes.

78. Q. Do they consider the bridging of the Lower Ganges a part of the metre gauge scheme?—The introduction of the metre gauge into Calcutta was put into their heads by the consideration of the bridge scheme; that having been done, they propose that the one should follow the other.

79. Q. Will they separate the one from the other?—The Railway Board's idea is to do away with transshipment at the Ganges altogether, and as they hold that the metre gauge will have to come into Calcutta sooner or later, they put the two schemes together.

80. Q. They hold the question of transshipment at the Ganges is of far greater importance than the bridging of the Ganges?—No.

81. Q. You know that the mercantile community think that a bridge is urgently necessary?—Yes.

82. Q. I want to know if the Railway Board have considered it apart from any other scheme?—I believe so.

83. Q. It is estimated that a bridge at Godagiri or Rampur Boalia, together with connections, would cost 250 lakhs approximately; if it is difficult to find the money, would it not be a better policy to spend the lesser sum?—No doubt, the expenditure of the lesser sum would be best if money is difficult to find.

84. Q. Then how do the Railway Board come to suggest the expenditure of a very much larger sum when there is no urgent demand for their proposal, and when there is difficulty in finding the money?—The Railway Board consider their scheme would be the cheaper as is mentioned in their note.

85. Q. We have it that the Eastern Bengal State Railway have put forward a scheme regarding a river face line to serve the mills. Can you say anything about that scheme? Have the Eastern Bengal State Railway put forward a suggestion without calculating the cost in any way?—I should think certainly not.

86. Q. Can you say what is the cost?—No.

87. Q. The Railway Board are not aware of what the probable cost of that scheme would be?—I cannot say.

88. Q. In preparing their scheme have the Railway Board consulted experts and taken evidence as to its feasibility?—Certainly, I should think.

89. Q. In the scheme submitted by the Railway Board for bridging the Lower Ganges at Rampur Boalia, and of bringing the metre gauge into Calcutta,

have the Railway Board given the Government of India any further details than are now before this Committee?—I believe not. That is a question which I am not instructed to answer, but, to the best of my knowledge, they have not.

90. Q. Can you say whether the Railway Board have considered whether the scheme would be a financial loss or gain to the Government of India, looking at the fact that the Government of India own $\frac{1}{8}$ ths of the East Indian Railway?—I believe the Railway Board have considered that.

91. Q. With what result?—With a result favourable to their scheme.

92. Q. The cost of entry into the Railway terminals, apart from the port terminals, is about 170 lakhs. Would the Railway Board consider such expenditure justified by the advantages to be gained?—I cannot answer that.

93. Q. As regards warehouses in the Docks, do the Railway Board consider the introduction of the metre gauge would tend to increase or diminish the difficulties now experienced?—To lessen the difficulties.

94. Q. Looking at the enormous trade of the port, and the difficulties now attending the same, and the large expenditure and risk involved, do the Railway Board consider that the experiment of introducing the mixed gauge, or double gauge, into the port terminals is a justifiable one?—The Railway Board have not gone so far as to say how far the mixed gauge will be used.

95. Q. They don't know if it can be introduced at all?—It is a matter of the best way to do it, it would take a long time to look into.

96. Q. They put forward this scheme without considering the matter, and without going into details in a business-like way?—The Board would naturally not survey the details; they will appoint some of their engineers to do that; it is presumed that they have considered all the necessary details.

97. Q. The fact is that they are going to build a house without counting the cost?—They have counted the cost as far as they can.

98. Q. Then as regards paragraph 14 of the memorandum of the Railway Board, can you say how the Railway Board consider a single line at Rampur Boalia can serve the commercial interests equally with two bridges at Godagiri and Sara?—The Ranaghat-Lalgola line does not carry any traffic from north of the Ganges.

99. Q. I understand that they say that two bridges would be necessary in one scheme, one only would be necessary in another scheme; they say that one would be as efficient as two?—The opinion of the Railway Board is that the Bengal and North-Western Railway administration will insist on having a bridge at Godagiri if one is built at Sara.

100. Q. Do the Railway Board consider the probable traffic from the Bengal and North-Western Railway by the Katibar route justifies the delay in constructing the bridge across the Lower Ganges?—I am not instructed upon that point.

101. Q. The Railway Board have referred us specially to a meeting which they had with the Bengal Chamber of Commerce in July last; can you say what was actually put forward by the Chamber of Commerce regarding the conversion of the metre gauge lines north of the Ganges?—I cannot.

102. Q. The Railway Board are desirous that the interests of the traffic, as a whole, on the north bank of the Ganges should be given impartial treatment in its access to Calcutta by existing or projected lines; the diversion of the Bengal and North-Western Railway traffic *via* Sara would be about 13 miles, the diversion of the Eastern Bengal State Railway traffic would be 41 miles. Which of these two do the Railway Board consider the most impartial route?—I think they consider the diversion of the Bengal and North-Western Railway would be far longer.

103. Q. Looking at that map on the wall, you see the area bounded by the river Ganges and the two branches of the Eastern Bengal State Railway, Ranaghat to Godagiri and Ranaghat to Sara; do the Railway Board consider the country sufficiently served by the existing lines, or would the cost of the new line—Rampur Boalia to Ranaghat—be justified when money is difficult to find

for admittedly urgent purposes such as the bridge over the Lower Ganges?—The answer of the Railway Board will be found in their reply to question No. X of questions recently asked by the Committee.

104. Q. We have it in evidence that, at the meeting held in July last, the members of the Bengal Chamber of Commerce demanded a bridge across the river, and that the reason given for not acquiescing in their demand was want of funds. Seeing now that the Railway Board have come forward with a more expensive scheme, has the difficulty regarding money been removed?—The Board's memorandum shows that they consider their scheme will be the cheaper.

105. Q. In selecting a site for the bridge, do the Railway Board consider that the most suitable site would be where the cost of construction and of the necessary connections is least, and at a spot nearest to an assured volume of traffic?—I think you have the Railway Board's opinion in their recommendation, I cannot go back on that. I presume they have considered the point in all its aspects before making their recommendations.

106. Q. With reference to paragraph 17 of the memorandum by the Railway Board regarding mixed gauge working at Madras, are the Railway Board acquainted with the working of the mixed gauge in Madras?—Presumably they know all about it, it is not a new thing.

107. Q. And they think that would form a basis for working in the port of Calcutta?—The Railway Board dealt with this in the latter part of their reply to question XIII asked recently by the Committee.

108. Q. In the port of Madras the different gauges come from different sides, not together; one from the north and another from the south?—That was pointed out in the question to which the reply above referred to was given.

109. Q. With regard to what is said in the same paragraph as regards Karachi, have they made enquiries as to whether the introduction of the mixed gauge or double gauge into the wharves will be acceptable or otherwise?—I believe it has been under consideration.

110. Q. Have the Port Commissioners of Karachi accepted the suggestion?—I am not aware.

111. Q. (*President.*)—As regards class (1) of traffic, as stated in the note you read to the Committee, is traffic delivered by boat to the west bank of the Hooghly by the railway included in that?—Yes, that would be included under (1).

112. Q. How would the metre gauge dispose of that?—It could be disposed of in the same way as by broad gauge.

113. Q. Is it known how it is disposed of?—I presume so.

114. Q. Do the Railway Board mean that the traffic under (1) must be delivered in metre gauge wagons, or do they anticipate any transshipment at all?—They don't anticipate transshipment at all.

115. Q. How would traffic be dealt with that originates on the route between Katihar and Naihati, which is booked to stations on the East Indian Railway, *viâ* the Hooghly bridge?—That, of course, would have to be transhipped.

116. Q. How would they propose to deal with upward coal *viâ* Naihati?—I presume they would deal with it as at present, or tranship at Naihati.

117. Q. I mean coal for metre gauge stations, say, for Saidpur?—I presume as at present, or tranship at Naihati.

118. Q. It would have to be transhipped somewhere?—Yes, no doubt.

119. Q. Then as regards (2), are these warehouses in railway premises or dock premises; are they private warehouses or both?—I understand they are both.

120. Q. Are the warehouses you refer to under (2) in railway premises?—I presume so.

121. Q. To deal with the traffic under (2), you said the Board anticipate that separate warehouses would have to be built?—If they could not be accommodated in the existing warehouses.

122. Q. The metre gauge could not obtain access?—That would have to be shown on a detailed survey or scheme.

123. Q. If the metre gauge could not get to the present warehouses they would have to get separate warehouses?—Yes.

124. Q. Now looking at (3) I suppose this would include Chitpore, Balia-ghatta and other delivery stations between Chitpore and the jetties?—Any station where delivery is taken at present.

125. Q. It is said in the note "Traffic under (3) can be dealt with locally quite independently of the broad gauge." Does that mean that separate metre gauge accommodation will be provided for local delivery, giving equal facilities?—I understand so.

126. Q. The note again says, "The various localities in which traffic desires access are * * * (e) local traffic to Chitpore, and (f) passengers and local goods traffic to Sealdah". Does the Board's scheme contemplate entirely separate stations at Chitpore and Sealdah?—Certainly at Chitpore, the question at Sealdah would have to be settled as seemed best after an alternative scheme had been worked out.

127. Q. The Board in this note have only dealt with inward traffic. This note does not deal with upward traffic?—No, it does not.

128. Q. Have they considered upward traffic?—I believe so.

129. Q. Do they admit that the metre gauge must have equal facilities with the broad gauge for upward traffic?—Yes, they don't suggest at present any metre gauge along Strand Road.

130. Q. Do you think the intention is that this arrangement which they sketch in this note is for upwards as well as inwards traffic?—I cannot say.

131. Q. What is the intention with reference to the oil traffic at Budge Budge which would be upward traffic?—I understand that traffic would be taken in broad gauge wagons from Budge Budge to where it could be transferred to metre gauge wagons.

APPENDIX B.

CAPITAL EXPENDITURE OF CHITPORE YARD.

Sub-Heads.	Amounts.	REMARKS.
	Rs.	
Preliminary Expenses	12,692	
Land	23,79,445	Total area of land 414 bighas.
Earthwork	3,66,618	
Bridge work	19,879	
Fencing	6,17,662	
Ballast and Permanent-way	10,92,714	
Stations and Buildings	17,34,006	
Plant	5,728	
General charges	85,160	
Total	68,13,902	

NOTE.—The quantity of earthwork originally done cannot be ascertained. It is estimated to have cost about Rs. 1,00,000.

APPENDIX C.

Letter dated the 23rd January, 1907, from T. McMorran, Esq., of Messrs. Duncan Bros. & Co., representing the Indian Tea Association, to J. H. Lovell, Esq., Secretary, Ganges Bridge Committee (see note to answer 75 of Mr. McMorran's evidence).

When giving evidence before the Committee yesterday, I was asked two questions relating to jute mill sidings which I was unable to answer without further enquiry.

One was as to the length of the weigh-bridge in use at our jute mill. I have ascertained that its length is 26 feet which was suitable for the largest type of jute wagon in use at the time it was procured. Turn-table is, however, only 20 feet in width.

I was also asked if the cost of jute mill sidings is borne by the mills. I find that under the "Revised form of agreement for the extension of railways into private premises" issued by the Railway Board on 28th July 1905, the

cost of land and of all work to subgrade of the siding is carried out at the expense of the mills, but that the permanent-way materials, i. e., sleepers, rails fastenings, points and crossings are provided, laid and maintained by the railway administration free of charge. The entire cost of the siding inside the mill compound, including maintenance, is payable by the mill.

APPENDIX D¹.

Previous to the examination of the Bengal and North-Western Railway witnesses the following questions were asked:—

1. Details of quantity of traffic, up to a recent date, crossing at Mokameh.
2. Cost of working the Mokameh ferry arrangements, including all contingent expenses, such as loss by fire, theft, or wagon detention, etc., and the capital cost of the ferry plant and capital cost of the station yards in connection with same.
3. Whether you can hold your traffic for Calcutta against competition by the East Indian Railway *viâ* the Mokameh route if a bridge is built—
 - (a) at Sara,
 - (b) at Rampur Boalia,
 - (c) at Godagiri.
4. Please quote any specific cases of block or delay to traffic at Mokameh ferry.
5. What benefit will trade derive if the Bengal and North-Western Railway gets an independent entrance to Calcutta, or, if not, by the quotation of through rates.

To which the following reply was received:—

From the Agent, Bengal and North-Western Railway, to the Secretary, Ganges Bridge Committee.

I have the honour to forward the following statements:—

- (a) Abstract statement of the passenger and goods traffic dealt with at the Mokameh ferry since 1900.
- (b) Detailed statement of the goods traffic dealt with.
- (c) Statement showing the capital cost and annual working outlay on Mokameh ferry with two statements in support.

The above statements give the information asked for in paragraphs (1) and (2) of your letter No. 3, dated 8th January 1907.

2. The Committee also desire to know whether we can hold our traffic to Calcutta against competition by the East Indian Railway *viâ* the Mokameh route, if a bridge is built—

- (a) at Sara,
- (b) at Rampur Boalia,
- (c) at Godagiri.

My replies are as follows, taking the queries in reverse order:—

- (a) If the Bengal and North-Western Railway are allowed to work the railway from Katihar to Godagiri, and to quote rates and fares between stations on their system and stations between Godagiri and Calcutta, including Calcutta, they can do so. Through metre gauge communication, or broad gauge running powers, would greatly assist them.
 - (b) With through metre gauge connection and running powers over the same—Yes.
 - (c) Extremely doubtful. The line between Sara and Calcutta would become still more congested than at present, and this, combined with the additional mileage and drawbacks of transshipment, would make competition difficult.
3. As regards blocks, a statement is attached.
4. The Committee also asked what benefit will trade derive if the Bengal and North-Western Railway gets (a) an independent entrance to Calcutta or, if not, (b) by the quotation of through rates.

My replies are briefly:—

- as regards (a)—(i) improved through services between districts north of the Ganges and Calcutta securing quicker transit and delivery, and avoidance of ferry stoppages and risks.
- (ii) Avoidance of losses due to transshipment.

- (iii) Prompt provision of wagons.
 (iv) Simplification of rates and conditions owing to wagons of one railway only being used.
 (v) Quick settlement of claims and overcharges, only one Railway Administration being concerned.
 (vi) General development of trade due to increased facilities, and to one Railway Administration being able to deal directly with both buyer and seller.
 (vii) The construction of branch lines for opening up of new country will be stimulated, and these will feed the main truck line with new trade for Calcutta.

As regards (b)—All the above advantages with the exception of (ii) will apply but to a smaller degree, unless the Bengal and North-Western Railway is given running powers over the broad gauge into Calcutta, providing its own broad gauge stock.

APPENDIX D^a.

Bengal and North-Western Railway traffic interchanged with other Railways at the following ghâts for half-year ending 30th June, 1903.

Articles.	Via MONGHYR GHAT.		Via DIGHA GHAT.		Via TARI GHAT.	
	Outwards.	Inwards.	Outwards.	Inwards.	Outwards.	Inwards.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Coal	{ 1903	...	1	...	...	...
	{ 1902	...	...	...	...	...
Piece-goods	{ 1903	...	12	19	60	3
	{ 1902	1	8	13	150	1
Wheat	{ 1903	4	3	141	2	...
	{ 1902	4	58	156	65	...
Rice	{ 1903	290	26	186	39	1
	{ 1902	62	40	116	65	1
Other food-grains	{ 1903	332	15	910	23	...
	{ 1902	82	65	626	24	...
Gunny bags	{ 1903	7	8	72	146	1
	{ 1902	5	25	50	168	2
Metals	{ 1903	4	7	104	148	...
	{ 1902	4	36	61	262	1
Oils	{ 1903	14	...	22	18	1
	{ 1902	5	...	27	21	1
Seeds	{ 1903	53	...	325	6	4
	{ 1902	57	...	464	2	7
Salt	{ 1903	...	...	13	11	...
	{ 1902	24	...	96	19	...
Saltpetre	{ 1903	...	...	...	1	...
	{ 1902	...	...	...	...	...
Sugar	{ 1903	30	8	392	11	...
	{ 1902	3	7	272	8	3
Tobacco	{ 1903	179	...	1,104	2	3
	{ 1902	293	7	1,146	6	3
All other traffic	{ 1903	287	127	1,424	1,598	47
	{ 1902	158	1,678	1,036	1,977	19
Total	{ 1903	1,200	207	4,715	2,064	48
	{ 1902	698	1,924	4,063	2,768	27
<i>Half-year ending 31st December, 1903.</i>						
Coal	{ 1903	...	...	...	...	...
	{ 1902	...	...	...	16	...
Piece-goods	{ 1903	4	21	2	70	1
	{ 1902	1	5	15	1,590	...
Wheat	{ 1903	...	8	28	5	...
	{ 1902	3	43	198	17	...
Rice	{ 1903	10	162	75	189	3
	{ 1902	30	744	84	1,513	2

APPENDIX D²—continued.

Bengal and North-Western railway traffic interchanged with other Railways at the following ghâts for half-year ending 31st December, 1903.

Articles.	Yd MONGHYR GHAT.		Yd DIGHA GHAT.		Yd TARI GHAT.		
	Outwards.	Inwards.	Outwards.	Inwards.	Outwards.	Inwards.	
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	
Other food-grains	1903	41	33	215	184	5	6
	1902	131	55	1,762	129	1	-26
Gunny bags	1903	4	6	53	406	...	5
	1902	20	15	92	1,109	1	1
Metals	1903	2	3	52	186	...	1
	1902	2	8	42	1,612	...	1
Oils	1903	6	...	23	16	...	40
	1902	1	...	17	83	...	...
Seeds	1903	96	3	897	11	...	2
	1902	229	...	770	-13	...	1
Salt	1903	16	...	...	12	...	...
	1902	78	...	157	7	...	...
Saltpetre	1903	4	...	...	43	...	...
	1902	1	...	...	41	9	...
Sugar	1903	55	9	441	19	1	...
	1902	-45	4	670	116	...	...
Tobacco	1903	167	1	1,979	21	2	3
	1902	565	...	2,344	12	8	...
All other traffic	1903	269	134	2,241	2,035	47	188
	1902	247	274	1,573	3,650	1	24
Total	1903	673	320	6,006	3,197	58	247
	1902	1,263	1,148	7,744	9,800	20	3
<i>Half-year ending 30th June, 1904.</i>							
Coal	1904	...	...	...	4	...	...
	1903	...	...	...	...	...	...
Piece-goods	1904	...	6	2	61	...	2
	1903	4	21	2	70	...	1
Wheat	1904	1	20	6	6	...	...
	1903	...	8	28	5	...	...
Rice	1904	558	52	2,714	446	3	1
	1903	10	102	75	189	3	1
Other food-grains	1904	162	28	1,095	107	1	2
	1903	41	33	215	184	5	6
Gunny bags	1904	14	14	66	305	...	...
	1903	4	6	53	406	...	5
Metals	1904	5	7	67	208	...	1
	1903	2	3	52	186	...	1
Oils	1904	...	26	7	15	...	1
	1903	6	...	23	16	...	40
Seeds	1904	45	...	396	18	...	1
	1903	96	3	897	11	...	2
Salt	1904	...	3	...	12	...	...
	1903	16	...	...	12	...	...
Saltpetre	1904	18	...	...	59	...	...
	1903	4	...	...	43	...	...
Sugar	1904	73	13	481	27	4	...
	1903	55	9	441	19	1	...
Tobacco	1904	263	...	2,204	7	1	6
	1903	167	1	1,979	21	2	3
All other traffic	1904	136	208	1,858	1,274	14	227
	1903	266	134	2,241	2,035	47	188
Total	1904	1,275	377	8,896	2,549	23	241
	1903	673	320	6,006	3,197	58	247

APPENDIX D²—continued.

Bengal and North-Western Railway traffic interchanged with other Railways at the following ghāts for half-year ending 31st December, 1904.

Articles.		Vid MONGHYR GHAT.		Vid DISHA GHAT.		Vid TARI GHAT.	
		Outwards.	Inwards.	Outwards.	Inwards.	Outwards.	Inwards.
		Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Coal	{ 1904	...	1	...	...	...	...
	{ 1903	...	1	...	...	...	...
Piece-goods	{ 1904	...	7	3	107	1	9
	{ 1903	...	12	19	60	...	3
Wheat	{ 1904	...	11	32	7	...	...
	{ 1903	4	3	144	2	...	...
Rice	{ 1904	121	13	602	16	...	1
	{ 1903	290	26	186	39	...	1
Other food-grains	{ 1904	193	36	751	53	4	...
	{ 1903	332	15	910	23	...	...
Gunny bags	{ 1904	2	14	68	187	...	3
	{ 1903	7	8	72	146	...	1
Metals	{ 1904	8	5	84	166	...	3
	{ 1903	4	7	104	148	...	...
Oils	{ 1904	...	9	5	7	...	31
	{ 1903	14	...	22	18	1	...
Seeds	{ 1904	15	1	112	6	...	...
	{ 1903	53	...	325	6	...	4
Salt	{ 1904	...	...	...	4	...	3
	{ 1903	...	...	13	11	...	...
Saltpetre	{ 1904	3	...	...	1	...	...
	{ 1903	...	...	...	...	...	...
Sugar	{ 1904	28	4	516	9	5	...
	{ 1903	30	8	392	11	...	...
Tobacco	{ 1904	96	...	1,001	3	4	5
	{ 1903	179	...	1,104	2	...	...
All other traffic	{ 1904	172	125	827	1,531	11	47
	{ 1903	287	127	1,424	1,598	47	24
Total	{ 1904	638	226	4,001	2,097	25	102
	{ 1903	1,200	207	4,715	2,064	48	33

Half-year ending 30th June, 1905.

Coal	{ 1905	...	...	...	...	...	...
	{ 1904	...	...	...	4	...	...
Piece-goods	{ 1905	...	19	3	67	...	3
	{ 1904	...	6	2	61	...	2
Wheat	{ 1905	4	29	1	3	...	1
	{ 1904	1	20	6	6	...	...
Rice	{ 1905	26	136	284	220	1	1
	{ 1904	558	52	2,714	446	3	1
Other food-grains	{ 1905	151	35	548	120	...	3
	{ 1904	162	28	1,095	107	1	2
Gunny bags	{ 1905	5	15	62	167	2	2
	{ 1904	14	14	66	305	...	...
Metals	{ 1905	5	27	72	166	...	1
	{ 1904	5	7	67	208	...	1
Oils	{ 1905	2	40	8	5	...	44
	{ 1904	...	26	7	15	...	1
Seeds	{ 1905	41	14	343	51	...	...
	{ 1904	45	...	396	18	...	1
Salt	{ 1905	...	...	...	3	...	...
	{ 1904	...	3	...	12	...	...

APPENDIX D²—continued.

Benqal and North-Western Railway traffic interchanged with other Railways at the following ghâts for half-year ending 30th June, 1905—concluded.

Articles.		VIA MONGHYR GHAT.		VIA DIGHA GHAT.		VIA TARI GHAT.	
		Outwards.	Inwards.	Outwards.	Inwards.	Outwards.	Inwards.
		Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Saltpetre	{ 1905	7	...	11	119	...	...
	{ 1904	18	...	...	59	...	...
Sugar	{ 1905	109	1	783	10	2	...
	{ 1904	73	13	431	27	4	...
Tobacco	{ 1905	173	...	1,895	3	...	1
	{ 1904	263	...	2,204	7	1	6
All other traffic	{ 1905	363	128	1,480	1,447	7	136
	{ 1904	136	208	1,858	1,274	14	227
Total	{ 1905	886	441	5,490	2,381	12	192
	{ 1904	1,275	377	8,898	2,549	23	241

Half-year ending 31st December, 1905.

Coal	{ 1905	...	17	...	...	...	...
	{ 1904	...	1	...	...	...	...
Piece-goods	{ 1905	1	5	12	90	...	2
	{ 1904	...	7	3	107	1	9
Wheat	{ 1905	4	12	1	17	...	...
	{ 1904	...	11	32	7	...	...
Rice	{ 1905	7	19	62	62	2	...
	{ 1904	121	13	602	16	...	1
Other food grains	{ 1905	78	241	194	341	...	29
	{ 1904	193	36	751	53	4	...
Gunny bags	{ 1905	...	7	56	160	...	4
	{ 1904	2	14	68	187	...	3
Metals	{ 1905	8	15	70	149	...	3
	{ 1904	8	5	84	166	...	3
Oils	{ 1905	4	3	4	8	...	44
	{ 1904	...	9	5	7	...	31
Seeds	{ 1905	4	...	159	4	...	...
	{ 1904	15	1	112	6	...	...
Salt	{ 1905	...	1	...	14	...	3
	{ 1904	...	...	...	4	...	...
Saltpetre	{ 1905	...	...	17	8	...	...
	{ 1904	3	...	...	1	...	...
Sugar	{ 1905	68	...	323	15	6	...
	{ 1904	28	4	516	9	5	...
Tobacco	{ 1905	130	...	1,016	3	...	5
	{ 1904	96	...	1,001	3	4	...
All other traffic	{ 1905	192	139	856	1,323	5	11
	{ 1904	172	125	827	1,531	11	47
Total	{ 1905	503	458	2,770	2,193	13	5
	{ 1904	638	226	4,001	2,097	25	103

Half-year ending 30th June, 1906.

Coal	{ 1906	...	...	...	...	...	...
	{ 1905	...	...	...	...	...	...
Piece-goods	{ 1906	...	6	3	59	1	...
	{ 1905	...	19	3	67	...	3
Wheat	{ 1906	2	16	62	18	...	5
	{ 1905	4	29	1	3	...	1
Rice	{ 1906	6	837	34	1,379	4	30
	{ 1905	26	136	284	220	1	1

APPENDIX D²—concluded.

Bengal and North-Western Railway traffic interchanged with other Railways during half-year ending 30th June, 1906, at following ghats. [For traffic via Mokameh see separate statement.]

Articles.	Yid MONGHYR GHAT.		Yid DIGHA GHAT.		Yid TARI GHAT.	
	Outwards.	Inwards.	Outwards.	Inwards.	Outwards.	Inwards.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Other food-grains	1906	59	177	73	1,574	2
	1905	151	35	548	120	3
Gunny bags	1906	7	15	91	124	4
	1905	5	15	62	167	2
Metals	1906	2	16	71	219	1
	1905	5	27	72	166	1
Oils	1906	5	15	3	8	...
	1905	2	40	8	5	44
Seeds	1906	28	4	109	6	...
	1905	41	14	343	51	...
Salt	1906	...	15	...	3	...
	1905	...	...	...	3	...
Saltpetre	1906	2	...	...	55	2
	1905	7	...	11	119	...
Sugar	1906	82	18	932	48	...
	1905	109	1	783	10	2
Tobacco	1906	112	...	1,861	3	4
	1905	173	...	1,895	3	1
All other traffic	1906	316	139	1,961	1,173	22
	1905	363	128	1,450	1,447	7
Total	1906	621	1,258	5,199	4,669	46
	1905	886	444	5,410	2,381	12

APPENDIX D³.

Abstract Statement of Passengers and Goods Traffic dealt with at Mokameh Ghat for the periods 1900—1906.

	Period.	Passengers	Passengers	Goods	Goods	Share of total tonnage to and from Calcutta stations.	
		half-yearly. (a)	yearly.	half yearly. (b)	yearly.		
		Nos.	Nos.	Tons.	Tons.		
1900	First-half	1,20,923		2,52,776		} Not taken out.	
	Second-half	1,43,238	2,64,161	1,36,591	3,89,367		
1901	First-half	1,58,877		2,93,883			
	Second-half	1,90,664	3,49,541	1,98,182	4,92,065		
1902	First-half	1,69,864		3,06,709			
	Second-half	2,06,931	3,76,795	1,97,498	5,04,207		
1903	First-half	2,31,625		3,75,284			4,32,954
	Second-half	2,54,901	4,86,526	2,85,808	6,61,092		
1904	First-half	2,67,490		4,13,443			5,03,222
	Second-half	2,62,743	5,30,233	3,23,343	7,36,786		
1905	First-half	2,87,165		3,44,160			* 3,18,675 (c)
	Second-half	3,05,735	5,92,900	2,13,055	5,57,215		
1906	First-half	2,98,192		3,61,940			
	Second-half	2,85,238	5,83,430	2,38,727	6,00,667		

(a) About half of these passengers were to and from stations in the neighbourhood of Calcutta.

(b) Fully four-sixths of this tonnage was to and from Calcutta and one-sixth from the coal-fields.

*The tonnage to and from Calcutta was accurately taken out for the years 1903, 1904 and 1905, and will be found in the last column.

(c) The large drop in 1905 was due to failure of the wheat and seeds crops up-country.

APPENDIX D.

BENGAL AND NORTH-WESTERN RAILWAY.

Details of Traffic passing over Semaria Ghât, Mokameh Ghat Ferry, during following period, in tons.

PARTICULARS.	1900.			1901.			1902.			1903.			1904.			1905.			1906.			REMARKS.
	SEMARIA GHAT.		Total.	SEMARIA GHAT.		Total.	SEMARIA GHAT.		Total.	SEMARIA GHAT.		Total.	SEMARIA GHAT.		Total.	SEMARIA GHAT.		Total.	SEMARIA GHAT.		Total.	
	Des-patched.	Re-ceived.		Des-patched.	Re-ceived.		Des-patched.	Re-ceived.		Des-patched.	Re-ceived.		Des-patched.	Re-ceived.		Des-patched.	Re-ceived.		Des-patched.	Re-ceived.		
I.—Public traffic booked through, vide details on reverse—																						
1st-half . . .	129,202	82,803	323,562	130,243	91,859	376,622	136,510	110,375	387,573	208,148	108,602	547,853	213,511	118,630	532,140	114,775	136,625	407,452	119,867	158,546	463,488	* The wheat and seed crops failed in 1905 and Bengal has been in porting in 1906, owing to scarcity of rain from floods.
2nd-half . . .	55,615	55,942		87,830	66,690		79,354	61,334		119,836	71,266		134,806	75,193		75,155	80,897		76,838	108,237		
II.—Railway materials booked through—																						
1st-half . . .	11	8,102	7,010	3	22,137	27,236	2	5,820	21,374	12	5,008	12,938	2	22,263	36,900	5	22,142	42,887	8	16,691	20,955	
2nd-half . . .	41	8,856		3	5,093		15,552	7,918		14,621	36		14,704	10		4,246						
II.—Local booking—																						
B. and N.-W. coal 1st-half.	...	33,753	53,703	...	46,221	80,682	...	48,548	85,063	...	49,190	93,340	...	56,113	100,896	...	59,879	96,955	...	56,246	108,082	
B. and N.-W. coal 2nd-half.	...	19,950		...	34,461		...	36,515		...	44,150		...	44,783		...	44,783		...	37,076			...	51,836
Other traffic 1st-half.	2,114	1,791	5,092	1,912	1,508	7,625	2,989	2,465	10,197	3,650	686	6,962	2,745	180	6,850	4,171	563	9,921	7,242	3,341	14,143	
Other traffic 2nd-half.	869	318		1,110	2,995		1,556	3,187		2,483	143		2,483	143		3,567	358		2,791	2,396			1,360	2,200
Grand total 1st-half	131,327	121,449	389,367	132,158	161,725	492,065	139,501	167,208	504,207	21,798	163,486	661,092	216,258	197,185	736,786	118,951	225,209	557,215	127,117	234,824	606,668	
" " 2nd half	56,525	80,066		88,943	109,239		80,910	116,588		162,331	123,477		188,368	134,955		77,982	135,073		78,208	166,519		
Of the foregoing the following were with Calcutta.	Not recorded.		...	Not recorded.		...	Not recorded.		...	.....	430,297	.....	506,878	.....	317,379	Not recorded.		...	The remaining traffic is public coal and through traffic to mills short of Calcutta.			
Percentage of Calcutta traffic on grand total.	.....		...	.....		...	.....		...	.....	65	.....	68	.....	57	.....		...	
*Add the following with collieries—																						
Share of I . . .	.....	...	...	.....	...	...	.....	...	...	.....	46,999	.....	.....	55,774	.....	.....	72,337	.....	.....	...	...
Share of III . . .	.....	...	...	.....	...	...	.....	...	...	.....	93,340	.....	.....	100,896	.....	.....	96,955	.....	.....	...	...
Total . . .	.....	...	...	.....	...	...	.....	...	...	.....	140,339	.....	.....	156,670	.....	.....	169,292	.....	.....	...	...
Percentage . . .	.....	...	...	.....	...	...	.....	...	...	.....	21	.....	.....	21	.....	.....	30	.....	.....	...	...

APPENDICES.

APPENDIX D.

Details of public traffic booked through.

Name of commodity.	1900.			1901.			1902.			1903.			1904.			1905.			1906.		
	SEMARIA GHAT.		Total.	SEMARIA GHAT.		Total.	SEMARIA GHAT.		Total.	SEMARIA GHAT.		Total.	SEMARIA GHAT.		Total.	SEMARIA GHAT.		Total.	SEMARIA GHAT.		Total.
	Des-patched.	Re-ceived.		Des-patched.	Re-ceived.		Des-patched.	Re-ceived.		Des-patched.	Re-ceived.		Des-patched.	Re-ceived.		Des-patched.	Re-ceived.		Des-patched.	Re-ceived.	
Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	
Coal	1st-half	...	28,322	...	29,099	...	39,704	...	37,547	...	43,920	...	57,107	...	71,031	...	71,031	...	71,031	...	92,742
	2nd-half	...	7,698	...	9,483	...	11,713	...	9,452	...	11,854	...	15,230	...	21,711	...	21,711	...	21,711	...	92,742
Piece-goods	1st-half	5	5,580	32	6,981	35	7,218	49	9,760	26	7,188	32	9,402	18	8,111	24	8,875	24	8,875	...	17,023
	2nd-half	31	4,516	50	6,584	136	4,791	79	6,311	50	8,555	37	7,654	24	8,875	...	8,875	...	8,875	...	17,023
Grain and seeds	1st-half	107,139	2,472	95,233	988	168,534	108,282	4,902	68,701	176,426	596	305,434	174,819	233	895,742	75,961	1,201	124,267	80,689	4,088	149,287
	2nd-half	34,907	1,635	71,222	1,091	54,682	835	68,701	128,286	126	160,503	187	395,742	45,783	1,322	124,267	47,408	17,102	47,408	17,102	149,287
Gunny	1st-half	853	1,959	166	2,169	277	1,630	179	4,192	157	4,548	332	2,864	7,901	166	3,243	277	1,840	387	1,354	4,731
	2nd-half	704	865	251	1,323	184	1,245	192	3,020	332	2,864	7,901	166	3,243	277	1,840	387	1,354	387	1,354	4,731
Metals	1st-half	517	2,132	206	3,337	211	3,715	111	4,325	109	5,279	191	5,337	10,504	191	5,337	149	6,843	149	6,843	12,629
	2nd-half	420	2,000	125	3,878	89	3,956	84	4,912	157	4,959	170	4,962	10,660	170	4,962	159	5,478	159	5,478	12,629
Oils	1st-half	33	5,482	45	7,076	94	6,854	138	7,522	30	8,083	15	10,824	19,686	15	10,824	66	9,017	66	9,017	17,639
	2nd-half	21	5,354	22	6,877	66	6,940	137	7,106	37	8,873	63	8,784	19,686	63	8,784	26	8,530	26	8,530	17,639
Salt	1st-half	831	27,714	580	30,469	1,665	84,147	45	33,709	...	36,792	60	36,677	66,036	60	36,677	...	40,231	...	40,231	69,150
	2nd-half	261	26,623	169	28,535	37	23,137	15	30,697	...	28,160	11	29,288	66,036	11	29,288	3	28,916	3	28,916	69,150
Saltpetre	1st-half	4,490	...	4,778	...	5,047	...	10,106	6,352	...	6,939	...	11,159	4,996	16	9,395	5,029	9	5,029	9	9,803
	2nd-half	4,375	...	5,109	...	5,059	...	10,106	5,721	...	5,120	...	11,159	4,381	2	9,395	4,764	1	4,764	1	9,803
Sugar	1st-half	2,216	453	7,516	981	10,228	4,595	736	7,127	3,581	722	6,814	4,999	1,351	9,040	4,238	902	8,190	8,424	3,525	11,493
	2nd-half	1,401	659	1,130	601	1,198	600	7,127	1,641	870	1,670	1,020	9,040	1,942	1,108	8,190	1,176	3,368	1,176	3,368	11,493
Tobacco	1st-half	3,152	7	4,637	11	6,857	4,051	41	6,974	3,172	50	5,880	5,899	1	10,002	5,946	...	10,214	5,094	...	8,273
	2nd-half	2,817	9	2,322	7	2,880	2	6,974	2,653	...	4,102	...	10,002	4,268	...	10,214	3,178	...	3,178	...	8,273
All other traffic	1st-half	10,466	8,682	17,060	10,748	43,659	12,253	11,368	41,761	18,095	10,179	58,069	21,433	11,235	54,224	23,170	11,916	64,016	25,155	12,949	70,719
	2nd-half	10,873	4,583	7,540	8,311	15,025	3,115	15,025	3,115	21,023	8,772	12,835	8,721	18,223	10,707	19,713	12,902	19,713	12,902	...	70,719
TOTAL	1st-half	129,202	62,803	130,243	91,859	376,622	136,510	110,375	387,573	208,148	108,602	547,852	213,511	118,630	592,140	114,775	136,625	407,452	119,867	158,546	463,488
	2nd-half	55,615	55,942	87,830	66,690	79,354	61,334	87,573	139,636	71,266	184,808	75,193	184,808	75,193	75,155	80,897	76,838	108,237	76,838	108,237	463,488

APPENDIX D¹.

BENGAL AND NORTH-WESTERN RAILWAY.

Statement showing the capital cost and annual working outlay on the Mokameh ferry.

Particulars.	Ferry Steamer and plant	Siding north and south banks.	Shops, stores and staff quarters.	Rolling stock required on account of ferry.	Extra sidings at Barauni.	Working vessels and fuel.	Total.	
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
A. Capital cost	13,51,556	1,69,007	73,818	600 × 1,350 = 8,10,000	21,631	...	24,26,012	
B. Working outlay.	—	—	—	—	—	—	—	
Establishment charges . . . . .	...	...	...	...	...	56,560	56,560	
Repairs to Flotilla and Ferry Plant	54,112	...	...	...	...	...	54,112	
Lifting and relaying sidings . . . . .	...	20,896	(a) 738	...	(b) 649	...	22,283	(a) 1 per cent. (b) 3 per cent.
Fuel . . . . .	...	...	...	...	...	40,459	40,459	
Interest at 4 per cent.	54,062	6,760	2,952	32,400	865	...	97,039	(c) at 2 per cent.
Depreciation	(c) 27,031	(d) 2,532	...	(e) 40,500	(c) 433	...	70,496	(d) excluding outlay on land Rs. 42,383.
Total	1,35,205	30,188	3,690	72,900	1,947	97,019	3,40,949	(e) at 5 per cent.

APPENDIX D⁴—concluded.

Statement showing expenditure of the Mokameh Ghat Ferry and Bridge for the last six years from 1900 to 1905.

Particulars.	EXPENDITURE.												Total.	Average amount of charge of six years.	REMARKS.
	1900.		1901.		1902.		1903.		1904.		1905.				
	1st-half.	2nd-half.	1st-half.	2nd-half.	1st-half.	2nd-half.	1st-half.	2nd-half.	1st-half.	2nd-half.	1st-half.	2nd-half.			
I.—WORKING VESSELS—	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		
Salaries and allowances	25,441	21,953	23,269	20,155	25,794	20,945	24,844	21,659	29,056	27,887	31,424	28,133	3,00,500	50,093	
Loading and unloading vessels		10	504	...	— 6	...	...	...	...	2	— 2	...	608	86	
Form and stationery	39	46	14	25	24	16	1	11	9	21	26	35	267	44	
Contingencies	809	312	464	374	621	243	451	202	609	154	961	125	5,325	889	
II.—REPAIRS—															
Wages	10,366	8,527	10,244	7,490	10,880	8,963	9,440	7,311	8,785	11,905	13,428	11,157	1,18,496	19,750	
Materials	12,966	6,036	12,330	6,509	6,601	9,033	10,590	26,535	12,203	17,092	19,660	14,809	1,54,369	25,725	
III.—FUEL—															
Coal, etc.	15,573	14,183	18,080	14,141	18,840	14,705	15,390	15,725	23,110	18,237	22,626	16,011	2,06,611	34,435	
IV.—MISCELLANEOUS STORES	7,509	5,332	5,344	4,699	8,775	3,859	4,319	3,907	4,194	3,146	3,468	3,062	57,614	9,602	
V.—MISCELLANEOUS EXPENDITURE—															
Carriage of Revenue Stores	1,155	1,275	560	99	270	923	1,287	1,122	1,015	2,918	1,920	2,185	14,679	2,447	
Clothing	291	40	—151	1	72	—19	—65	371	495	219	598	830	2,680	447	
Lifting, etc.	5,517	9,128	3,757	7,472	2,269	8,316	12,316	23,720	12,286	6,767	21,311	11,995	1,25,374	20,896	
Steamer d&k	1,419	694	2,377	292	1,714	220	2,024	31	3,102	485	2,901	414	15,673	2,612	
Sundries	6	...	...	...	...	...	...	...	...	...	...	...	6	1	
Share of charges of Traffic Staff at Semaria and Mokameh appertaining to ferry . . . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	5,000	
	81,081	67,536	76,793	61,255	75,854	67,229	81,097	1,00,594	94,664	88,833	1,18,327	88,706	10,02,162	1,72,027	
Total earnings	2,43,370	1,42,078	2,61,531	1,99,352	2,90,962	2,03,321	3,45,121	2,85,333	3,90,523	3,10,604	3,30,202	2,24,715	32,27,037	5,37,839	

	Rs.
<i>Abstract—</i>	
Establishment charges	56,580
Repairs to Flotilla and Ferry Plant	54,112
Lifting and Relaying sidings	2,896
Fuel	40,459
Total	1,72,027

APPENDIX D^e.

STATEMENT OF DELAYS AT MOKAMEH FERRY.

1906.

January 23rd.—Owing to fog the goods ferry was suspended for seven hours.

January 24th.—Owing to fog the passenger steamer which left Mokameh Ghât at 10 P.M. grounded, but got off at 2 A.M. on 25th and returned to Mokameh Ghât. No steamers crossed during the night. The goods ferry was suspended for 14½ hours.

January 25th.—Owing to fog goods crossing was suspended for seven hours. Traffic had now accumulated, and the balance delayed in Mokameh yard, with goods for the Bengal and North-Western Railway, was 300 wagons.

January 29th.—Owing to fog goods ferry was suspended for nine hours.

February 2nd.—Goods ferry was suspended for nine hours owing to cyclonic weather.

March.—In the second week of March goods traffic was seriously delayed owing to accumulation, while a temporary line four miles in length was laid across a sand bank of the river. To admit of passenger traffic being carried, the East Indian Railway had to lay a broad gauge line from Mokameh Ghât to this new Ghât.

August 29th.—The goods ferry stopped working for the day owing to cyclonic weather.

September 12th.—The goods ferry stopped working for the day owing to cyclonic weather.

September 25th.—The goods ferry was stopped for the day owing to the channel silting.

September 27th.—The goods ferry was stopped for the day owing to the channel silting.

October 7th.—Goods ferry stopped from 1 A.M. of 7th to 7 A.M. of 8th owing to slip line sinking, necessitating the shifting of the jetty.

October 9th.—Owing to channel closing, only nine barges crossed.

October 10th.—Only nine barges crossed in 24 hours. Goods accumulated at Mokameh Ghât and 90 East Indian Railway wagons detained.

October 11th.—Goods ferry stopped 3 P.M. of 11th to 7 P.M. of 12th owing to the slip lines at Semaria Ghât giving way. One hundred and thirteen East Indian Railway wagons detained at Mokameh Ghât and sheds full.

October 17th.—Goods ferry stopped for six hours owing to steamer grounding.

October 18th.—Loads of barges had to be reduced to ten wagons instead of 20 owing to insufficient water at Mokameh Ghât.

October 19th.—Goods ferry stopped from noon of 19th to 11 A.M. of 20th, while jetties and shore connections were removed to new Ghât at Hatedah down the river to which a branch line had been laid for goods.

Owing to the interruptions to the ferry from the 7th to 9th October, goods accumulated at Mokameh Ghât and it was not till the 4th November that the accumulation was cleared. On the 23rd, the East Indian Railway had over 100 wagons to unload, and there were over 1,000 tons miscellaneous goods in the sheds.

On the 27th October the East Indian Railway laid a branch line for passengers to the new ghât at Hatedah. Between the 19th and 27th, passengers had to be conveyed over the Bengal and North-Western Railway goods branch from the goods jetty to the transshipment yard where they changed to East Indian Railway vehicles.

1905.

Similar difficulties experienced in March 1905 as detailed for March 1906.

The crossing of goods barges was suspended from 23 hours of 28th September till 7 hours of 30th September 1905 owing to cyclonic weather. During the night of 29th and 30th September 1905, passenger steamers could not cross owing to rough weather.

In the end of November 1905 goods to the East Indian Railway were delayed at Mokameh Ghât owing to shortage of broad gauge wagons, 1,200 tons being the balance on hand on the evening of the 29th November.

1904.

On 8th and 9th July 1904, the goods ferry could not work owing to rough weather.

On 19th July 1904, the goods crossing was suspended from 9 to 18 hours owing to the landing pontoon at Semaria Ghât jetty having silted up.

Crossing of goods barges was suspended from 19 hours on 30th July till 12 hours of 31st July owing to the slip line being out of order, due to heavy rain.

Crossing of goods barges was stopped from 22 hours of 13th July until 16 hours of the 15th August owing to rough weather, and again stopped from 21-30 of 14th August till 3-30 on 15th August owing to same cause.

The crossing of barges was stopped for 6 hours on 31st August 1904 owing to the pontoon silting.

From 22 hours of 12th until 10 hours of 13th September 1904 crossing of barges was stopped owing to the bank cutting at Semaria Ghât.

From 15 hours of 17th October until 6-30 next morning the crossing of goods barges had to be stopped owing to rough weather.

In 1904 the traffic in wheat and seeds for export *viâ* Calcutta started late and continued late. From July till November it was more or less interrupted, and the transshipment station was blocked, but this was due, it is believed, to the difficulty in getting consignees to remove consignments at the Docks.

On the 28th December 1904, the despatching of wheat, grain and seeds and hides for Howrah from the Bengal and North-Western Railway was stopped by the East Indian Railway to prevent congestion at Howrah. On the 21st December, wheat and rice were excluded from the restriction. Over 1,000 tons goods booked before the restriction was imposed were delayed in the sheds at Mokameh Ghât; the restriction was removed on 26th December 1904.

1903.

Owing to sand storms the ghât lines at Semaria Ghât were rendered unfit for traffic, and the staff could not work during the day for about a week in the end of April 1903, interfering with the ferry, causing an accumulation of goods traffic at Mokameh Ghât. Booking of goods to Calcutta had to be stopped from 29th April till 3rd May 1903.

From 17th to 19th May 1903, booking of grain and seeds and tobacco for Calcutta *viâ* Mokameh Ghât had to be stopped owing to removals not keeping pace with the arrivals and Bengal and North-Western Railway; loaded wagons accumulating on the north bank of the river.

From 11th to 30th November 1903, grain traffic to Calcutta was delayed at Mokameh Ghât owing to removals not keeping pace with the arrivals, the balance on hand daily for 14 days varied from 1,000 to 1,600 tons.

1902.

In 1902 there were no serious blocks and the records of minor interruptions are not available. For some years prior to 1902, serious blocks of Calcutta grain and seeds traffic occurred annually at Mokameh Ghât. The blocks of 1901 and previous years were most serious, and the subject of much correspondence.

APPENDIX D.

Extract from letter No. 2217, dated 7th March 1906, to the Railway Board.

“As stated by my Board very great difficulties have arisen this season in working the passenger and wagon ferries at Mokameh Ghât, and maintaining communication with the East Indian Railway by that route. The state of affairs was pointed out in my letter No. 193, dated 8th January 1906, to the Consulting Engineer for Railways, Lucknow, copy of which I forward for the

information of the Board. After careful investigation, the only solution to this year's difficulties was found to involve a line about 4 miles long, across a shifting sand bank, to a point on the south side of the main channel which now hugs the north bank, as shown on the accompanying ferro. This line has been constructed and the shift will be made on the 8th instant. The working of traffic over the sand bank, when hot winds prevail, will be attended with great difficulties and discomforts to the public and the Company's servants, and there is considerable risk in having so much permanent-way material in the bed of the river.

Even under most favourable conditions, grave local troubles arise at Mokameh Ghât in maintaining regular interchange of traffic between the two banks. Apart from changes in the river channels, we have been compelled, on several occasions during the last few months, to suspend the crossing of wagons on account of fogs and squally weather. During the hot season, our ghât lines are occasionally covered up with sand, and dust storms make work at times almost impossible. The ghât sites have frequently to be altered owing to changes in the navigable channels. No one without practical experience of their working can know how great the difficulties are, and what a constant source of labour and anxiety these ferry crossings entail. It is no exaggeration to say that they may imperil at any time the country north of the Ganges served by this railway, as well as a large part of that of Calcutta."

* * * * *

APPENDIX E.¹

Previous to the examination of the Eastern Bengal State Railway witnesses the following information was asked for:—

1. The cost of working the ferry at Sara including all contingent expenses such as loss by fire, theft and wagon detention, together with the capital cost of ferry plant and the capital cost of station yards in connection with same.
2. Full particulars of the difficulties which occurred at Sara Ghât and Damukdia Ghât during the past season.
3. Distribution of Eastern Bengal State Railway traffic brought into Calcutta.
4. Statistics of the principal commodities, inwards and outwards (say the 10 principal commodities and the rest lumped together) and also the section of the line of origin.
5. Time generally occupied in making the transfer across the river from time of arrival at Sara to time of leaving Damukdia and *vice versa*.
6. What ferry arrangements are proposed at Godagiri?
7. Whether the entry of the metre gauge would afford relief to the broad gauge stock?
8. Has there been any shortage of broad gauge stock? What relief the construction of a bridge at Sara would give in this direction?
9. An estimate of rough cost of a single metre gauge line from—
 - Jessail to Parbatipur.
 - Jessail to Nattore.
 - Godagiri to Santahar.
10. How does the Serajganj to Godagiri project now stand and what is its estimated cost?
11. What length of metre gauge connections and at what approximate cost would the Eastern Bengal State Railway need to serve a bridge at—
 - (a) Sara.
 - (b) Rampur Boalia.
 - (c) Godagiri?

12. Whether you anticipate that the opening of the Katihar-Godagiri Railway will divert Calcutta traffic from the Mokameh route.

13. Any information that can be given as to feasibility of working a mixed gauge at termini and also an approximate estimate of the cost of getting the metre gauge into the various termini in and around Calcutta and of introducing a third rail with switches, etc., into the terminal yards and mill and private sidings.

14. Any information that can be given regarding the working of transfer stations in other parts and the transfer of metre gauge stock to broad gauge underframes.

15. Whether there is sufficient traffic to justify a double metre gauge line into Calcutta from Rampur Boalia:—

(a) If it gets the Bengal and North-Western Railway traffic.

(b) If it does not get the Bengal and North-Western Railway traffic.

16. General plan showing Eastern Bengal State Railway, in and around Calcutta, and the private and mill sidings connected with it.

Abstract of sidings showing name of company or firm served, length of sidings both inside and outside the premises of the firm, etc., with abstract of agreement in each case shewing briefly the terms on which the siding was constructed, and on which it is worked and how the ownership or cost of the siding has been divided. Proposed sidings should be included in the above.

These questions were replied to as follows:—

From the Officiating Manager, Eastern Bengal State Railway, to the Secretary, Ganges Bridge Committee.

With reference to your letter No. 4, dated 8th January 1907, I beg to forward herewith a memorandum giving answers to the questions set forth therein, excepting questions 1-3-4 and 16 to which answers will follow.

(Subsequently supplied.)

QUESTION 2.

Particulars of difficulties which occurred at Sara Ghât and Damukdia Ghât during the past season.

Taking Sara first.—There was little difficulty here last season except the usual one of meeting the rise and fall of the river by providing new ghâts and ramps for the wagon ferry. On the fall of the river, however, churs formed opposite the station necessitating a detour of about half a mile for the steamers as shewn on the plan attached (not reproduced). These churs will most likely become an exceedingly serious matter next season. If the main channel continues on its present course, Sara Ghât may be completely blocked and a complete set of new ghât sidings with coolie sheds, etc., may have to be made. To meet this plans and estimates are being prepared for the necessary extension, and a new yard and ghât sidings two miles below Sara.

At Damukdia Ghât.—For three years past the river has gradually deserted its usual channel along and eroding the right bank above Damukdia Ghât and has been moving further out into the centre of its bed. This season a chur formed and blocked Damukdia Ghât for low water work and except for wagon ferry work all transshipment had to be transferred, the passengers to a new ghât, a mile down stream, and the goods to the former goods station at Golbathan, 8½ miles down stream. During the floods considerable trouble was experienced by their excessive height and a cyclone damaged the ends of the ghât sidings on the river bank and the line between Damukdia and Damukdia Ghât. This damage was caused by the wash of the waves beating against the slopes of banks and ends of the sidings.

Passengers.—The chur above noted is about 2,500 feet wide and its surface is 3 feet above low water level, sloping very slightly riverwards. During the fall this chur 2,500 feet wide was extremely awkward as it necessitated constant prolongation of the jetties and the purchase of large quantities of planks and posts. The jetties were extended to 500 feet. The water was

practically as shallow at the outer ends as it was at the shore. As the lead for luggage had become very long and the steamers could not get within 1,500 feet of the jetties, it was found convenient to place both passengers and luggage on a flat and warp them out to the steamer. Passengers then boarded the steamer and the flat with luggage was towed across.

Soundings taken weekly during the floods gave us notice of what would happen. But as the shallow water extended from six miles above to six miles below Damukdia and the country was flooded nothing could be done towards making new ghats until the water began to fall. Continued soundings along the shore shewed that only one spot on the above 12 miles where water deep enough to float steamers at low water level was available, *i.e.*, just abreast Sara. Directly the ground got dry a new passenger line was started from Damukdia. To get down to the chur level a cutting 12 feet deep had to be made alongside the main bank. This work was delayed by the water in the ground which had not drained out, but eventually the siding was opened on 5th December 1906. Even at the new site the water is shoal and when it reaches its lowest level jetties 500 feet long will be required. All the permanent-way material for this work had to be provided from outside of Damukdia Ghât stock.

Without making a very long detour it is impossible to obtain length of lead sufficient to get down closer to low water level so as to permit of the rails being laid low enough to economically run out earth bunds for them into the river. In any case this would be unsatisfactory as if we laid the line so low it would be very difficult to remove the rails when the water will begin to rise. This removal would have to be done, before the chur in front of the high level passenger ghât, at which work must be resumed during high water, would have become covered with water deep enough for navigation.

Goods transhipment.—Directly it became evident that Damukdia Ghât was closing work was commenced at Golbathan. Owing to the great increase of traffic during former years all the spare available rails had been used up at Damukdia Ghât and a good portion of the track of the old Golbathan yard had been transferred thereto. This had to be relaid by material brought from Calcutta and by three miles of rails bought from the Oudh and Rohilkhand Railway. The track could not be taken up at Damukdia Ghât and relaid at Golbathan as it was in use. All rails relaid at Golbathan had to be brought from outside. A considerable amount of material intended for the Durgapur chur line near Goalundo had to be diverted and some points and crossings ordered locally. To complete *both* yards more material is still required.

It was necessary to shift however before the sidings at Golbathan were completed. The yard which sufficed eight years ago, when Golbathan was last laid, is not nearly large enough now and considerable extensions of sidings have had to be made and a number of new buildings put up.

This work had to be done during the end of the rains. It was in consequence rendered more difficult as the new formation cuts became filled with water and at one time during the cyclone work was practically stopped for a week. The shift occurred at a period when traffic was heaviest and naturally resulted in considerable dislocation. The upward traffic at this time was many times greater than usual owing to heavy grain traffic to the famine districts and combined with the heavy downward jute traffic caused a block which necessitated restriction of traffic to enable accumulations to be worked off.

The restrictions and the dates on which they were imposed and removed were as follows —

Restrictions on upward traffic viâ Damukdia Ghât.

Dates.	Local booking.	Stations from
15th October 1906	Booking of food grains entirely stopped	Calcutta and Chitpore section.
19th, 20th and 21st October.	All upward goods traffic stopped	All stations.

Restrictions on upward traffic via Damukdia Ghât—contd.

Dates.	Local booking.	Stations from
22nd October 1906	All upward goods traffic resumed with restrictions. Calcutta restricted to 15 and Chitpore section to 20 wagons a day.	All stations except jetty and Armenian Ghât.
17th November	Calcutta extended to book 25 and Chitpore 35 wagons a day.	
21st November	All upward goods traffic again entirely stopped except from Armenian Ghât which was allowed to book 30 wagons a day, and jetty which was allowed to book 15 wagons a day on and from 23rd November.	
5th December	Calcutta allowed to book 10 wagons and Budge Budge 10 wagons kerosine oil a day.	
5th "	Unrestricted booking of food grains, oilman's stores and wines and spirits and sulphur for tea gardens resumed.	
13th "	Calcutta bookings extended from 10 to 30 wagons and Budge Budge bookings extended from 10 to 20 wagons a day.	
20th "	Unrestricted booking resumed.	
	<i>Foreign booking.</i>	
5th November	All booking from foreign lines (East Indian, Bengal-Nagpur, Oudh and Rohilkhand and Docks) stopped.	
1st December	East Indian Railway allowed to book 15 wagons a day.	
5th "	Docks allowed to book 5 wagons salt a day.	
13th "	East Indian Railway allotment increased to 35 wagons a day. Docks allotment increased to 10 wagons a day.	
1st January	Unrestricted booking resumed.	

Wagon ferry.—This was with great difficulty kept in working order. A jetty of sleeper cribs with rail beams was extended 1,000 feet through shallow water. This required rails for the beams amounting to 4,000 feet of track, which had to be removed from Damukdia Ghât after goods working was shifted and which must be relaid on their original sites to suit high water working, and the maintenance of the cribs is difficult owing to the slight current causing them to tip up stream. This jetty is not long enough and to be efficient at low water level would have to be extended another 1,500 feet, and a new site just above low water level has been selected on a chur higher up stream requiring a jetty about 500 feet long and for which a siding about 5,000 feet long is now being laid.

General.—The following is a resumé of the work done :—

- (1) 1,000 l. ft. of jetties made at old passenger ghât.
- (2) New lines with 10,000 feet of track laid for passenger siding. This will have to be removed with great rapidity when the water rises.

- (3) New lines with 17,000 feet of track at Golbathan.
- (4) Wagon ferry jetty made 13,000 feet long and a new wagon ferry line in hand nearly a mile long. This work, however, is only for this season. It will probably have to be repeated so far as the Damukdia-Sara work is concerned next year.

Further there is every probability of Golbathan suffering from severe erosion next season as a chur half a mile wide which existed last June was practically all cleared out in September and cutting of the bank is going on just below the ghât.

The approximate cost of works owing to the silting at Damukdia, re-opening of Golbathan, and damage caused by floods is as follows:—

	Rs.
Passenger chur line	17,900
Local goods do.	7,600
Extension of wagon ferry	7,000
New ghâts at Golbathan	54,000
Extensions of jetties at high water passenger ghât	3,000
Flood works	20,000
Permanent-way	1,34,000
Total	<u>2,43,500</u>

QUESTION 5.

5. The average time occupied in transferring goods across the river from time of arrival of the wagon on one side to time of departure on the other side is from 24 to 36 hours, the former when wagons arrive before noon and the latter when wagons arrive after noon.

QUESTION 6.

6. The total floating plant which is being provided for the Lalgola-Godagiri ferry service is—

- 3 Steamers.
2 Landing stages.
8 Flats.

The cost is estimated as follows:—

	Rs.
(1) Converting a flat into landing stage (including value of flat)	72,066
(2) Constructing 6 F. class flats	4,27,722
(3) Three steamers (1 passenger, 1 goods and 1 spare) of which one will probably be transferred from Eastern Bengal State Railway stock and two built	6,00,000
(4) One landing stage transferred from Eastern Bengal State Railway	50,000
(5) Two flats (from North Western Railway)	60,000
Total	<u>12,09,788</u>
Add—Contingencies at 5 per cent.	60,000
GRAND TOTAL (say)	<u>12,70,000</u>

The Engineering Department costs for ferry at Godagiri and Lalgola are estimated as follows:—

	Rs.
Laying rails	10,000
Earthwork	14,000
Staff quarters	4,000
Station buildings	2,000
Contingencies at 5 per cent.	<u>30,000</u>
GRAND TOTAL	<u>1,500</u>
GRAND TOTAL	<u>31,500</u>

Permanent way is not included in the above as it has already been provided in the estimates for the lines. Locomotives are proposed to be used on the ramps instead of winding engines.

QUESTION 7.

7. The maximum number of broad gauge goods trains conveying northern section traffic which has crossed the ferry to Naihati and stations south thereof may be taken as 5 per day with an average load of 50 wagons. The total number of wagons in use for a continuous service can be approximately arrived at by estimating the time taken on the up and down trips *plus* time for turning round at either end. It may be assumed that the upwards traffic is about $\frac{1}{3}$ rd the downward so that $\frac{2}{3}$ rds of the wagons are returned empty and $\frac{1}{3}$ rd have to be detained longer for reloading. Estimating 12 hours either way for running and 60 and 36 hours, respectively, for time occupied at both ends for turning round wagons with and without uploads the number required for a continuous service would be $\frac{2}{3}$ of $250 \times 2\frac{1}{2}$. . . = 417
 $\frac{1}{3}$ of $250 \times 3\frac{1}{2}$. . . = 292

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or, say, 750 wagons including provision for wagons under repair. The number of engines allotted for conveying northern section goods traffic between Damukdia and Calcutta including Naihati and stations south thereof may be taken as 18 including engines in shed for wash out and repairs. This is the maximum number in use on any day during the busy season hitherto. The number of shunting engines at Damukdia and Golbathan is 5.

For the passenger service two broad gauge branch trains each way per diem would suffice between Poradah and Damukdia if the metre gauge is brought into Calcutta, and the two engines now employed for working Damukdia branch trains could work the service. At present in addition to the branch engines, five engines including 1 in shed for wash out are used in running passenger service between Calcutta and Damukdia.

As regards passenger stock the entry of the metre gauge into Calcutta would enable the railway to release one composition now used for the Darjeeling mail and two compositions used for 15 up.

On the assumption that the metre gauge is extended to all points now served by the broad gauge in and near Calcutta the relief to broad gauge stock may be estimated as follows on the above particulars:—

- 23 Goods and shunting engines.
- 5 Passenger engines.
- 750 Wagons.
- 2 1st and 2nd class bogie carriages.
- 2 1st class ordinary carriages.
- 2 2nd " " "
- 2 Intermediate and 3rd class ordinary.
- 16 3rd class, ordinary.
- 1 Bogie, 3rd class.
- 1 Bogie, Intermediate and brake.
- 1 " " third and postal.
- 1 " " luggage and brake.
- 2 Luggage vans, ordinary.
- 20 Brake vans.

If metre gauge trains do not run into the mill sidings, Port Trust Railway, or Docks, and transshipment near Calcutta is resorted to for this traffic, the relief to the broad gauge goods stock would not be great, probably not more than 200 wagons.

QUESTION 8.

8. During the busiest season the broad gauge goods stock is not sufficient to enable the Railway to deal with the traffic offering, without undue delay and for the last few years it has not been possible to borrow from foreign railways all the wagons we require.

The construction of a bridge at Sara with a properly equipped transshipment yard would give considerable relief. The transshipment of goods from wagon to wagon could be conducted with much greater celerity in such a yard than is possible in the case of transshipment from wagons to flats and *vice versa*. Night working could also be introduced, and this would enable us to reduce the time required for turning wagons round at Sara very considerably.

QUESTION 9.

9. Estimate for Jessail, etc., connections, north of the Ganges.

Metre gauge.

In this estimate a village named Govindpur has been selected instead of Jessail. It is on the Katihar-Godagiri railway. Jessail is further north and is in the valley of the Purnabhaha where 20 to 30 feet of bank would be required.

	Rs.
(1) Govindpur to Parbatipur, 73 miles	47,45,000
(2) „ „ Nattore 40 „	26,00,000
(3) Godagiri „ Santahar 40 „	31,20,000
(4) „ „ Serajganj 88 „	65,00,000

QUESTION 10.

10. Project estimates for Railway extension to Serajganj and beyond have been prepared as follows :—

	Estimated cost. Rs.
(1) Sara to Serajganj, 5' 6" gauge, 49½ miles	62,09,069 *
(2) Serajganj right bank to Brahmaputra, 5' 6" gauge, 3¼ miles	3,70,008
(3) Brahmaputra left bank to Jagannathganj, metre gauge 26 miles	15,38,521
Total 78½ miles	81,17,598

* Includes Rs. 4,94,800 (Rs. 1,00,000 per mile) for rolling stock. The late Engineer-in-Chief (Mr. Moyle) estimated that a metre gauge line from Sara to Serajganj would cost Rs. 96,000 per mile.

QUESTION 11.

11. Estimate showing length of metre gauge connections with approximate cost which the Eastern Bengal State Railway would need to serve a bridge at (1) Sara, (2) Rampur Boalia (Isabpur), (3) Godagiri.

These lines do not include the cost of the 2½ miles of bridge approaches which would be on the broad gauge and which is included in the general estimate for the bridge—

(1) Sara *Nil*. The broad gauge would run into the transshipment yards.

(2) Isabpur (Rampur Boalia).

	Rs.
(a) <i>Isabpur to Basudebpur</i> on the Northern Section, 17½ miles	12,16,750
(b) <i>Alternative to above</i> Isabpur to Nattore, 15½ miles	11,00,550
(c) <i>Isabpur to Govindpur</i> on the Katihar-Godagiri Railway, 31½ miles	18,30,150

(3) Godagiri *Nil.*—The broad gauge would run into the transshipment yard.

QUESTION 12.

12. If the Bengal and North-Western Railway are empowered to quote through rates *via* Katihar to Calcutta, it is presumed some restrictions will be imposed by Government to avoid competition detrimental to their interests. In the present state of the case and until the policy of Government in this direction is declared, I cannot give an opinion as to the probable diversion of traffic from the Mokameh to the Katihar-Godagiri route.

QUESTION 13.

13. Neither the Traffic Superintendent nor I have any experience of working a mixed gauge at terminal stations. We are both of opinion, however, that in the particular case of Calcutta termini at Chitpore, Sealdah, Port Trust Railway stations and the various mill and private sidings, the introduction of the mixed gauge would greatly increase the difficulties of dealing with the despatch and receipt of goods and lead to delay to traffic and uneconomical working. We consider it impracticable to deal with traffic arriving at existing mill and private sidings and at Port Trust Railway stations, partly in broad and partly in metre gauge wagons which cannot be shunted together, and we are of opinion that if the metre gauge traffic is brought into Calcutta, the only practicable way of dealing with the mill siding and Port Trust Railway traffic is by transshipment at a station short of the junction with the main line, or by the use of transporters enabling the metre gauge stock to be taken over the broad gauge lines. In the case of Chitpore and Sealdah, we are of opinion that it would be preferable to make arrangements for dealing with cart delivery goods traffic in separate metre-gauge yards instead of trying to deal with it in a mixed gauge yard.

The estimates of the cost of taking the metre gauge into Calcutta termini and introducing a third rail into the terminal yards and mill and private sidings are under preparation and will follow. An officer has been specially deputed for the work, but he has been unable to complete it in time for submission with this letter [*see* Appendix E³].

QUESTION 14.

14. I have no experience of the use of transporters to allow of metre gauge stock running on broad gauge lines. A scheme for the use of such transporters in connection with the Sara wagon ferry was prepared a short time ago, and a ferro type showing the proposed arrangements and necessary alterations to the metre gauge stock are attached (not reproduced). The wagon which it was proposed to fit for running on broad gauge lines was a bogie metre gauge wagon, of which particulars are given.

QUESTION 15.

15. The traffic offering *via* Sara from the Northern and Behar Sections of this Railway is heavier than the single line is able to carry between Santahar and Sara and justifies a double metre gauge line from Santahar to Calcutta :—

- (a) To cope with the present traffic from the Northern and Behar Sections, we require to move 50,000 maunds daily between the months of September and December inclusive.
- (b) The single line between Santahar and Sara can only deal with 14 trains a day each way, and the maximum has already been reached, *viz.*, 5 passenger and 9 goods trains each way.
- (c) Nine goods trains are equivalent to 45,000 maunds, which is 5,000 maunds less than we are required to move.

With the extension of the Railway to opposite Gauhati, the traffic on the extended portion will not be less than 10,000 maunds daily.

During the course of the enquiry the following further information was required of and supplied by the Manager, Eastern Bengal State Railway.

1. The amount of traffic received at Chitpore Sheds, Ultadanga, Cossipore and all jute mills between Naihati and Budge Budge inclusive in any one year (largest year for choice).
2. The largest monthly deliveries at each of the above.
3. The total despatches of oil in tons in any recent year (preferably maximum year) from Budge Budge.
4. Greatest tonnage despatched in one month from Budge Budge.
5. The broad gauge and metre gauge proportions of the above.

APPENDIX E².

Note by the Manager, Eastern Bengal State Railway, on the cost of working the Sara-Damukdia Ferry.

Dealing with the figures shewn in the attached abstract—

Item I has been calculated on the average of the last five years so as to get a fair approximate estimate of the cost of repairs and renewals, etc. This item includes charges for labour employed in transshipment work.

Item II gives the amount (Rs. 25,000) recorded in our Claim Registers as being paid as compensation for loss or damage to goods which occurred while such goods were being dealt with at the ferry during the year 1906. The total sum paid as compensation on the whole line during the year amounted to Rs. 84,000.

Items III and IV give the 1905 figures for charges incurred on either bank of the river for labour and establishment not already included under Item I. The 1906 figures are not yet available.

Items V and VI give the average of five years' revenue expenditure on works and land.

2. The amount standing at debit of Capital on account of the ferry is approximately as follows :—

	Rs.
Cost of ferry including floating and shore plant	19,60,500
Works on shore charged to Capital at Sara	2,50,000
Ditto ditto at Damukdia	9,00,000
About 24 miles of rails in yard stock at Damukdia and 13½ miles at Sara	9,00,000
Total	40,10,500

3. To arrive at the full expense to the Railway of working the ferry interest charges on the Capital shown in paragraph 2 will have to be added to the figures shewn in the statement and it is understood that the Committee also require an estimate of the annual loss to the Railway on account of payment of claims for goods destroyed by fire while in transit over the ferry and on account of detentions to wagons due to difficulties of working and changes of Ghât.

4. The *annual* loss due to destruction of goods by fire while in transit over the ferry cannot well be estimated. There were heavy claims for goods lost by the burning of a flat and its cargo in 1904 and the compensation paid by the Railway in that case amounted to Rs. 89,000 and there have been a few other small losses from fire when country boats have been used for the ferry traffic, but no reliable estimate of the probable loss per annum in future could be arrived at from these cases.

5. There is at times considerable loss of carrying capacity owing to detention of wagons at the ferry but it is doubtful if the Railway finally loses any

appreciable amount of traffic on this account as far as the metre gauge north of the river is concerned. On the broad gauge loss of carrying capacity in connection with detention of wagons at the ferry may often cause a loss of traffic and earnings, as on the broad gauge section there are competing river routes. It is difficult to estimate the actual money loss incurred by the loss of carrying capacity of broad gauge stock but an attempt has been made in the following paragraph to calculate it approximately.

6. The calculation assumes that all broad gauge wagons exceptionally detained at the ferry during the busy season were Foreign line wagons and that the detentions would be paid for by this Railway at Conference Regulation rates. On this basis the Examiner of Accounts has worked out from the ferry wagon registers that the detentions to broad gauge stock represent a sum of about Rs. 10,000 per annum. But the calculation at Conference Regulation rates probably does not represent more than half or less than half what the Railway would have earned if the wagons had been conveying traffic, and I should estimate from the Examiner's calculations that a sum of from Rs. 20,000 to Rs. 25,000 per annum would approximately represent the yearly loss to the Railway.

7. No allowance has been considered for depreciation of ferry plant and ghat works. The cost of repairs and renewals to maintain the plant and works to standard is included in the figures given in items I and V of the statement which are based on average of 5 years and it is doubtful if depreciation should be charged in addition.

8. In estimating the cost of the ferry all items of expenditure due to the existence of the ferry have been included. The saving on the abolition of the ferry would depend on what takes its place, *e.g.*, if a bridge for broad gauge is constructed with a wagon to wagon transshipment station on the north bank the cost of maintaining and working the transshipment station would have to be deducted to arrive at the saving.

Abstract of the estimated cost of working the ferry at Sara.

		Rs.		
I. Ordinary expenses (working, handling, fuel, stores repairs, &c.)			5,82,620	} Average of 5 years 1902-1906.
II. Compensation claims paid due to loss or damage at the ferry			25,000	
	Damukdia.	Sara.		} Figures for 1905.
	Rs.	Rs.		
III. Labour Establishment—				
Engineering	17,400	13,800		
Running shed menials	15,000	19,200		
	<u>32,400</u>	<u>33,000</u>		
			65,400	
IV. Establishment charges not already included)—				
Engineer	3,560	4,934		
Locomotive Foreman's Office	6,533	6,302		
Locomotive Running Shed	7,962	6,154		
Traffic	61,794	62,040		
	<u>79,854</u>	<u>79,430</u>		
			1,59,284	
V. Revenue Expenditure on Works (erecting, shifting and altering quarters and ghat sidings, etc.)—				} Average of 5 years.
Total for 5 years (1902-1906)=51,500 annual average			= 10,300	
VI. Revenue Expenditure on land at the ferry				
Total for 5 years = 1,150, annual average			= 230	
			<u>8,42,834</u>	

APPENDIX E³.

Note by the Manager, Eastern Bengal State Railway, on approximate estimate for a metre gauge line to Calcutta termini, Dock Junction, Mills and Budge Budge.

1. This estimate must be considered as a very rough approximation only, inasmuch as there has been no time available to inspect the ground.

2. The first thing to consider is whether the metre gauge line should be kept to the east or to the west of the broad gauge lines. At first sight it might appear that owing to all the broad gauge stations being on the west of the line and the land on that side being more expensive, it would be best to locate the metre gauge on the east side. There are, however, serious objections to this alignment for the reason that the mill traffic coming by the metre gauge would cross the busy broad gauge line at Naihati, Kankinara, Shamnagar, Tittaghur and Agarpara, and later on at other stations when more mills spring up on the banks of the Hooghly. The broad gauge line below Naihati has not only to carry the traffic arising on the Eastern Bengal State Railway including the jute from Khulna to the mills, but the heavy coal and seeds traffic brought by the East Indian Railway for the Docks, which is increasing every year as also the upward traffic from the jetties. The broad gauge would, therefore, be always a very much busier line than the metre gauge and if, any traffic is to cross from one gauge across the lines of the other gauge, the less busy line must give way to the line with heavier traffic. Both broad and metre gauges would bring the traffic for the mills, and the traffic arriving by one of them must cross the lines of the other gauge. It is, therefore, evident that the metre gauge line with lighter traffic must be placed between the broad gauge and the mills.

Again taking into consideration the question of terminal arrangement at Sealdah, it is found that the only place where such accommodation could be provided with due consideration for the convenience of the travelling public, and with proper facilities for receipt and despatch of goods, is the ground lying between the broad gauge lines and Upper Circular Road near Sealdah, and between the broad gauge line and the Circular Canal further up. No site to the east of Sealdah could be found excepting at prohibitive cost, as the Barnagore Branch Mill, Ice Factory, and the Union Jute Mill occupy the ground that would be suitable for the metre gauge yard. Moreover with terminal accommodation placed to the east of the broad gauge yard, the metre gauge passenger station would have to be a long distance away from Sealdah, unless an unworkable mixing of gauges is to be introduced, involving delay and difficulty in working traffic on both gauges. With the prospect of Sealdah becoming a central passenger station for the whole of the long distance traffic to and from Calcutta, it is evident that the metre gauge should remain on one side instead of being placed between the broad gauge passenger and goods yard. Even if Sealdah does not become a central station, we must ere long bring the southern section traffic from Baliaghatta into Sealdah, and the platforms for this traffic would be on the east of the existing platforms.

For the above reasons it has been assumed that the metre gauge lines would be to the west of the broad gauge lines. If the metre gauge line north of Naihati should be made on the east side, it would have to cross over to the west just south of Haliabar, and for the purposes of this estimate the point where it would strike the Naihati Mill siding has been assumed as the zero of alignment. This point would be some 24 miles from Sealdah. The East Indian Railway would be crossed by a sub-way to accommodate three tracks of metre gauge, viz two tracks for the up and down lines and one track for traffic to and from Naihati and Gouripur Mills. The line would then after crossing the Gouripur Mill siding strike direct for Naihati passenger yard, where it would have up and down platforms outside the East Indian lines. From this point up to Dum Dum Junction the metre gauge lines would keep close to the broad gauge, excepting where the transshipment yard is located

General comments on alignment from Naihati to Sealdah.

Terminus at Sealdah.

Alignment south of Naihati.

somewhere between Naihati and Kankinara and where it would be necessary to deflect the metre gauge line to the west to find room for the transhipment yard between the two gauges. South of Dum Dum Junction station would come the junction for Chitpore yard, the branch lines to Chitpore being graded down. The main lines to Sealdah would continue on the high level and cross the broad gauge branch lines to Chitpore and the Arathoon Mill siding and the new canal overhead with a single bridge of 3 or 4 spans. South of the new canal the line will keep close to the broad gauge line excepting where it has to diverge round the broad gauge engine shed yard and on to the passenger terminus on the site of the Baghbazar sidings between our passenger station and Upper Circular Road.

3. The next question is to consider the alignment from the north of Kankurgachi Junction to the Docks.

Alignment to Docks.

As this line is to be continued to Budge, it is clear that to avoid unnecessary crossing and recrossing of our broad gauge lines at Dock Junction it should arrive there on the south of the existing broad gauge lines. It is proposed, therefore, to cross the metre gauge under the broad gauge lines of the eastern section somewhere north of Kankurgachi cabin, so that it would not have to cross the Kankurgachi-Tiljola chord or the double line from Baliaghatta to the Docks. There must be a crossing of the line to Diamond Harbour somewhere and the best crossing appears to be to the south of Ballyganj Junction.

Another reason why the metre gauge on the southern section must remain to the south and east of the broad gauge lines is, that from Tolly's Nullah to Dock Junction, there is no room on the north side between the present line and the boat canal beyond that reserved for quadrupling the broad gauge lines. The land between Ballyganj and Kalighat on the north side of the broad gauge lines is also more expensive.

4. The different items covered by the estimate are detailed in the abstract.

Scope and details of Estimate.

The following explanatory notes are added to elucidate them further:—

Item (1).—This is for a double metre gauge line from the crossing of the Naihati mill siding to Sealdah. It does not include any accommodation for

Main line Naihati to Sealdah.

passenger or goods work at any of the stations, Naihati to Sealdah inclusive, nor for interlocking of mill siding crossings: both these items form a separate sub-head of the abstract (*vide* item 3). Four miles of refuge sidings have, however, been included to get fast traffic past slow traffic. The rates for land, earthwork, bridgework, and fencing are based on the estimate for quadrupling and duplicating the line between Naihati and Dum Dum, suitable allowances being made for the land on the west of the broad gauge line being more expensive than that on the east side where the quadrupled lines were proposed to be located. Under fencing it has been estimated that at least six of the roads near stations will have to be provided with cart road over-bridges. Between stations the broad and metre gauge lines will be kept sufficiently apart to allow of road crossings on the level.

Rolling Stock.

No provision has been made for rolling stock.

Item (2).—This is for a transhipment yard at Naihati. This yard is necessary for the transhipment of coal,

Transhipment Yard at Naihati.

sleepers, and machinery arriving from the East Indian Railway and Bengal-Nagpur Railway and for jute brought down by metre gauge trains and going to the mills on the west of the Hooghly served by these two Railways. The accommodation estimated for consist of three docks for transhipment of coal. (This amount of accommodation is necessary to keep different consignments separate.) Two covered platforms for transhipment of jute, one covered platform for transhipment of miscellaneous goods and one small dock for transhipment of machinery and bulky goods with a travelling crane. In addition to this provision has been made for a small receiving, despatching and marshalling yard for each gauge, and for a small engine-shed, turn-table and watering arrangements for the metre gauge only. For the broad gauge no engine accommodation has been provided as the traffic

will arrive by Naihāti-terminating trains and engines would run back to Bandel. Watering arrangements for broad gauge exist at Naihāti already.

Item (3).—This item provides for cost of interlocking the crossings of broad gauge mill sidings with the metre gauge main lines at different stations; also for passenger platforms with shelter sheds, native females' waiting rooms and covered foot bridges over the metre gauge tracks. It also includes the cost of existing works to be dismantled and rebuilt to make room for the metre gauge, and the cost of points and crossings required for connection of mill sidings and small marshalling yards at Shamnagar and Tittaghur where they would be found necessary owing to the large number of mills located at these places.

Item (4).—This item provides for terminal works at Sealdah with three distinct separate yards, viz. :—

Terminal works at Sealdah.

- (1) passenger yard,
- (2) engine-shed yard,
- (3) goods yard.

The estimate has been prepared on the supposition that the passenger yard would be located to the west side of the existing Sealdah station between it and Lower Circular Road and would consist of a single dock with up and down platforms with a few sidings for stocking, washing, and inspection of coaching stock. Accommodation to be provided for waiting purposes for passengers of all classes and covered platforms.

The engine-shed would be a fairly large one and to have facilities for watering and turning the engines and for light repairs. The engine-shed would be located somewhere to the north of the Circular Canal and, if possible, between the passenger stock yard and the goods yard.

The goods yard would be located to the north of Narcoldanga main road and to the east of the Circular Canal so that delivery of goods could be arranged by carts as well as by boats. Sufficient goods shed accommodation and offices to be provided for receipt of goods—also convenient roads to serve the goods sheds and where necessary for direct delivery from the sidings.

The estimate includes the cost of staff quarters for European guards and drivers and for an over-bridge over the connection between goods and passenger yards where Narcoldanga main road would cross the same.

Item (5).—This is for providing access for metre gauge stock to the different yards at Chitpore. The estimate provides for a separate receiving, breaking up, marshalling and despatching yard which is proposed to be located to the west of the metre gauge main lines and north of Dakhindari road. From this yard connections would be made with Cossipore yard, Chitpore ghât yard, Chitpore sheds yard and Ultadanga yard which would all be converted to mixed gauge. The estimate includes provision for electric lighting and fire protection in the new yard and engine-shed and staff quarters. Cost of interlocking at the junction with main lines has been provided but nothing has been included for interlocking at the junction of the broad and metre gauge lines where the mixed gauge would commence. This is owing to the work being done at shunting speed.

Item (6).—This provides for a double metre gauge line, taking off the main lines south of the new Canal, to Dock Junction, with a junction north of Kankurgachi cabin to connect with Sealdah goods yard. From this junction the line would run east and cross under the metre gauge main tracks and the quadrupled broad gauge lines by a sub-way; then continue alongside the broad gauge chord line up to the point where that line deflects to the west to form a junction with southern section lines at Tiljola. The metre gauge line would continue straight and some distance away from broad gauge lines to the east, until past Ballyganj station when it would turn to the west and cross the Diamond Harbour line between Ballyganj and Dhakuria by means of an over-bridge. It would then follow the broad gauge lines up to Dock Junction. In preparing this

estimate the actual expenditure on the broad gauge chord line has been taken as a guide for fixing the rate for the portion lying close to the broad gauge chord. This would be a purely goods line with block-huts at convenient intervals.

Item (7).—This item provides for a third rail to be added to the existing broad gauge line from Dock Junction to Budge Budge. The line is required to serve the Budge Budge oil traffic and three jute mills—two at Santoshpur and one at Budge Budge.

Mixed gauge from Dock Junction to Budge Budge.

Item (8).—This is for adding a third rail to Shamnagar ghât yard, Budge Budge petroleum yard and all the jute mill sidings both inside and outside mill premises. On these sidings there is a large number of turn-tables and weigh-bridges which would be too small to take the metre gauge bogie stock. The most suitable arrangement would, of course, be to replace these turn-tables and weigh-bridges with larger ones designed to take stock of both gauges, but in most cases there would be difficulty in finding room for larger turn-tables, and the cost of the larger turn-tables and weigh-bridges has not, therefore, been included in the estimate. The metre gauge line will only be taken over the centre of the turn-tables and weigh-bridges in each case with separate rails for each gauge.

Mixed gauge in mill sidings.

At each mill gate or close to it broad gauge loops are provided for shunting empty and loaded vehicles. Similar loops would be necessary for metre gauge. Mixed gauge loops would not do, as it is not possible to calculate with any certainty when the empties of one gauge will be returned by the mills for removal and shunting of mixed stock together is not possible. The cost of these loops has been included in the estimate.

Three broad gauge loops off the main line have been included in the estimate for Shamnagar, Tittaghur and Agarpura stations. These are necessary for broad gauge mill trains waiting to cross to the mill siding.

But the working of mixed gauge into the mills will be a matter of extreme difficulty. It should be remembered that the existing broad gauge mill traffic has to cross the up line of broad gauge only and the necessity for making waiting loops for mill traffic is already coming to the front. When this mill traffic has to cross the up and down metre gauge lines, I doubt if the mill traffic could be got through at all excepting once or twice a day by a special arrangement in the time tables. With trains running out of time as must often happen on a busy line, there will be no end of detention to stock and it would be more or less a matter of pure speculation how long it will take to turn round a wagon. The accommodation on the mill sidings is quite limited and with a few wagons detained there, a block would occur detaining wagons under load at Naihati or from whatever station the mill traffic is worked.

Attention may also be drawn to the fact that the accidental bumping of a broad gauge wagon against a metre gauge one would badly damage the latter and with the class of staff we have to work with this would be of daily occurrence, necessitating heavy bills for repairs of stock.

Approximate estimate of the cost of a double metre gauge line from Naihati to Sealdah and Dock Junction with mixed gauge extension to Budge Budge and into Chitpore yard and jute mills served by the Eastern Bengal State Railway.

ABSTRACT.

No.	Particulars.	Amount.	REMARKS.
		Rs.	
1	Double metre gauge lines from Naihati Mill crossing to Sealdah excluding station arrangements, transhipment yards, mill siding connections, etc.	35,00,000	
2	Transhipment yard at Naihati	15,00,000	

ABSTRACT—*concl'd.*

No.	Particulars.	Amount	REMARKS.
		Rs.	
3	Station accommodation including interlocking of mill siding crossings and block-huts from Naihati Mill to Dum Dum Junction	13,00,000	
4	Terminal yard at Sealdah with passenger, goods, and engine-shed accommodation	52,00,000	
5	Receiving and despatching yard at Chitpore including junction with main line, engine-shed and mixed gauge at Cossipore, Chitpore ghât, Chitpore sheds and Ultadanga	15,00,000	
6	Chord line from south of new Canal to Dock Junction including Calcutta goods yard junction	32,00,000	
7	Mixed gauge from Dock Junction to Budge Budge	1,00,000	
8	Mixed gauge in mill sidings, Shammagar ghât yard and petroleum yard at Budge Budge including metre gauge loops outside mill gates and broad gauge loops at certain stations	9,00,000	
	Grand Total	1,72,00,000	

Double metre unmixed gauge line from crossing of Naihati Mill siding to Sealdah.
Length—say 24 miles.

No.	Particulars.	Amount	REMARKS.
		Rs.	
	Preliminary Expenses, 24 miles at Rs. 1,500 per mile	36,000	
	Land, 24 miles at Rs. 25,000 per mile	6,00,000	
	Earthwork, 24 miles at Rs. 30,000 per mile	7,20,000	
	Bridge work, 24 miles at Rs. 20,000 per mile Rs. 4,80,000	5,30,000	
	Bridge over Chitpore yard, 2 spans, 45' each, for double line metre gauge, Rs. 50,000		
	Fencing including over-bridges, 24 miles, at Rs. 10,000 per mile	2,40,000	
	Ballast	2,60,000	
	Permanent-way, main line, 24 miles, at Rs. 37,000 per mile, Rs. 8,88,000	9,52,000	
	Permanent-way sidings, 4 miles, at Rs. 16,000 per mile, Rs. 64,000		
	Stations and buildings	...	Estimated for separately.
	Plant, 24 miles, at Rs. 500 per mile	12,000	
	Rolling stock	...	Not included in estimate.
	General charges, 24 miles, at Rs. 7,500 per mile	1,50,000	
	Total	35,00,000	Excluding terminal works.

Naihati transshipment yard.

No.	Particulars.	Amount	REMARKS.
		Rs.	
	Land	2,00,000	
	Earthwork	2,50,000	
	Drainage of Yard, etc.	25,000	
	Fencing, etc.	10,000	
	Ballast	1,14,000	

Naihati transhipment yard—concl'd.

No.	Particulars.	Amount.	REMARKS.
	PERMANENT-WAY--	Rs.	
	Broad gauge, 10 miles, at Rs. 25,000 per mile, Rs. 2,50,000	} 4,42,000	
	Metre gauge, 12 miles, at Rs. 16,000 per mile Rs. 1,92,000		
	Offices and 3 covered platforms	70,000	
	Staff quarters	1,00,000	
	Station machinery	1,34,000	
	Interlocking at junctions	1,00,000	
	General charges	85,000	
	Total	15,00,000	

Stations, platforms, etc., at different places including interlocking at crossings of sidings and small mill siding yards also interlocking of block-huts.

No.	Particulars	Amount.	REMARKS.
		Rs.	
	Naihati and Gouripur mills	1,25,000	
	Naihati Station	1,50,000	
	Kankinara	1,00,000	
	Jagaddal	10,000	
	Shamnagar	1,25,000	
	Ichhapur	1,00,000	
	Palta	10,000	
	Barrackpore	1,20,000	
	Tittaghur	1,50,000	
	Khardaha	60,000	
	Sodepore	60,000	
	Agarpara	90,000	
	Belghurriah	75,000	
	Sinthee	10,000	
	Dum Dum Junction	1,15,000	
	Total	13,00,000	

Terminal yard at Sealdah with goods sheds, engine-shed, platforms, etc.

No.	Particulars.	Amount.	REMARKS.
		Rs.	
	Land	22,00,000	
	Earthwork by ballast train	3,00,000	
	Bridging	1,00,000	
	Fencing including Narcoldanga road over-bridge and diversion of roads	2,00,000	
	Ballast	75,000	
	Permanent-way for 15 miles of sidings at Rs. 16,000 per mile	2,40,000	
	Stations and offices	7,00,000	
	Workshops and Store buildings	1,00,000	
	Staff quarters	4,00,000	
	Station machinery	4,00,000	
	Add—for buildings to be dismantled and replaced	4,00,000	
	General charges	85,000	
	Total	52,00,000	

Chitpore yard.

No.	Particulars.	Amount.	REMARKS.
	JUNCTION WITH MAIN LINE—	Rs.	
	Interlocking	20,000	
	Points and crossings	3,000	
		<u>23,000</u>	
	RECEIVING, BREAKING UP, MARSHALLING AND DESPATCH- ING YARDS—		
	Land	3,60,000	
	Earthwork	1,20,000	
	Bridging	20,000	
	Fencing	20,000	
	Ballast	40,000	
	Permanent-way, 8 miles, at Rs. 16,000 per mile	1,28,000	
	Stations and Offices	6,000	
	Staff quarters	1,50,000	
	Points and crossings	6,000	
	Engine-shed with all accessories	2,00,000	
	Electric light and fire protection	1,50,000	
	Establishment	40,000	
	MIXED GAUGE LINE IN CHITPORE YARD —		
	Permanent-way, 20 miles, at Rs. 8,000 per mile	1,60,000	
	Points and crossings, 110 sets, at Rs. 700 per set	77,000	
	Total	<u>15,00,000</u>	

Chord line from south of New Canal Junction to Dock Junction.

Length—9 miles.

No.	Particulars.	Amount.	REMARKS.
		Rs.	
	Preliminary expenses, 9 miles, at Rs. 1,000 per mile	9,000	
	Land	12,00,000	
	Earthwork	6,50,000	
	BRIDGEWORK—	Rs.	
	Bridges in Chord line	3,12,000	
	Bridges under 5' 6" and metre gauge main line	60,000	
	Bridge on Tolly's Nullah	1,00,000	
	Bridge over Diamond Harbour line	30,000	
	Minor bridges up to Docks including Tollyganj Road bridge	48,000	
		<u>5,50,000</u>	
	FENCING—		
	Fencing in Chord	1,00,000	
	Ballast, 9 miles, at Rs. 12,000 per mile	1,08,000	
	Permanent-way, 9 miles, at Rs. 37,000 per mile	3,33,000	
	Staff quarters	36,000	
	STATION MACHINERY—		
	INTERLOCKING—	Rs.	
	Chord Junction	20,000	
	Goods Yard	20,000	
	Circular Canal	10,000	
	Ballyganj	10,000	
	Kalighat	10,000	
	Dock Junction	32,000	
		<u>1,02,000</u>	
	POINTS AND CROSSINGS—		
	Chord Junction	3,000	
	Goods Yards	3,000	
	Circular Canal	1,000	
	Ballyganj	1,000	
	Dock Junction	15,000	
		<u>23,000</u>	
	Establishment	89,000	
	Total	<u>32,00,000</u>	

Third line from Dock Junction to Budge Budge.

No.	Particulars.	Amount.	REMARKS.
		Rs.	
	Length 9½ miles		
	Sidings at Akra 2,000 feet.		
	„ at Budge Budge 6,000 „		
	8,000 say 1½		
	11 miles.		
	at Rs. 8,000 per mile	88,000	
	14 sets points and crossings at „ 700 per set	9,800	
	Miscellaneous items, say	2,200	
	Total	1,00,000	

Third rail in Mill sidings.

No.	Particulars.	Amount.	REMARKS.
		Rs.	
	Permanent-way, 38 miles, at Rs. 8,000 per mile	3,04,000	
	Points and crossings, 176 sets, at Rs. 700 per set	1,23,200	
	Turn-table connections, 26, at Rs. 220 each	5,720	
	Weigh-bridges, 17, at Rs. 400 each	6,800	
		4,39,720	
	say	4,40,000	
	Loops outside mill gates	3,00,000	
	Loops for broad gauge mill traffic at Shamnagar, Tittaghur and Agarpara	1,50,000	
	Miscellaneous items	10,000	
	Total, say	9,00,000	

APPENDIX E⁴.

Statement showing the tonnage of general merchandise and revenue stores carried over the Sara ferry in both directions.

Half Year.	General merchandise.	Revenue stores	Grand Total.
	Tons.	Tons.	Tons.
1st-half 1902	201,851	6,889	208,740
2nd „ 1902	233,738	12,017	245,755
1st „ 1903	181,261	7,111	188,372
2nd „ 1903	263,995	8,218	272,213
1st „ 1904	229,948	15,061	245,009
2nd „ 1904	267,391	7,758	275,149
1st „ 1905	179,821	5,369	184,690
2nd „ 1905	272,710	9,440	282,150
1st „ 1906	211,283	42,065	253,353
2nd „ 1906	taken approximately only.		327,000

APPENDIX E⁵.

Statement of goods traffic crossing the Ganges at Manihari Ghât and Sara Ghât during the period 1903-1906 (inclusive).

ROUTE FOLLOWED.

	KATIHAR.												REMARKS.
	Vid MANIHARI GHAT.				Vid SARA GHAT.				Vid SARA GHAT.				
	From East Indian Railway.		From Bengal and North-Western Railway.		From Eastern Bengal State Railway.		From Bengal and North-Western Railway.		From broad gauge to metre gauge.		From metre gauge to broad gauge.		
	To Eastern Bengal State Railway.	To Bengal and North-Western Railway.	Local.	Calcutta.	Local.	Calcutta.	Local.	Calcutta.	Local.	Calcutta.	Local.	Calcutta.	
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	
1st-half of 1903	24,356	246	...	1,891	22	6	1,499	2,224	48,067	51,029	34,482	47,733	Calcutta comprises Calcutta (Sealdah and Naraidanga), Ultradanga, Chitpore, Chitpore Ghât, Cosampore Road, Pattipukur, stations on Port Trust Railway Balisghatta and Kidderpore Docks.
2nd-half of „	20,584	52	...	1,591	99	39	305	590	14,369	46,657	44,017	158,952	
1st-half of 1904	26,943	147	...	2,344	1,086	376	4,107	656	55,518	57,003	52,918	64,514	
2nd-half of „	18,137	97	...	3,091	103	346	777	779	35,625	48,228	37,861	145,677	
1st-half of 1905	27,024	105	...	3,183	214	118	3,025	360	44,595	57,421	30,478	46,827	
2nd-half of „	20,962	270	...	4,184	156	197	940	237	43,523	49,640	26,657	152,890	
1st-half of 1906	49,035	631	...	3,274	115	22	1,322	348	45,960	74,247	35,895	55,186	

APPENDICES.

APPENDIX E^s—continued.

Statement showing the number of passengers crossing the Ganges at Manihari Ghat and Sara Ghat on the Eastern Bengal State Railway during the period 1903 to the first half of 1906 (inclusive).

	VIA KATIHAR:											
	Vid MANIHARI GHAT.				Vid SARA GHAT.				Vid SARA GHAT.			
	From East Indian Railway.		From Bengal and North-Western Railway.		From Eastern Bengal State Railway to Bengal and North-Western Railway.		From Bengal and North-Western Railway to Eastern Bengal State Railway.		From broad gauge to metre gauge.		From metre gauge to broad gauge.	
	Local.	Calcutta termini.	Local.	Calcutta termini.	Local.	Calcutta termini.	Local.	Calcutta termini.	Local.	Calcutta termini.	Local.	Calcutta termini.
No. of passengers.	No. of passengers.	No. of passengers.	No. of passengers.	No. of passengers.	No. of passengers.	No. of passengers.	No. of passengers.	No. of passengers.	No. of passengers.	No. of passengers.	No. of passengers.	
1st-half of 1903	20	...	358	...	17,373	46	3,056	55	57,634	26,633	37,575	28,019
2nd-half of "	82	...	13	...	7,520	55	8,065	84	49,477	26,904	43,184	30,395
1st-half of 1904	603	...	418	...	17,881	66	4,963	82	58,115	25,316	47,897	26,713
2nd-half of "	608	...	353	...	6,884	95	608	92	48,910	26,679	55,875	32,947
1st-half of 1905	731	...	555	...	9,126	40	4,608	455	62,173	26,395	49,905	27,471
2nd-half of "	313	...	426	...	7,343	65	9,527	123	57,225	29,395	70,138	36,888
1st-half of 1906	248	...	545	...	8,894	12	7,983	39	52,885	26,262	51,443	29,271

APPENDIX E^s—continued.

Statement by commodities of traffic crossing the Ganges between Manihari Ghât and Sara Ghât for the half-year ending 30th June 1903.

Commodities.	KATI HAR.												RE MARKS.
	Via MANIHARI.				Via SARA GHAT.				Via SARA GHAT.				
	From East Indian Railway.		From Bengal and North-Western Railway.		From Eastern Bengal State Railway.		From Bengal and North-Western railway.		Broad gauge to metre gauge.		Metre gauge to broad gauge.		
	To metre gauge Eastern Bengal State Railway and connected foreign linea.	To Bengal and North-Western Railway.	To Local.	To Calcutta.	To Local.	To Calcutta termini.	To Local.	To Calcutta termini.	To Local.	To Calcutta termini.	To Local.	To Calcutta termini.	
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	
Coal and Coke	10,510	1	2,476	7	Calcutta termini include Sealdah, Narcol-danga, Ultadanga, Chitpore, Chitpore Ghât, Cossipore Road, Pattipukur, Balinghatta, stations on the Port Trust Railway and Kidderpore Docks.
Grains and Seeds	2,063	4	...	1,369	1	...	199	178	172	1,678	20,501	4,662	
Hides and Skins . . . . .	...	...	...	13	1	..	2	7	1	...	12	1,182
Jute	152	66	...	38	5	...	...	...	198	669	10,518	24,914
Salt	2,742	29	...	...	...	...	...	...	750	11,828	...	...
Sugar and Jaggery	819	1	...	5	...	2	319	...	168	3,744	389	88	
Oil	454	...	...	264	5	...	1	...	4,879	776	...	...
Tea . . . . .	...	...	...	...	...	...	..	...	..	8	1	4,377

APPENDICES.

APPENDIX E⁵—continued.

Statement by commodities of traffic crossing the Ganges between Manihari Ghât and Sara-Ghât for the half-year ending 31st December 1903.

Commodities.	KATIHAR.												REMARKS.
	Vid MANIHARI.				Vid SARA GHAT.				Vid SARA GHAT.				
	From East Indian Railway.		From Bengal and North-Western Railway.		From Eastern Bengal State Railway.		From Bengal and North-Western Railway.		Broad gauge to metre gauge.		Metre gauge to broad gauge.		
	To metre gauge Eastern Bengal State Railway and connected foreign lines.	To Bengal and North-Western Railway.	To Local.	To Calcutta.	To Local.	To Calcutta termini.	To Local.	To Calcutta termini.	To Local.	To Calcutta termini.	To Local.	To Calcutta termini.	
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	
Coal and Coke	4,815	1,139	27	Calcutta termini include Sealdah, Narcol-danga, Ultadanga, Chitpore, Chitpore Ghât, Cossipore Road, Pattipukur, Baloghatta, stations on the Port Trust Railway and Kidderpore Docks.
Grains and Seeds	3,302	2	...	1,436	4	2	237	374	157	2,712	11,511	11,020	
Hides and Skins . . . . .	...	...	...	15	...	...	...	9	...	2	87	841
Jute	91	32	...	...	...	...	...	17	38	542	30,001	115,205
Salt	2,253	4	...	...	...	...	...	...	474	13,283	...	...
Sugar and Jaggery	1,091	...	...	3	...	...	30	...	106	7,047	35	...
Oil	678	1	...	...	1	...	...	...	9,635	1,331	...	...
Tea . . . . .	...	...	...	...	...	...	...	...	...	32	24	22,320

APPENDIX E^s—continued.

Statement by commodities of traffic crossing the Ganges between Manihari Ghât and Sara Ghât for the half-year ending 30th June 1901.

Commodities.	KATI HAR.												RE MARKS.
	Vid MANIHARI.				Vid SARA GHAT.				Vid SARA GHAT.				
	From East Indian Railway.		From Bengal and North-Western Railway.		From Eastern Bengal State Railway.		From Bengal and North-Western Railway.		Broad gauge to metre gauge.		Metre gauge to broad gauge.		
	To metre gauge Eastern Bengal State Railway and connected foreign lines.	To Bengal and North-Western Railway.	To Local.	To Calcutta.	To Local.	To Calcutta termini.	To Local.	To Calcutta termini.	To Local.	To Calcutta termini.	To Local.	To Calcutta termini.	
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	
Coal and Coke	7,693	2,349	40	Calcutta termini include Sealdah, Narool-danga, Ultadanga, Chitpore, Chitpore Ghât, Cossipore Road, Pattipukur, Bahalghatta, stations on the Port Trust Railway and Kidderpore Dock.
Grains and Seeds	2,691	...	...	1,920	...	...	240	312	914	3,514	10,564	10,000
Hides and Skins . . . . .	...	...	...	15	4	...	...	5	...	...	7	1,430
Jute	163	42	...	1	6	1	6	...	313	433	9,783	27,955	
Salt	2,952	22	...	...	...	...	...	...	313	16,241	6	...
Sugar and Jaggery	681	...	...	...	...	...	225	...	68	3,757	58	5
Oil	566	29	...	...	...	...	...	...	4,936	671	3	...
Tea	57	...	5,012	

APPENDIX B⁵—continued.

Statement by commodities of traffic crossing the Ganges between Manihari Ghât and Sara Ghât for the half-year ending 31st December 1904.

Commodities.	KATIHAR.								Vid SARA GHAT.				REMARKS.
	Vid MANIHARI.				Vid SARA GHAT.				Broad gauge to metre gauge.		Metre gauge to broad gauge.		
	From East Indian Railway.		From Bengal and North-Western Railway.		From Eastern Bengal State Railway.		From Bengal and North-Western Railway.		Broad gauge to metre gauge.	Metre gauge to broad gauge.	Broad gauge to metre gauge.	Metre gauge to broad gauge.	
	To metre gauge Eastern Bengal State Railway and connected foreign lines.	To Bengal and North-Western Railway.	To Local.	To Calcutta.	To Local.	To Calcutta termini.	To Local.	To Calcutta termini.	To Local.	To Calcutta termini.	To Local.	To Calcutta termini.	
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	
Coal and Coke	3,568	1,837	405	Calcutta termini include Sealdah, Narcoidanga, Ultadanga, Chitpore, Chitpore Ghât, Cossipore Road, Pattipukur, Baliaghata, stations on Port Trust Railway and Kidderpore Docks.
Grains and Seeds	2,067	13	...	1,394	37	13	702	758	1,045	3,249	14,271	13,187	
Hides and Skins . . . . .	...	...	...	86	1	...	...	12	...	...	...	1,560
Jute	16	40	...	4	87	...	3	...	191	343	19,233	1,04,865	
Salt	6	14	...	...	...	...	...	...	228	14,706	14	...
Sugar and Jaggery	204	...	...	...	...	...	63	...	243	5,660	111	...
Oil . . . . .	...	...	...	...	6	...	...	...	4,617	1,350	...	...
Tea . . . . .	...	...	...	...	...	...	...	...	...	27	8	19,319

APPENDIX E¹—continued.

Statement by commodities of traffic crossing the Ganges between Manihari Ghât and Sara Ghât for the half-year ending 30th June 1905.

Commodities.	KATIHAR.								VIA SARA GHAT.				REMARKS.
	VIA MANIHARI.				VIA SARA GHAT.				Broad gauge to metre gauge.		Metre gauge to broad gauge.		
	From East Indian Railway.		From Bengal and North-Western Railway.		From Eastern Bengal State Railway.		From Bengal and North-Western Railway.		To Local.	To Calcutta termin.	To Local.	To Calcutta termin.	
	To metre gauge Eastern Bengal State Railway and connected foreign lines.	To Bengal and North-Western Railway.	To Local.	To Calcutta termin.	To Local.	To Calcutta termin.	To Local.	To Calcutta termin.					
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.		
Coal and Coke	7,843	...	...	...	...	...	...	4,700	65	...	.	Calcutta termini include Sealdah, Naroldanga, Ultadanga, Chitpore, Chitpore Ghât, Cossipore Road, Pattipukur, Baliaghata, stations on Port Trust Railway and Kidderpore Docks.	
Grains and Seeds	1,945	11	...	3,061	6	...	135	25	235	942	18,833		8,539
Hides and Skins . . . . .	...	...	...	65	10	...	...	...	...	1	13		1,085
Jute	252	51	...	16	9	2	...	...	356	330	3,756		19,869
Salt	1,554	15	...	...	...	...	...	66	21,944	15	...		...
Sugar and Jaggery	600	3	...	...	...	...	182	...	236	3,342	75		2
Oil	579	...	...	...	15	...	...	...	4,482	344	10		1
Tea . . . . .	...	...	...	...	...	...	...	...	...	14	...	3,463	

APPENDICES.

APPENDIX E^b—continued.

Statement by commodities of traffic crossing the Ganges between Manihari Ghât and Sara Ghât for the half-year ending 31st December 1905.

Commodities.	KATIHAR.								Via SARA GHAT.				REMARKS.
	Via MANIHARI.				Via SARA GHAT.				Broad gauge to metre gauge.		Metre gauge to broad gauge.		
	From East Indian Railway.		From Bengal and North-Western Railway.		From Eastern Bengal State Railway.		From Bengal and North-Western Railway.		To Local.	To Calcutta termini.	To Local.	To Calcutta termini.	
	To metre gauge Eastern Bengal State Railway and connected foreign lines.	To Bengal and North-Western Railway	To Local.	To Calcutta.	To Local.	To Calcutta termini.	To Local.	To Calcutta termini.					
	Tons	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	
Coal and Coke	5,225	4	7,213	452	Calcutta termini include Narcondanga, Ultadanga, Chitpore Ghât, Cossipore Road, Pattipukur, Bahaghatâ, stations on Port Trust Railway and Kidderpore Docks.
Grains and Seeds	5,500	80	...	3,626	...	...	113	184	1,242	2,140	9,319	2,044
Hides and Skins . . . . .	...	...	...	43	1	...	3	...	1	...	13	2,413
Jute	152	100	...	4	33	...	1	7	934	483	15,242	118,383	
Salt	828	29	...	...	...	14	...	...	1,373	18,793	7	...
Sugar and Jaggery	820	2	...	...	...	...	43	...	365	5,226	52	...
Oil	783	...	...	...	59	7	...	...	5,292	965	13	...
Tea . . . . .	..	...	...	...	...	...	...	...	20	5	1	19,200

APPENDIX E⁵—(concluded).

Statement by commodities of traffic crossing the Ganges between Manihari Ghât and Sara Ghât for the half-year ending 30th June 1906.

Commodities.	KATIHAR.								VIA SARA GHAT.				REMARKS.	
	VIA MANIHARI.				VIA SARA GHAT.				Broad gauge to metre gauge.		Metre gauge to broad gauge.			
	From East Indian Railway.		From Bengal and North-Western Railway.		From Eastern Bengal State Railway.		From Bengal and North-Western Railway.		To Local.	To Calcutta termini.	To Local.	To Calcutta termini.		
	To metre gauge Eastern Bengal State Railway and connected foreign lines.	To Bengal and North-Western Railway.	To Local.	To Calcutta termini.	To Local.	To Calcutta termini.	To Local.	To Calcutta termini.						
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.			
Coal and Coke	4,156	1	8,284	1	Calcutta termini include Sealdah, Naraldanga, Ultadanga, Chitpore, Chitpore Ghât, Cossipore Road, Pattipukur, Bahaghatta, stations on Port Trust Railway and Kidderpore Docks.
Grains and Seeds	2,529	262	...	2,212	4	4	328	64	5,233	1,128	16,086	956		
Hides and Skins . . . . .	...	...	...	119	3	...	...	2	...	...	18	3,142
Jute	87	12	...	...	5	5	...	4	281	337	17,099	45,520
Salt	1,871	11	...	...	...	...	...	...	36	14,140	19	...
Sugar and Jaggery	368	...	...	10	...	...	31	...	367	4,482	85	2
Oil	394	...	...	...	31	...	...	...	3,954	801	15	1
Tea	8	...	...	...	...	...	...	...	...	22	...	4,992

APPENDIX E^a.

INWARD.

Statement of principal commodities handled by the Eastern Bengal State Railway at Calcutta for the year 1905.

Staples.	Sealdah and Naraidanga.	Ultadanga.	Chitpore.	Chitpore Ghat.	Cossipore Road.	Pattipukur.	Baliaghatia.	Kidderpore Docks.	Port Trust Railway (Cossipore to Armenian Ghat).	Total.	Mills.	Grand total.	Proportion of grand total crossing the Ganges at Sara.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1. Jute	17,328	36,422	93,682	59,416	58,811	6,530	3,827	5,178	162,280	443,474	120,523	563,997	138,252
2. Grain and pulse	2,602	2,617	4,040	10	...	183	4,340	24,123	31,032	68,947	...	68,947	10,543
3. Tea	1,926	...	...	45	...	...	...	39,100	10,586	51,657	...	51,657	22,663
4. Oil-seeds	979	858	3,211	4	...	49	...	6,646	11,290	23,037	...	23,037	1,162
5. Oils	18,857	...	...	...	...	15	396	101	6	19,375	320	19,695	1
6. Hides and skins	12,839	3	...	...	55	...	92	5,839	104	18,926	...	18,926	3,498
7. Coal and coke . . . . .	...	49	1,433	...	...	...	14,848	56	1,187	17,578	223,974	241,552	...
8. Wood	1,354	760	206	4	14	16	13,008	296	39	15,697	797	16,494	310
9. Tobacco	12,811	15	287	...	...	71	...	...	845	14,029	...	14,029	13,261
10. Fodder	29	3	7	...	...	...	5,730	3,856	746	10,371	349	10,720	36
All other articles of merchandise	16,444	1,953	1,944	686	4,923	354	2,304	1,397	18,839	48,844	33,703	82,547	9,991
Total	85,163	42,680	104,815	60,165	63,803	7,218	44,545	86,592	236,954	731,935	379,666	1,111,601	199,717

APPENDIX E^c—(concluded).

OUTWARD.

Statement of principal commodities handled by the Eastern Bengal State Railway at Calcutta for the year 1905.

Staples.	Sealdah and Narcoldanga.	Ultadanga.	Chitpore.	Chitpore Ghât.	Cossipore Road.	Pattipukur.	Baliaghatta.	Kidderpore Docks.	Port Trust Railway.	Total.	Mills.	Grand total.	Proportion of grand total crossing the Ganges at Sara.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1. Salt	432	1	1,121	2,612	...	423	48	33,154	589	44,380	...	44,380	40,737
2. Metals	8,189	210	774	460	171	77	110	275	22,241	32,507	511	33,018	11,247
3. Cotton	8,240	3	49	...	...	881	55	32	16,247	25,507	1,439	26,946	9,176
4. Sugar	7,224	39	696	50	222	478	175	4,429	9,561	22,874	...	22,874	8,568
5. Grain and pulse	2,973	226	1,285	57	...	939	767	15	6,537	12,799	...	12,799	3,082
6. Coal and coke	75	...	235	...	...	4	187	...	6,356	6,857	428	7,285	517
7. Oils	1,948	223	2,395	...	40	651	380	206	648	6,491	...	6,491	1,309
8. Spices	1,846	1	806	..	...	237	84	...	3,173	6,147	...	6,147	2,204
9. Jute	506	198	857	224	858	5	181	778	2,137	5,744	12,219	17,963	813
10. Hides and skins	9	...	...	...	...	...	5,214	134	4	5,361	...	5,361	1
All other articles of merchandise	22,123	631	3,156	727	1,259	3,140	1,810	1,789	31,924	66,559	10,736	77,295	29,407
Total	53,565	1,532	11,374	4,130	2,550	6,835	9,011	46,812	99,417	235,226	25,333	260,559	107,061

Budge Budge traffic is not included in the above. In 1905, 134,195 tons of kerosine oil were despatched from Budge Budge, of which 16,557 tons crossed the Ganges. There is also a considerable amount of food grain traffic from Magra Hat not included. 32,244 tons of food grains were despatched from Magra Hat in 1905 of which none crossed the Ganges.

APPENDIX E.

Summary of the traffic prospects of an extension to Serajganj.

I.—Combined service traffic now carried by steamer to Goalundo and thence by rail to Calcutta and *vice versa*—

To Serajganj—		Tons.
Salt		2,981
Iron		2,314
Sugar		9,345
Provisions		228
Miscellaneous		1,223
	Total	16,091
From Serajganj—		Tons.
Jute		56,799
Hides		22
Seeds		1,602
Miscellaneous		134
	Total	58,557

It is estimated that all the above traffic would be carried by rail if a line to Serajganj is built.

II.—Direct service by steamer to and from Calcutta—

To Serajganj—		Tons.
Salt		8,134
Kerosine oil		7,981
	Total	16,115
From Serajganj—		Tons.
Jute		56,362
Seeds		1,560
	Total	57,822

It is estimated that $\frac{1}{3}$ rd of this total or 5,372 tons up and 19,274 tons down would be carried by rail if a line to Serajganj is built.

III.—Rural traffic attracted by the railway—

To Serajganj	Tons.
From Serajganj	3,876
	12,759
	Total
	16,635

It is estimated that the whole of this would be carried by rail if a line to Serajganj is built.

IV.—Coaching traffic.

Passengers 247,774; Earnings, Rs. 1,32,794.

APPENDIX E^a.

Statement showing maximum traffic in a month dealt with at the following centres.

Armenian Ghât.			Cossipore.		
OUTWARD.		Month.	OUTWARD.		Month.
Commodities.	Tons.		Commodities.	Tons.	
Cotton Mfd.	2,268	January.	...	...	..
Metals	2,266	February.			
Rice and paddy	7,388	October.			
Sugar	957	December.			
INWARD:			INWARD.		
Tea	557	January.	Jute	5,381	August.
Grain and pulse	631	"			
Seeds	506	April.			

APPENDIX E^a—(concluded).

Statement showing maximum traffic in a month dealt with at the following centres—contd.

Ruthtollah.			Jetties.		
OUTWARD.		Month.	OUTWARD.		Month.
Commodities.	Tons.		Commodities.	Tons.	
Rice and Paddy	2,401	October.	Metals	6,817	December.
Salt	1,036	November.	Railway plant	4,363	September.
INWARD.		Month.	INWARD.		Month.
Commodities.	Tons.		Commodities.	Tons.	
Grain and Pulse	1,202	January.	...	...	...
Seeds	1,140	April.			
Jute	28,656	September.			
Spices	533	June.			

Calcutta.			Chitpore.		
OUTWARD.		Month.	OUTWARD.		Month.
Commodities.	Tons.		Commodities.	Tons.	
Cotton Mfd.	1,483	March.	Rice and Paddy	6,445	December.
Metals	1,221	"			
Provisions	1,663	January.			
Rice and Paddy	3,142	October.			
Sugar	955	November.			
INWARD.		Month.	INWARD.		Month.
Commodities.	Tons.		Commodities.	Tons.	
Hides	1,863	March.	Jute	17,978	October.
Provisions	522	June.	Rice	731	"
Tobacco	1,614	July.			
Jute	3,144	October.			
Betelnuts	1,195	November.			

Maximum traffic in tons in a month, 1906.

Chitpore Ghât.			Cossipore Road.		
OUTWARD.		Month.	OUTWARD.		Month.
Commodities.	Tons.		Commodities.	Tons.	
Rice and Paddy	10,289	August.	...	...	...
Salt	421	June.			
INWARD.		Month.	INWARD.		Month.
Commodities.	Tons.		Commodities.	Tons.	
Jute	8,804	August.	Jute	9,319	September.

Ultadanga.			Baliaghatta.		
OUTWARD.		Month.	OUTWARD.		Month.
Commodities.	Tons.		Commodities.	Tons.	
Rice and Paddy	2,380	August.	...	...	...
INWARD.		Month.	INWARD.		Month.
Commodities.	Tons.		Commodities.	Tons.	
Jute	10,944	October.	Jute	1,043	August.
Seeds	472	April.	Rice and Paddy	690	March.

Budge Budge.			Pattipukur.		
OUTWARD.		Month.	OUTWARD.		Month.
Commodities.	Tons.		Commodities.	Tons.	
Oils	16,744	November.	...	...	...
INWARD.		Month.	INWARD.		Month.
Commodities.	Tons.		Commodities.	Tons.	
...	...	...	Jute	1,265	November.

APPENDIX E.

Statement by the Manager, Eastern Bengal State Railway. [See Q. 91 of his evidences.]

All the traffic between Eastern Bengal State railway stations, west of Rayganj and Calcutta stations now goes *viâ* Manihari Ghât and the only traffic at present passing Sara which would under the conditions named have a shorter route to and from Calcutta *viâ* Katihar and Godagiri is the traffic of two stations—Kaliyaganj and Rayganj.

In 1904, the year for which the Agent, Bengal and North-Western Railway, gives figures the total traffic to and from these stations and the proportion thereof which went to or came from Calcutta stations was as follows :—

	Traffic in and out.	Proportion of in and out traffic which came from or went to Calcutta stations.
	Tons.	Tons.
Rayganj	15,425	9,846
Kaliyaganj	4,845	1,000
TOTAL	20,270	10,846

APPENDIX F.

Previous to the examination of the East Indian Railway witnesses, the following information was asked for :—

1. General plan of all East Indian Railway lines in and around Calcutta showing the private and mill sidings connected with them.

Abstract of sidings showing the name of the Company or Firm served, length of sidings both inside and outside the premises of the Firm, etc., with abstract of agreement in each case shewing briefly the terms on which the siding was constructed, and on which it is worked and how the ownership or cost of the siding has been divided.

Proposed sidings should be included in the above.

2. Particulars to recent date of amount of traffic crossing at Mokameh.

3. Has there been any block in the traffic at Mokameh in recent years ?

4. Whether the Bengal and North-Western Railway traffic *viâ* Mokameh can be held against a combination of the Bengal and North-Western Railway and the Eastern Bengal State Railway *viâ* a bridge over the Ganges at—

- (a) Sara
- (b) Rampur Boalia
- (c) Godagiri.

5. Any information that can be given as to the feasibility of working a mixed gauge at the Calcutta termini and mill and private sidings and also an approximate estimate of the cost of getting the metre gauge into the various termini in and around Calcutta and of introducing a third rail with switches, etc., into the terminal yards and mill and private sidings.

These questions were replied to as follows :—

From the Agent, East Indian Railway, to the Secretary, Ganges Bridge Committee.

"I beg to send herewith—

- (1) ferrotype plan of all East Indian Railway lines in and around Calcutta, showing all the assisted and private mill sidings connected with this railway, on which it is suggested that the other lines concerned might be asked to show theirs ;
- (2) a list of sidings connected with this line, distinguishing those which are on "assisted siding" terms and those on "private siding" terms ;
- (3) a copy of each of these terms, showing the conditions of ownership, etc. ;

and to reply as follows regarding paragraphs 2, 3, 4 and 5 of your letter.

Paragraph 2.—I beg to append a statement shewing the tonnage of traffic interchanged with the Bengal and North-Western Railway, *viâ* Mokameh Ghât, and also of coal booked locally to Mokameh Ghât. The coal booked locally is intended chiefly for the Bengal and North-Western Railway and the ultimate destination is on the other side of the river, and therefore the weight of such traffic should be included in the figures giving the total weight of traffic crossing at Mokameh.

Tonnage of traffic through Mokameh.

	From Bengal and North-Western Railway.	To Bengal and North-Western Railway.	Coal to Mokameh Ghât.	Grand Total.
	Tons.	Tons.	Tons.	Tons.
1897	142,000	202,000	32,000	376,000
1898	188,000	119,000	39,000	346,000
1899	227,000	157,000	79,000	463,000
1900	190,000	157,000	66,000	413,000
1901	217,000	181,000	72,000	470,000
1902	221,000	181,000	91,000	493,000
1903	360,000	191,000	98,000	649,000
1904	400,000	234,000	103,000	737,000
1905	197,000	251,000	101,000	549,000
1906	202,000	260,000	114,000	576,000

Paragraph 3.—Since 1902 there have been no blocks at Mokameh Ghât due to difficulty on the part of the East Indian Railway in supplying wagons for traffic received from the Bengal and North-Western Railway or otherwise in moving that traffic. I may draw special attention to the fact that the above statement includes the year 1904, when, owing to very large crops of grain and seeds, a record traffic was received from the Bengal and North-Western Railway *viâ* Mokameh Ghât.

Paragraph 4.—In answering this question, I assume that the existing East Indian Railway route *viâ* Mokameh, which is the shortest and most direct, will receive fair treatment from the Bengal and North-Western Railway in the matter of rates. If the same mileage rates are allowed by that line to Semaria for East Indian Railway traffic as those allowed to Barauni for traffic *viâ* Katihar and any of the three alternative routes, we shall undoubtedly be able to hold the traffic against competition by the latter. Even taking Godagiri, the shortest of the three routes under discussion, there will still be a difference of 71 miles in favour of *viâ* Mokameh, and if for both routes the Government minima rates are quoted there will be a difference of 7 pies per maund or Rs. 0-15-11 per ton in favour of the East Indian Railway route.

Taking the case of the following four important Bengal and North-Western Railway stations, we find the following result.—

	To Semaria.	Mokameh to Howrah.	Total.	Distance to Katihar.	Katihar to Calcutta <i>viâ</i> Godagiri.	Total.	Difference in mileage in favour of <i>viâ</i> Mokameh.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
Bulrampur	318		602	424		673	71
Chilwaria	331		615	437		636	71
		284			249		
Mozufferpore	70		354	176		425	71
Bettiah	146		430	252		501	71

The trade of Calcutta can only enjoy the cheapest rates by following the Mokameh route, and for obvious reasons the route that can offer the cheapest rate should not be prevented from quoting such rates. It is essential in the interests of the trade that even after a bridge is built at Sara, Rampur Boalia or Godagiri, there shall be a distinct understanding that the Bengal and North-Western Railway shall allow the same mileage rates to the Mokameh route as to the Katihar route.

Paragraph 5.—To bring the metre gauge into the existing broad gauge terminus at Howrah is in my opinion impracticable. In the Howrah yard there are 5 shunting engines engaged continuously day and night and on the Shalimar branch there are 2 by day and 1 by night engaged in serving the various mills and depots on that line. The volume of work is very great and, even if there were no engineering difficulties in the way of introducing a third rail, the entry of the metre gauge must result in great delay and interruptions. Assuming that the metre gauge did obtain access by means of a third rail into the Calcutta termini and so diminished the volume of produce carried in broad gauge wagons to an appreciable extent, the broad gauge stock would still fully occupy the existing accommodation and it would not be practicable for metre gauge stock to operate in the same space. Further, it must be remembered that the existing shed accommodation is not suited for metre gauge work. Nor is there any spare land or accommodation which could be made over to the metre gauge to enable them to make separate arrangements. The traffic at Howrah has already outgrown the existing facilities and both the Port Commissioners and ourselves have for some time been endeavouring to obtain means of enlarging the terminal accommodation and the approaches to it.

During the course of the enquiry the following further information was required of and supplied by the East Indian Railway:—

1. A statement shewing the goods booked between *via* Mokameh Ghât and Calcutta stations for years 1904, 1905 and the distribution of this traffic at Calcutta between the two sides of the river.
2. Statistics of passengers and goods between *via* Manihari Ghât and Calcutta stations.

APPENDIX F¹.

Note, dated the 28th January, 1907, submitted by the Agent, East Indian Railway, regarding the Lower Ganges Bridge proposals.

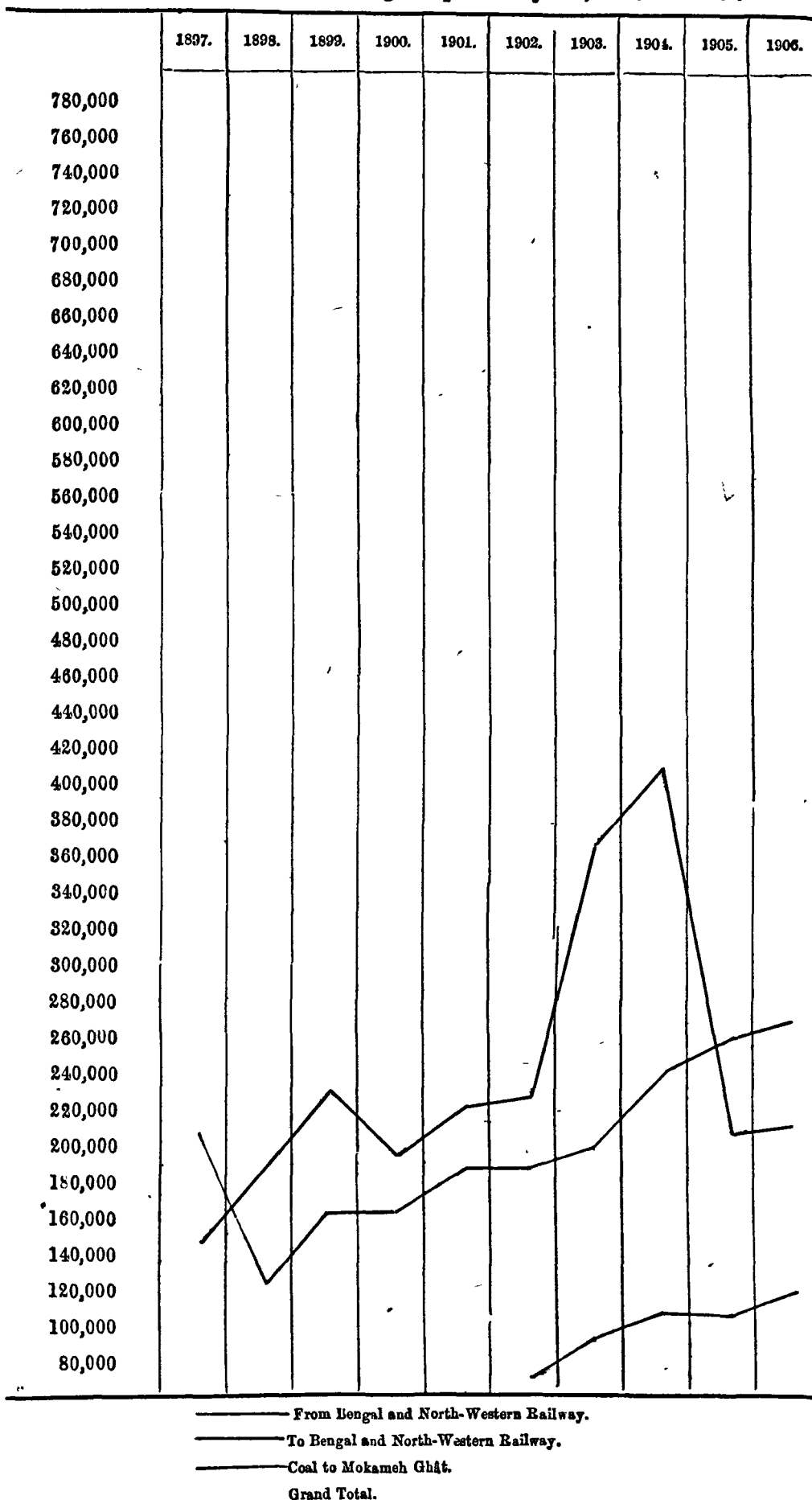
The concern of the East Indian Railway with the proposals under consideration by the Committee is—

- (1) the preservation of the traffic now carried to and from Calcutta *via* Mokameh Ghât to its present route, which is the direct one and is shorter than either of the proposed routes, and
- (2) to secure that the efficiency of Calcutta as a terminus for dealing with the trade of the port shall not be in any way jeopardised which it is considered it would be by the introduction of a metre gauge system of railway lines mixed up with the present broad gauge terminal arrangements.

I propose to take these two points in order.

2. An efficient wagon ferry service, which is worked by the Bengal and North-Western Railway and has now been in operation for some years, connects

the two lines at Mokameh Ghât, and the following diagram shows the traffic exchanged there and its growth during the past ten years, 1897 to 1906 :—



3. It will be seen that the traffic dealt with is a large one and that the arrangements have met cases of large and rapid expansion. And it may be stated that since 1902 there have been no complaints of any block at the ferry owing to the East Indian Railway failing to supply wagons for onwards carriage, or of delay in transshipment. This remark, I may point out, covers the year 1904 when, it will be seen, the traffic was exceptionally heavy, due to a very large wheat and seeds traffic. Neither has there been any complaint as to the East Indian Railway being found wanting in the provision of facilities for the traffic from their system to that of the Bengal and North-Western Railway.

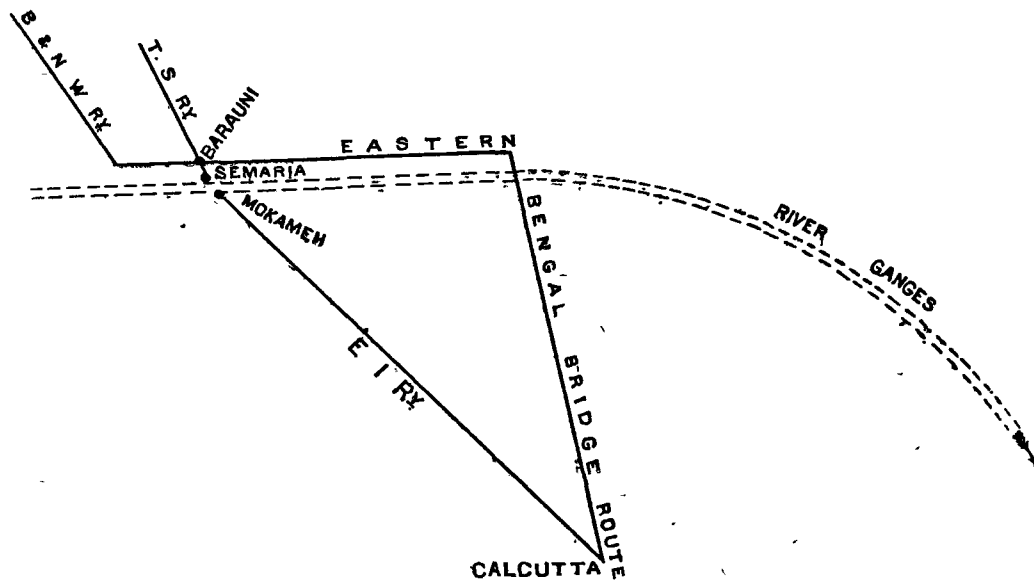
4. Passing now to a consideration of the case in connection with the proposals before the Commission, it seems desirable to first shew the extent of the traffic which could at all possibly be affected, and for this purpose it will be best to take the figures of 1904, when it will be seen the traffic was greatest. The traffic of that year sub-divides as follows :—

	Tons.
(a) To Calcutta	342,000
(b) From Calcutta	165,000
(c) Coal booked through	57,000
(d) Local coal	103,000
(e) Other traffic	70,000
TOTAL	737,000

It will, I think, be clear that items (a) and (b), that is, the traffic to and from Calcutta, represent the only traffic which could by any possible means be touched by the proposals.

Whether even that traffic could be diverted if fair treatment were given to the present route will now be examined. But I may first mention that the other traffic, the bulk of which is coal, would still necessitate the up-keep of the present ferry and to remove elsewhere the large Calcutta traffic, which now shares the expense of the ferry, could only tend to increase the cost of handling it.

5. As to the possibility of the Calcutta traffic being diverted, the following sketch will, I think, serve to give a good general idea of the position as to the present route and the proposals :—



The distances from Barauni compare as follows :—

<i>Via</i> Mokameh Ghat	289 miles.		
„ Sara	402	„	or 39 per cent. greater.
„ Rampur Boalia	359	„	24 „ „
„ Godagiri	360	„	25 „ „

6. In view of these conditions as to distance, coupled with the known and admitted cheaper working charges on the East Indian Railway, it is not conceivable how the Calcutta traffic could be diverted from the *via* Mokameh route with any advantage either to the trade or the country. On the contrary, as to the former, with equal mileage rates and at the minimum permissible in both cases, there would be by the shortest of the three proposed routes a higher charge even on the lowest class of goods of say Re. 1 per ton (15 annas 11 pies) while at the same time there would be to the country, it will be clear, a very serious loss of revenue, the East Indian Railway being State property.

7. It is claimed by the Railway Board as one of the advantages of their proposed Rampur Boalia scheme that it would afford relief to the East Indian Railway between Mokameh and Howrah. I think this idea has been put forward without being fully considered. In the first place, I may point out that, in order to provide the means of dealing with the traffic from Calcutta, a station in Calcutta itself would be necessary and, to compete with Howrah station as a despatching centre, this would have to be somewhere in the neighbourhood of Barra Bazar and would consequently be a very costly matter; indeed so much so as to be altogether prohibitive on any reasonable financial grounds. Again, it does not appear to have been remembered that the removal of the down traffic would mean little or no relief, inasmuch as the increased running of empty wagons downwards which would necessarily arise, besides being uneconomical and undesirable in itself, would occupy transport facilities to practically the same extent as the running of full wagons. Moreover, the relief afforded by the opening of the Grand Chord line appears to have been lost sight of.

8. I submit then that the traffic *via* Mokameh Ghât is already better provided for by existing arrangements than it can possibly be under any of the schemes proposed, and consequently that this traffic should be altogether omitted in considering the question of the most suitable site for the proposed Lower Ganges bridge. I may point out that this traffic, so far as I am aware, has not been taken into consideration in this connection by the commercial community whose interests in the matter are so important. The trade is, I believe, fully satisfied that this traffic is well served already—that the proposed bridge is wanted to serve other large and important interests—and that these interests can only be fully and properly met by locating the bridge at Sara.

9. A separate matter, which I have not seen mentioned in this connection, but one which appears to me to merit consideration in dealing with the case, is the, I believe, generally admitted risk of failure attending the Bengal and North-Western Railway bridge across the river Kosi. On this point a study of Government of India Technical Paper 138 will, I think, suggest cause for serious reflection. I may add that the failure of this bridge would absolutely shut off this route altogether.

10. Coming now to the second point,—the possible effect of the introduction of the metre gauge into Calcutta mixed up with the present broad gauge lines—I can only say that we have no actual experience worthy of serious consideration to look to. The opinion of many eminent engineers is, however, decidedly adverse to such a course; they hold it would add to the cost of working and multiply difficulties and confusion. Such results it seems to me Calcutta certainly cannot risk in connection with its business. The difficulties of the situation are now sufficient and any increase to them would be, I consider, a very serious matter for the trade of the port. If, however, I may venture an opinion on the point, I should say that the working of lines of mixed gauges at the Jetties would be absolutely impossible while at the Docks, though possible, it would entail much initial cost and add to difficulties and confusion there. And as admittedly there would be apparently no definite accession of trade or income to compensate for these results, the experiment is scarcely one the port would be at all justified in making.

11. In conclusion I would observe that the examination of this matter clearly suggests amongst other things the desirability of considering the question of the provision of a bridge at Mokameh. The traffic concerned is large—it approaches that crossing the Ganges by the bridge at Benares and exceeds that crossing by the bridge over the same river at Allahabad and it will doubtless increase—there are no special engineering difficulties to be overcome, abundance of stone is available at no great distance—the route cannot apparently be otherwise than always the cheapest, most direct and quickest—while the Ferry charge now levied, 7 pies per maund, taken on the average traffic of recent years after allowing for cost of transshipment, is equivalent capitalised to some Rs. 130 lakhs,—probably the full cost of a bridge.

It seems to me that if Calcutta is to receive in this matter any real assistance and such as it may legitimately claim in fostering its business, it is by a scheme of this kind only that this assistance can be given.

APPENDIX F.

Statement of number of passengers between Howrah, including Calcutta stations and viâ Mokameh Ghât during the following years:—

Years.	From Howrah including Calcutta stations to viâ Mokameh Ghât.	From viâ Mokameh Ghât to Howrah.	Total.
	Nos.	Nos.	Nos.
1897	28,441	25,614	54,055
1898	27,052	27,748	54,800
1899	28,529	30,936	59,465
1900	35,511	35,316	70,827
1901	44,214	59,794	101,008
1902	68,343	90,361	158,704
1903	95,140	103,405	198,545
1904	109,501	113,032	222,533
1905	119,660	146,825	266,485

Statement of number of passengers interchanged viâ Mokameh Ghât during the following years:—

Years.	From viâ Mokameh Ghât.	To viâ Mokameh Ghât.	Total
	Nos.	Nos.	Nos.
1897	100,233	107,410	207,643
1898	99,438	97,931	197,369
1899	106,061	95,815	201,876
1900	97,648	100,866	198,514
1901	136,275	108,760	245,035
1902	159,480	116,440	275,920
1903	198,013	163,304	361,317
1904	217,475	188,717	406,192
1905	257,102	204,382	461,484

APPENDIX F.

EAST INDIAN RAILWAY.

Statement of Goods traffic crossing the Ganges at Tari Ghât, Digha Ghât and Mokameh Ghât from the 1st half of 1903 to the 1st half of 1906.

Commodities.	TARI GHÂT.						DIGHA GHÂT.						MOKAMEH GHÂT.					
	From E. I. E.			From B. & N. W. E.			From E. I. E.			From B. & N. W. E.			From E. I. E.			From B. & N. W. E.		
	Local.	Calcutta.	Total.	Local.	Calcutta.	Total.	Local.	Calcutta.	Total.	Local.	Calcutta.	Total.	Local.	Calcutta.	Total.	Local.	Calcutta.	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
<i>Half-year ended 30th June 1903.</i>																		
Coal and coke . . . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Grains and seeds	16	...	16	11	...	11	324	...	324	1,150	...	1,150	41,317	...	41,317	...	...	...
Salt . . . . .	...	...	...	...	...	...	1	...	1	...	...	...	219	...	221	17,367	138,729	156,096
Sugar and jaggery . . . . .	...	...	...	...	...	...	14	...	14	343	...	343	19	...	503	522	3,390	2,898
Other articles	236	...	236	52	...	52	2,730	153	2,883	4,477	20	4,497	14,296	30,054	44,350	383	42,541	2,874
TOTAL	252	...	252	63	...	63	3,069	153	3,223	5,969	20	5,989	55,851	57,638	113,789	20,090	161,778	201,864
<i>Half-year ended 31st December 1903.</i>																		
Coal and coke . . . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Grains and seeds	2	...	2	18	...	18	106	...	106	1,929	...	1,929	10,800	...	10,800	...	...	...
Salt . . . . .	...	...	...	...	...	...	15	...	15	2	...	2	199	...	199	15,778	113,443	129,221
Sugar and jaggery . . . . .	...	...	...	...	...	...	15	...	15	345	...	345	567	...	659	1,273	250	1,522
Other articles	19	...	19	8	...	8	1,879	23	1,907	3,651	1	3,652	10,767	24,347	35,114	6,353	21,875	28,228
TOTAL	21	...	21	26	...	26	2,015	23	2,043	5,927	1	5,928	22,333	55,447	77,770	23,403	135,568	158,971
<i>Half-year ended 30th June 1904.</i>																		
Coal and coke . . . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Grains and seeds	8	...	8	1	...	1	212	...	212	3,922	...	3,922	43,436	...	43,236	...	...	...
Salt . . . . .	...	...	...	...	...	...	...	...	...	...	...	...	297	...	297	22,885	149,339	165,223
Sugar and jaggery . . . . .	...	...	...	...	...	...	24	...	24	457	...	457	9	...	1,142	1,151	3,580	939
Other articles	280	...	280	25	...	25	2,179	94	2,273	4,505	...	4,505	16,284	49,217	65,501	12,408	81,943	44,351
TOTAL	283	...	283	30	...	30	2,415	94	2,509	8,884	...	8,884	59,826	84,819	144,645	38,885	175,220	214,105
<i>Half-year ended 31st December 1904.</i>																		
Coal and coke . . . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Grains and seeds	1	...	1	...	...	...	60	...	60	1,431	...	1,431	13,578	...	13,578	...	...	...
Salt . . . . .	...	...	...	...	...	...	1	...	1	...	...	...	217	...	217	13,240	137,282	150,522
Sugar and jaggery . . . . .	...	...	...	...	...	...	7	...	7	541	...	541	259	...	806	865	1,196	842
Other articles	104	28	132	19	...	19	2,030	83	2,113	2,017	...	2,017	13,545	32,981	46,526	4,809	29,243	33,553
TOTAL	105	28	133	24	...	24	2,098	83	2,181	3,989	...	3,989	27,599	62,222	89,821	18,749	166,867	185,616

APPENDICES.

APPENDIX F⁴—contd.

EAST INDIAN RAILWAY—contd.

Statement of Goods traffic crossing the Ganges at Tari Ghât, Digba Ghât and Mokameh Ghât from the 1st half of 1903 to the 1st half of 1906—contd.

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GANGES BRIDGE COMMITTEE.

Commodities.	TARI GHÂT.						DIGHA GHÂT.						MOKAMEH GHÂT.						
	FROM E. I. R.			FROM B. & N. W. R.			FROM E. I. R.			FROM B. & N. W. R.			FROM E. I. R.			FROM B. & N. W. R.			
	Local.	Calcutta.	Total.	Local.	Calcutta.	Total.	Local.	Calcutta.	Total.	Local.	Calcutta.	Total.	Local.	Calcutta.	Total.	Local.	Calcutta.	Total.	
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	
	<i>Half-year ended 30th June 1905.</i>																		
Coal and coke . . . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Grains and seeds	15	...	15	4	...	4	416	...	416	1,051	...	1,051	1,160	...	100	1,260	10,035	61,720	71,755
Hides and skins	1	...	1	...	...	...	1	...	1	...	...	...	...	...	29	29	6	4,160	4,166
Jute . . . . .	...	...	...	3	...	3	144	...	144	45	...	45	529	...	2,125	2,654	80	540	620
Salt . . . . .	...	...	...	...	...	...	8	...	8	...	...	...	...	...	32,968	32,968	42	47	89
Sugar and jaggery	2	...	2	4	...	4	6	...	6	919	15	934	62	...	763	825	3,074	847	3,921
Oils . . . . .	...	...	...	...	...	...	3	...	3	6	...	6	10,619	...	223	10,842	14	2	16
Tea . . . . .	...	...	...	...	...	...	...	...	3	...	...	3	...	...	1	1	...	...	...
Other articles	131	...	131	11	...	11	1,807	56	1,863	8,655	...	8,655	8,917	45,760	54,677	12,959	87,648	40,607	
TOTAL	149	..	149	22	...	22	2,385	56	2,441	5,683	15	5,698	76,389	81,969	158,858	26,210	94,964	121,174	
	<i>Half-year ended 31st December 1905.</i>																		
Coal and coke . . . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Grains and seeds	15	...	15	1	...	1	396	...	396	272	...	272	15,925	...	86	15,925	...	...	...
Hides and skins	1	...	1	1	...	1	1	...	1	2	...	2	987	...	3	1,023	3,817	40,967	44,284
Jute	4	...	4	...	...	...	150	...	150	49	...	49	177	...	1,071	1,249	1,485	8,535	8,687
Salt . . . . .	...	...	...	...	...	...	6	...	6	...	...	...	...	...	29,108	29,106	...	796	2,281
Sugar and jaggery . . . . .	...	...	...	6	...	6	7	6	13	415	...	415	42	...	835	877	1,154	432	1,633
Oils . . . . .	...	...	...	...	...	...	1	...	1	3	...	3	8,838	...	155	8,993	4	19	23
Tea . . . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	3	...	20	20
Other articles	17	1	18	6	...	6	1,570	42	1,612	2,291	...	2,291	9,284	25,704	34,988	6,629	18,176	23,805	
TOTAL	37	1	38	14	...	14	2,131	48	2,179	3,032	...	3,032	35,254	56,913	92,167	11,738	68,995	75,733	
	<i>Half-year ended 30th June 1906.</i>																		
Coal and coke . . . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Grains and seeds	6	...	6	3	...	3	2,936	...	2,936	1,266	...	1,266	77,202	...	85	77,202	...	...	...
Hides and skins . . . . .	...	...	...	2	...	2	1	...	1	6	...	6	4,229	...	3	4,314	6,724	71,018	77,742
Jute	4	...	4	...	...	...	142	...	142	71	...	71	299	...	1,764	2,083	815	3,729	3,729
Salt . . . . .	...	...	...	...	...	...	3	...	3	...	...	...	...	...	44,005	44,005	3	...	3
Sugar and jaggery . . . . .	...	...	...	...	...	...	46	...	46	1,038	...	1,038	105	...	3,315	3,420	2,859	663	3,023
Oils . . . . .	...	...	...	...	...	...	6	...	6	16	...	16	9,852	...	161	10,003	15	15	30
Tea . . . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	5	...	...	...
Other articles	17	...	17	...	...	...	1,212	47	1,259	2,838	...	2,838	15,922	18,114	34,036	29,752	1,249	81,001	
TOTAL	27	...	27	5	...	5	4,346	47	4,393	5,235	...	5,235	107,612	67,459	175,071	89,671	77,385	117,056	

APPENDIX G.

From the Agent, East Indian Railway, to the Secretary, Ganges Bridge Committee.

As arranged on Friday, the 1st instant, when my evidence was being taken, I beg to submit the following written answer to the question put to me by the President as to the particular points in Technical paper 138 which I had in mind when writing paragraph 9 of my note in connection with the proposals before the Committee (*see Q. 23 of evidence of Agent, East Indian Railway*).

Answer.

In writing this paragraph I had in mind the following portion of Mr. Addis' paper, paragraph 4, the sentence in paragraph 7 beginning 'Nowhere along the last 100 miles, etc., the concluding sentence of paragraph 9, the fourth sentence in paragraph 11, paragraph 12 to paragraph 116 and the position as shown by plate I attached to this paper.

I had also in mind the following portions of Mr. Spring's introductory note, paragraph 3, first sentence, paragraph 5, paragraph 6, concluding sentence.

Further I had in mind the fact that the work spoken of by Mr. Spring in the last-mentioned reference as having been carried out at heavy cost has since been washed away, and that, as is generally well known, the Ganges has been and is steadily cutting towards the bridge.

The foregoing is what was present in my mind at the time, but I have since received reliable information that the Ganges has now approached very close to the embankment on the west side of the bridge and I am informed that the situation is generally considered precarious.

From the Consulting Engineer to the Government of India for Railways, Lucknow, to the Secretary, Ganges Bridge Committee.

With reference to your letter No. 542, dated the 5th February 1907, forwarding extracts from evidence and letters submitted to the Ganges Bridge Committee on the encroachment of the Ganges near the Kosi Bridge site, and asking me for my opinion on this, I beg to state that there is at present no reason to apprehend any serious damage to the Kosi Bridge.

2. I am quite confident that the present site can be held provided proper care is taken. There is an adequate supply of stone for pitching, and the latest soundings show that the main current of the Ganges is gradually receding from the west bank protective works.

The Kosi river also is now flowing much more evenly through the bridge than it was, and is giving no trouble.

APPENDIX H.

From the Chief Engineer of the Port Commissioners, Calcutta, to the Secretary, Ganges Bridge Committee.

In answer to your letter No. 735 of the 18th February 1907, I beg to submit, for the information of your Committee, the estimates asked for by you, *viz.* :—

1. Rough estimate of introducing the mixed gauge into *all* Port Trust lines on the Calcutta side except lines used solely for coal, omitting alterations to platforms and buildings.
2. Estimate of introducing the mixed gauge into the Tea Depôt, omitting alterations to platforms and buildings.
3. Estimate of introducing the mixed gauge into the Kantapur Depôt, omitting alterations to platforms and buildings.
4. Cost of separate metre gauge shunting yard at Dock Junction, including the value of land provided by the Port Trust.

In case the preparation of such estimates may convey the impression that the introduction of the metre gauge into the Port Commissioners' docks and railways is a workable arrangement, I wish to state, and I do so most emphatically, that in my opinion, after giving the matter the most careful consideration, no workable scheme can be devised which would allow of the two gauges working in those termini. Not only is such a scheme impracticable, having regard to the conditions under which the traffic at the docks, jetties and the Port Trust Railway is handled, but the arrangement of the numerous warehouses, stations, wharves, etc., which are all designed and built for the broad gauge in a way that exactly suits the requirements of this traffic, do not admit of adaptation to suit the two gauges.

Estimate No. 1 is for introducing a third rail into the whole of the Port Commissioners' lines on the Calcutta side, excluding lines used exclusively for coal. Such a work would necessarily carry with it the construction of receiving and sorting lines for the metre gauge traffic and it would be necessary to have for the inward traffic at the docks a receiving yard and sorting grid at Dock Junction for general traffic and at Kantapukur for the wheat and seeds trade. For the export berths in dock No. 1, a small yard would be required on the east side for the transit sheds, and on the west side for the transit sheds and tea warehouses, and in the latter case the land would be a large item.

For the Port Trust Railway from the jetties to Cossipore, I have divided the railway into three sections, each of which would require a sorting and stabling yard for metre gauge wagons. North of the bridge a yard would be provided for the jetty traffic and stations from Armenian Ghât to Nimtollah. For the Nimtollah to Baghbazar section a small yard is included near the latter place. The site for this yard has been selected not because of its convenience to the section, but because it is the only place where there is even a remote possibility of obtaining land. The Cossipore section would have a similar yard and the acquisition of land at this place could only be effected by the displacement of some at least of the many jute presses and warehouses which are here situated abutting on the Port Commissioners' property. In all three cases the land has been estimated to cost one lakh of rupees per bigha as this is about the price the Port Commissioners have had to pay for such small portions as have from time to time become available, but it is extremely doubtful whether any large area of land could be obtained at anything approaching this price as the acquisition under the Act would mean compensation for severance and businesses as well as buildings.

In estimates Nos. 1 and 3 it has been necessary to assume that the introduction of the metre gauge working conjointly with the broad gauge will so hamper the working at Kantapukur as to make it incumbent on the Port Commissioners to largely increase their accommodation at this place, and for the purpose of these estimates it has been assumed that such addition will amount to 25 per cent. on the existing accommodation.

The remaining estimates call for no particular comment.

On the general question it has to be pointed out that the Port Commissioners have recently obtained administrative sanction to a scheme for a large extension of the docks in order to keep pace with the enormous expansion of trade in the Port, which expansion may perhaps best be illustrated by the accompanying diagram showing the increase in tonnage of goods of all classes brought to Calcutta by rail. It will be seen from this diagram that the growth has been from 1,600,000 tons in 1885 to 3,000,000 tons in 1895 and to 7,000,000 tons in 1905 or, in other words, the traffic of 1895 was twice as great as 1885, while in 1905 it was more than four times that of 1885.

The extension scheme provides for dock accommodation which in extent will be nearly five times that now existing, and the cost, therefore, of introducing the metre gauge on the whole scheme would be proportionately increased from the figures now given. For instance, it is proposed to do the whole of the sorting of inward traffic by the modern method of gravitation yards. A separate yard of this nature would have to be put in for the metre gauge stock thus practically duplicating the expenditure in this item.

The introduction of the metre gauge would, therefore, saddle the trade of the Port with an enormous expenditure, as well as complicate, and consequently render more costly, the working of the traffic, and all for a doubtful benefit to an inconsiderable section of the trade.

ESTIMATE No. 1.

Rough estimate of introducing the mixed gauge into all Port Trust lines on the Calcutta side, except lines used solely for coal, omitting alteration to platforms and buildings.

*Docks.**Existing lines (exclusive of coal).*

	Rs.	Rs.	Rs.
24 miles (third rail only)	8,000	1,92,000	
23 " (third rail on chairs)	10,850	2,49,550	
7 " (third rail on new sleepers)	19,500	1,37,500	
366 sets points and crossings	950	3,47,700	
		<u>9,26,750</u>	
Contingencies at 5 per cent.		46,350	9,73,100

Kantapukur receiving lines and grid.

11 bighas land	2,000	22,000	
22,16,000 cubic feet filling	21	46,536	
2 miles lines	30,000	60,000	
20 sets points and crossings	700	14,000	
		<u>1,42,536</u>	
Contingencies at 5 per cent.		7,164	1,49,700

Kantapukur increase of depôt.

29 bighas land	2,000	58,000	
49,40,000 cubic feet filling	21	1,03,740	
1,70,000 square feet shed	2-8	4,25,000	
3½ miles lines (broad and metre gauges)	50,000	1,75,000	
24 sets points and crossings	1,400	33,600	
		<u>7,95,340</u>	
Contingencies at 5 per cent.		39,760	8,35,100

Dock Junction receiving lines and grid.

	Rs.	Rs.	Rs.
11 bighas land	2,000	22,000	
22,16,000 cubic feet filling	21	46,536	
2 miles lines	30,000	60,000	
20 sets points and crossings	700	14,000	
		<u>1,42,536</u>	
Contingencies at 5 per cent.		7,164	1,49,700

Stabling lines east side of Dock No. 1.

11 bighas land	5,000	53,000	
50,000 square feet removal and rebuilding A shed	2	1,00,000	
1 mile lines	30,000	30,000	
12 sets points and crossings	700	8,400	
		<u>1,93,400</u>	
Contingencies at 5 per cent.		9,600	2,03,000
Carried over		..	<u>23,10,600</u>

GANGES BRIDGE COMMITTEE:

	Rs.	Rs.	Rs.
Brought forward			23,10,600
<i>Stabling lines west side of Dock No. 1 and Tea Warehouse.</i>			
Land (say)		5,00,000	
50,000 square feet removal and rebuilding B shed	2	1,00,000	
1½ miles lines	30,000	45,000	
20 sets points and cr.ssings	700	14,000	
		<u>6,59,000</u>	
Contingencies at 5 per cent.		32,900	6,91,900
<i>Port Trust Railway (Docks to Cossipore).</i>			
<i>Existing lines.</i>			
14.68 miles (third rail on chairs)	10,850	1,59,278	
7 „ (third rail on new sleepers)	19,500	1,36,500	
131 sets points and crossings	950	1,24,450	
		<u>4,20,228</u>	
Contingencies at 5 per cent.		21,072	4,41,300
<i>Stabling and sorting yard, Jetty section.</i>			
15 bighas land and buildings	1,00,000	15,00,000	
3 miles lines	30,000	90,000	
30 sets points and crossings	700	21,000	
		<u>16,11,000</u>	
Contingencies at 5 per cent.		80,500	16,91,500
<i>Stabling and sorting yard, Baghbazar section.</i>			
8 bighas, land and buildings	1,00,000	8,00,000	
1½ miles lines	30,000	37,500	
15 sets points and crossings	700	10,500	
		<u>8,48,000</u>	
Contingencies at 5 per cent.		42,400	8,90,400
<i>Stabling and sorting yard, Cossipore section.</i>			
8 bighas land and buildings	1,00,000	8,00,000	
1½ miles lines	30,000	37,500	
15 sets points and crossings	700	10,500	
		<u>8,48,000</u>	
Contingencies at 5 per cent.		42,400	8,90,400
	Total		<u>69,16,100</u>

ESTIMATE No. 2.

Rough estimate of introducing the mixed gauge into the Tea Depot, omitting alterations to platforms and buildings.

	Rs.	Rs.
<i>Existing lines.</i>		
1 mile (third rail only)	8,000	8,000
1 „ (third rail on chairs)	10,850	10,850
1 „ (third rail on new sleepers)	19,500	19,500
10 sets points and crossings	950	9,500
32 No. crossings	400	12,800
		<u>60,650</u>
Contingencies at 5 per cent.		3,050
<i>Receiving line and grid Dock Junction.</i>		
9 bighas land	2,000	18,000
16,14,000 cubic feet filling	21	33,894
1½ miles lines	30,000	37,500
14 sets points and crossings	700	9,800
		<u>82,194</u>
Contingencies at 5 per cent.		4,106
Carried over		<u>1,50,000</u>

	Rs.	Rs.	Rs.
Brought forward			1,50,000
<i>Stable and sorting siding near Tea Warehouse.</i>			
Land		3,00,000	
1 mile lines	30,000	30,000	
12 sets points and crossings	700	8,400	
		<u>3,38,400</u>	
Contingencies at 5 per cent.		16,900	3,55,300
		<u>16,900</u>	
Total			<u>5,05,300</u>

ESTIMATE No. 3.

Rough estimate of introducing the mixed gauge into the Kantapukur Depot, omitting alteration to platforms and buildings.

Existing lines.

	Rs.	Rs.	Rs.
7 miles (third rail only)	8,000	56,000	
6 " (third rail on chairs)	10,950	65,700	
1 mile (third rail on new sleepers)	19,500	19,500	
97 sets points and crossings	950	92,150	
		<u>2,33,350</u>	
Contingencies at 5 per cent.		11,650	2,45,000
		<u>11,650</u>	

Receiving lines and grid.

11 bighas land	2,000	22,000	
22,16,000 cubic feet filling	21	46,536	
2 miles lines	30,000	60,000	
20 sets points and crossings	700	14,000	
		<u>1,42,536</u>	
Contingencies at 5 per cent.		7,164	1,49,700
		<u>7,164</u>	

Increase of depot.

29 bighas land	2,000	58,000	
49,40,000 cubic feet filling	21	1,03,740	
1,70,000 square feet shed	2-8	4,25,000	
3½ miles lines (broad and metre gauges)	50,000	1,75,000	
24 sets points and crossings	1,400	33,600	
		<u>7,95,340</u>	
Contingencies at 5 per cent.		39,760	8,35,100
		<u>39,760</u>	
Total			<u>12,29,800</u>

ESTIMATE No. 4.

Rough estimate of separate metre gauge shunting yard at Dock Junction, including value of land provided by the Port Trust.

Dock Junction receiving lines and grid.

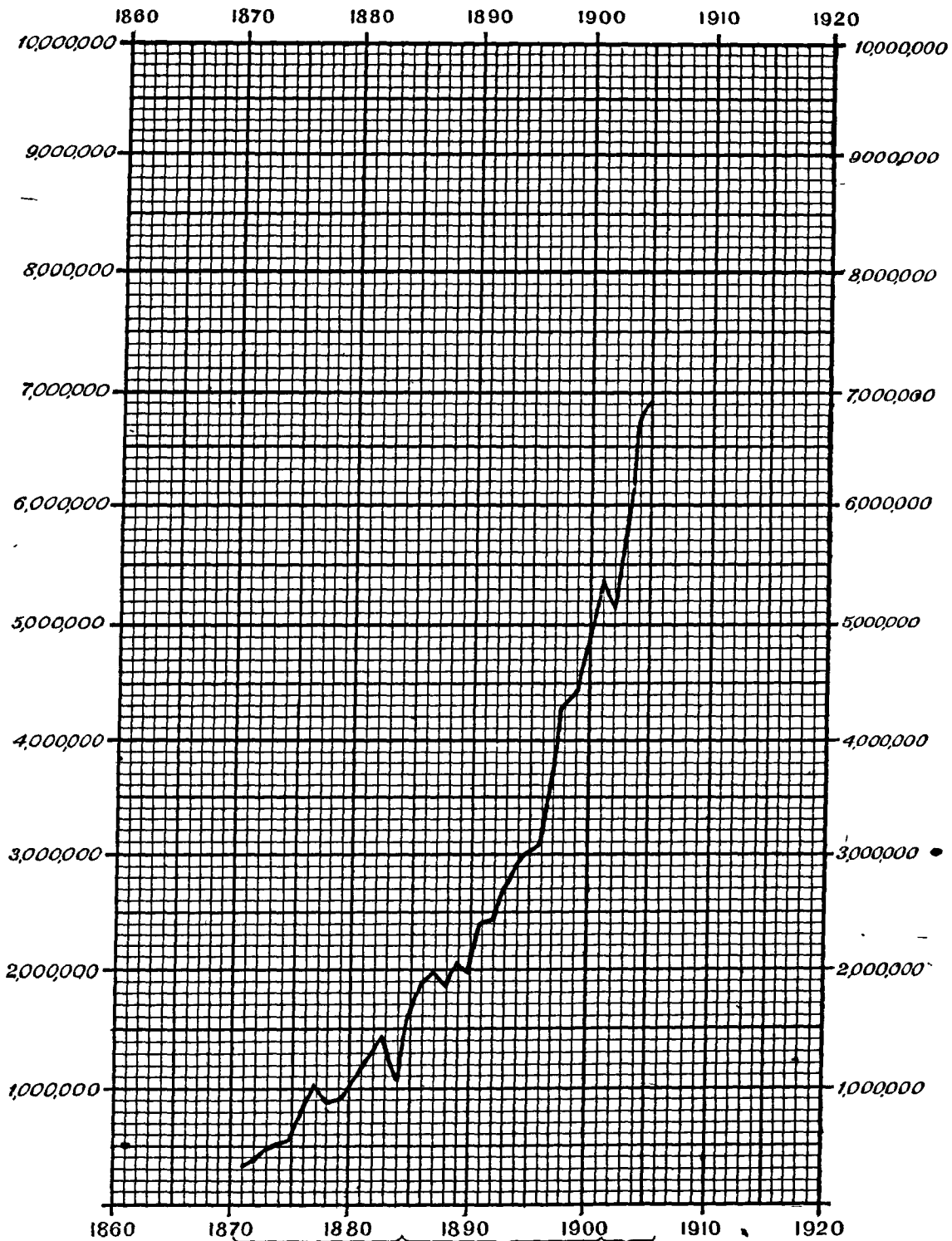
	Rs.	Rs.	Rs.
11 bighas land	2,000	22,000	
2,216,000 cubic feet filling	21	46,536	
2 miles lines	30,000	60,000	
20 sets points and crossings	700	14,000	
		<u>1,42,536</u>	
Contingencies at 5 per cent.		7,164	1,49,700
		<u>7,164</u>	

Kantapukur receiving lines and grid.

11 bighas land	2,000	22,000	
2,216,000 cubic feet filling	21	46,536	
2 miles lines	30,000	60,000	
20 sets points and crossings	700	14,000	
		<u>1,42,536</u>	
Contingencies at 5 per cent.		7,164	1,49,700
		<u>7,164</u>	
Total			<u>2,99,400</u>

PORT OF CALCUTTA.

INCREASE IN TONNAGE OF GOODS OF ALL CLASSES
BROUGHT TO CALCUTTA BY RAIL.



1860 1870 1880 1890 1900 1910 1920

E. I. R

E. I. R.
E. B. S. R.
The E. B. S. R. figures
prior to 1885 are not
available. From this
year onwards they
are included.

E. I. R.
E. B. S. R.
B. N. R.
The B. N. R. com-
menced Working
into Calcutta
Stations in 1901.

APPENDIX J.

The following are the replies of the Traffic Manager, Madras Port Trust, to the questions asked by the Sub-Committee who visited Madras.

Questions.	Answers.
1. Please furnish us with a statement showing the total imports and exports of goods by classes (1905-06).	Please see statement attached.
2. What proportion or quantity of— (a) Imports (b) Exports are removed from or received at the Trust's wharves or storage grounds by wagons showing receipts and despatches by broad and metre gauge lines separately.	Imports— (excluding coal despatches), Broad gauge, 12 per cent. Metre „ 3 per cent. Exports— Broad gauge 2 per cent. Metre „ 1 per cent.
3. How much is despatched by rail or wagon loads— (a) from the sheds, (b) from the ground near sidings.	(a) Only a few wagons per week. (b) All the rest of above imports.
4. What number of broad and metre gauge wagons are handled in a year.	Broad gauge. Metre gauge. 7,830 2,980
5. What number in a day— (a) Maximum. (b) Average. (c) Minimum.	Broad gauge. Metre gauge. 99 48 22 8 1 1
6. Please say whether imports from jetties are removed on broad or metre gauge—in foreign railway wagons or in the Commissioners' platform trucks—to the Custom House.	In the Trustees' broad gauge hand-pushed trucks.
7. How many locomotives are employed by the Trust in handling the traffic—metre gauge and broad gauge—and how many of these may be taken as employed on Commissioners' construction works.	There are two broad gauge locomotives in use for traffic work and they are employed at traffic work practically all the time.
8. What number of days are at the Commissioners' disposal to make arrangements for the despatch of cargo landed from vessels and placed alongside sidings, counting from discharge into lighters or other boats. Are the Commissioners bound to move away such goods in a day or certain number of hours.	There is no fixed time for this. Our object is to get our premises cleared as quickly as possible to make room for following steamers. No.
9. How many sheds have the Commissioners served with mixed gauge lines, omitting bulk oil sidings.	Three sheds so served, viz., two for exports, one for imports.
10. Of coal imported how much is removed by— (a) metre gauge. (b) broad gauge.	(a) About 7,600 tons. (b) „ 43,000 „

Statement shewing total imports and exports of goods by classes, 1905-1906.

Classes of goods.	1905-1906.				
	Imports.		Exports.		TOTAL.
	Tons.	Rs.	Tons.	Rs.	Rs.
1. Beer, wine and spirits	7,832	12,816	83	205	13,021
2. Building materials	16,152	22,466	121	170	22,636
3. Candies	1,200	1,778	1	2	1,780
4. Coal	94,365	35,614	...	...	35,614
5. Coke, etc.	5,036	3,770	...	...	3,770
6. Coffee	12	11	712	770	781
7. Cotton	1,190	1,460	12,764	15,929	17,389
8. Explosives	4,130	7,119	54	74	7,193
9. Firewood . . . . .	...	...	...	...	...
10. Fodder	14,765	10,191	10,201	10,438	20,629
11. Food-grains	64,438	81,673	2,379	3,573	85,246
12. Government stores	13,480	32,216	2,002	5,297	37,513
13. Gunnies	2,077	2,090	50	51	2,141
14. Hides, horns and skins	1,396	1,500	26,595	26,728	38,223
15. Horses (1,362 in, 85 out)	...	11,162	...	354	11,516
16. Indigo	27	78	668	2,005	2,083
17. Jaggery and sugar	293	372	1,305	1,333	1,705
18. Kerosine oil	26,711	51,730	2,135	2,457	54,187
19. Machinery	3,790	6,000	191	283	6,283
20. Metals	33,167	50,549	290	462	51,011
21. Miscellaneous	28,472	53,368	16,382	22,028	75,396
22. Paper	6,642	9,042	185	281	9,323
23. Piece-goods and twist	20,511	30,634	5,100	7,766	38,400
24. Railway materials	37,697	53,417	3,959	5,932	59,349
25. Seeds and ground-nuts	414	543	7,403	7,840	8,333
26. Timber	17,791	17,081	878	813	17,894
27. Tobacco	965	1,823	425	974	2,797
28. Turmeric	26	33	1,093	1,348	1,381
29. Vegetables and other provisions.	7,776	11,913	16,823	17,860	29,773
TOTAL	410,355	510,449	112,307	144,973	655,422

APPENDIX K.

Approximate estimate of cost of Railway Board's scheme for a bridge near Rampur Boalia with double metre gauge track across the same and to Calcutta with partial terminal accommodation there.

	Lakhs.
1. Bridge near Rampur Boalia with approaches—(Bridge taken at 138 lakhs for double line on girders designed for broad gauge loads in accordance with standing orders of the Government of India. Approaches taken at 8½ lakhs)	164½
2. Connecting lines north of Ganges single metre gauge line 46·15 miles at Rs. 84,216 per mile	38½
3. Double metre gauge line from main station near Rampur Boalia to Naihati, 106·40 miles at Rs. 1,26,324 per mile	134½
4. Tranship yard at Naihati	15
5. Terminus near Chitpore with shunting yard	52
6. Terminus near Sealdah	52
7. Double metre gauge line, Naihati to Sealdah	35
8. Single metre gauge line, Canal Junction to Dock Junction, 9 miles at Rs. 2,65,000 per mile	23½
9. Shunting yard at Dock Junction	1½
10. Third rail to and in Kantapukur Depôt	2½
11. Third rail to and in Budge Budge Depôt	1
TOTAL COST	502½

NOTE.—Items 4, 5, 6, 7 and 11 have been taken from the Eastern Bengal State Railway estimates [see Appendix E].

Item 8 has been taken from the same but reduced to the cost for a single line.

Items 9 and 10 have been taken from the Port Trust Railway estimates [see Appendix H].

APPENDIX L.

Calculation of the cost of detention of rolling stock at the transshipment station on the north bank of the Ganges, assuming that a bridge to carry broad gauge is built, and that about 1,000,000 tons a year will be the traffic handled when this bridge is opened.

(1) {	12 Passenger	} Metre gauge trains Bengal and North-Western and Eastern Bengal State Railways arriving at and leaving the transshipment station assumed at per 24 hours, as an average throughout the year.	
	26 Goods		
	—		
	38 Total		
(2) {	8 Passenger	} Broad gauge trains Eastern Bengal State Railway arriving at and leaving same, as an average throughout the year.	
	18 Goods		
	—		
	26 Total		
(3) {	Metre gauge passenger average composition assumed at		Vehicles.
			16
	Broad gauge " " " " "		20
(4) {	Metre gauge goods " " " "		40
	Broad gauge " " " "		40
	Total metre gauge passenger vehicles in and out per day		192
(5) {	" broad gauge " " " "		160
	" metre gauge goods vehicles " "		1,040
(6) {	" broad gauge " " " "		720
(7) Detention of passenger vehicles			= 6 hours
or for in and out			= ½ × 6 = 3 "
(8) Detention of goods vehicles			= 21 "
or for in and out			= ⅓ × 21 = 10½ "

	Rs.
(9) Average value of metre gauge passenger coach	4,000
(10) " " " broad gauge " " "	6,500
(11) " " " metre gauge goods wagon	1,800
(12) " " " broad gauge " " "	2,800
Rate of interest on capital cost of stock	3½ per cent. per annum.
Cost of repairs and maintenance	8¼ " "
(13) Total annual of cost of rolling stock 12 per cent. of cost (3½ + 8¼).	Rs.
(14) Value of passenger stock broad gauge and metre gauge	18,08,000
(15) Interest and maintenance per annum	2,16,960
(16) " " " per day	595
(17) For detention of 3 hours (+ 8)	74
(18) Value of goods stock broad gauge and metre gauge	38,88,000
(19) Interest and maintenance per annum	4,66,560
(20) " " " per day	1,280
(21) For detention of 10½ hours ($\times \frac{105}{24}$)	560
(22) Total interest and maintenance charges per day broad gauge and metre gauge passenger and goods stock	634
(23) Total cost per annum of detention of rolling stock	2,31,410

Engines are not considered as detained, as the transshipment station would be an engine-changing station for both gauges in any case.

APPENDIX M.

Approximate forecast of locomotive expenses at a transshipment station on the north bank of the Ganges.

Locomotives required—

	Rs.	Rs.
Broad gauge 4 at	45,000	1,80,000
Metre gauge 6 at	36,000	2,16,000
		<u>3,96,000</u>

Average shunting mileage of engines per day taken as the average mileage run per locomotive per diem for the whole line [see item 181, Appendix 18, Administration Report of Indian Railways for 1905].

Broad gauge 63 miles.

Metre gauge 60 " "

Cost of a shunting mile taken at $\frac{3}{4}$ ths the expenses per engine mile [see item 1456, Appendix 18, Administration Report of Indian Railways for 1900].

Broad gauge 5·37 annas.

Metre gauge 4·41 " "

Total cost of shunting for one year :—

	Rs.
Rs. $\frac{4 \times 63 \times 5 \cdot 37 \times 365}{16} + \frac{6 \times 60 \times 4 \cdot 41 \times 365}{16} =$	67,088
Add interest on capital cost at Rs. 3½ per cent.	14,850
	<u>81,938</u>

APPENDIX N.

Approximate estimate of the total cost of transshipment at a station on the north bank of the Ganges.

	Rs.
Interest on capital outlay on transshipment yard at 3½ per cent. on 10½ lakhs	39,375
Maintenance charges at 2½ per cent. per annum	26,250
Traffic expenses exclusive of handling charges at Rs. 2,250 per month	27,000
Locomotive expenses [see Appendix M]	81,938
Handling charges 1,000,000 tons at 2 annas per ton	1,25,000
Cost of detention to rolling stock [see Appendix L]	2,31,410
	5,30,973

Cost per ton on 1,000,000 tons = 8½ annas.

Equivalent to 14¾ miles of freight at the average sum (6·92 pies) received for carrying a goods unit one mile on the Eastern Bengal State Railway [1905] and to 27½ miles of haulage at the corresponding rate (3·73 pies) for working a goods unit one mile.

	Rs.
The capitalised cost of transshipment per annum at 3½ per cent. is	141,59,280

APPENDIX P.

Statement showing the proportion of traffic handled in certain Calcutta termini which originates or is delivered at stations on metre gauge lines.

Railway.	Received at	Despatched from	Year.	Broad gauge traffic.	Metre gauge traffic.	Proportion of metre gauge to total traffic.
				Tons.	Tons.	
Port Trust Railway .	Jetties . . . . .	...	1906	17,866	<i>Nil.</i>	...
Ditto .	... . . . .	Jetties	"	97,861	16,907	0·15 or ¼th.
Eastern Bengal State Railway.	Chitpore Ghât . . . . .	...	1905	49,225	10,940	0·18 or ¼th.
	" Shed . . . . .	...	"	87,259	19,400	Ditto.
	Ultadanga . . . . .	...	"	34,920	7,760	Ditto.
	Cossipore . . . . .	...	"	52,203	11,600	Ditto.
	Between Cossipore and Jetties.	...	"	193,954	43,000	Ditto.
Eastern Bengal State Railway.	Jute Mills and private sidings.	...	"	609,327	134,496	Ditto.
Port Trust Railway .	Kantapur Sheds . . . . .	...	1904-05	354,902	208,646	0·37 or ¼rd.
Ditto .	Docks . . . . .	...	"	79,963	50,644	0·42 or ½th.
Eastern Bengal State Railway.	.....	Budge Budge Depôt.	1906	130,070	18,311	0·13 or ¼th.

NOTE.—The proportion of metre gauge traffic has been assumed in these cases, actual figures not being available.

APPENDIX R.

Note submitted to the Ganges Bridge Committee by the Bengal Chamber of Commerce.

In presenting the views of the Committee of the Bengal Chamber of Commerce upon this project, it is desirable in the first place to refer to the marginally noted correspondence, copies of which are appended.

- (1) Letter No. 6—II, dated 16th April 1903, from F. J. E. Spring, Esq., C.I.E., Chief Engineer, Lower Ganges Bridge Project.
- (2) Letter No. 852, dated 29th May 1903, from the Chamber of Commerce, to F. J. E. Spring, Esq., C.I.E., Chief Engineer, Lower Ganges Bridge Project.
- (3) Letter No. 1700, dated 19th November 1904, from the Bengal Chamber of Commerce, to the Government of Bengal, Public Works Department.
- (4) Letter No. 1617-B., dated 17th December 1904, from the Government of Bengal, Railway Department, with enclosure.
- (5) Letter No. 739, dated 17th April 1906, from the Bengal Chamber of Commerce, to the Government of Bengal, Public Works Department.
- (6) Letter No. 966, dated 24th May 1906, from the Bengal Chamber of Commerce, to the Government of Bengal, Public Works Department.
- (7) Letter No. 200 T. E., dated 1st June 1906, from the Government of Bengal, Railway Department.
- (8) Memorandum, dated 6th September 1906 by Secretary, Bengal Chamber of Commerce, in regard to traffic on the two proposed routes.
- (9) Circular No. 535, dated 12th December 1906, issued by the Committee of the Bengal Chamber of Commerce.

2. So far as the Committee of the Chamber are concerned these papers bring the question up to date. There remains for consideration the memorandum which has been recently submitted by the Railway Board. Hitherto the point at issue has been as to whether the bridge should be built at Sara or at Godagiri. If it were located at the first named place it would connect the broad gauge and the narrow gauge sections of the Eastern Bengal State Railway. If, on the other hand, Godagiri were selected as the site, the bridge would connect the new broad gauge line from Ranaghat to the Ganges, with the new narrow gauge line from the river to Katihar. A third proposal has been now imported into the discussion by the Railway Board. It is in the nature of a compromise, and the

object of the Board in putting it forward would seem to be to obviate the possibility of two bridges being needed in the future. It is clear, the Board say, that the provision of a bridge at Sara or at Godagiri would not meet satisfactorily the full requirements of trade as a permanent arrangement. They feel confident, therefore, that the building of a bridge on one site would be followed eventually by the building of a bridge on the other. To avoid this, and to enable the metre gauge system to enter Calcutta, they propose to bridge the river at Rampur Boalia; to construct metre gauge connections between the bridge and the Bengal and North-Western and Eastern Bengal State Railways; and to construct a new double metre gauge line from the bridge *via* Meherpur and Ranaghat to Calcutta.

3. Before referring in detail to this proposal, the Committee wish to offer a few general observations upon its leading features. It is, of course, a much larger and a much more costly project than that which they have hitherto supported. Moreover, it raises important issues which find no place in the Sara scheme. For it includes the entrance into Calcutta of a new railway, and that not a standard but a narrow gauge line. There are differences of opinion as to the practicability and advisability of bringing the metre gauge system into Calcutta, but there is a general agreement that its introduction will involve considerable expenditure on terminal arrangements. Unfortunately this aspect of the question is not referred to in the Board's memorandum, but it is of very great importance to all concerned in the trade of Calcutta. The financial history of the port is not encouraging reading. It is only within quite recent years that financial equilibrium has been attained; and the Port Commissioners are now entering upon large and costly projects for dock extension, and for the general improvement of traffic facilities. In these circumstances, it is the obvious duty of the Committee of the Chamber to scrutinise most narrowly any proposals which are likely to involve a still further outlay, which may eventually mean increased charges on the trade. To this point the attention of the Commission will be, the Committee trust, most particularly directed.

* Not printed.

4. Upon the question of the relative advantages of broad gauge as compared with metre gauge railways in India, the Committee do not desire to enter. They cannot lay claim to any special knowledge of the subject, although they are in a general way acquainted with the reasons which have led to the present diversity of gauges in different parts of the country. They have also recently read, with much interest, the paper which Sir Frederick Upcott submitted to the Institution of Civil Engineers in January last. Judging by the comments offered by the distinguished Engineers who listened to the reading of the paper, it is clear that there is considerable divergence of expert opinion upon the question of bringing the metre gauge system into the large Indian sea-ports and centres which are now served exclusively by the broad gauge. In fact, as regards Calcutta, Mr. C. W. Hodson, who is admittedly an authority, said that the complications which the introduction of a second gauge would bring about would be very serious. And another speaker, Mr. E. I. Shadbolt, expressed the opinion that by bringing the two gauges together in the sea-port towns, "the expense, the difficulties and the confusion would be multiplied a hundred-fold." In making these quotations, the Committee do not overlook the fact that Engineers of such eminence as Sir Guilford Molesworth and Sir Frederick Upcott himself, expressed themselves in favour of the proposal. But the point which the Committee want to make is that in view of these differences of opinion, the bringing of the two gauges together in Calcutta, if it is possible so to bring them, cannot be regarded as other than an experiment; and they say most emphatically and without the least hesitation that Calcutta is not the place in which such an experiment should be made. It may, of course, succeed, but on the other hand it may fail; and failure would mean presumably that "the expense, the difficulties and the confusion would be multiplied a hundred-fold"—a prospect which Calcutta merchants cannot regard with equanimity. The example of Madras has been cited by the Board. But the trade of Madras is not comparable to the trade of Calcutta; and the fact that no difficulties are experienced at the one port proves nothing so far as the other port is concerned.

5. Passing on to the scheme which the Board have put forward, the Committee would first advert to the second paragraph of the memorandum. It is there stated that the Calcutta mercantile community are believed to couple with the Sara project a scheme for "the conversion to standard gauge of the metre gauge lines of the Eastern Bengal State Railway which lie to the north of the river." The Board have here somewhat misrepresented the views of the mercantile community. The misrepresentation is, of course, unintentional, but it requires to be corrected. What the mercantile community have asked for is the construction of a bridge at Sara where there is, they maintain, sufficient traffic to justify the expenditure which would be incurred. The bridge should be, the Committee of the Chamber suggested, a broad gauge bridge, because they foresaw that, as the districts north of the Ganges developed, the need for through broad gauge communication between Calcutta and Siliguri would be felt. And they hoped that the building of a broad gauge bridge would eventually lead to the reconstruction of the Northern Bengal line on the broad gauge. They did not propose, and had no intention of proposing, that the scheme for building the bridge should be weighted with the heavy cost of this work, and they had nothing in mind beyond the main line from Sara to Siliguri. The need for reconstruction is not pressing, and with the simplified transshipment which a bridge would ensure, it will probably be able to stand over for many years. Considered financially, it is much too far off to have any relation to the Sara Bridge scheme.

6. These remarks bring the Committee to a statement in the fifth paragraph of the memorandum, from which it would appear that the Board are seeking a solution which shall be permanent. The Committee doubt the wisdom of endeavouring to attain finality in a country the commerce and industries of which are developing so rapidly as are those of India. Railways, bridges, and other means of communication must be provided as they are required by trade. Even if a bridge is now built at Rampur Boalia, it does not seem to the Committee to be reasonable to anticipate that another bridge elsewhere may not be required in the future. If a bridge becomes a necessity elsewhere, it will have to be provided. At Sara it is now and has been for

some time past a necessity, as the difficulties which are being experienced in handling the heavy traffic conclusively prove. With the object of showing what the position was recently at Sara the Committee attach a Report by the Assistant Traffic Superintendent of the Bengal Dooars Railway, who made an investigation on behalf of that line. Under present circumstances the crossing arrangements at Damukdia are liable to an annual breakdown, and it seems to the Committee that this risk can only be removed by building a bridge there. The Commission will be already in possession of the traffic-figures: they show that during 1905 no less than 452,031 tons of goods and 338,085 passengers passed over the river at Sara. The complete figures for 1906 are not yet available, but it is estimated that the goods traffic exceeded 500,000 tons.

7. The Committee now proceed to consider the financial aspect of the question which is, as the Board remark, the most important. With this opinion the Committee concur, for they have hitherto understood that the difficulty in providing funds was the primary cause of the great delay which has taken place in connection with the question. They are in no way antagonistic to railway extension, and on numerous occasions in the past they have urged the need for new lines. But with the rapid growth of the commerce of the country, they have been more and more impressed by the difficulties under which the main trunk lines appear to be working. The periodical congestion of the coal traffic on the East Indian Railway and of the jute traffic on the Eastern Bengal State Railway, are cases in point which are well known. They have formed the subject of much correspondence between the Government and the Committee, but so far there has been no marked improvement. Their study of these problems has led the Committee to the conclusion that, as regards rolling stock and traffic facilities generally, the main lines must be ill-equipped; and with this view the Board are understood to be in agreement. It becomes, therefore, a question as to whether expenditure on new construction should not be curtailed, and the money devoted to the improvement of the existing lines; and it is in this light that the Committee think the proposals of the Board should be viewed.

8. The country lying south of the Ganges between Mokameh on the west and Sara on the east, is served by no fewer than four main trunk lines to Calcutta. These are, of course, the East Indian, the East Indian Loop, the Lalgola-Ranaghat, and the Eastern Bengal State line. If it can be shown that these lines could not, if they were fully equipped, carry the traffic, then the case for an additional line would be made out. But it appears to the Committee that much more evidence than is adduced in the memorandum is necessary to prove this proposition. Indeed, so far as they can gather, the Board hardly take the Lalgola-Ranaghat line into account at all; and if the Rampur Boalia scheme is sanctioned, it is difficult to understand what traffic this line is to carry. The views of the Committee are, that if the East Indian Railway were equipped as it ought to be, it should have no difficulty in moving efficiently all the traffic which the Bengal and North-Western Railway will bring to it at Mokameh Ghât and at the other Ghâts. For the Grand Chord line, which is now open, must surely relieve the main line from Mokameh to a considerable extent. Moreover, it has not yet been shown that the *viâ* Mokameh traffic will leave the East Indian Railway even if the Rampur Boalia scheme be adopted. For with a lead shorter by 70 miles or thereabouts and with the advantage of a lower cost of haulage, there would seem to be considerable likelihood of the East Indian Railway retaining the traffic, notwithstanding the transshipment difficulties. Then the traffic originating on the Bengal and North-Western and Eastern Bengal State Railway systems, between, say, Barauni and Barsoi, can surely be efficiently handled either *viâ* Manihari over the loop line, or *viâ* the new Katihar-Godagiri-Ranaghat route. And lastly, for the eastern and Northern Bengal traffic, there remains the Eastern Bengal State Railway main line which, if fully equipped and aided by a bridge at Sara, ought also to be able to meet all the requirements of trade, including the traffic which may be expected from the Assam extensions, and from the proposed new broad gauge line to Serajganj.

9. No details are given as to how the estimate in paragraph 13 of the memorandum has been prepared. But the Committee take exception to the

comparison which is made in it. The request of the mercantile community was for the construction of a bridge at Sara; and according to the estimates given in Mr. F. J. E. Spring's Report, the cost of such a bridge, including a transshipment station, etc., would not exceed Rs. 150 lakhs. This is the only expenditure for which the commercial public have asked. The connecting lines from Katihar, Sonakhoda and elsewhere—for which Mr. Spring also estimated—were not pressed for, nor do they seem to be included in the Board's scheme. It follows, therefore, that the true comparison is not between two schemes costing respectively Rs. 670 lakhs, and Rs. 390 lakhs, but between the Chamber's scheme costing Rs. 150 lakhs, and the Board's scheme costing Rs. 390 lakhs.

10. The difference between these two figures is the amount which the Board propose to spend to bring to Calcutta the metre gauge traffic which is now carried by the four lines already enumerated. The only real argument in favour of the project seems to be that it will avoid the break of gauge; and if this can be proved the Committee admit at once that it is a strong argument, provided satisfactory terminal arrangements can be made, and that the cost thereof is not excessive. But if transshipment will still be necessary, then there is no justification, the Committee submit, for expending so large a sum on a project the only result of which will be the removal of the transshipment stations from the north of the Ganges to the neighbourhood of Calcutta, where space is restricted and where the cost of labour is heavy. The Board also claim for their project that it will open out a new tract of country, and will anticipate the inevitable entry of the metre gauge into Calcutta. It is, of course, true that the line will run through new country, but the tract is comparatively small, the lines from Ranaghat to Sara and Godagiri respectively being nowhere more than fifty miles apart. It would surely be possible to find a less costly method of developing an area of this size.

11. The proposed entry into Calcutta of the metre gauge has already been mentioned. It forms no part of the scheme which has been supported by the commercial community; nor do the Committee see that the Board have made out their claim that it "cannot be long postponed." The difficulties of transshipment by ferry across the river are undoubtedly very great; but the difficulties of transshipment from wagon to wagon are very much lighter and much less costly. Moreover, there is the possibility, as the use of bogie stock becomes more general in India, of the introduction of a method, such as that suggested by Mr. Neville Priestley, by which the bodies of broad gauge vehicles may be transferred to narrow gauge trucks and *vice versa*. But even without such, it seems to be quite probable that the mixing of the two gauges may prove to be a greater evil than wagon to wagon transshipment. And, moreover, even if eventually a second bridge is to be provided, the combined cost of both bridges will be less than the cost of the Board's scheme. Should the second bridge be located at Mokameh, it would be on the shortest lead to the port, and it would enable the traffic to be carried on the cheapest line. With two bridges, one on each of the principal lines, and with ferries at Manihari and Godagiri, all the requirements of trade for very many years to come would be, the Committee believe, amply met.

"Report on the organisation and working of Railways in America", paragraphs 99 to 112.

APPENDIX. S.

In addition to the evidence given before the Committee by the representatives of various Associations, etc. (recorded in the witnesses' evidence) and the note submitted by the Bengal Chamber of Commerce (*see* Appendix R), the following letters were received from Local Governments, Associations, Firms, etc.

From the Secretary to the Government of the United Provinces, to the Secretary, Ganges Bridge Committee.

I am directed to acknowledge the receipt of your letter No. 339, dated 28th January 1907, in which you enquire whether it is the intention of this

Government to submit any evidence in regard to the site for the proposed bridge across the river Ganges near Calcutta. In reply I am to say that His Honour the Lieutenant-Governor has no views to place before the Committee.

2. A copy of your letter has been sent to the Cawnpore Chamber of Commerce, who have been asked to submit their views, if they have any, direct to the Committee.

From the Secretary, Upper India Chamber of Commerce, to the Secretary, Ganges Bridge Committee.

I am directed to address you with reference to your letter No. 339 of the 28th ultimo to the Government of the United Provinces on the question of the site for the proposed railway bridge over the Ganges.

This Chamber has hitherto maintained the view that as the conversion of the metre gauge railways is a very remote contingency these systems should be permitted freedom of expansion within the tracts of country that have been appropriated by them, and that to enable the lines north of the Ganges to develop their usefulness in the fullest degree, they should be allowed access to the Bengal sea-board on the same gauge.

My Committee are, therefore, of opinion that the scheme of which the bridge will form a part should provide for extensions of the Bengal and North-Western Railway and the northern section of the Eastern Bengal State Railway into Calcutta.

It is also considered that the establishment of a through metre gauge line of communication between Calcutta and the North-West would in some measure assist in the solution of the problem of the chronic scarcity of wagons.

As to the particular point at which the bridge in question should be built, this is a detail which my Committee consider may very well be left to the decision of the expert engineering advisers of Government.

From the Secretary to the Government of Eastern Bengal and Assam, Public Works Department, to the Secretary, Ganges Bridge Committee.

With reference to your letter No. 103, dated the 15th January 1907, to the address of the Chief Secretary to this Government, I am directed to say that this Government does not desire to depute an officer to give evidence before the Ganges Bridge Committee.

2. I am, however, to forward herewith, for the information of the Committee, copy of a letter No. 687 Ry., dated the 25th May 1906, with enclosures, to the address of the Railway Board, embodying the views of this Government on the suitability of a bridge at Sara as affecting the interests of this province as a whole.

No. 687 Ry., dated the 25th May, 1906.

From—The Secretary to the Government of Eastern Bengal and Assam, Public Works Department,

To—The Secretary, Railway Board.

In forwarding the accompanying copy of a letter, dated the 12th May 1906, from the Honorary Secretary and Chairman, Docars Planters' Association, together with a copy of extracts from minutes of a general meeting referred to therein, I am directed to remark that, so far as the interests of this province are concerned, His Honour the Lieutenant-Governor is of opinion that a bridge at Sara would be infinitely more convenient than one at Godagiri.

From General Manager, Darjeeling-Himalayan Railway, to the Secretary, Ganges Bridge Committee.

With the consent of my Agents, I enclose two statements for your Committee's perusal.

Statement I by the General Manager of the Darjeeling-Himalayan Railway.

1. The necessity of a bridge over the Ganges is very severely felt by those persons using the Darjeeling-Himalayan Railway for the conveyance of their goods. On a small line like this, our claims department, during the past year, dealt with 1,970 cases regarding claims in connection with missing and damaged goods, of which only 27 cases dealt with damage which could not be proved to have taken place on foreign lines, and were settled by the Darjeeling-Himalayan Railway. These 1,970 cases meant the receipt and despatch of 17,317 letters. Nearly all these cases arose from consignments getting mixed up, lost, damaged or pilfered crossing the Ganges.

2. All the merchants in this district complain of the very serious delay to their goods over the Eastern Bengal State Railway, although some eight months ago it was proved possible when traffic was slack to get goods through in six to seven days. It is the exception now to get goods through under a month, and in some cases seven to eight weeks,—and this only if the merchants are successful enough to get their goods accepted for despatch at the Calcutta receiving stations.

3. Merchants and planters complain of the pecuniary losses incurred by themselves and their interests not only by the delay but by the partial loss of consignments which are booked on risk notes and are repudiated on the same by the Eastern Bengal State Railway. This has been brought to the notice of the Railway Board recently by the merchants themselves. This very serious grievance can only be remedied by less handling or in other words a bridge.

4. The want of a bridge has, during the recent block at the ferry, been severely felt by this railway and is very noticeable in the falling off in receipts during the past half-year. This deficit is purely due to the block at the ferry and goods intended for this railway being shut out. The effect of this has been to divert a small amount of the traffic away from this line,—between Siliguri and Kurseong. Rice, which formerly came across the ferry, is now coming through the Terai and merchants are purchasing their supplies in Northern Bengal itself.

As a feeder line to the Eastern Bengal State Railway, we feel we have a right to more consideration than has been shewn us.

5. The actual position of the bridge,—provided rates remain the same,—does not affect this railway. A little longer lead *via* Rampur Boalia or Godagiri is a matter for the Committee to decide. Planters and merchants in this district ask for less handling, less wastage, and speedier delivery.

6. Approximately there are 15,000 first and second and 1,20,000 third class passengers who use the Ganges ferry between Darjeeling and Calcutta during the year. These passengers are caused a good deal of inconvenience from the hours it is necessary at present to tranship to cross the Ganges. This large number of first and second class passengers naturally look forward to a time when they can travel through in the same vehicle between Calcutta and Siliguri.

Statement II by the General Manager, Darjeeling-Himalayan Railway.

Concerning the Railway Board's Memorandum.

From my knowledge of the Brahmaputra Valley which will be opened up by the Gauhati extension of the Eastern Bengal State Railway, and from my experience whilst Manager of the Bengal Dooars Railway, I am certain that when better facilities of transport are given to the districts lying to the north-east of the existing metre gauge of the Eastern Bengal State Railway it will be found that the bulk of the traffic for the port of Calcutta will point to the Sara site as being a more direct lead. On the immediate west of the existing metre gauge of the Eastern Bengal State Railway (with the exception of those districts now served by that line), the country is not so capable of

expansion and this would point to a bridge to serve the interests of the Bengal and North-Western Railway very much higher up the Ganges than Godagiri.

In the Railway Board's memorandum, paragraph 10, it reads as if it were necessary to convert the metre gauge to broad gauge at the same time as the bridge is opened. If so, the same difficulty of transshipment would again be felt where the existing branches of the metre gauge join. Again, if the metre gauge were run into Calcutta the same difficulty of transshipment would occur. If I may be allowed,—I should like to refer your Committee to pages 34, 35 and 36 of Mr. Neville Priestley's report on the organisation and working of railways in America—in these pages the author goes into a description of Ramsay's method of changing the bogie trucks of bogie vehicles to suit the different gauges. I would suggest that this method would possibly meet the traffic for many years to come. Metre gauge vehicles are now being built with axle loads very nearly equal to the majority of broad gauge vehicles. New metre gauge stock could be built to suit the change of bogie trucks and the bodies adaptable for both gauges.

From the Secretary, Calcutta Baled Jute Association, to the Secretary, Ganges Bridge Committee.

I am directed to acknowledge the receipt of your letter No. 157, dated 19th January 1907.

2. In reply I am to say that the Committee do not think it to be necessary for oral evidence to be given on behalf of the Association. But they would like to take this opportunity of explaining briefly the views entertained by the export jute trade upon the question of bridging the Ganges. The jute grown in Northern Bengal is chiefly consumed in the local mills, and exporters are not directly concerned with it. But they are very much interested in jute from Serajganj, and they would favour the proposal for a broad gauge line from Sara to that centre. The primary need of the jute trade, however, is not new lines, but improved transport facilities on the Eastern Bengal State Railway. There is an annually recurring congestion of the jute traffic on the line between August and October; and although the Committee are, on general grounds, in favour of a bridge at Sara, they fear that it might tend to augment this congestion, which is understood to be mainly due to an insufficient supply of rolling stock. So far as the export jute trade is concerned this aspect of the question is of greater importance than the provision of a bridge. But of course for jute from Northern Bengal the construction of a bridge at Sara would remove to a great extent the disadvantages of the present mode of transshipment.

3. The Committee certainly do not look upon the project for the introduction of the metre gauge as a solution of the difficulties on the Eastern Bengal line. It seems to them that to bring a railway of a different gauge into the port would be simply to complicate still further a system of working which is already much too difficult and complicated. In the Railway Board's memorandum no example is quoted of a great port such as Calcutta where two different gauges are worked together; and the Committee would protest against Calcutta being selected as the place for an experiment of this description. The case of Madras would seem to be quite beside the point, as the volume of traffic there cannot be compared with that which has to be handled in Calcutta. The Committee do not suggest that an additional line of railway into the port would not be of advantage, but what they strongly object to is any new system which would increase existing difficulties at terminal points, and so delay traffic. These views are, they are convinced, shared by exporters generally.

From the Secretary, Calcutta Wheat and Seed Trade Association, to the Secretary, Ganges Bridge Committee.

I am directed by the Committee of the Calcutta Wheat and Seed Trade Association to acknowledge the receipt of your two letters dated 19th and 26th January 1907.

2. In reply, I am to say that the Committee do not think there is need for oral evidence to be given on behalf of the Association. They would, however, like to put before you the following brief statement of their views upon the question of bridging the Ganges. With the Eastern Bengal State Railway the trade is not directly concerned, and the Committee do not therefore wish to offer any remarks upon the proposal to bridge the river at Sara. But a considerable proportion of the grain traffic coming to Calcutta is derived from the Bengal and North-Western Railway; and it follows that the Rampur Boalia project is of importance to this Association. The Committee have therefore examined the Railway Board's memorandum with attention, but they are not clear that the grain traffic would be in any way benefited by the construction of a bridge at Rampur Boalia, or even at Godagiri; for the present *viâ* Mokameh route is both shorter and cheaper than either the Godagiri or the Rampur Boalia route would be. The transshipment difficulty has not, of course, escaped the Committee, who are fully alive to the fact that the present system has serious disadvantages, which are very much in evidence during times of wagon scarcity on the East Indian Railway. But the true solution of the problem would seem to be the construction of a bridge somewhere near Mokameh, and, of course, the provision of sufficient rolling stock on the East Indian Railway. With a bridge, with an adequate equipment, and with the indirect assistance which the new Grand Chord line may be reasonably anticipated to afford, the East Indian Railway ought not to have any difficulty in dealing with all the traffic which is likely to be exchanged at Mokameh for many years to come. To seek to divert this traffic to a longer, a more circuitous, and most probably a more expensive route, does not commend itself as a wise proposal to those concerned in the grain trade.

3. Moreover, it is a proposal which is still further complicated by the fact that the line from Rampur Boalia would be on the metre gauge; and the Committee would view the introduction of a second gauge into Calcutta with grave misgivings. It would be a most serious matter for the grain trade if the congestion which is now sometimes experienced at Mokameh were to be transferred to the port, where there is already quite sufficient trouble in effecting shipment during a busy export season. The advantages of uniformity of gauge are so obvious, and so generally admitted that it would be surely unwise to introduce into Calcutta all the disadvantages of diversity. To complicate arrangements at terminal points, to spend a very large sum of money in so doing, and perhaps to increase the charges on the trade, with the probable result that the working of the docks and jetties would be hampered and the traffic delayed, is an experiment which the Committee would certainly not support. On the contrary, their opinion is that the right policy is to keep terminal charges as low as possible, and to take all practicable measures so as to bring the shortest and cheapest route for the Calcutta traffic of the Bengal and North-Western Railway to the highest point of efficiency.

From the Secretary, Bengal Chamber of Commerce, to the Secretary, Ganges Bridge Committee.

I have the honour to forward, under the direction of the Committee of the Bengal Chamber of Commerce, for the consideration of the Ganges Bridge Committee, copy of letter of 23rd January addressed to the Chamber from the Secretary, Indian Mining Association, submitting the views of that body on the question of bridging the Lower Ganges, and the proposal to introduce the metre gauge into Calcutta.

From—The Secretary, Indian Mining Association,
To—The Secretary, Bengal Chamber of Commerce.

The question of bridging the Lower Ganges.

I am directed to address you with reference to this question.

2. The question is not one with which the members of the Indian Mining Association can perhaps consider themselves to be directly concerned. But

the Committee feel that the owners of a commodity such as coal, which contributes so largely to the railway revenues of the country, may rightly claim to be interested in any proposals which involve a large expenditure of public money upon railway extensions. Judging from the memorandum, which has been lately issued by the Railway Board, it would appear that the Board propose to bridge the Ganges, and to bring a metre gauge line of railway into Calcutta at a cost of Rs. 390 lakhs. Of this large sum Rs. 130 lakhs or thereabouts will be, the Committee believe, allotted to the bridge project; while the balance of about Rs. 260 lakhs will be devoted to the new railways. It is with this latter sum that the Committee are now concerned: they do not propose to refer to the smaller amount, for they admit that the provision of a bridge at some point over the Ganges is a pressing necessity.

3. The Committee of the Chamber of Commerce are only too well acquainted with the exasperating difficulties under which the coal trade of Bengal has been worked for a considerable number of years past. They are also aware that the Committee of this Association have persistently and strenuously urged that the removal of the lamentable deficiencies of the existing lines of railway as regards equipment, is of far greater moment than is the construction of new lines, which may or may not prove to be remunerative undertakings. The recent action of the Railway Board, in prematurely reducing long distance coal freights, has of course greatly accentuated the difficulties of colliery owners, and has brought the glaring inadequacy of the existing stocks of wagons into greater prominence than ever. Indeed the recent shortage on the Bengal-Nagpur Railway may be mainly attributed, the Committee believe, to these reduced freights. And the position at the moment is of the greatest gravity, and demands the most serious attention of the Government. On previous occasions when the question has been raised, the Committee have been given to understand that financial difficulties bar the way to those drastic measures of reform which are now and which have been for such a long time so urgently required. They cannot of course claim to have any special knowledge of the intricacies of Indian finance. But they confess they find it difficult to understand why the sum of Rs. 260 lakhs, which it is now proposed to expend on new construction, could not be devoted to the much more pressing needs of existing open lines. This would appear to the Committee to be a point which is in danger of being overlooked in the course of the discussion; but it is, they consider, one of the very greatest importance, and they trust that it will be brought prominently before the Commission which is now sitting.

4. In making these remarks, the Committee do not wish it to be understood that they are in any way antagonistic to the proposed entrance of the metre gauge into Calcutta. On the contrary, they are distinctly of opinion that an additional railway would be of great advantage to the port. Very material benefits have unquestionably resulted to Calcutta merchants from the advent of the Bengal-Nagpur Railway; and the Committee have not the least objection to the metre gauge as such, provided that the difficulties at material points which are understood to be considerable both as regards cost and working can be successfully overcome. It would be of course a substantial gain if goods could be carried without break of bulk between Calcutta and points on existing metre gauge lines and *vice versâ*. Moreover, if the Railway Board are correct in their statement that the *viâ* Mokameh traffic would be diverted to the new lines, the Committee would naturally favour the project. For it would mean that some relief would hereafter be given to the East Indian Railway, the difficulties in working which are now so painfully evident to every colliery owner. Similarly it may, the Committee understand, be anticipated that the new lines would assist the Eastern Bengal State Railway; and this would also be advantageous to trade generally. It may be objected that these are after all only indirect benefits, which may eventually be to some extent diminished, or perhaps even nullified altogether, by modifications of rates and charges on the different competing lines. On the other hand, it is undeniable that the advantages which would result from the expenditure, upon existing lines, of the amount which this new construction will cost, would be obtained more quickly and would be solid and enduring. For this reason the Committee would most strongly press for the needs of the existing railways converging on Calcutta

being considered before the construction of new railways, seeing that they are of so much greater urgency.

5. In conclusion I am to invite the attention of the Committee of the Chamber to the points which I have raised, and I am to suggest that these should be brought to the notice of the Ganges Bridge Commission which is now sitting.

From the Secretary, Bengal Chamber of Commerce, to the Secretary, Ganges Bridge Committee.

I have the honour to forward, under the direction of the Committee of the Bengal Chamber of Commerce, for the consideration of the Ganges Bridge Committee, copy of letter of 22nd January addressed to the Chamber from the Secretary, Calcutta Import Trade Association, submitting the views of that body on the question of bridging the Lower Ganges, and the proposal to introduce the metre gauge into Calcutta. The views expressed in this letter are more or less in accordance with those held by the Committee of the Chamber which will be elaborated in a separate statement.

From the Secretary, Calcutta Import Trade Association, to the Secretary, Bengal Chamber of Commerce.

Ganges Bridge Committee.

I am directed by the Committee of the Calcutta Import Trade Association to acknowledge the receipt of your letter No. 83-1907, dated 11th January, with its enclosures, upon this subject. You intimate that the enquiry into the Ganges Bridge question is a public one and that if it is desired to give evidence before the Committee, Mr. J. H. Lovell, the Secretary, will arrange dates for attendance.

2. In reference to the question I am to say that the Committee have carefully considered the bearing on the Import trade of the port of the various schemes suggested. As regards the site of the bridge the only aspect of the question affecting the trade is that of mileage and consequent railway rates, their interest being to deliver their goods to the consumers at the lowest possible cost. The Committee understand, however, that the proposal of the Railway Board involves the introduction into Calcutta of the metre gauge and they view this suggestion with grave misgivings. If the metre gauge is brought into Calcutta, it will assuredly be also introduced into the lines of the Calcutta Port Trust and their objection is based on the assumption, which is more than a probability, that the concurrent working of two gauges in the confined areas of the docks and jetties must involve delay in shunting operations and congestion of the traffic.

3. The Committee would point out that the Import trade is growing steadily. During the last few years importers have been put to great inconvenience and loss owing to the inadequacy of the existing accommodation. During the last year the situation has been rendered worse by reason of repairs to No. 2 Jetty. The Committee are strongly of opinion that there should be such provision for the trade as will ensure the expeditious discharge of steamers and delivery of goods from the jetties even should one jetty be temporarily laid up for repairs or dredging, and they feel that the introduction of the metre gauge into the jetty enclosures will nullify the improvements which the Port Commission have undertaken, leaving the position of the trade as bad as before.

4. The Committee would also point out that the Import trade is making growing demands on the Port Commission for the despatch of goods direct from the jetties,—demands which would increase were the present congestion relieved. The trade is at present largely dealt with at Howrah, where, when there is a sudden call for the quick despatch of large quantities of goods, forwarding arrangements are apt to break down. At regularly recurring periods the piece-goods market has been seriously inconvenienced on this account, and with plentiful and cheap stocks in Calcutta, cloth in the up-country markets has reached famine prices owing to congestion of traffic at Howrah.

5. The Committee strongly urge that, in the interests of the port, no scheme should be sanctioned which would have the effect of adding to the present difficulties of handling goods at the docks and jetties or prevent the free flow of imports into the consuming markets. They cannot but fear that the introduction of the metre gauge into Calcutta would have that result and they therefore trust the Bengal Chamber of Commerce will strongly oppose the Railway Board's present proposal.

From the Chairman, Dooars Planters' Association, to the Secretary, Ganges Bridge Committee.

I have the honour to present the views of my Association on the subject of the proposed Ganges Bridge for the information of the Ganges Bridge Committee, and shall be obliged if you will kindly lay these views before your Committee in due course.

1. My Association considers that a bridge over the Ganges is absolutely necessary to meet the requirements of trade. There has been great delay in the transshipment of stores, owing to the congestion of traffic at Sara, and the inefficiency of the ferry system there. Goods for the Dooars have even had to be sent *viâ* Dhubri recently in order to avoid the block at Sara.

2. A bridge at Sara is the best for the Dooars tea industry, because it is the most direct and quickest route, and because standard gauge wagons, on account of their larger loading capacity, meet the requirements of trade more adequately than metre gauge. The transference of tea and stores from metre to standard wagons north of Sara would not be difficult—especially if the interchangeable "Bogey" system were later on adopted—and would probably entail less handling, expense and risk than if the transshipment took place in or near Calcutta.

3. The introduction of the metre gauge system into Calcutta would seem a retrograde step, and it would meet the requirements of trade better if the metre gauge systems north of the Ganges were gradually changed to standard gauge rather than *vice versa*.

4. All the advantages of the Rampur Boal'a route would be lost unless goods could be delivered at the present warehouses, docks and jetties without transshipment or break of gauge.

5. It is very doubtful if the mixed working of the metre and standard gauges, so as to bring the former direct to the Calcutta docks, warehouses and jetties comes within the range of practicability; and if transshipment takes place at all, it should do so north of the river rather than near Calcutta.

6. For the passenger and mail service, Sara is infinitely the more expeditious and convenient route.

APPENDIX T.

From the Secretary, Ganges Bridge Committee, to the Manager and Secretary, Karachi Port Trust.

The following is an extract from a brief memorandum by the Railway Board forwarded with Government of India Resolution, Department of Commerce and Industry No. 10252—10264, Railways, dated 28th December, 1906, ordering the assembly of a Committee to report on the bridging of the Ganges north of Calcutta and on the entry of the metre gauge into Calcutta:—

"The Port of Madras has at the present time lines of both gauges running into it and Karachi has for sometime past been pressing for the entry of the metre gauge into its port."

The Ganges Bridge Committee would be highly obliged if the Karachi Port Trust would favour them with a description of the arrangements they contemplate in connection with the entry of the metre gauge to their premises.

From the Manager and Secretary, Karachi Port Trust, to the Secretary, Ganges Bridge Committee.

With reference to your letter No. 44, dated 10th January 1907, I am directed to inform you that the Trustees of this Port have so far had no arrangements under contemplation in connection with the entry of the metre gauge upon their premises. But they have no doubt, when the coming of the metre gauge to Karachi takes definite shape, satisfactory arrangements can be made for dealing with the traffic, but under no circumstances will it be possible to allow the metre gauge upon the Keamari Port Trust wharves, the whole of the goods dealt with there being loaded into and from broad gauge railway trucks.