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REPORT

OF THE

GANGES BRIDGE COMMITTEE.



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MAP
TO ILLUSTRATE THE
GANGES BRIDGE LOCATION QUESTION.

Scale 1 Inch = 32 Miles.

NOTE—This sketch map is only intended as an index and not to take the place of accurate maps.

REFERENCES.

- Godagari bridge site and connecting lines.....
- Raibpur (Rampur Boalia) bridge site and connecting lines.....
- Raita (Sara) bridge site and connecting lines.....
- Proposed Sirajganj Extension.....
- Standard gauge lines, open.....
-do.....do..... under construction.....
- Metre & Other gauge lines open.....
-do.....do..... under construction.....

REPORT

OF THE

GANGES BRIDGE COMMITTEE.

The Ganges Bridge Committee was convened under the instructions conveyed in the Resolution by the Government of India, Department of Commerce and Industry, No. 10252—10264 (Railways) dated the 28th December 1906, and was constituted as follows :—

MR. G. MOYLE, Director of Railway Construction	.	.	<i>President.</i>
MR. F. G. DUMAYNE, Vice-Chairman, Port Commissioners, Calcutta.			}
HON'BLE MR. W. A. INGLIS, Secretary to the Government of Bengal, Public Works Department.			
MR. RADHA RAMAN KAR, Bengal National Chamber of Commerce.			
MR. NORMAN McLEOD, Messrs. McLeod & Co., Bengal Chamber of Commerce.			
MAJOR A. D. G. SHELLEY, R.E., Agent, Bombay, Baroda and Central India Railway.			
MR. J. H. LOVELL, Deputy Consulting Engineer for Railways, Calcutta.			<i>Secretary.</i>

The Committee was directed to assemble directly after the Christmas holidays, and its duties were defined as under—to consider and report on the following :—

- (1) The erection of a bridge at Sara to link up the metre and broad gauge sections of the Eastern Bengal State Railway.
- (2) The provision of a bridge at Godagiri to more distinctly serve the interests of the Bengal and North-Western Railway.
- (3) A scheme suggested by the Railway Board for the construction of a bridge at Rampur Boalia, connected by short links with the Ranaghat-Katihar and Eastern Bengal State Railways and with Calcutta by a new metre gauge line *viâ* Meherpur and Ranaghat.
- (4) The project which the Committee recommends as offering the best settlement of the complex question of the location of a bridge over the Lower Ganges.

In pursuance of these instructions, a detailed inspection in company with the responsible officials concerned was made of the lines and termini in the neighbourhood of Calcutta on the left bank of the Hooghly, including the Kidderpore Docks and the import jetties. The three proposed bridge sites were also generally examined, and a Sub-Committee visited Madras and there examined the terminus where at the harbour both broad and metre gauge lines are successfully worked, and received evidence regarding the handling of traffic in this yard from the Traffic Manager of the Madras Port Trust.

A large number of witnesses, representing the various interests, have been examined. Written statements have also been received from several public bodies which, together with the evidence recorded, will be found in the Appendices to this report.

Statements or witnesses were also invited from the following Local Governments, Associations and Firms who did not respond :—

United Provinces Government.
 Bengal Dooars Railway Company.
 Messrs. Bird & Co.
 Messrs. Landale & Clark.
 Messrs. Landale & Morgan.

Preliminary to the consideration of the questions before the Committee it is desirable to point out that the precise meaning of the following opening words of the resolution is not clear :—“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 system north of that river direct access to the country to the south has been under consideration for some time.” This might be taken to imply that the object in view was confined to the extension of the metre gauge to Calcutta, were it not that the other schemes to be considered involved the linking up of lines of different gauges north and south of the river. To avoid any chance of misconception the President ascertained by personal interview with the Secretary, Department of Commerce and Industry, that the extract was not intended to bear such a restricted interpretation.

2. From the exhaustive report submitted by Mr. F. J. E. Spring, C.I.E., Chief Engineer, Indian Public Works Department, in October 1903, and the

Urgency for a bridge.

evidence, now recorded, supported by perusal of Government documents to which we have had access, there is overwhelming proof not only that a bridge across the Ganges is very urgently required, but that it has been so for many years past. Particular attention is invited to the fact that only so recently as last year, the prices of food and grain in some localities served by the metre gauge line of the Eastern Bengal State Railway were raised to famine rates through the temporary failure of the railway ferry between Damukdia and Sara, and, had the block been further accentuated, the keenest distress might have resulted.

This state of affairs was quite beyond the power of the Railway Officials to foresee or provide against, and is one which is liable to recur at any time in an even more pronounced form, either from changes in the river or from other causes. It has also to be borne in mind that the conditions under which trade is conducted and financed at the present day are very different from those existing in former years, and require far more efficient means of transport and communication than were provided and accepted as sufficient in the past. In fact the railway ferry at Sara which serves the very important traffic between Calcutta and Northern Bengal, Eastern Bengal and part of Assam, even at the best and apart from its extensive liability to interruption, is an entirely inadequate means of communication for present day requirements. The inefficiency of the ferry communication and its frequent dislocation are, we believe, a source of very considerable loss to the commercial community and at the same time check in a very marked degree the material progress of the country.

We venture to express the opinion that, from the public point of view, the urgency of the provision of a bridge in place of the ferry has not been altogether realised by the Advisers of Government, and the repeated requests of the commercial community for a bridge, which are contained in the correspondence, have scarcely received the attention they merited. Public opinion is unanimous that the necessity for a bridge over the Lower Ganges is one of extreme and absolute urgency and that a project for its provision should find an immediate place in the Government Railway Programme.

It is clear the mercantile community cannot understand the neglect of the many representations made by them, being aware of the fact that the want of a bridge is detrimental to the best interests of the State and to the best interests of the trade which they represent. It is quite evident from statements and figures submitted to us that the loss to the State is considerable and that the present inadequate ferries with their contingent difficulties and expenses, are but very inefficient substitutes for a bridge.

Economically the construction of a bridge is abundantly justified. In fact, the capitalized saving in working the combined traffic over the bridge as compared with that of the ferries will go some way in meeting that outlay. Again, the cost of working by ferries must increase in direct proportion to the traffic handled and might probably amount to 15 to 18 lakhs per annum within ten years, while the additional cost of working the larger traffic over a bridge would be comparatively quite small.

It may be presumed that traffic will continue to develop in the future as it has in the past, and it may reasonably be predicted that once a bridge is built the impetus given to trade by improved transport will result in a relatively larger increase in the future.

We consider, therefore, that from every point of view the construction of a bridge is urgently called for, and confidently advise that no further time should be lost in its commencement.

3. From the records already referred to there is no indication that prior to the year 1896 the question of the Lower Ganges Bridge was considered on any other grounds than as a means of improving communications at Sara. Subsequently, however, other interests became involved as it was recognized that the Bengal and North-Western and the Tirhut State Railway systems required an alternative route to Calcutta. As a consequence Godagiri came prominently into notice as a site, and it is a remarkable fact that it came to be accepted as the proper one to serve these other interests before any investigations had been made to prove whether this really was the case. This premature acceptance of Godagiri was, to say the least of it, unfortunate, for it has considerably complicated the question we have been investigating and has given rise to outlay which might otherwise have been avoided.

There is nothing to show that prior to 1906 the extension of the metre gauge south of the Ganges was ever seriously contemplated. On the contrary, at the time the Ranaghat-Moorshedabad line to Godagiri was commenced, towards the end of 1902, it was definitely decided to build that line on the broad gauge, as it was then recognised that the entry of the metre gauge into Calcutta would be attended with extreme difficulty and expense. Mr. Spring, judging by his report, certainly never considered the extension of the metre gauge across the Ganges as in any way connected with the scheme for the Lower Ganges Bridge, but assumed that the broad gauge would cross the river and extend to a transshipment yard near Nattore. It is further to be noted that early in 1906, when the Bengal and North-Western Railway made definite proposals to build a bridge at Godagiri at their own expense, they also contemplated the extension of the broad gauge across the river with an exchanging station on the north bank. At the end of 1906 the Railway Board propounded an entirely new scheme, which not only provides a bridge, but includes the extension of the metre gauge to Calcutta, and, as we understand from their notes, into certain Calcutta termini. This last scheme, therefore, contains novel features which place it on an entirely different footing from any previous proposals, and raises very intricate and important questions gravely affecting the interests of Calcutta trade.

It is not clear from the memorandum issued by the Railway Board whether they propose to carry the metre gauge into Howrah and the termini on the west side of the Hooghly, but it is understood that this is not contemplated and that by Calcutta termini only termini on the east side of the river are referred to. From this it necessarily follows that no matter what terminal facilities are provided, transshipment cannot be entirely avoided. The considerable traffic crossing the Hooghly by the Jubilee Bridge near Naihati must necessarily be transhipped at or near this junction, as it includes the traffic for various mills and private premises on the west side of the river which are connected with the East Indian Railway and with the Bengal-Nagpur Railway by sidings. In fact a transshipment yard at or near Naihati is essential for the exchange of traffic with the East Indian Railway and to serve the termini commencing at Bandel Junction and extending to below Shalimar on the Bengal-Nagpur Railway.

4. The entry of the metre gauge into Calcutta must of course either be—

- Introduction of the metre gauge to Calcutta termini.
- (1) complete, *i.e.*, into all termini now served by the standard gauge; or
(2) partial, *i.e.*, into such termini only as conditions permit.

In respect to the first alternative we, as the result of personal inspection of sites, and from evidence tendered during the enquiry, have no hesitation in deciding that the general adoption of the two gauges, laid either as separate or mixed tracks, is practically impossible.

As the Railway Board have expressed the opinion that "with regard to the 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 further have instanced Madras and Karachi as ports, the former served and the latter desirous of being served by both gauges, it is necessary to somewhat fully explain the reasons on which our decision is based.

As regards the termini on the east side of the Hooghly, these commence at Naihati, where two large mills are served by private sidings, and extend to Budge Budge. There are, or shortly will be, 29 mills or private premises with siding connection to the Eastern Bengal State Railway, all of which are practically termini receiving traffic from metre gauge sources.

The following Eastern Bengal State Railway termini have also to be considered :—

Chitpore Ghat	} connected with the main line at Canal Junction. The Port Trust Railway has two connections with the Eastern Bengal State Railway at Chitpore Ghat.
Do. delivery yard	
Cossipore do. do.	
Ultadanga do. do.	
Sealdah passengér terminus.	
Do. goods do.	
Baliaghata passenger terminus.	
Do. goods do.	
Dock Junction (where the Eastern Bengal State Railway connects with the yards of the Kidderpore Docks).	
Budge Budge.	

And in addition to the above the undermentioned termini of the Port Trust Railway must also be dealt with :—

The delivery and despatching stations between Chitpore Ghat and the Jetties.
The Jetties.
The grain sheds at Kidderpore Docks.
The hide do. do.
The tea do. do.
The various berths for loading and unloading ships' cargo at Kidderpore Docks.

Traffic from metre gauge sources is dealt with at present at all the above terminal points, and all of them ought to be served by metre gauge lines and rolling stock, if trade is to receive the facilities it now receives from the broad gauge.

5. The jute mills served by the Eastern Bengal State Railway really extend for 40 miles from Naihati to Budge Budge. The Railway Board apparently overlooked the existence of these termini when drawing up their memorandum, but they must have considered them subsequently, because in their note of February 5th [see Appendix A³] they make a proposal to construct a loop line along the river-face, *i.e.*, from Naihati to Chitpore, in order to serve them independently of the main traffic lines. It is not clear from the Board's note whether this is to be a single mixed gauge line, or to consist of broad gauge and metre gauge tracks

alongside each other, or whether double mixed gauge tracks are intended. Unfortunately the proposal was placed before us after we had examined all the witnesses interested in it, and we were therefore unable to ascertain from them how far it is practicable or whether they thought the mills concerned would be likely to approve or accept it. However, anyone acquainted with the circumstances of the localities through which this loop would pass, as some of us happen to be, would certainly feel some doubt concerning its feasibility and know that the cost would be very considerable. The mill-owners would most certainly oppose the proposal, because they are perfectly satisfied with the existing arrangements and because they know that it would be difficult, if not impossible, to accommodate both gauges inside their premises, or to work both gauges if they could be introduced. Moreover, the loop would not serve mills or private premises as follows:—two large mills at Naihati, one at Canal Junction and seven mills and premises between Canal Junction and Budge Budge, so that if it was constructed traffic for many mills would still have to be transhipped. The Railway Board have considerably emphasised the fact that under their scheme transshipment would be avoided. If therefore for a large portion of the trade this is not so, the advantages are apparently over-estimated.

It must be remembered that large sums have been spent both by Government and by mill-owners on the existing sidings between Naihati and Canal Junction and also on passing sidings and signalling arrangements for protecting and working trains to and from mill premises. Not only would this outlay, a large portion of which has been met by the mills, be to a very great extent lost, but heavy further expenditure would be involved by the introduction of a second gauge. Apart from all considerations of cost, complication in working must result from the introduction of a second gauge into premises which are, as a rule, ill-adapted for duplication of tracks, and on this ground it is probable that mill-owners would never agree to any such radical change of present arrangements.

For the foregoing reasons, and also as the proportion of metre gauge to broad gauge traffic is less than one-fourth, we consider the idea of admitting metre gauge to mill premises should be abandoned.

6. The authorities of the Eastern Bengal State Railway have recorded the opinion, with which we concur, that the introduction of the metre gauge into Chitpore Ghat is absolutely impossible.

As regards Sealdah and Baliaghatta, formerly the termini respectively of the Eastern Bengal and Calcutta and South-Eastern Railways, these will in some future year be merged into one general terminus for passengers and goods. The authorities of the Eastern Bengal State Railway have shown that the metre gauge could not be introduced into the present broad gauge yards, all the spare space in which is certain to be required for foreseen broad gauge extensions. They however anticipate no difficulty, apart from the cost, in providing a separate terminus, passenger and goods, for the metre gauge alongside the broad gauge yard, and we consider their proposals in this respect feasible and, should the metre gauge be extended to Calcutta, likely to meet public requirements.

7. The Eastern Bengal State Railway authorities further consider that the introduction of the metre gauge into the Chitpore, Ultadanga, and Cossipore yards is inadvisable, and when it is considered that these yards are already congested with broad gauge traffic during the busiest period of the jute season, it must be admitted that there is force in these objections. It may be true that the admission of the metre gauge stock would, to some extent, relieve the yards of part of the work which now has to be done with broad gauge wagons, but it is very doubtful if this relief would be in any way effective, because a greater number of wagons of a smaller gauge would have to be handled in place of those of the larger gauge displaced. In fact, the total number of wagons of both gauges would be greater for the same traffic. Again, it is not possible to understand how the

same quantity of traffic that is now handled in broad gauge wagons could be delivered in the same time if it were divided between broad and metre gauge wagons. Indeed the capacity of a yard for a fixed traffic would be unfavourably affected in two ways; first, in the increase in the number of wagons to be handled, and secondly, in the time taken to handle them. We believe that grave risk of disastrous congestion at Chitpore will be incurred if the mixed gauge is introduced there, and even if it were introduced it would be necessary to construct separate receiving, marshalling and departure yards for its use. The result of such an experiment however would be so uncertain that it would probably be best to provide an entirely separate metre gauge terminus, as near to the present broad gauge terminus as circumstances may show to be possible, and to run no risk of dislocating the very important and valuable business in jute, which is perhaps the backbone of Calcutta trade and for which Chitpore and its various extensions have always been the natural termini.

8. No difficulty is anticipated in extending the metre gauge to Dock Junction where it will come in contact with the Port Trust Yards, from which the Kidderpore Docks and the various depôts connected with them are served. It can be further extended to Budge Budge, either as a separate track or by a third rail in the existing broad gauge track, and can be introduced into the Budge Budge terminus without difficulty.

9. It has been represented to us that though mixed gauge tracks might be laid in these termini such an arrangement will be quite impossible to work and after very careful examination of the various sidings and yards, and from a full consideration of the circumstances, we are bound to concur and to state emphatically that any attempt to introduce the metre gauge will assuredly lead to endless confusion and dislocation, and to a most serious increase in the congestion which is already periodically experienced. As an example of what has influenced us in these views we may explain that at Hatkholah, Ruthtolla, Armenian Ghat and other points on the Port Trust Railway between Chitpore and the Jetties there are three parallel tracks, the two outside tracks being used for loading and unloading and the centre track for running and shunting purposes. These tracks are frequently, and in fact generally, taxed far beyond their capacity, and if it were attempted to work them on the mixed gauge, the result would be absolute chaos. No relief is possible by the provision of more tracks because the space occupied by these is bounded by the river on one side and by the business part of the city on the other. River reclamation is quite out of the question, and the acquisition of private property would not only be financially impracticable but would also necessitate the removal of the private depôts which this section of railway is specially designed to serve.

10. The Railway Board have not proposed to introduce the metre gauge here, but we have nevertheless examined the conditions and are quite satisfied that it is as impossible to work two gauges at the dock berths as at the berths at the Jetties. The same difficulties exist in respect of the hide godowns but not to the same extent. It might be possible to lay the third rail and even to handle the wagons of the two gauges on a mixed track, but this could only be done at the certain risk of accidents and of considerable delays in carrying out shunting operations. The Port Trust authorities strongly object to the traffic of the hide sheds being handled on any other than the broad gauge.

11. The introduction of the metre gauge into the Tea Warehouses is an engineering possibility but only if laid as a mixed track. Owing, however, to the traffic being worked over scissors crossings, the complications of moving stock would be so enormously increased as to render prompt unloading of wagons arriving with tea and the loading of same for shipment impracticable. No space is available for separate tracks, and even if there were, the cost would be out of all proportion to the advantages gained, considering that only about 25,000 tons

of tea are received by rail which are dealt with at these warehouses. The arrangements here may be described as two rows of warehouses of two and four storeys, between which are three broad gauge tracks with platforms between the tracks and the walls of the warehouses. One row of warehouses is on the riverside so as to command river craft. Tea brought by rail is delivered on the platforms and into the warehouse, whilst it is also loaded into broad gauge wagons on the same platforms for delivery to the shipping sheds. The structural alterations necessary to provide space for metre gauge working would require that the warehouses should be dismantled and rebuilt, an operation which, even if practicable, would be far too costly to be justified in the interests of trade.

12. The Railway Board, in their note of the 5th February 1906, state as follows:—

Kantapukur grain sheds.

“With certain structural alterations the Railway Board are of opinion that direct access can be given to these localities, *i.e.*, . . . and Kantapukur grain warehouses at the Docks to a sufficient number of sheds 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.”

We may say at once that it is quite impossible to set apart certain sheds for one gauge and the remainder for the other. The conditions under which warehousing is done prevent this. Consignments have to be distributed to the various sheds as rapidly as possible, and quite irrespective of whether they originate from broad gauge or metre gauge sources. To meet the requirements of trade the metre gauge must, if admitted at all, have access to all the sheds, and can, we believe, only obtain such access by laying a third rail on the existing broad gauge tracks. When business happens to be so brisk at these sheds that they become glutted, it is the practice to utilize sheds in other depôts and in any part of the Kidderpore premises where space may be available, and it must be understood that metre gauge wagons could not participate in these facilities for dealing with over-flow, so that on occasions it would become necessary to tranship their contents at Naibati. The metre gauge would require its own separate receiving, marshalling and departure sidings near Dock Junction, and a third rail would have to be laid in the tracks leading to the grain sheds as well as in all the tracks along one face of the sheds, the broad gauge tracks on the other face being reserved for loading grain for shipment into broad gauge wagons for conveyance to the ship's side. It is difficult to foresee what effect such arrangements would have on the working of the depôt, but, in the opinion of the officials concerned with this working, considerable extension in sheds and lines would be required in consequence of the complications which might arise in handling wagons of two gauges during times of exceptional pressure. It may be added, however, that space for such extension is available, though at great expense.

13. Although the Railway Board have not suggested the introduction of the metre gauge into the Budge Budge Oil Depôt, we are of opinion that it could be effected.

Budge Budge Oil Depôt.

14. From the foregoing remarks it will be seen that the introduction of the metre gauge, if given separate accommodation, is possible at Baliaghata and Sealdah

Possible metre gauge termini.

goods and passenger yards and at Chitpore delivery yard, and as a combined arrangement to the Budge Budge Oil Depôt and Kantapukur grain sheds. As regards Sealdah and Baliaghata, the Eastern Bengal State Railway have estimated that a separate passenger and goods terminus of the metre gauge in the immediate vicinity of these stations would cost 52 lakhs. No estimate has been prepared for a separate terminus at Chitpore, but, from the nature of the surrounding property, we are satisfied that the cost would certainly not be less than at Sealdah and Baliaghata. As regards the cost of terminal accommodation at Kantapukur and Budge Budge, it may be remarked that the cost of extending the line from Canal Junction to Dock Junction has first to be considered. This extension could not commence near Sealdah but would have to take off near Canal Junction. The Eastern Bengal State Railway have

estimated the cost of a double track extension at 32 lakhs. It is considered, however, that a single track should be sufficient to deal with the traffic when the estimate would be reduced to approximately 24 lakhs. A shunting yard would be required near Dock Junction for receiving, sorting and despatching trains to and from the Kantapukur and Budge Budge depôts. The cost of this is very difficult to estimate because the price of land here is doubtful: it is, however, not likely to be less than $1\frac{1}{2}$ lakhs. The cost of taking a third rail to and into the Kantapukur depôt should not exceed two and a half lakhs. The Eastern Bengal State Railway have estimated that a third rail could be laid to Budge Budge and into the depôt there for one lakh. The total cost therefore of introducing the metre gauge to the Kantapukur and Budge Budge depôts would be about 29 lakhs. Adding this to say 104 lakhs, the cost of terminal accommodation at Sealdah, Baliaghatta, and Chitpore, we obtain a probable total cost of partial terminal accommodation of about 133 lakhs.

In view of these figures and of the fact that a considerable portion of the traffic still remains to be transhipped, combined with the difficulty in working the mixed track in Kantapukur, and the comparative smallness of the grain and oil traffic, we cannot regard this partial admission as altogether satisfactory, and we are convinced that the commercial and trading communities of Calcutta would not consider it as meeting their requirements in the manner they have hitherto enjoyed. They would also feel that the extra cost of working and interest charges would eventually fall on the trade. Apart from these considerations, we would draw attention to the fact that the Wheat and Seed Trade Association, who are principally interested in the subject of the metre gauge entry into the Calcutta termini and who were expected to strongly support the proposal, have deprecated its admission in the clearest language [see Appendix S]. It may also be noticed that though one witness laid some stress on the advantage of avoiding transhipment in the case of oil, subsequent enquiries have elicited the fact that no extra allowance for leakage is made for wagon to wagon transhipment and that therefore the matter is hardly as serious as has been represented.

Before we conclude our remarks on the admission of the metre gauge to Calcutta termini, we will refer to paragraph 17 of the Railway Board's memorandum dated 19th December 1906 [see Appendix A¹], which might be taken to imply that, because both gauges run into the Port of Madras and because the authorities at Karachi are pressing for the entry of the metre gauge into their Port, there should be no particular difficulty, which is not susceptible of removal, in providing terminal arrangements for the metre gauge at Calcutta. We deputed, with a view to the examination of these arguments, two members of the Committee to visit Madras to inspect the arrangements of the two gauges at the harbour there, and to examine the Traffic Manager of that Port [see Appendix J]. The important feature in regard to Madras, as pointed out to us by our Sub-Committee, is that the two gauges both ran into the town of Madras, one from the west and one from the south, before the harbour and its various works were constructed, so that in designing these works which are served by mixed tracks they were laid out for the express purpose of meeting the requirements of both gauges. In Calcutta the far more difficult problem exists of accommodating the two gauges, which would both enter the city from the same direction, in termini and yards which have been designed for the accommodation of one gauge only. Possibly if the process which has been followed at Madras had been adopted at Calcutta in the earliest days of Railways, the two gauges might have been provided with termini suitable for the traffic, and convenient to trade, but to do so now is a problem for the solution of which there are, as far as we know, no precedents and no examples. The circumstances under which exports are disposed of at Madras differ widely from those obtaining at Calcutta as will be seen from Appendix J, and it is important to understand that—

- (1) no vessels come alongside the jetties or into Docks at Madras, and all cargo is shipped or unshipped by lighters;
- (2) scarcely any export cargo is taken direct to the harbour by the two Railways;

- (3) nearly all import cargo, except coal, heavy materials required to be handled by cranes, and oil, is removed by carts and is not despatched by rail;
- (4) the Port authorities only receive a small number of loaded wagons at the export sheds. Empty wagons for coal, heavy materials, and oil, which require no shunting or sorting, are all taken over from and handed back to each Railway at definite points.

It is scarcely necessary for us to remark that the rail-borne trade handled at Madras is inconsiderable and not comparable with that handled at Calcutta.

We made enquiries from the Karachi authorities regarding the demand for the entry of the metre gauge into their Port, and their reply will be found in the Appendices [see Appendix T]. We conclude that they do not intend to admit the metre gauge to their premises, but that they anticipate that transshipment will be effected outside these.

We have not referred so far to the effect on working cost if the metre gauge is introduced into the Calcutta termini, either wholly or partially; in either case there will be a large increase in interest charges on the cost of new metre gauge lines and accommodation, whilst at the same time there will be a loss of net earnings on broad gauge lines in consequence of the diversion of traffic. In addition to the above, the actual cost of working the traffic in the Calcutta termini will be enhanced. The commercial community would certainly protest most strongly against any increase in the charges now levied on trade to meet the considerable extra annual outlay involved, and it would probably have to be borne by the Eastern Bengal State Railway and the Port Trust.

Taking all these factors into consideration, we do not consider the time is ripe for the admission of the metre gauge into Calcutta.

15. Having come to the conclusion that the admission of the metre gauge into the termini in Calcutta is undesirable, its extension south of the Ganges has now to be considered, as on this the scheme formulated by the Railway Board must stand or fall. The only result connected with the extension of the metre gauge south of the Ganges would be the transfer of the main transshipment station between the broad and metre gauges to the south from the north bank of the river. The sense of evidence taken points most distinctly to the desirability of the transshipment station being located as far as possible from Calcutta owing to cheapness of land and labour and to the extra broad gauge lead thereby obtained. We are further influenced by a consideration of the cost of the Railway Board's scheme put forward in paragraph 13 of their memorandum. It is there estimated to amount to 390 lakhs, whereas we have prepared an approximate estimate, amounting to over 500 lakhs, mainly compiled from figures obtained during the course of the enquiry (see Appendix K).

We fully recognize that a most incalculable benefit would be conferred on the vast tracts of country in Bengal, Behar, the United Provinces, and Eastern Bengal and Assam, which are served by the metre gauge, if that gauge could be extended to Calcutta so as to meet the requirements of trade completely and without the least restriction. We further recognize and admit that every possible and reasonable facility ought to be given to metre gauge Railway Administrations to attain this end; and if it can be attained, even though at considerable sacrifice, this sacrifice ought to be made, but we are unable to recommend that the efficiency and usefulness, present and future, of the Calcutta broad gauge termini should be sacrificed to this end. India is, only now, beginning to fully recognize, and to respond to, the advantages and facilities conferred by railway communications, and the effect of this somewhat tardy development must be a severe strain on the resources of open lines. These resources are likely to demand considerable improvement if the requirements of trade are to be met in even a reasonable manner, and very large outlay will therefore be necessary in future on open lines. This being the case it is scarcely likely that the Government of India, who have to finance nearly every railway in the country, will in the near future be able to increase or even maintain its grants for new lines and extensions. We venture to doubt therefore if the expenditure of perhaps over 500 lakhs, entailed by the adoption of the scheme

of the Railway Board, would be acceptable to the Government of India when the requirements of trade can be effectively provided for by an alternative scheme, in which the broad gauge would be extended across the Ganges to a transshipment station north of the river, at a cost of some 212 lakhs. Under these circumstances there appears to be no justification for extending the metre gauge south of the Ganges.

16. If it is accepted that for financial and general reasons the extension of the metre gauge to Calcutta is not at present practicable, the question of bridging the Lower Ganges may be considered from precisely the same general stand-points as were adopted by Mr. Spring, *viz.*, that the bridge will accommodate the broad gauge, and that the traffic will be transhipped on or near the north or left bank of the Ganges. We shall now compare the values of the three sites for the bridge, quite apart from all questions of gauge to the south of the Ganges.

Before studying these matters in detail, however, it is necessary to revise, or rather to bring up to date the figures for distance, and the cost of connecting lines worked out by Mr. Spring in 1903, as given in his report. Since this was written the line from Ranaghat to Lalgola, opposite Godagiri, has been constructed, and the Katihar-Godagiri line has been located and partly constructed. We therefore have the advantage of using actual distances on these lines, while Mr. Spring had to assume lines and scale distances on maps. We also have the actual figures of the cost of these lines which were not available at that time. The table below compares Mr. Spring's distances with those recently compiled by us.

Route and bridge site.	DISTANCE.			
	Mr. Spring, 1903.	Committee, 1907.	Mr. Spring, more.	Mr. Spring, less.
<i>Katihar to Calcutta.</i>	Miles.	Miles.	Miles.	Miles.
(1) <i>Via</i> Godagiri	251	246½	4½	...
(2) „ Isabpur	252	250½	1½	...
(3) „ Raita	263	260½	2½	...
<i>Parbatipur to Calcutta.</i>				
(4) <i>Via</i> Raita	228	228½	...	½
(5) „ Isabpur	243	237	6	...
(6) „ Godagiri	265	269½	...	4½

The differences under (1), (2), (3), (5) and (6) require some explanation :—

(1) Mr. Spring assumed an alignment between Katihar and Godagiri and between Lalgola and Ranaghat. We have adopted the actual alignment and the measured distances.

(2) and (3). As in (1) the actual Katihar-Godagiri alignment has been used.

(5) The most favourable site for the Isabpur Bridge at the present time has been adopted. This site is nearer to the Eastern Bengal State Railway than Mr. Spring's site, consequently the connections with Chuadanga on the south and with Nattore on the north of the river are shorter.

(6) Mr. Spring's distances are measured from Santahar to Godagiri, whereas we have measured from Nattore; we have preferred to take Nattore because it has also been taken for the Isabpur Bridge, and both Isabpur and Godagiri ought to be compared on the same connection basis north of the

Ganges. Moreover, Nattore would probably be adopted as the off-take of the connection for the proposed new Railway to Serajganj.

The following table shows the rates taken per mile :—

Description.	Mr. Spring, 1903.	Committee, 1907.
	Rs. -	Rs.
(1) New double line, broad gauge	2,00,000	1,48,370
(2) Doubling existing line, broad gauge	{ 60,000	62,315
	{ 80,000	
(3) New single metre gauge line	70,000	84,216

As regards (1) the cost of the Ranaghat-Lalgola single broad gauge line, exclusive of rolling stock and ferries, has been taken and multiplied by 1·66 to obtain the rate of Rs. 1,48,370. To obtain (2) the same cost has been multiplied by 0·70. For (3) we have taken the cost of the Katihar-Godagiri line, also excluding rolling stock and ferries. As connecting lines, north and south of the Ganges, will be built under almost the same conditions as the Katihar-Godagiri and Ranaghat-Lalgola lines, respectively, it has been considered correct to adopt the figures of cost from these lines.

The cost of connecting lines on the lengths and mileage of roads accepted by us above is detailed below, but in each case 5·70 miles, being the length of the bridge and its graded approaches, have been excluded from the broad gauge connecting lines :—

Godagiri Scheme.

	Rs.	Rs.
Doubling existing broad gauge line 88½ miles at	62,315	53,13,867
New double broad gauge „ 5·70 „ „	1,48,370	8,45,709
„ single metre gauge „ 50·45 „ „	84,216	42,48,697
TOTAL		<u>104,08,273</u>

Isabpur Scheme.

New double broad gauge line, 44·60 miles at	1,48,370	66,17,302
„ single metre gauge „ 47·10 „ „	84,216	39,65,574
TOTAL		<u>105,82,876</u>

Raita Scheme.

Doubling existing broad gauge line, 11½ miles at	62,315	7,24,412
New double broad gauge „ 8·35 „ „	1,48,370	12,38,890
„ single metre gauge „ 47 „ „	84,216	39,58,152
TOTAL		<u>59,21,454</u>

We may now compare the three routes—and first we would remark that we have adopted Mr. Spring's figures for the cost of the bridge and its training works as follows :—

	Lakhs.
	Rs.
Godagiri	110
Isabpur	120
Raita	130

Mr. Spring, although he estimated for a double line on the approaches to the bridge, included only a single line on the bridge itself. We are not aware why

he did this, and believe that it would be bad economy to build a bridge for a single line. We will however discuss this point later (*see* paragraph 30).

The approaches to the bridge and transshipping yard would cost practically the same at each of the three sites; the length of the graded approaches, including the bridge itself, may be taken as 5.70 miles and the cost as 12½ lakhs.

The cost of a transshipment station, including passenger stations and receiving, marshalling and departure and transshipping yards, is taken as 10½ lakhs.

We may now proceed to discuss with reference to cost the comparative merits of each in detail.

(1) *Godagiri*.—The total cost of the bridge would be—

	Lakhs.
	Rs.
Bridge	110
Approaches and transshipment station	23
Connecting lines	104
TOTAL	237

The Eastern Bengal State Railway traffic will be overled by 40½ miles, Parbatipur to Calcutta *via* Godagiri being 269½ miles, Parbatipur to Calcutta *via* Raita 228½ miles—difference 40½ miles. By constructing longer and therefore more costly connecting lines the overlead of 40½ miles may be largely reduced. The connections required in the case of Godagiri are direct lines from Parbatipur and Santahar. The extra cost of constructing these lines would be Rs. 79,85,361, and the distance by which traffic is overled would be reduced to 12 miles. In the long run it might be economical to construct the longer connections in the first instance.

(2) *Isabpur*.—The total cost would be—

	Lakhs.
	Rs.
Bridge	120
Approaches and transshipment station	23
Connecting lines	106
TOTAL	249

The length of overlead can be reduced in the case of the Eastern Bengal State Railway by constructing a connecting line from Raninagar at an extra cost of Rs. 12,21,132, and the distance from Parbatipur to Calcutta will be reduced to 228½ miles, or the same as *via* Raita, so that there will be no overlead of traffic. In the case of the Bengal and North-Western Railway traffic no improvement in connecting lines is feasible. For an extra expenditure, therefore, of Rs. 12,21,132 the overlead on the Eastern Bengal State Railway can be obviated. In this case also it might be economical to construct the longer, or more costly, connecting line in the first instance.

(3) *Raita*.—The total cost will be—

	Lakhs.
	Rs.
Bridge	130
Approach lines and transshipment station	23
Connecting lines	59
TOTAL	212

No shortening or improving connecting line is feasible; the length of overlead of traffic cannot, therefore, be reduced in the case of Raita,

The cost of bridges at the three different sites with their various connections discussed under each site is abstracted in the tabular form below :—

Scheme.	Cost of bridge with approaches and transhipment station.	Cost of short connections.	Additional cost of improved connections to shorten routes.	TOTAL OUTLAY.	Overlead of Traffic.
	Rs.	Rs.	Rs.	Rs.	Miles.
(1) Raita .	153,00,000	59,21,454	..	212,21,454	B. & N.-W. R. 13½
(2) Isabpur .	143,00,000	105,82,876	12,21,132	261,04,008	B. & N.-W. R. 3½ E. B. S. R. . Nil.
(3) Isabpur .	143,00,000	105,82,876	..	248,82,876	B. & N.-W. R. 3½ E. B. S. R. . 8½
(4) Godagiri	133,00,000	104,08,273	79,55,361	316,93,634	E. B. S. R. . 12
(5) Godagiri	133,00,000	104,08,273	..	237,08,273	Do. . 40½

From this it will be seen that under total outlay Raita has a great advantage over the other sites, the difference varying from 25 to 105 lakhs, and also that the length of overlead is very little greater than in the case of Isabpur (3).

There is also another point in favour of Raita compared with Godagiri. If Godagiri is selected the existing double track from Ranaghat-Poradah, 57 miles, would be wasted and its usefulness thrown away, whereas it would be necessary to double 89 miles of single line—Ranaghat to Bhagwangola—a work never likely to be required to accommodate local traffic.

17. Mr. Spring in his report has stated [see paragraph 2, chapter 16] :—

Engineering value of alternative sites. "So far as the mere building of the bridge is concerned there is nothing to the best of my professional judgment to choose between the several alternative bridge sites. So far as the training of the river also is concerned there is but little to choose."

Although the Railway Board in their memorandum apparently differ from the above *dicta*, we, as a Committee, after recently inspecting all three sites, see no reason whatever to reject or question them, though we may perhaps suggest that expert opinion, and possibly Mr. Spring himself, might advise that the Godagiri site, under present conditions, is not so well adapted for the training of the river as the other two sites. We may decide therefore that in effect for construction purposes one site is as good as another.

18. It will be convenient at this point to show how Isabpur, assuming that the question was not complicated and to a great extent governed by existing lines, would undoubtedly be the proper site to select for a bridge, inasmuch as both railways could then obtain the shortest possible route to Calcutta. As already pointed out above, an unfortunate mistake appears to have been made in assuming Godagiri as the proper site to serve the Bengal and North-Western Railway before any measures had been taken to verify this assumption. Mr. Spring proved in his report that Isabpur, or the crossing near there which he selected in 1903, provided a route from Katihar to Calcutta which was practically the same in length as that between the same places *via* Godagiri. At that time scarcely any work could have been done on the Ranaghat-Moorshedabad line and none beyond Moorshedabad, whilst the Katihar-Godagiri line had not even been located. If instead of proceeding with these lines, the lines connecting Katihar and Chuadanga to the Isabpur site had been constructed that site would now have possessed far greater advantages than Raita does at present, inasmuch as the outlay would have been about 62 lakhs less and there would have been no overlead of traffic. The estimated expenditure on the line to Godagiri is as follows, excluding rolling stock and ferries :—

Ranaghat to Lalgola	Rs.	86,79,660
Katihar to Godagiri		89,36,770
TOTAL		<u>176,16,430</u>

To complete the comparison between Godagiri and Isabpur, the cost of doubling a single broad gauge line—Bhagwangola to Ranaghat—must be added, say, Rs. 63,91,744, bringing up the total cost to Rs. 2,40,08,174. The probable cost of a corresponding line to Isabpur is as follows :—

	Rs.
To Isabpur [see page 11]	105,82,876
From junction of line from Isabpur with Katihar-Godagiri line to Katihar	72,42,576
TOTAL	<u>178,25,452</u>

The lines to connect Isabpur would, therefore, have cost Rs. 61,82,722 less than those built to Godagiri, and the outlay necessary to construct a bridge and the transhipping station would have been :—

	Lakhs. Rs.
Bridge	120
Approaches and transhipment station	23
TOTAL	<u>143</u>
Bridge at Raita	212
Saving	69

If Godagiri had been abandoned, as perhaps it ought to have been when Mr. Spring submitted his report, nearly 62 lakhs might have been saved in connecting lines and a bridge could have been built at a saving of 69 lakhs. Altogether over 130 lakhs, or enough to build a bridge, might have been saved and the problem now before us, as a Committee, would have been perfectly simple.

19. In comparing the relative traffic advantages of the alternative bridge sites, it is necessary to form some estimate of the ton-mileage which will probably be diverted from the shortest route in each case. It is obvious that a large proportion of the Bengal and North-Western Railway traffic to and from Calcutta will be the subject of competition or arrangement, so that an appreciable percentage of this traffic must continue to cross the Ganges above Godagiri and will not use a bridge located on the lower reaches of the river. On the other hand, provided the Katihar-Ganges link continues to be operated by State Agency, the whole of the entirely local traffic between the Eastern Bengal State Railway stations and Calcutta will cross the river by a conveniently situated Lower Ganges bridge. From the returns submitted by the Bengal and North-Western Railway and printed as Appendices D² and D³, of the traffic crossing by the ferries at Tari, Digha, Mokameh, Monghyr, and Manihari, it will be seen that for all practical purposes the traffic carried *via* Mokameh need alone be considered. This traffic fluctuated largely during the seven years 1900-1906, for which statistics have been furnished, but as during the last two years abnormal conditions consequent on partial failures of the wheat and seed crops prevailed, the figures relating to the year 1904 are selected for examination. Analysis of the returns for this year shows that the total goods traffic, amounting to 736,786 tons, which crossed at Mokameh was divisible as under :—

	Outwards.	Inwards.	TOTAL.
	Tons.	Tons.	Tons.
Coal . . . . .	...	156,670	156,670
Railway material	17	36,883	36,900
Short traffic	29,488	...	29,488
Calcutta public traffic	368,829	138,049	506,878.
Other earnings	6,312	533	6,850
	<u>404,646</u>	<u>332,140</u>	<u>736,786</u>

The colliery, non-Calcutta and other traffic aggregating 193,008 tons could be retained by the East Indian Railway in competition, and is not likely to be

routed *viâ* a Lower Ganges bridge, while railway materials would unquestionably travel over the Bengal and North-Western Railway route and use such a bridge. The balance of traffic, consisting of about 500,000 tons of public merchandize imported into and exported from Calcutta, would be subject to competition or arrangement. The administration of the Bengal and North-Western Railway considers it could secure the whole of this traffic, while the Agent of the East Indian Railway maintains that with fair treatment, *i.e.*, provided equal through rates prevail by both routes, the traffic would continue to travel *viâ* Mokameh. With this apparently conflicting evidence an examination in some detail of the nature and weight of the various commodities crossed at Mokameh is necessary in order to form some idea of the division of the traffic between the rival routes during competition. The outwards traffic of the Bengal and North-Western Railway, including that carried short of Calcutta, consisted mainly of the following:—grain and seeds 335,000 tons, saltpetre 11,000 tons, tobacco 10,000 tons, sugar 7,000 tons, and miscellaneous merchandize 34,000 tons. Practically the whole of the first four commodities and a preponderating weight of the last could be routed to serve the interests of the Bengal and North-Western Railway, so that the division of this outwards traffic between the two crossings might fairly be assumed to be in the ratio of 10 *viâ* Mokameh and 387 *viâ* the Ganges bridge. In regard to traffic in the opposite direction, the largest items are piece-goods 16,000 tons, metals 10,000 tons, oil 17,000 tons, gunny 7,000 tons, salt 65,000 tons, and miscellaneous merchandize 20,000 tons. The competition for piece-goods, oil, gunny, and miscellaneous items would probably be severe, but the route favoured by the Bengal and North-Western Railway should secure about three-fourths of the tonnage despatched from Calcutta. The East Indian Railway, from the fact that the bulk of the salt and a portion of the metal traffic originates on the Howrah side of the Hooghly, has some advantage in competing for these commodities and might succeed in carrying two-thirds of the traffic. On these assumptions, the inwards traffic of the Bengal and North-Western Railway despatched from Calcutta would be carried *viâ* Mokameh and the Lower Ganges bridge in the respective proportion of 65 and 70. Summarizing the foregoing results, and applying them to the figures for 1904, the Calcutta traffic under competition would have been routed in the approximate proportions of 76,000 tons *viâ* Mokameh, and 430,000 tons *viâ* the route favourable to the Bengal and North-Western Railway. Adding these weights to those of the non-competitive items referred to previously, it will be seen that, had competition existed in 1904, the Bengal and North-Western Railway could in all probability have, out of a total traffic of 736,000 tons crossing at Mokameh, diverted 467,000 tons to a bridge route over the Lower Ganges and could not have influenced 269,000 tons.

This estimate being based on the existence of competition gives figures which would be appreciably affected by any agreement for the division of traffic, and it is consequently necessary to enquire into the probability of such an arrangement being come to. Government would naturally be desirous that competition should be avoided, but it is doubtful whether it would endeavour to enforce any drastic preventive measures. In the first place, by having sanctioned the construction of railways from Katihar and Ranaghat to the Ganges at Godagiri, it has to all intents and purposes established a practical route *viâ* the latter crossing, so that any interference with the reasonable use of the new connection would not only stultify past action, but might lay Government open to an undesirable charge of subjecting the Bengal and North-Western Railway to unfair treatment. In the second place, the accordance of the fair treatment demanded by the East Indian Railway would involve restriction of the liberty of a railway to vary rates between its sanctioned maxima and minima and might form an awkward precedent. The East Indian Railway would certainly not submit tamely to the loss of some 450,000 tons of traffic having a lead of 284 miles. It is true, that as matters now stand it could not hope to secure the traffic in competition, and that any reductions of rates might prejudicially affect the earnings from traffic unconnected with the Bengal and North-Western Railway, but it could compel the administration of this Railway to lower its rates for Calcutta and perhaps for other traffic to a very serious extent. It is more than probable under these circumstances that both sides would find it financially advisable to hold up rates and either divide their competitive traffic in fairly equal proportions, or in deference to the interests of

Government, to agree to an arrangement on the lines suggested in paragraph 29 of this report.

On the basis of these assumptions, and of an equal division of competitive traffic, the tonnage carried *viâ* Mokameh during 1904 could be re-distributed as under :—

	<i>viâ</i> Mokameh.	<i>viâ</i> Ganges Bridge.
	Tons.	Tons.
Calcutta competitive traffic	253,439	253,439
Coal	156,670	...
Railway materials . . . . .	...	36,900
Traffic short of Calcutta	29,488	...
Other traffic	6,850	...
TOTAL	446,447	290,339

The second alternative, on the basis of the arrangement suggested at the end of paragraph 29, would result in the following division, it being assumed that the whole of the traffic in question must pass through Barauni Junction and that railway material would still be carried by the route most favourable to the Bengal and North-Western Railway :—

	Tons.
<i>viâ</i> Mokameh	699,886
„ Ganges Bridge	36,900
	<u>736,786</u>

The Agent of the Bengal and North-Western Railway anticipates that the contemplated extension of his line by 42 per cent. will increase the traffic carried between it and Calcutta by 50 per cent. This forecast appears somewhat sanguine as regards the near future, and sufficient allowance for general development of goods traffic over the extended system will probably be afforded by adopting the tonnage given below as the weight of the Bengal and North-Western Railway traffic crossing a Lower Ganges bridge :—

	Tons.
(1) With competition	600,000
(2) Under agreement :—	
(a) Equal division competitive traffic	400,000
(b) Under terms detailed in paragraph 29	50,000

As regards passenger traffic, the highest number crossing at Mokameh in any one year was 592,900, in 1905, of whom about one-half travelled to and from Calcutta. Unless, of course, the Bengal and North-Western Railway blocked its service between Barauni Junction and Mokameh Ghât to an extent which neither Government nor the public would tolerate, it is doubtful whether any large number of passengers would desert a route which, while decidedly shorter, also comprises a longer length of broad gauge line than its rival. Ten per cent. of the whole traffic would probably be an outside estimate of the possible diversion by Katihar allowing a 50 per cent. increase for the extension of the system, and considering 20 passengers as equivalent to the ton, the weight of Bengal and North-Western Railway passenger traffic carried across a Lower Ganges bridge would be under 5,000 tons. In determining the total Bengal and North-Western Railway traffic likely to use a Lower Ganges bridge, this figure may, therefore, be added to the estimated tonnage of goods before detailed.

In regard to the trans-Ganges traffic of the Eastern Bengal State Railway, the tonnage of Calcutta traffic now handed over to the East Indian Railway *viâ* Manihari Ghât may be taken as the volume of traffic for which a *viâ* Godagiri

route would be the shortest. The latest available (1905) statistics give the amount of this traffic as—

Goods	. . . . .	88,733 tons.
Passengers	. . . . .	10,959 (number).

The traffic crossing the river at Sara is for the same period returned as—

Goods	. . . . .	466,840 tons.
Passengers	. . . . .	359,590 (number).

There is every reason to suppose that these figures will increase, though possibly the development of traffic may not be so extensive or rapid as in the case of the Bengal and North-Western Railway, which is not to the same extent restricted by the financial programme of Government. For the purposes of this report it may be assumed, without serious error, that such increase will be 30 per cent., against 50 per cent. allowed for the Bengal and North-Western Railway traffic.

This assumption completes the approximate estimate of tonnage necessary for the formation of an opinion on the relative suitability from a traffic aspect of the Godagiri, Isabpur and Raita sites for the Lower Ganges bridge. Each site involves a certain increase of lead over that of the shortest route, and obviously the one which reduces the diversion of traffic to a minimum is best suited to transport requirements. The following statement, based on the tonnages estimated here, is designed to exhibit the loss in ton-mileage consequent on the adoption of each site under the different conditions previously discussed—

Conditions under which traffic is carried.	GODAGIRI.			ISABPUR.			RAITA.		
	Bengal and N.-W. Railway and E. B. State Railway.	E. B. State Railway.	Total.	Bengal and N.-W. Railway and E. B. State Railway.	E. B. State Railway.	Total.	Bengal and N.-W. Railway and E. B. State Railway.	E. B. State Railway.	Total.
1 UNDER COMPETITION—									
Tons { B. & N.-W. R. 805,000 } carried { E. B. S. R. 118,000 }	721,000	630,000	...	721,000	630,000	...	721,000	630,000	...
Miles of overlead	0	41	...	4	9	...	14	0	...
Loss in ton-mileage	0	25,830,000	25,830,000	2,884,000	5,670,000	8,554,000	10,094,000	0	10,094,000
2 UNDER AGREEMENT—									
(a) Equal division of competitive traffic.									
Tons { B. & N.-W. R. 405,000 } carried { E. B. S. R. 118,000 }	521,000	630,000	...	521,000	630,000	...	521,000	630,000	...
Miles of overlead	0	41	...	4	9	...	14	0	...
Loss in ton-mileage	0	25,830,000	25,830,000	2,084,000	5,670,000	7,754,000	7,294,000	0	7,294,000
(b) TERMS GIVEN IN PARAGRAPH 29									
Tons { B. & N.-W. R. 55,000 } carried { E. B. S. R. 118,000 }	171,000	630,000	...	171,000	630,000	...	171,000	630,000	...
Miles of overlead	0	41	...	4	9	...	14	0	...
Loss in ton-mileage	0	25,830,000	25,830,000	684,000	5,670,000	6,354,000	2,394,000	0	2,394,000

From this table it will be seen that, as regards suitability from the traffic aspect, Godagiri is quite out of the question, while Raita possesses an advantage over Isabpur except under unrestricted competition.

20. So far as the public is directly concerned, the selection of the most suitable site for the bridge is governed by the

Bridge location as affected by public requirements. conditions necessary to secure cheap freight charges, decrease of loss and

damage to consignments, quick transport, personal convenience, and rapid bridge construction. Low transport charges are mainly dependent on directness of route, and would perhaps be best assured by building the bridge at Isabpur, though the difference in the overleading between this site and that at Raita is so small as to be negligible. The location of the bridge at Godagiri would distinctly increase the length of the routes travelled by the bulk of trans-Ganges traffic, and result in an appreciable and permanent tax on trade. In the majority of cases loss and injury to consignments can be directly traced to transshipment, and accepting the impracticability of gauge conversion north of the Ganges the drawback can only be best removed by placing the bridge at Isabpur and extending the metre gauge over it to Calcutta. The through speed at which goods can be carried depends on transshipment, lead, and the proportions of broad and metre gauge in the route. Of these transshipment is generally the greatest source of delay, and as before remarked its elimination is easiest at Isabpur. For shortness of route the Isabpur site also holds a slight advantage over that at Raita, while both are decidedly superior to the one at Godagiri unless heavy expenditure on connections is incurred. The mileage of a broad gauge line in the Godagiri and Raita routes is dependent on the location of the junction between the two gauges, but in the near future there would probably be but little difference in the two lengths. In regard to passenger traffic, the main requirements are that the arrival and departure times of trains at principal stations should be at suitable hours, and that change of carriage be avoided or, at any rate, made at convenient times.

21. Rapidity of construction is perhaps a minor factor in the choice of site. It would no doubt take longer to construct a bridge at Isabpur than at Godagiri or at Raita, because the site is not connected with main lines and little or no work could be done till the connecting lines were built. Godagiri is nearer the main source of stone supply than Raita, and this no doubt might give it some advantage in the time likely to be required for the construction of the bridge. But after all the longer lead for stone supply can be overcome by increased plant and, with proper arrangements, no more time should be required to construct a bridge at Raita than at Godagiri.

22. In paragraph 12 of the memorandum by the Railway Board, some stress is laid on the advantage likely to be secured by the adoption of the Board's Rampur Boalia scheme in opening out a new tract of country south of the Ganges, and in paragraph 15 of the same it is stated that this would confer solid advantages on the trade of the Port. From information supplied to us by the Government of Bengal, Public Works Department, we are enabled to state that up to 1903 that Government did not include in its schemes for new lines submitted from time to time to the Government of India any proposals for a line through the tract of country referred to by the Railway Board. In 1903, however, the District Board of Nuddea began to advocate the construction of a light feeder railway from Krishnagar *via* Meherpur to Jellinghee or say to the right bank of the Ganges opposite Rampur Boalia. The Government of Bengal consulted Mr. J. Munro, C.B., formerly of the Indian Civil Service, who possesses great local knowledge of this tract, in regard to the proposals for this light railway. Mr. Munro, who was opposed to the scheme, wrote as follows:—

“Nuddea is a poor district and the ryots of the tract through which the line passes are, as a whole, in many places the poorest in Nuddea. The tract is notorious in times of pressure, scarcity, or famine and the ryots generally have not much to spare for travelling.”

Mr. Munro considered that it would be a better policy to improve the waterways serving the tract, rather than to provide railway communication. The Eastern Bengal State Railway authorities have since prepared a detailed survey and project for the light railway from which it appears that the gross earnings are estimated at Rs. 1,37,882 per annum, equivalent to Rs. 48 per mile per week. The country is fairly well served at present by the rivers

Matabhanga and Churni on the east and by the Jellinghee on the west, streams which are navigable by small boats throughout the year and by steamers during the rains. A railway, other than a light feeder line through this tract, is not in our opinion demanded at present, and it will certainly not confer any solid advantages on Calcutta as a port.

23. We think that due weight should be attached to the fact that the bulk of the goods traffic which now uses the Sara ferry route is jute and that Raita is undoubtedly the most desirable and convenient route for this, a staple which is perhaps more important to the Calcutta trade than any other. The present traffic in jute *via* Sara is capable we believe of very considerable expansion. By the construction of the projected line from some point north of Sara to Serajganj a large and fertile tract of country entirely devoid of railway communication will be opened up. Ample evidence has been tendered in the course of our enquiry to show that this line will be of considerable benefit to the jute trade and industry. If the bridge is built at Raita, it will be possible, and perhaps economically correct, to construct an extension to Serajganj on the broad gauge. In fact we have been told by the Manager of the Eastern Bengal State Railway that the project has been prepared for a broad gauge line. Direct unbroken communication on one gauge from Serajganj to Calcutta would undoubtedly be a very great boon to the jute trade. If, however, the bridge should be built at Isabpur the extra lead from Serajganj to Calcutta will be so great that the traffic prospects might not be such as would justify a broad gauge line. And if, again, a bridge were built at Godagiri the extra lead would be, we believe, prohibitive to such an extent that the branch to Serajganj would never be built. Clearly then since if the bridge is built at Raita far better facilities can be given to Serajganj, which is, next to Narainganj, the largest jute mart outside Calcutta, than at any other site, Raita possesses advantages in a commercial sense which the other sites do not. Jute may be considered typical of the Eastern Bengal State Railway traffic, and wheat and seeds of the Bengal and North-Western Railway traffic. We desire to remark that the trade in the former, to the best of our belief, must always be very much more stable than in the latter. The vast mill industry of Calcutta must obtain its stocks of raw jute annually and Bengal has practically a monopoly of jute export, because jute is practically speaking not produced in any other country. On the other hand, the wheat export trade from Calcutta is of a most uncertain character, whilst the consumption locally is small. Linseed, too, is possibly not free from unfavourable influences since it is produced in various countries. Our conclusion is, therefore, that Raita is best suited for a bridge, judged from a commercial aspect only.

24. The Railway Board have expressed the opinion that the location of the Lower Ganges Bridge at either Sara or Godagiri will eventually be followed by the building of a second bridge at the other site, and that the only way of avoiding this duplication lies in the selection of the intermediate position at Rampur Boalia (Isabpur). The Agent of the Bengal and North-Western Railway has stated in his evidence that unless the bridge is built at Godagiri or Rampur Boalia his administration will construct one at the first mentioned place. The Manager, Eastern Bengal State Railway, considers that the over-leading of traffic by over 25 miles would justify the construction of another bridge, and on this ground maintains that a bridge at Godagiri would not enable one to be dispensed with at Sara, and that the adoption of the Sara site would obviate the necessity for bridging the river at either Rampur Boalia or Godagiri. In respect to Bengal and North-Western Railway traffic, bridges at Isabpur and Raita would, as previously shown, increase Calcutta leads by $3\frac{7}{8}$ and $13\frac{5}{8}$ miles, respectively, and that as regards Eastern Bengal State Railway traffic, bridges at Isabpur and Godagiri would increase distances by $8\frac{1}{2}$ and $40\frac{1}{2}$ miles, respectively. Under these circumstances it is quite clear that the location of the bridge at Godagiri must necessitate the provision of a second bridge at no distant date to serve the Sara traffic, while the adoption of either the Isabpur or Raita site will avoid all real necessity for a bridge at Godagiri. Unless based on erroneous mileage, or

on reasons connected with competition, the contentions of the Bengal and North-Western Railway are difficult to understand. In competition with the East Indian Railway no doubt every mile added to the longer route will militate against its success in securing traffic; but if so small an increase as about 14 miles can jeopardise its power of attraction, the encouragement of the route can hardly be to the interest of either Government or the public. We therefore think that the prediction implied in the memorandum of the Railway Board regarding the ultimate necessity of two bridges over the Lower Ganges may be disregarded, and that the possibility of an Upper Ganges Bridge being constructed between Bhagalpore and Mokameh is a far more probable contingency. The advantages likely to be conferred on trade by the Lower Ganges Bridge are almost certain to stimulate the demand for one over the Upper Ganges, and if this is built, the necessity for a second Lower Ganges Bridge will never be likely to arise.

25. It has been shown that the building of a second bridge over the Lower Ganges can be avoided if either Isabpur or Raita is selected as the site for a bridge, and that if Godagiri is selected further expenditure, either on improved communications or on a second bridge at Raita, would be necessary in the immediate future. If Raita is selected it may be possible to close the ferry at Godagiri, for there is scarcely likely to be any development of local traffic demanding it or which would make such a ferry remunerative or even pay its working expenses. If, however, Isabpur or Godagiri is selected the Sara ferry would certainly have to be retained to serve the local traffic between Chuadanga and Nattore in the one case and between Ranaghat and Nattore in the other. Even this reduced ferry would cost possibly 1½ to 2 lakhs a year to work. This is another consideration of some importance in favour of the Raita site.

26. At this stage it will be convenient to briefly summarize the relative advantages and disadvantages of the three proposed bridge sites at Godagiri, Isabpur, and Raita as judged by conditions unconnected with the extension of the metre gauge south of the Ganges. It is to be noted in the first place that, so far as physical suitability is concerned, there is but little to choose between the three sites, and that any small advantage at present existing rests with Isabpur. In regard to cheapness of construction a bridge and its connections at Raita would cost from 25 to 36 lakhs of rupees less than similar works at Godagiri or Isabpur. The Raita site would also avoid a waste of the money already spent on duplicating tracks between Ranaghat and Poradab, and obviate the necessity for any further doubling of broad gauge lines south of the river. The adoption of any site but Raita will not admit of the abandonment of the present expensive and difficult ferry service at Sara, and unless sites at either Sara or Isabpur be selected there is a strong probability of a second bridge over the Lower Ganges being required. So far as public convenience is concerned, crossings at Raita or Isabpur offer about equal facilities, while one at Godagiri would be decidedly inferior unless heavy outlay on direct rail connections be incurred. As regards rapidity of construction the Godagiri site is perhaps the best, though it holds but slight advantage over that at Raita. Both these sites however are decidedly better than the one at Isabpur. So far as the opening up of new country is affected, this factor has been shown to be of comparatively small importance and can safely be neglected in weighing the relative advantages of the different sites. Unless large expenditure is incurred on the construction of chord lines, a bridge at Godagiri is far less suited to traffic requirements than bridges at Isabpur or Raita. As between these two sites it will probably be found that under actual working conditions the latter will involve less over-leading of traffic and also better suit the transport of the commodities in which Calcutta is specially interested.

27. It may be as well to compare the cost of transporting the traffic over the Ganges at Sara by ferry and by bridge. As regards the present ferry the Manager, Eastern Bengal State Railway, has submitted a statement to show the annual cost of working (see Appendix E³).

It is perhaps difficult to estimate the cost of working a bridge with any approach to accuracy. But the following is offered as an approximate forecast. As already shown in paragraph 16, the cost of a bridge at Raita with its approaches and transshipment station will amount to 153 lakhs. It is considered correct to include the cost of a transshipment station and also that of handling in the working cost of a bridge, because the cost of the transshipment is included in the working cost of the ferry. It is assumed that the combined traffic, when a bridge is opened, will be on an average 38 trains a day from the Bengal and North-Western Railway and Eastern Bengal State Railway single metre gauge lines; and that 26 broad gauge trains will suffice to carry on this traffic. Also that the transshipment of one million tons in a year will cover all the requirements of 38 trains a day, passenger and goods. The rate of working a train mile on the broad gauge section of the Eastern Bengal State Railway has been taken from the administration report of Indian Railways for 1905, and the cost of administration and special and miscellaneous expenditure has been deducted in order to arrive at a fair actual rate. That is Rs. 2.09 per train mile.

Forecast of working traffic over a bridge at Raita.

	Rs.
(1) Interest on 153 lakhs at 3½ per cent.	5,73,750
(2) Maintenance at ¼ per cent. per annum	38,250
(3) Working trains 26, for 365 days for 5.70 miles, at 2.09 per train mile	1,13,054
(4) Cost of transshipping 1 million tons at 2 annas a ton	1,25,000
TOTAL	8,50,054

If the traffic doubles itself the relative increase in cost will be small, since the additional interest charges under (1) would only increase to a very small extent on account of further outlay at the transshipping station, while (3) and (4) would be perhaps doubled. Possibly the total annual cost of working double the traffic over the bridge would be 11 lakhs, or not much in excess of what it now costs to work the present Eastern Bengal State Railway traffic alone by ferry, and this without reference to consequent economies at other ferries.

28. In the carrying of passengers and goods between Calcutta and the country north of the Ganges served by the Transshipment. metre gauge systems, the avoidance of transshipment is of such advantage that no ordinary difficulties should be allowed to prevent its accomplishment.

To passengers the matter is mainly a question of increased comfort in travel, but with regard to goods, though the mercantile community, as will be seen from the evidence tendered, do not anticipate that wagon to wagon transshipment will be the cause of much delay or loss or damage, yet there is the loss to the carrying agency in handling and in the locking up of stock.

The delay caused at the existing ferry at Sara is very variable, depending largely on the pressure of traffic, the state of the river, and other incidental circumstances, but with a bridge this delay will be capable of great reduction. We are informed by the Agent of the Bombay, Baroda and Central India Railway, who has supplied valuable information regarding the well-known Sabarmati transshipment station, that the detention to wagons is from 18 to 20 hours. This detention of course represents a loss to the railway, but it is a loss which cannot be easily measured in money. The delay to goods wagons practically amounts to this that a certain quantity of rolling stock has to be provided to do the same work which, without transshipment, could be done by a less quantity. Similarly coaching stock will also be detained, but the quantity and time involved are probably less than in the case of goods stock, though the cost may be nearly as great. Too many assumptions have to be made to admit of any exact estimate being prepared, but a rough calculation has been made [see Appendix L] which shows that the cost of detention of

rolling stock at the transshipment station on the north bank of the Ganges would be about 2½ lakhs per annum.

An estimate of the total cost of transshipment between two gauges has been prepared from information supplied by the Bombay, Baroda and Central India and Eastern Bengal State Railways [see Appendix N].

Since the conversion of the metre gauge railways on the north of the Ganges is, as pointed out by the Railway Board, beyond the scope of practical finance, the adoption of some arrangement whereby the bodies of the metre gauge stock can be rapidly and cheaply transferred to and worked on broad gauge trucks, is worthy of consideration. This has been suggested in the evidence tendered by Mr. T. McMorran and the statement submitted by the Manager, Darjeeling-Himalayan Railway, and although the arrangement referred to involves serious difficulties when applied to Indian rolling stock, it is possible that the problem admits of practical solution. The idea, at any rate, deserves consideration and experiments might perhaps, with advantage, be carried out on a small scale to test the feasibility of this method.

29. Taking Barauni as the starting point for the Bengal and North-Western Railway traffic, this being the Bengal and North-Western station where traffic would be diverted from the *vid* Mokameh route for a Lower Ganges Bridge route, the distances to Calcutta are :—

	Miles.
<i>Vid</i> Raita	373½
„ Godagiri	359½
More by Raita	13½

That is 3·8 per cent., and such small extra mileage can surely not be considered unduly prejudicial to the interests of the Bengal and North-Western Railway.

The Directors of the Bengal and North-Western Railway attach great importance to the provision of a route independent of the East Indian Railway between their system and Calcutta. The ostensible reason given in 1903 for their insistence on the attainment of this object was that the East Indian Railway was unable to deal with the traffic at the time when its prompt transport was most important. Whatever may have been the state of affairs prior to 1903, the Agent of the Bengal and North-Western Railway is now unable to furnish us with a single recent instance of the blocking of ordinary traffic by the East Indian Railway, while the officials of the latter administration assert that, since 1902, there have been no complaints of any block at Mokameh ferry owing to the East Indian Railway failing to supply wagons for onwards carriage or of delay in transshipment, nor have there been any complaints as to fault in the provision of facilities for outwards traffic to the metre gauge railway. Difficulties certainly have occurred in connection with the transport of coal; but the Bengal and North-Western Railway were not solitary sufferers in this respect, and the trouble was attributable to shortage of broad gauge stock, and congestion at the coal-fields, rather than to any cause removable by the provision of a route independent of the East Indian Railway. At the same time the numerous occasions when the Mokameh ferry service was interrupted by stress of weather and vagaries of the river show that the Bengal and North-Western Railway ought to have a reliable route to Calcutta, though that can hardly be advanced as a substantial reason for such route to be independent of the East Indian Railway. The true cause would seem to be a natural and not altogether unreasonable attempt to secure as long a lead as possible over the home line for its Calcutta traffic. This object will be obviously best attained by the exchanging station with the foreign railway being at an end, and not near the centre of the system. If this explanation be correct the insistence of the Bengal and North-Western Railway on the Katihar instead of the Mokameh route, and the value placed on the shortening of the former connection, is not difficult to understand. A similar policy is adopted by practically every railway in India, especially in connection with its outwards traffic, and unless carried to extremes cannot be considered unreasonable. Unfortunately, in their endeavours to secure longer leads, the administration of the Bengal and North-Western Railway do not err on the

side of moderation; and though we have every sympathy with efforts directed to a fair distribution of the Calcutta traffic between the two routes, we cannot view as reasonable the attempt made to secure the whole at a heavy loss to Government and a substantial sacrifice of public interests. This opinion would seem to be also shared by the Railway Board, as during the course of our investigations they authoritatively stated that the whole of the railway giving access to Calcutta from the Bengal and North-Western Railway *viâ* Katihar is to be owned and worked as a State Railway. As this decision will doubtless lead to considerable modifications of the concessions indicated by the Board and Agent of the Bengal and North-Western Railway, no useful object is served by discussing them, and our remarks will, therefore, be confined to a consideration of the conditions necessary to give that system reasonable access to Calcutta. The distances for charge between Barauni and Mokameh and between Barauni and Katihar are 27 and 112 miles, respectively, so that the *viâ* Katihar route gives the Bengal and North-Western Railway an extra lead of 85 miles. Assuming an annual traffic of 600,000 tons carried at an average rate of $\frac{1}{5}$ th pie per maund per mile, and a fair charge for haulage, the profit to be obtained by carriage under competitive conditions at $\frac{1}{10}$ th pie per maund per mile over this additional distance may be placed at $3\frac{1}{4}$ lakhs of rupees per annum, an amount which would be realized by the gross receipts of the same volume of traffic carried 19 miles at $\frac{1}{5}$ th pie per maund per mile. In other words, the Bengal and North-Western Railway would lose nothing by abstaining from competition in return for the gross receipts of 19 miles of the East Indian Railway portion of the Mokameh route. Under actual conditions, many cases would arise where the Bengal and North-Western Railway would not have to go down to $\frac{1}{10}$ th pie per maund per mile on the Katihar route, and also considering the loss they can cause the East Indian Railway, it is questionable whether they would be satisfied with bare compensation. Under these circumstances, an allowance of the receipts of 19 miles would be insufficient, but if the length be increased to 30 miles, the Bengal and North-Western Railway would receive liberal compensation for the routing of their traffic *viâ* Mokameh. The Manager, Eastern Bengal State Railway, estimated in 1906 that, neglecting the set-off of the Government share of the profits of the Bengal and North-Western Railway, the loss to the State by diversion of that Railway's traffic *viâ* Katihar would be Rs. 3-1-2 per ton, if an average rate of $\frac{1}{5}$ th pie per maund per mile were assumed. On the basis of 600,000 tons of traffic this loss would approximately amount to Rs. 18,50,000 per annum, so that even if the State absorbed the whole profits of Rs. 3,50,000 for which the Bengal and North-Western Railway are struggling, a loss of Rs. 15,00,000 would be incurred by the diversion of the traffic in question from the shortest route. It is, therefore, utterly opposed to the interests of Government that the Katihar route should be encouraged to compete with the shorter one *viâ* Mokameh. With this fact in view, and also in order to avoid interference with the existing rights of the latter route to reduce rates and fares to the sanctioned limits, we are of opinion that the total charges by the longer should exceed those of the shorter route by at least the "competitive difference." Subject to these restrictions the Bengal and North-Western Railway might be allowed running powers between Katihar and the transshipment station near Nattore, the right to quote such rates and fares over the Nattore-Calcutta section as would not affect the local rates and fares of the State line, and unprejudiced treatment at the transshipment station. As regards the quotations of rates and fares, the restriction of this power to traffic passing between Bengal and North-Western Railway stations and stations on the Eastern Bengal State Railway between Naihati and southern termini, would appear to meet requirements. Independent control of the transshipping station is not absolutely necessary, but if it can be arranged without compromising State interests, might be introduced in deference to the known views of the Bengal and North-Western Railway. One method of effecting this concession consists in controlling the goods transshipment station by a joint committee, composed of representatives of the two Railways concerned and of the Port Trust Railway, the discipline and appointment of the staff being vested in the last named authority. The foregoing proposals may be summarised as under—

- (1) Both routes to be available to the public.

- (2) On all traffic carried from Bengal and North-Western Railway stations *via* Mokameh to Calcutta, that railway to be credited with 30 miles of the East Indian Railway portion of the route in addition to its own lead.
- (3) Rates and fares *via* Mokameh and *via* Katihar to Calcutta termini to differ by the competitive difference.
- (4) Subject to the above restrictions, the Bengal and North-Western Railway to be allowed to quote through rates between stations on its system, and Naihati to Budge Budge, Diamond Harbour, and Mutla, stations on the Eastern Bengal State Railway.
- (5) The imposition of blocking charges of every description, designed to upset these proposals, to be generally prohibited.
- (6) The Bengal and North-Western Railway to be granted running powers between Katihar and the transshipment station near Nattore.
- (7) The goods transshipment station to be worked under impartial management.

30. In paragraph 16 above allusion has been made to the number of tracks for which a bridge should be built, and as we consider this is a matter which deserves very careful consideration we offer the following remarks. Mr. Spring's estimates of the cost of a bridge, whether at Raita, Isabpur or Godagiri, are for a single line bridge. It is difficult to understand why he did not estimate for a double line, because he recognised that the broad gauge line for which his bridge was designed must be double track from Calcutta to the Ganges and he provided for such double track in the cost of connecting lines. There can be little doubt that a very considerable traffic could be worked over a single line bridge, the approaches to which are double track. Still it is difficult to believe that more than one train could be worked over it in 15 minutes, considering the delays in starting heavy goods trains and in working them with absolute continuity and regularity. Assuming an average of 15 minutes per train, 96 trains per day could be passed over the bridge. On the assumption that the broad gauge line is extended over the bridge, it may be reasonably expected that a single track would accommodate the traffic for at least the next 15 years, and it may also be predicted that the time will come when a single broad gauge track will not accommodate all the traffic. From this point of view then, alone, a bridge ought to be built for double track: but there is another reason why this should be done. Circumstances may arise in the future under which extension of the metre gauge system to the south of the Ganges becomes desirable; if a bridge is built single track it is certain that it will not accommodate both gauges, whereas if it is double track the accommodation of both will be provided for and the cost of a second bridge will be avoided. The total cost of a single track bridge, exclusive of approaches, is estimated by Mr. Spring as varying from 110 to 130 lakhs, according to the site selected, and it is believed that the extra cost of a double track bridge will not amount to more than 13 to 15 lakhs, of which fully 80 per cent. would be in extra girder work. Considering, however, that a large proportion of the outlay of the bridge will not vary, whether the bridge is for single or double track, it seems extremely reasonable to insist that it should be built for the latter. Taking the extra outlay of 11 to 14 per cent. above Mr. Spring's estimate, the expenditure common to both a double and a single line bridge will vary from 70 to 90 lakhs for a bridge costing from 110 to 130 lakhs.

31. The Agent, East Indian Railway, raises in paragraph 9 of his statement of 28th January last (*see* Appendix F²) the question of the future safety of the Kosi Bridge.

Safety of the Kosi Bridge.

Obviously if the Kosi Bridge was at any time destroyed by the Ganges, the route for the traffic of the Bengal and North-Western Railway and Tirhut State Railway, which it is proposed to create *via* the Lower Ganges Bridge, would lose all its advantages. We therefore considered it desirable to ascertain what the actual position of the Kosi Bridge is. Letter No. 828 C., dated 9th February 1907, from the Consulting Engineer for Railways, Lucknow (*see*

Appendix G), shows that the Ganges which, since 1904, had been in such close proximity to the Kosi Bridge that damage to the training works caused the authorities of the Bengal and North-Western Railway great anxiety, has recently commenced to recede. If the Ganges continues to recede, no doubt the opportunity will be taken to extend the training works in such a manner as to entirely prevent any danger to the Kosi Bridge in future years.

32. The question referred to us is so intimately connected with the more difficult and complicated one of diversity of gauge, that we at once realised that it was our first business to investigate the

Conclusion.

proposal to extend the metre gauge to Calcutta. We, however, recognised that we were not concerned with the general policy of Government as regards the admission or exclusion of this gauge to or from the great ports at present served exclusively by the broad gauge, and that it was merely our function to advise Government whether, in the particular case referred to us, it was desirable to extend the metre gauge to Calcutta as part of the general scheme for constructing a bridge over the Lower Ganges.

Our view throughout the enquiry has been this—that there would be every advantage in extending the metre gauge, so long as it could be shown that full and complete terminal facilities could be afforded to it. We, therefore, made very thorough and careful enquiries into all the circumstances of the numerous terminal points, and into the working and handling of traffic in them. We were conscious that we were placed in a very responsible position in advising Government regarding terminal facilities, and we frankly admit that we should have been glad to avail ourselves of the best and most reliable expert professional opinion on working two gauge termini had it been possible to obtain this. Such expert opinion as we were able to obtain from the officials of the railways concerned was unmistakably adverse to the admission of the metre gauge; but then these officials had no experience in dealing with two gauges in the same termini, and they perhaps regarded the introduction of a second gauge with some apprehension.

We, therefore, have had to rely on our own judgment and are unanimous in the conclusion that complete terminal accommodation cannot be provided. Partial accommodation, we believe, is practicable, but we cannot advise this, because we do not feel justified in supporting a scheme which, while being expensive, would still require a part, and probably by far the larger part, of the metre gauge traffic to be transhipped in order to deliver it at its natural termini. In our belief trade requires complete terminal accommodation without break of gauge; and, if it cannot have that, the only alternative is entire transhipment.

We are strongly of opinion that there can be no possible object in bringing the metre gauge south of the Gauges if entire or any substantial transhipment is required; for, to do this would entail very large outlay, whilst the existing broad gauge lines already provide very ample transport facilities which are susceptible moreover of great improvement at comparatively small outlay.

We have come to the definite conclusion, therefore, that we cannot recommend that the metre gauge be extended to Calcutta.

As regards the selection of a site for the bridge, and taking Godagiri first, we consider that this site cannot be compared in prospective advantages with the other two sites, and that it is to be regretted that it ever came prominently into notice. We hold that Isabpur (Rampur Boalia) and Raita (Sara) are from a general point of view the two sites from which a selection should be made. The former of these, if the connecting line to the Eastern Bengal State Railway metre gauge line was built so as to shorten the route for the traffic of that railway, would, without doubt, be the more desirable, since it would then provide routes entirely acceptable to all the interests concerned. But a far greater outlay (49 lakhs) would be involved and the completion of the work would be seriously delayed. Unquestionably, if no lines existed on either side of the river, Isabpur would provide an ideal site for trunk lines serving the

vast territory now occupied by metre gauge lines. But existing lines cannot be ignored, and economy must always be accepted as a ruling factor in the construction of a bridge. Raita, on the other hand, possesses some advantages which cannot be secured by selecting Isabpur, and a bridge can be provided at the former site at a minimum outlay; its only drawback being that the route for Bengal and North-Western Railway traffic will be some 10 miles longer than by Isabpur, and that no improvement in connecting lines, so as to shorten this, is feasible.

As far as we see, provided the bridge is built for a double broad gauge track, the selection of Rampur Boalia (or Isabpur) is not essential to the introduction of the metre gauge, should the same at any other time be deemed advisable. A comparatively small deviation from the direct route would enable the metre gauge to serve from Raita the same country the Railway Board desire to open up, although we are not satisfied the tract of country specified, at present requires additional railway facilities. Looking to the present state of railway finance, and recognising that the funds for new railway works are limited, it is more than ever necessary to reduce expenditure on the bridge to a minimum, especially when the fact is accepted that no distribution of the outlay over many years is advisable on a work which essentially demands rapid construction.

We hold that Raita provides the cheapest and, therefore, the best route for the Eastern Bengal State Railway traffic; and that since this traffic has no alternative route such as the Bengal and North-Western Railway has *via* Mokameh, and is never likely to obtain one, it is entitled to the greater consideration. Raita (or Sara) as a site has been accepted as unquestionably feasible by (1) Sir F. L. O'Callaghan's Committee of 1890, (2) Mr. F. J. E. Spring, the expert specially deputed to investigate the Lower Ganges Bridge question in 1903; and it is preferred by the Governments of Bengal and of Eastern Bengal and Assam, while the Government of the United Provinces has refrained from expressing a preference for any particular site.

Again, the Government of India have recorded the following in the Histories of Railway projects, 1904-05:—"Of the three sites examined Godagiri, Isabpur and Sara, the balance of advantage being in favour of the Sara site the Government of India have recommended the construction of the bridge at that place."

We, therefore, as a result of our deliberations and supported by the views of the above authorities, recommend that the bridge be built at Raita.

The above conclusions may be stated briefly thus:—

- (1) the metre gauge ought not to be extended south of the Ganges;
- (2) the bridge should be built at Raita.

We would again emphasise the fact that we consider the construction of a bridge over the Lower Ganges is a matter of extreme urgency, and in this we are unanimously supported by all the witnesses who have come before us, even though they have not been in agreement as to the most suitable situation.

We do not think it is outside our sphere to lay before the Government of India what has been brought prominently to our notice, *viz.*, the universal hope and expectation of the commercial community and of the general public, that the investigation and report of this Committee will result in immediate and practical action, as rightly or wrongly there is a strong impression that the Committee was appointed for the express purpose of assisting the Government of India to come to an early final decision. We cannot conceal from ourselves the fact, and we would respectfully desire to impress the same on the Government of India (and we should be wanting in our duty if we did not do so) that the mercantile community and the general public have been for many years urging the necessity for a bridge across the Lower Ganges, that they cannot understand why there should have been such great delay in meeting what is an admitted want, that the necessity has now become one of extreme urgency, and that the appointment of this Committee would point to the fact that the question is now ripe for a final decision.

We desire to thank the officials of the Eastern Bengal State Railway and of the Calcutta and Madras Port Trusts for the facilities afforded and help given in the inspections made during the course of the enquiry.

G. MOYLE.

F. G. DUMAYNE.

W. A. INGLIS.

RADHA RAMAN KAR.

NORMAN McLEOD.

A. D. G. SHELLEY, MAJOR, R.E.

SENSE OF EVIDENCE.

Urgency for a bridge.—The witnesses were unanimous on this point.

Admission of the metre gauge to Calcutta termini.—The Port Trust, Eastern Bengal State Railway and East Indian Railway witnesses were strongly opposed to the idea, and considered introduction throughout an impossibility. As regards partial admission while it would be possible to introduce it to a few termini they foresaw great complications in working and could see no advantage to be derived, at all commensurate with the cost that would be incurred. Three witnesses considered it quite feasible, they gave their ideas in a general way and were unable to offer the Committee any details as they were unacquainted with the local conditions. The remaining witnesses were against the proposal.

Extension of metre gauge south of Ganges.—Most of the witnesses were examined regarding this and were with two exceptions in favour of keeping the transshipping arrangements north of the Ganges, the chief reasons given being less congestion, cheaper labour and land, and longer broad gauge lead.

Bridge site.—Two witnesses were in favour of Godagiri, one preferred the site near Rampur Boalia and the remainder advocated Sara.

Transshipment.—The general opinion of the witnesses questioned on this was, that wagon to wagon transshipment is not the evil it is popularly supposed to be. The witnesses representing the mercantile community, while complaining of the loss and damage and delay under the existing arrangements at Sara, had not experienced and did not anticipate much inconvenience from ordinary wagon to wagon transfer in a well-managed transshipment yard.

MINUTES OF EVIDENCE.

EVIDENCE OF MR. W. R. HAUGHTON, M.I.C.E., ENGINEER-IN-CHIEF, EASTERN BENGAL STATE
RAILWAY. Taken on the 18th January, 1907.

1. Q. (*Mr. McLeod.*)—What is your opinion of the three sites before us and which we inspected?—I should not say that one possessed any great constructional advantage over the other.
2. Q. (*Major Shelley.*)—There would be four sites if you put in the Rampur Boalia site?—That is not a site at all from my point of view. From an engineering point of view it is absolutely out of the question. The river is now 4 to 5 miles south of Rampur Boalia.
3. Q. (*Mr. McLeod.*)—Then there is no preference with regard to the three sites?—Isabpur at present seems to be one of the best of the sites, but there is very little difference between any of them.
4. Q. Would it not affect the cost of the bridge if a site were chosen where the leading lines were completed, as against other sites where this is not the case?—Yes.
5. Q. It would materially affect the cost of the bridge and make it cheaper?—If the bridge were at any intermediate site where there is no approach line we ought to make approach lines; there is material to be collected from several parts of the country; there are limestone, coal, protective stone, stone for the piers, iron work generally, machinery, sheds and cement, most of the material except protective stone and probably some of that would be more quickly railed to the bridge site; there would be delay if river transport were adopted.
6. Q. There would be greater delay at Isabpur than at Sara or Godagiri?—Yes.
7. Q. Do you consider a bridge over the Ganges an urgent matter?—It has been urgent for the last ten years.
8. Q. And there is great loss of money from the fact that there is no bridge there?—There is.
9. Q. Can you estimate as nearly as possible the direct loss?—It has been estimated that the actual cost of maintaining the Sara ferry is about 7 to 8 lakhs per annum; of course against that you must put the maintenance of the bridge.
10. Q. (*Mr. Dumayne.*)—Have you special expenditure this year?—This year there has been heavy additional expenditure of 2 to 3 lakhs over and above the ordinary charges.
11. Q. (*Mr. McLeod.*)—The ordinary charges were about 7½ lakhs of rupees a year?—Yes, roughly speaking. These also include fires and depreciation.
12. Q. So that if you take everything into account it would amount to something like 11 lakhs?—It might be about that this year.
13. Q. (*Major Shelley.*)—Do the 7½ lakhs include the actual cost of works?—Yes. I can only speak from hearsay as regards the 7 to 8 lakhs. I have not calculated the figures myself.
14. Q. What do you estimate would be the cost of maintenance of the bridge?—I cannot say that straight off, I could give you the information later on.

15. Q. (*President.*)—Would it be less than $7\frac{1}{2}$ lakhs?—Yes.
16. Q. Would $4\frac{1}{2}$ lakhs be about it?—I could not say off-hand.
17. Q. (*Mr. McLeod.*)—In connection with the present ferry there are a great many losses?—Yes.
18. Q. Could you name some of them?—Detention of rolling stock, loss by fire and theft, and wrecks of flotilla.
19. Q. Could you roughly estimate the number of carriages required by the Sara ferry?—I could not.
20. Q. What do you consider the value of a wagon per hour?—Twelve annas a wagon per hour was the calculation made by me some years ago, and there has been an increase in the size of wagons since then.
21. Q. How long does the busy season last?—From the middle of July to the middle of March.
22. Q. Supposing that the ferry is working smoothly, how many hours are wagons detained on account of transshipment?—I am not a traffic expert, but I should say at least two days on each side, they cannot turn a wagon round on an average much under that.
23. Q. Have you ever seen a mixed gauge worked at a terminal or port?—No.
24. Q. You have never seen the terminals worked at Madras?—No.
25. Q. Do you know the terminals at Calcutta?—I know the Eastern Bengal State Railway terminals very well.
26. Q. Could the mixed gauge be worked with advantage?—No.
27. Q. Would it cause delays?—Tremendous delays.
28. Q. In working a ferry year by year you have certain incidental expenses; can you ever calculate on these works being permanent?—We never can calculate what will happen from year to year.
29. Q. Do you find that the coolie transshipment traffic at transshipment stations is too great for the coolie force now?—I believe difficulties from labour frequently arise.
30. Q. Were the traffic to increase to any great extent, then it would be almost impossible to provide the labour required?—It would be more costly than at present.
31. Q. Would it not be a very serious matter for the trade across the Ganges supposing a cholera epidemic were to occur? What would happen?—I am afraid the whole of the goods transshipment working, or at all events 90 per cent., might be completely arrested.
32. Q. And in the case of a strike?—The same thing would occur.
33. Q. No goods could pass backwards or forwards except a small quantity?—No, and that only by very great exertions and by paying highly for those exertions.
34. Q. Had you a serious block at the ferry during the past season?—Yes.
35. Q. How long did it last?—I cannot say.
36. Q. Are they now working under normal conditions or otherwise?—I cannot say; I don't know if there is any block now.
37. Q. Was it a fact that once or twice during the block there was danger of complete stoppage?—Not this year.
38. Q. Can you say anything about the effect of this block on prices on the other side of the Ganges?—I cannot say.
39. Q. You are not aware that there was almost a rice famine because of the stoppage at Sara?—I know that Calcutta merchants sent in several complaints about not getting stores for their garden coolies. I am not acquainted with that part of the business.
40. Q. What is the average cost of transshipment per ton or per maund across the ferry?—I cannot say.

41. Q. Are thefts prevalent at the ghat?—Yes, there are complaints.
42. Q. And the railway have to pay large sums on account of these thefts?—I believe so.
43. Q. The construction of a bridge would mitigate that to a large extent?—Yes.
44. Q. Because you have more command over the place, the lead being short, there would be better supervision?—Quite so.
45. Q. Has there been any fire on board the flats?—Yes.
46. Q. For which the railway were responsible and had to pay?—They had to pay in one case I know.
47. Q. If the bridge were constructed, would that risk not be greatly minimised?—It would be done away with.
48. Q. (*Major Shelley*.)—What are the details of the figure you mentioned of 7½ lakhs for working the ferry service?—The witness gave items of engineering charges. A statement of details of all costs will be obtained from the Manager.
49. Q. The 7½ lakhs relate to what?—It relates to everything; it is said to be the whole cost of working and maintaining the ferry both from an engineering and from a traffic point of view.
50. Q. As regards the terminals in Calcutta could a mixed gauge be introduced into all station yards on the Eastern Bengal State Railway?—Yes.
51. Q. I understood it was practically impossible in certain portions?—Of course we could lay the tracks except perhaps over slip switches, but we could not work them.
52. Q. In other words from a traffic point of view this is impracticable?—You could not work the goods yards on mixed gauge tracks.
53. Q. In what yards would it be impracticable?—At Chitpore and Sealdah goods yards; these are the two biggest yards.
54. Q. The entry of the metre gauge, so far as you are concerned, would involve a very heavy outlay in giving separate entries into these yards?—Very heavy.
55. Q. Could you give us any idea of the cost?—No. There is one very heavy item; we have laid portions of the lines with cast-iron sleepers and these would have to come out unless separate tracks were laid.
56. Q. As regards passenger traffic there would be no practical difficulty in bringing the metre gauge into Calcutta?—It would be an easy matter compared with goods traffic, but the platforms would have to be lowered.
57. Q. Failing the possibility of a universal metre gauge into Calcutta, is it possible to tranship at a convenient distance outside, say, Naibati?—Yes, quite possible, but land is expensive.
58. Q. It would be an expensive work?—Yes.
59. Q. Would any advantage accrue in any respect?—None whatever. I don't see any advantage in Naibati over any other station.
60. Q. (*President*.)—Or Sara?—None.
61. Q. (*Major Shelley*.)—As regards transhipment at Parbatipur and Santabar in the event of the broad gauge being taken across the river, these would be comparatively small works?—Of course you would have to split up transhipment; a very great amount of jute comes down from above Parbatipur. I cannot say what would be the cost of transhipment, but any way I should prefer a central station.
62. Q. (*Mr. Dumayne*.)—What would be the cost of the Chitpore yard?—I cannot say.
63. Q. What is the area occupied?—I cannot say.
64. Q. Could we get information as to the cost of works and land separately?—The witness said he would send in to the Committee figures on these points, separately as regards tracks, land, shedding and miscellaneous [see Appendix B].

65. Q. Have you considered the question of putting sidings into the mills below Naihati?—Yes.

66. Q. As a practical arrangement?—Yes.

67. Q. What would it involve?—In the first place, on whichever side of the main line of the Eastern Bengal State Railway broad gauge you place the metre gauge you will have level crossings at each junction. That is to say, if the metre gauge is on the east you must cross all the metre gauge wagons over the broad gauge to get into the mills on the west side of the line; if the metre gauge is placed to the west then you have to cross all the broad gauge wagons over the metre gauge, that is twice, once when going and once when returning.

68. Q. Would it be practicable to work the metre gauge and broad gauge at the same time into the mills?—Yes, it would be practicable.

69. Q. From an engineering point of view?—Yes.

70. Q. From a traffic point of view?—Yes, there would be difficulties of construction; we would have to make some alterations in the weigh-bridges and turn-tables of which they have a large number; they would require careful construction, and there would be difficulty in making points and crossings as many of the points are on curves. Seventy-five per cent. of the crossings would have to be specially made; you could not use the standard crossings.

71. Q. (*Major Shelley*.)—What are the usual terms on which sidings are given to the mills?—Mills pay for all the work up to formation level, the railway pays for rails, sleepers and ballast.

72. Q. Supposing that a siding is abandoned?—Whatever is paid for by the railway could be taken back by the railway.

73. Q. Then the cost of laying a third rail should be borne by the Government?—Yes, except that inside the mill boundaries, everything is paid for by the mills.

74. Q. Then the cost of a third rail inside the mill premises would have to be borne by the mill-owners, unless a special arrangement had been made by Government?—Yes. There is another thing about the track, we would have to lay the same section of rail as is now in the track; all the permanent-way would have to be of the same type.

75. Q. (*Mr. Dumayne*.)—Can you say what the cost of this arrangement of laying the metre gauge into mill sidings would be?—I cannot say.

76. Q. (*Major Shelley*.)—How many mill sidings are there?—25 to 30 and more are in prospect.

77. Q. (*Mr. Dumayne*.)—Would you have to add say about 50 per cent. more for everything including weigh-bridges, other bridges and works?—No, only the cost of the third rail and points and crossings, except in cases where the mill sidings are laid with cast-iron sleepers; there are two sidings laid with cast-iron sleepers.

78. Q. Would not new weigh-bridges be required for metre gauge bogies?—That is a question. They could not work metre gauge bogies on the present system without disconnecting some portions of the gear underneath the wagons; you could not turn metre gauge bogies on the present turn-tables without altering either the turn-tables or the bogies.

79. Q. Would there be delays in shunting with a metre and a broad gauge?—I believe so, special buffer frames with metre gauge couplings would have to be put on to the shunting engines.

80. Q. Would there be an increased amount of shunting in having a mixed gauge?—I don't see how you could work the two classes of stock at the same time on the same sidings.

81. Q. In terminals would you not have to lay marshalling sidings to separate broad and metre gauge stock?—It would probably be found convenient.

82. Q. You would have to increase the number of sidings?—Yes.

83. (*Mr. McLeod*.)—You have said that in connection with having two lines there would be crossing from one side to another in the way you explained. Would that not involve very serious delay to passenger traffic?—Yes.

84. Q. And also be exceedingly dangerous?—Yes.
85. Q. In moving wagons at each mill siding junction, working all day and night?—Yes, there would be a danger point at every crossing.
86. Q. (*Major Shelley.*)—Each crossing would have to be interlocked?—Yes.
87. Q. It would almost necessitate a special line for passenger traffic?—Yes. On whichever side of the broad gauge the metre gauge line is situated, you will have to cross one or the other. One solution to avoid the danger points is to raise one of the lines over the other. If the line be raised, the cost would be enormous. If not, the danger of level crossings will be very great.
88. Q. It would be very dangerous to have mill sidings of any appreciable grade?—Yes.
89. Q. (*Mr. Kar.*)—You have told us that from an engineering point of view you consider the site for constructing the bridge at Sara Ghat is as good as that of Godagiri. Do you say so from a traffic point of view?—I believe that a bridge at Sara would serve the traffic of Eastern Bengal far better than one at Godagiri.
90. Q. (*Mr. McLeod.*)—How long have you known the traffic at Sara?—Since 1878.
91. Q. (*President.*)—You recently inspected all the possible sites from Godagiri to below Sara?—Yes.
92. Q. What particular place would you select as the best practicable site at present?—Just below Isabpur and above the off-take of the Burrul river.
93. Q. What do you consider the essential conditions of a thoroughly practicable site?—I should like a hard bank on one side of the river, the abutment on the other side of the river on dry ground, and a greatest depth of 20 feet of water.
94. Q. Do you consider these conditions would facilitate the construction of the bridge?—Very much.
95. Q. Do you think they would lead to a saving in time and money in the construction of the bridge?—Yes, to a great saving.
96. Q. So much so that you would always advocate the adoption of an ideal site?—Yes.
97. Q. You say that the site below Isabpur is at present an ideal site. Do you agree that that site in another year might be equally unsuitable?—Yes, in another year it might be altogether unsuitable.
98. Q. Practically speaking it would be impossible to select the exact site until you are in a position to build?—Yes.
99. Q. Would you agree that it would not be possible to do so until certain preliminary conditions had been settled?—Yes, not until the material for the wells and guide bunds and the plant were ready.
100. Q. I think you will agree that the actual site might be at any point in a 5-mile reach?—Yes.
101. Q. Would you get a site within a 5-mile reach?—You probably would if you selected the reach.
102. Q. Would you probably get it within the Isabpur reach?—Yes.
103. Q. Assuming that the Isabpur site were selected, do you think that the actual commencement would be delayed in making connecting lines?—It would.
104. Q. You could not carry on preliminary operations at the same time?—There would be great expense.
105. Q. Making these connecting lines would greatly delay the construction of the bridge, would it not, and add to the cost of it?—Yes.
106. Q. What period would elapse from the beginning of operations to the time that the bridge was open for traffic in the case of Sara, and Godagiri?—Four years.
107. Q. All the same time?—Yes, practically the same.

108. Q. At sites where the rails are not up to the river side?—Five years. These are the shortest times; it might take longer.

109. Q. Assuming that the Isabpur (Rampur Boalia) scheme is accepted, do you consider that the construction of the double metre gauge line to Calcutta and the alterations necessary in the Calcutta termini, would delay the completion of this route?—I don't think it would. Within the five years you could build a double metre gauge line down to Calcutta, and have all the alterations made to the sidings.

110. Q. Have you considered what termini the metre gauge will be serving in Calcutta?—All the Eastern Bengal State Railway termini in Calcutta.

111. Q. Including docks?—Yes, if you don't serve the docks, you will have to tranship.

112. Q. Do you, as an engineer with considerable experience, and a practical knowledge of the railways connected with Calcutta, advise that the metre gauge should be brought into Calcutta?—Not into our existing yards certainly.

113. Q. Do you anticipate any construction difficulties in getting the metre gauge into the existing yards?—Great difficulties, for one item, the interlocking gear would be of the most complicated description.

114. Q. Do you think that the mixed gauge would be practicable in these yards?—No.

115. Q. Supposing it was practicable, do you think that the capacity of the yards would have to be considerably increased in consequence?—Yes, undoubtedly.

116. Q. If it became necessary to enlarge the termini in consequence of the mixed gauge being worked, do you think it would be practicable to effect this?—It would be very expensive; the cost of acquisition and compensation for land and houses would be very high.

117. Q. It would be something enormous?—Something very heavy.

118. Q. Accepting the general arrangement of receiving, terminal and departure yards, do you think that this could be worked by the mixed gauge?—No, only in separate yards.

119. Q. At all the big termini?—It might be done with passengers on the mixed gauge.

120. Q. I am talking of goods traffic?—It would not be economically possible.

121. Q. Do you think that bringing the metre gauge track alongside the broad gauge and taking it into the mills would affect the carrying capacity of the broad gauge?—Yes, to a considerable extent, the crossings would cause great delays.

122. Q. Would it necessitate the construction of two more broad gauge tracks between Naihati and Calcutta?—I think you would have to construct additional tracks for passenger service.

123. Q. As regards crossings, I think you said the apparatus for effecting the crossings would be very costly?—Very costly.

124. Q. And there would be great risks at every place?—Yes.

125. Q. I think you suggested 31 crossings.—There are 25 to 30 mill sidings. They would not all have separate crossings.

126. Q. Have you formed any general impression regarding the mixed gauge? Would there be any dislocation of the terminal working during the construction of the mixed gauge arrangements, and subsequently when these are brought into use?—There would be dislocation of traffic during alterations to tracks.

127. Q. Assuming that mixed gauge working is introduced and in order what would be the outcome?—You would have great detentions both to metre and broad gauge stock, and heavy losses to the railway owing to these detentions.

128. Q. Do you think that dislocation might ultimately occur, and that dislocation would be followed by the shutting out of one gauge?—Yes.

129. Q. You agree that it is possible this would occur sooner or later?—Yes.

130. Q. And that you would then have to go back to transshipment?—Yes.

131. Q. And the money spent on mixed gauge might be wasted?—Yes.

132. Q. The capacity of the ferry is limited by the river frontage?—I suppose so. Yes, at Damukdia. On the Sara side there is plenty of room at present.

133. Q. The present ferry must be limited?—Yes.

134. Q. Sooner or later the ferry will have to be duplicated?—Yes.

135. Q. If you duplicated the ferry, would that double the cost?—Yes.

136. Q. If you reached the present final carrying capacity of the present ferry, you would have to increase the ferry arrangements, and so increase the cost?—Yes.

137. Q. Assuming that the ferry has been built with sufficient plant, steamers and flats to carry the traffic to-day, are not conditions likely to occur at any time which would render that plant entirely inadequate? The ferry might have been worked successfully between points 1 to 3 miles apart for some years, when suddenly changes in the river might increase the ferry tracks 12 to 20 miles and reduce the capacity of the plant below actual requirements?—That is quite true.

138. Q. In fact, you are liable to find your ferry plant absolutely inadequate in any year?—Yes, also your permanent-way; you might find you suddenly require many extra miles of permanent-way, but might not always get it in time.

139. Q. (*Mr. Kar.*)—If you found it practicable to introduce the mixed gauge into docks and jetties, how do you propose to deal with the existing platforms for receiving both broad gauge and metre gauge wagons there?—I cannot say, that question would undoubtedly arise.

140. Q. All other things being equal, do you not consider that the interest and convenience of the mercantile community should greatly influence one in selecting the site of the bridge?—Undoubtedly, that is the principal thing.

EVIDENCE OF MR. T. McMORRAN OF MESSRS. DUNCAN BROS. & CO., REPRESENTING THE INDIAN TEA ASSOCIATION. Taken on the 22nd January, 1907.

1. Q. (*Mr. McLeod.*)—How long have you been in Calcutta?—About 16 years.

2. Q. You are the senior resident partner of Messrs. Duncan Bros.?—Yes.

3. Q. It is one of the oldest firms in Calcutta?—I believe it is.

4. Q. Your firm are largely interested in the tea industry, and also are agents for a large jute mill near Calcutta?—That is so.

5. Q. You have taken an interest in questions relating to the tea and jute industries?—Yes, my firm have been identified with tea questions particularly.

6. Q. As a member of the Bengal Chamber of Commerce, the Indian Tea Association, and the Indian Jute Mills' Association, you have closely followed the trend of events as regards these industries?—Yes.

7. Q. You are aware that these Associations and others have for some time been advocating the immediate construction of a bridge across the Ganges at Sara?—Yes.

8. Q. Have you ever heard of any important section of the mercantile community pressing for a bridge at any other site?—No, I think Sara Ghat has always been mentioned as the site.

9. Q. As the bulk of the traffic across the river is mainly the concern of the commercial community, don't you think they should have the largest voice in the bridging of the river in preference to other interests?—I think those who provide the traffic should have a say in the matter.

10. Q. Have you seen the note prepared by the Railway Board in connection with the bridging of the Ganges?—Yes.

11. Q. In paragraph 2 there is a statement to this effect—

“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.”

How far is that statement justified?—I don't think the two have been coupled; it has no doubt been suggested as a possibility. I am not aware that the two things have been coupled or that they are essentially related.

12. Q. In fact that is a question that the demands of the trade will decide according to subsequent requirements?—Yes, undoubtedly.

13. Q. Then in paragraph 6 of the same note it is said—

“This coupled with the conviction that the entry of the metre gauge to Calcutta cannot long be postponed.”

Have you ever heard of any demand by the trade for the introduction of the metre gauge into Calcutta terminals?—No, I cannot say that I have.

14. Q. One of the questions that this Committee has to decide is the feasibility of introducing the metre gauge into Calcutta terminals. In the event of our deciding the question in the negative, do you see any necessity for the cost of a double metre gauge line to the vicinity of Calcutta?—Certainly not, I think all the advantages of the metre gauge will be lost unless the goods can be delivered at the present terminals.

15. Q. Assuming that it cannot be brought in, would it not be preferable to have the transshipment on the other side of the Ganges?—Yes, I think there would be many advantages in transshipping there rather than in the vicinity of Calcutta unless the railway could be brought into Calcutta, and goods discharged into the tea sheds or shipping sheds. I think it should be north rather than south of the Ganges.

16. Q. What is the quantity of tea traffic across the Sara ferry?—The tea traffic is not big in point of tonnage. From Jalpaiguri and Darjeeling the quantity which came over the line in 1905 was 23,000 tons. According to the Administration Report the quantity is said to be 26,719 tons, but I think that quantity also includes the tea that came *ex-steamer viâ* Dhubri or Goalundo.

17. Q. It would be of great importance to have the tea brought direct by metre gauge into the tea warehouse?—Yes.

18. Q. If, however, the cost of introducing the metre gauge into Calcutta was so great as to further delay the construction of a bridge across the Lower Ganges, would the tea industry prefer to wait indefinitely until money was available, or would they rather suffer the cost and inconvenience of transshipment from wagon to wagon if such furthered the immediate construction of a bridge?—They would rather suffer the inconvenience of transshipment than have a delay in the construction of the bridge.

19. Q. What are the chief drawbacks in transshipment?—As regards tea the chief drawbacks in transshipment are the risk of damage to the tea itself, damage to the chests, and the possibility of theft. Tea has, however, received preferential treatment at Sara, and is transhipped from wagon to wagon.

20. Q. Would transshipment of tea from wagon to wagon in a properly organised yard minimise to a great extent the drawbacks you refer to?—Yes, especially if the ferry could be relied upon.

21. Q. Assuming that the bridge was made, would transshipment from platform to platform minimise these drawbacks?—Not only that but it would reduce the time in crossing.

22. Q. Are you aware that during the busy season there is considerable congestion of traffic at the Calcutta terminals, and sometimes great delays occur?—Yes, I know that.

23. Q. Would not the delays in your opinion be greatly increased by the introduction of a mixed gauge even if the same were feasible from an engineering point of view?—From what I have seen of the arrangements at the docks and jetties I should think it would be exceedingly difficult in practice to work the metre gauge alongside the broad gauge, but that is an engineering question on which I am not competent to express an opinion. As to its expediency I have grave doubts. Looking at the space available it seems to me it would be exceedingly difficult to handle both types of wagons there. I give that opinion, of course, without laying claim to any professional knowledge.

24. Q. In the same way would you consider such a revolution in the Calcutta terminals justifiable under the present circumstances?—I should doubt the wisdom of such a revolution.

25. Q. Would you consider the introduction of the metre gauge line into Calcutta a retrograde step?—I am inclined to regard it as a retrograde step. I think what the trade demands is that we should rather extend the broad gauge according to the requirements of trade.

26. Q. According to trade statistics more than 80 per cent. of the import and export trade of Calcutta is brought or taken over by the broad gauge railways; would it not be a very serious step to advise altering the terminals to accommodate the balance even if the same were practicable?—Yes, I think it would be a serious step; it would tend to delay.

27. Q. As regards the Railway Board's note, can you understand how the Rampur Boalia scheme can meet the full legitimate needs of trade at a minimum cost to the State when the cost of connecting lines is greater than at Sara Ghat?—I cannot understand that, and I think that the scheme as put forward does not convey the commercial view.

28. Q. According to the present statistics, the tonnage crossing at Sara Ghat is much greater than at any other Ghat on the river. Can you understand why it should be diverted to some other site to meet a less trade?—No, I cannot understand it.

29. Q. Would it not appear more logical and less costly to bring the lesser to the greater, all other things being equal?—Yes, I think so.

30. Q. The Railway Board put forward the suggestion that one bridge at Rampur Boalia will meet all the requirements of the trade. Can you understand why a bridge at Sara Ghat would not do the same, seeing that, according to Mr. Spring, it would only divert the lesser trade from the Bengal and North-Western Railway, 12 miles, and a bridge at Rampur Boalia would divert the larger trade at Sara to about the same extent?—I think it is more reasonable to carry the smaller trade to Sara Ghat.

31. Q. If a second bridge is required would not the best situation be at Mokameh, thus giving the shortest route for the Bengal and North-Western Railway traffic to Calcutta?—That is a little outside my sphere. I understand that is the shorter lead, and I think naturally it would be advantageous to carry the trade by the shortest route.

32. Q. Then looking at the financial consideration of the question, would it not appeal to you as a business man that the best scheme would be that costing less in new connections, while, at the same time, serving the traffic equally well?—Certainly.

33. Q. From your experience of the trade of Calcutta, the bridging of the Ganges is a matter of supreme importance and ought to have an immediate and urgent place in the Government programme?—That is certainly the case.

34. Q. In your business as tea garden agents you employ large numbers of coolies?—Yes.

35. Q. Have you found that cholera or such epidemic among them entirely dislocates work for the time being?—Yes, unfortunately we have had that experience.

36. Q. Would, in your opinion, such an epidemic among the coolies at the Sara ferry be attended with most serious consequences?—I should think it would dislocate trade entirely.

37. Q. You have no reason to suppose that the coolies there are more immune from epidemics than elsewhere?—No.

38. Q. In fact as there is no Government supervision there, epidemics are likely to occur more frequently?—Yes, they are probably less looked after than on a tea garden.

39. Q. Are you aware that there was a serious block at the Sara ferry during the past year?—Yes, I am painfully aware of that.

40. Q. Did you hear of famine rates being charged for rice in the north of the Ganges on account of that?—I believe the price of rice was raised, but what direct influence it had I cannot say.

41. Q. Is it not the fact that during some portion of last year you had to send tea garden stores to the Dooars *via* Dhubri owing to the block on the ferry at Sara-Damukdia?—Yes, my firm had to do that; there was a long delay and there was a notification issued by the Eastern Bengal State Railway that heavy stores and building materials could not be accepted for an indefinite time; there was no prospect of getting them away, and as the season was getting on we had to send them by Dhubri, and we also had to bring tea down by that way.

42. Q. In November you also sent up heavy stores in that way so as to be ready for the next season?—Yes, in October and November.

43. Q. So that the block is a most serious matter to the tea industry?—I think it is a most serious matter in connection with the despatching of stores. Tea was not delayed like stores, especially heavy stores and building materials.

44. Q. In your capacity as Jute mill agents you get jute supplies from broad and metre gauge lines. That would involve altering your railway siding to the mill and also inside your premises?—Yes, or transhipment.

45. Q. And that would be both costly and complicated?—Yes, but transhipping is a matter that mainly concerns the Railway.

46. Q. Your siding is brought to the mill free of cost to you is it not?—I cannot speak positively on the point. There has been some change made by the Railway Board in this respect. I have an idea that the cost is borne by the Railway concerned, but I could not speak with certainty; I could ascertain and let you know. [Subsequently submitted, *see* Appendix C.]

47. Q. Supposing that you introduced the mixed gauge into the mill premises would it not require a superior staff to do the shunting?—It would require an intelligent staff I think the risk would be greater.

48. Q. (*Mr. Dumayne.*)—Tea comes to Calcutta in two ways,—by inland vessels and by rail?—Yes.

49. Q. And when it comes by rail there is a division of what goes direct to the ship, and what goes to the tea warehouses?—Quite so.

50. Q. The tendency at present is to increase the sale of teas in Calcutta?—Yes, I think the tendency is slightly in that direction, although I do not think the percentage is much greater than it was.

51. Q. The portion that comes by rail for direct shipment is comparatively small, as compared with the portion that comes to the tea warehouses?—As regards what comes from Northern Bengal over the Eastern Bengal Railway, with which the Sara crossing is concerned, about one-half is shipped direct to London.

52. Q. That is to say such proportion as does not pass through the tea warehouse, but goes direct from the wagon to the ship?—Yes, it need not pass through the tea warehouse.

53. Q. You could not say exactly in what proportion?—I could not say exactly what proportion goes direct to the ship, and what proportion to the warehouse. My firm's teas are all sent direct to the shipping sheds at the Docks.

54. Q. A number of complaints have been made of the tea chests being broken in transit?—Yes.

55. Q. That is to say heavy losses occur,—considerable losses?—Yes, but I think I should explain that these losses have been minimised by better and stronger chests and by more careful handling.

56. Q. Would it be an advantage to you having it transferred from the metre to the broad gauge wagons, the handling of it on the ferry steamers being eliminated?—I think so.

57. Q. If the transshipment shed were in the vicinity of Calcutta, would there be any advantage to you as compared with the transshipment at Damukdia?—I do not see any advantages in transshipping near Calcutta. I think, as I said before, the advantages are in transshipping on the other side, north of the Ganges, the labour is probably cheaper and there is less costly ground for transshipment sidings.

58. Q. You would never take delivery of your tea at a metre gauge terminal in the vicinity of Calcutta?—No.

59. Q. You would expect it to be taken on from there to the tea warehouse?—Yes.

60. Q. There is a tendency of the trade to centralise at the tea warehouse, such centralisation resulting in economy in handling?—Yes.

61. Q. Can you think of any advantages in having a transshipment station near Calcutta with regard to settlements of claims?—No, I know of no advantages.

62. Q. It would make no difference to you if you transhipped at Rampur Boalia or near Calcutta?—No.

63. Q. Let us presume the metre gauge line came into the tea warehouse, would there be any considerable advantage to you in having your tea delivered without a break of gauge into the tea warehouse?—Certainly.

64. Q. Would it be an advantage of any considerable value?—That depends upon the experience of claims and damages.

65. Q. The principal advantage I presume would be in less handling?—Yes.

66. Q. And less loss in breakage of chests, leakage, etc.?—Yes.

67. Q. Would you be seriously affected if by introducing the metre gauge there should be some more delay in passing your tea into the warehouse or dock shipment shed as compared with present arrangements?—Yes.

68. Q. I presume there would be a little more delay because of the complication of the metre gauge?—The advantage then, whatever it is, would depend upon the lessening of claims. Delay and consequent loss of interest might balance the account on the other side. It would not be possible to give an off-hand opinion on that point.

69. Q. Expedition in handling your tea means a valuable consideration to the trade?—Yes, sometimes.

70. Q. You might be put to a serious loss from a portion of a lot being shut out?—Yes.

71. Q. You might be put to a serious loss from a whole consignment being shut out?—We might miss a market. On the other hand, we might gain, in special circumstances.

72. Q. In giving admission into your mill premises of the metre gauge, would you be involved in any considerable alteration of works, such as weigh-bridges, buildings, etc.?—You would probably require some alteration in weigh-bridges; I am not sure of any change in buildings.

73. Q. Is there sufficient space in your premises to make a considerable addition in the length of your sidings?—No, I fear there is not.

74. Q. So that if the number of wagons increased, and the separation of one from the other became necessary there would be a possibility of your not having sufficient space for the separation of your sidings?—Yes.

75. Q. Have all your mills weigh-bridges?—I think usually there are weigh-bridges in the mills.

76. Q. Are your weigh-bridges sufficient to take any length of bogie wagons, say, 43 feet?—I could not answer that question now. I could get the information and submit it [NOTE.—Subsequently submitted, see Appendix O].

77. Q. Has your firm, or any firm to your knowledge, laid itself out in any way at the transshipment station of the Ganges,—spent money on special transshipment arrangements at all?—None at all.

78. Q. If there is any transfer of the trade from that locality to another, would any works be lost to you?—None at all.

79. Q. Would it cost you any more money to go nine miles further away?—Not if the Railway Board's suggestion, of making no extra freight charge for the extra distance, were adhered to.

80. Q. Can you, in a general way, tell us what you think would probably be the advantages to the trade of Calcutta by the introduction of the metre gauge, on the assumption that the terminal arrangements could be made to satisfactorily deal with the traffic? I put the alternatives of introducing at the termini, and having a transfer station near or somewhere away from the termini—I do not see any advantages in that case.

81. Q. None at all?—None at all.

82. Q. If the metre gauge were feasible in the termini would there be any real advantage to you?—Ignoring the question from the engineering point of view, if the metre gauge could be brought into Calcutta and introduced into all the discharging and shipping places as the broad gauge now is, there would be an advantage. No one would deny that, but there is the question of cost.

83. Q. The advantages would not be appreciated if there was a large increase of cost?—I think not.

84. Q. Would there be any advantage if the transfer station, speaking generally, was brought near to the terminus in Calcutta?—No. I have thought about it. I cannot see that there would be any advantages.

85. Q. Neither for tea nor for jute?—Well, I am speaking primarily of tea. If you want me to speak of jute I will give you my opinion. There is no doubt a certain amount of jute which may be handled from transshipment stations in the vicinity of Calcutta, but it depends upon the distance it has to be taken into the bazaar. That is a question of cost again. What you require is to make a modification in dealing with the supply of jute.

86. Q. If the jute were delivered at centres like Rutholla and Hatkholah there would be an obvious advantage?—Yes.

87. Q. If, on the other hand, the jute were delivered at places like Sealdah there would be an obvious disadvantage?—Yes.

88. Q. There would be a large cost in the cartage?—Yes.

89. Q. From your personal knowledge of the jute centres, it is absolutely impossible, is it not, to have large railway termini there?—I don't care to express an opinion on that point.

90. Q. Is it a populous part of the town?—Yes.

91. Q. Is it a congested part of the town?—I understand it is.

92. Q. There would be difficulty in getting space there?—No doubt.

93. Q. It would be so expensive as to be practically impossible?—Well, I think the expenses would be very great.

94. Q. (*Major Shelley.*)—What is your opinion as to serving Calcutta with a metre gauge to such an extent as is possible, and transshipping at a near junction such traffic as must be conveyed to and from town by broad gauge railways?—Well, I am rather opposed to transshipping in the vicinity of Calcutta, thinking that it is already sufficiently congested.

95. Q. I mean about Naihati?—I do not see that there is much advantage in it.

96. Q. I understand that, with metre gauge service into Calcutta, a great deal of tea need not be transhipped, and can be brought direct to the warehouse?—Yes.

97. Q. Would it not, therefore, be advantageous to use the metre gauge for such commodities as it can carry?—That would depend on what proportion of the traffic could be so dealt with.

98. Q. As regards tea for instance?—Tea is very important to us, but I have already explained it is only a fractional part of the traffic that comes across the Sara ferry. It is only a very small percentage, 27,000 tons out of a total of 600,000 tons carried. I do not think I could advocate the metre gauge being brought into Calcutta for tea alone.

99. Q. (*President*.)—I think you said before that you take the Railway Board's note to mean that no matter what route the tea is sent by they would make the same charge?—I think there is some reference made to the extra 9 miles not being charged for.

100. Q. Assuming the charge for tea to be the same, no matter where the bridge is built, would you still prefer any particular site? There are three sites, Godagiri, Rampur Boalia and Sara, would you have any preference for any one of these?—I do not think there would be any difference so far as tea is concerned. Any one of the sites would be suitable, so long as there was a bridge across it, and no other disadvantage to weigh against it.

101. Q. If your tea was carried at the same rate, it would make no difference to you at what site the bridge was built. Would you recommend in that case the bridge being built at the site which causes the least expense to Government?—I would be inclined to put the convenience of the public in the fore-ground.

102. Q. You would recommend the site combining cheapness of freight, convenience to the public, and least cost to Government. You would like a site which combined on the whole those three points?—Yes, I think so.

103. Q. In fact all these three points would have to be considered?—No doubt.

104. Q. I think you said that your experience has been that loss from breakage, etc., in transhipment has been very much reduced in wagon to wagon transhipment?—Yes, I think so.

105. Q. That transhipment is done in the open?—Yes.

106. Q. Do you not think there might be a still greater improvement if tea transhipment from wagon to wagon was carried out under cover?—I think that is so. If I might suggest,—I would like to draw attention to an American system. I have been very much impressed in reading Mr. Priestley's report of Ramsay's system of transhipment. I believe it has been found feasible in America. I do not know if it has been before this Committee. It seems to me that a great deal may be done in minimising the cost of handling if a beginning could be made in trying that system with tea or any other commodity which suffers in extra handling. An objection has been made on account of cost. Of course it is a very important one, but if it has been found possible in America, I do not think the question of cost had escaped them there, and, if it has been successful there, as Mr. Priestley says, I think an effort might be made to try it here.

[*Witness referred to paragraphs 111 and 126 of Mr. Priestley's report.*]

Continuing witness said—I would like to draw the attention of the Committee to this. I hold that, if it has proved successful in America, it would be found a good means of dealing with the traffic on the other side of the Ganges. Mr. Priestley rather draws the inference, from experience in America, that they are ahead of us in cost of working and quite up to India in the return to the shareholders, even though the railways are worked on competitive lines. The Americans must have a good reason behind it.

107. Q. I think you will admit that the cost of labour in America, as compared with that in India, would affect the question?—No doubt, but the cost of labour is steadily going up in India.

108. Q. (*Mr. Dumayne.*)—Is it not the case that the Americans have dropped this system?—They have gone in for a uniform gauge.

109. Q. It was a system which was only used for overcoming a difficulty at a particular time?—Yes.

110. Q. And it was abandoned as soon as a better system was introduced?—Yes.

111. Q. That was the uniformity of gauge?—Quite so.

112. Q.—(*President.*)—Is the tea industry in the Dooars and Darjeeling likely to extend?—It might expand in the Dooars, I don't know about Darjeeling, there is land suitable for it in the Dooars. As a matter of fact, the production in the year just ended is 3 million pounds or nearly 8 per cent. ahead of the previous year. I think the two districts would probably produce 4 million pounds more in 1906 than in 1905, due partly to increased area under cultivation.

113. Q. (*Mr. McLeod.*)—There is a railway from Dhubri to Gauhati, are there not large possibilities there for tea cultivation?—Both for tea and jute. I travelled lately from Sara and learned that 20,000 bighas were being taken up for jute near the new line. There is no doubt whatever that the country will be opened up by the railway. I understand it will be opened in about a year up to Gauhati.

114. Q. (*President.*)—Is it your experience that since your tea has been transhipped from wagon to wagon, your losses at Damukdia have been greater by rail than by steamer?—No, I don't think they are greater by rail than by steamer, in fact we have a lower insurance rate by rail.

115. Q. You said that if the metre gauge traffic be transhipped into the broad gauge, you would prefer the transhipping to be on the other side of the Ganges?—Yes.

116. Q. You said that there would be more room, and that labour is cheaper?—Yes.

117. Q. Is there not also an advantage in the extra speed at which the traffic would be carried over the broad gauge?—Yes.

118. Q. The further the broad gauge is extended to Calcutta the better for the trade, is that so?—If the trade requires it I think so; the speed and capacity of the trains would be greater, and the chronic cry for more wagon accommodation would be minimised. I hold that if the bridge were there, and broad gauge trains running across this would meet a great need.

119. Q. The Serajganj jute either goes by the Sunderbunds or by Goalundo?—Probably Khulna, I am not quite sure.

120. Q. How long would it take by these routes?—It would be quicker by Goalundo, but there was a block at Goalundo and they were bringing it up by country boats.

121. Q. How long would jute be getting from Serajganj to Calcutta by the present mode of transit?—I think four days by rail.

122. Q. But if taken by steamer all the way?—There are two ways, by cargo and by despatch service, by cargo it would be about ten days.

123. Q. Supposing the broad gauge were taken across the Ganges, and extended to Serajganj how long would it take?—Then probably not more than a couple of days.

124. Q. That would be a great advantage to the jute trade?—Not only an advantage to the jute trade in the direct saving of time, but also in the fact that the stock used in that line would not be detained as by the present route *via* Goalundo, and this route is subject to be disorganised by floods in the river. There is a great deal of uncertainty on this account.

125. Q. Supposing a broad gauge line was constructed up to Serajganj, do you think that jute would come across from the other side of the river and come to Calcutta?—I think so.

126. Q. Do you know that the present metre-gauge line in the Mymensingh district ends at Jagannathganj?—Supposing that line were extended so as to terminate opposite a broad gauge terminus at Serajganj, would it be a

great advantage to the jute trade?—I would rather look to the supply coming from the vicinity of Serajganj itself. I do not know what the policy of the Assam-Bengal Railway is as regards rates for jute, but I know that tea is carried to Chittagong at rates about 50 per cent. under those charged by the Eastern Bengal State Railway. In consequence of this, over 40 million lbs. of tea have been diverted to Chittagong for shipment to London.

127. Q. With regard to metre gauge lines being taken into jute mills, I think sidings inside the mill premises are entirely the property of the mills?—I expressed some doubt as to the facts regarding them. I mentioned that a change has been made lately. I am not able to give a complete answer to this question, but could look it up [see Appendix C].

128. Q. Assuming that all the lines inside the mill gates are the property of the mills, do you think that the mills would bear the expense of also introducing the metre gauge?—I don't think the mills would willingly bear the expense; they would object unless they got compensation.

129. Q. They would say that they are satisfied with the broad gauge alone?—I think so.

EVIDENCE OF MR. J. S. HARRIS, MANAGER OF MESSRS. T. E. THOMSON & CO., LD., REPRESENTING
THE CALCUTTA TRADES ASSOCIATION. Taken on the 23rd January, 1907.

The witness commenced by reading the following statement:—

1. The Calcutta Trades Association are in accord with the Bengal Chamber of Commerce as to the urgent necessity for a bridge across the Ganges in order to connect the Eastern Bengal State Railway at Damukdia with the feeder line on the northern side of the river.

2. The Association are of opinion that the most suitable site for the erection of a bridge would be at Sara.

3. A bridge at Sara would entail only one transshipment, and, with improved facilities which would be available for handling goods both proceeding up and coming down, there would be a very large saving in the damage to goods being transhipped.

4. The most satisfactory plan which suggests itself, however, would be the re-construction of the present metre gauge system of feeder lines on the northern side of the river into broad gauge; were this brought about, direct communication from Calcutta to points on the northern section lying between Sara and Siliguri, and on the Santahar and Parbatipur branches, would be obtained.

The adoption of this plan would mitigate very largely the unsatisfactory state of affairs at present prevailing in the loss of goods and damage sustained thereto by transshipment at Damukdia and Sara.

5. Under existing circumstances, it has been stated that fully 50 per cent. of the claims paid by the Eastern Bengal State Railway arise through loss and damage at the Damukdia-Sara transshipment, while not the least important feature is the vexatious delays which also obtain.

A glance at the notices which have been issued for some months past by the Eastern Bengal State Railway will disclose the restrictions in respect to booking which that Railway have found needful to impose in order to deal with the congested state of affairs which have prevailed at Damukdia.

To people engaged in trade in Calcutta, the recent acute stage arrived at in respect to the jam of traffic is most unsatisfactory.

6. On the assumption that a bridge across the Ganges, establishing through communication to Northern Bengal on the broad gauge system is desirable, it would appear that Damukdia and Sara represent topographically the best site. Sara, in relation to Calcutta, is the nearest point where railway communication

could be linked up as serving Eastern Bengal and Assam and Northern Bengal ; these districts representing the tea and jute industries.

7. The recommendation by the Railway Board for the construction of a bridge at Rampur Boalia, and the linking up of existing metre gauge systems on the northern side of the river with a double metre gauge line running into Calcutta would, in the absence of expert opinion to the contrary, appear undesirable both at Sealdah and the Docks.

Another feature which appears to be against the proposal for a metre gauge line into Calcutta, is the jute mills lying on the left bank of the Hooghly between Sealdah and Naihati. These, at present, are served with broad gauge sidings from the Eastern Bengal State Railway which would still be essential for the carriage of coal and other stores, even were a metre gauge siding added.

1. Q. (*Mr. McLeod.*)—With regard to the notices you refer to, is it not the case that sometimes for a week or days together you could not send anything at all?—Yes, I have here specimen of the notices ; I shall read from one dated Sealdah, the 11th of October :—

“ This cancels my notice, dated 8th October, 1906.

The following stations are closed to goods traffic, and the following restrictions made, due to the short tonnage available :—

- (1) *Goods for services via Khowlna and Khowlna Local Stations are restricted. Goods will be accepted on Monday and Tuesday next only. Goods for Naraingunge or Chandpore will not be accepted by this service.*
- (2) *The despatch services via Goalundo for Naraingunge, Cachar, Sylhet and Padma. Goods will be only accepted on Friday and Saturday, the 19th and 20th only.*
- (3) *Chandpore and Assam-Bengal Railway service via Goalundo has been closed till further notice.*
- (4) *The cargo combined service via Goalundo is closed.*
- (5) *Beyond Jiaganj on the Murshidabad Railway is closed.*
- (6) *Kallyagunj service via Goalundo is closed.*
- (7) *On the Bengal-Dooars Railway, the following stations are closed :—*
Nagarkata, Carron, Chingmari, Banarhat, Binaguri, Dalgaon, Madarihat.
- (8) *Goalundo Local. Rajbāri and Pachooria Junction are closed.*
- (9) *The Assam service via Goalundo is open without restriction.’*

This is representative of many of the notices with which we have been served, and which have practically prohibited our sending goods. Many of our constituents were unaware of the block in traffic, as the notices *re* congested state of traffic filtered through slowly. These vexatious delays have been a source of great upset to our business.

2. Q. Then with regard to the introduction of the metre gauge into the terminals of Calcutta, it would not benefit your section of the trade very much, would it?—There would be absolutely none.

3. Q. You send your goods by the broad gauge?—Yes.

4. Q. That is to say that the trading community of Calcutta have no warehouses the same as the tea and jute industries in the neighbourhood of the docks, and they have no requirements for the metre gauge?—It would serve no useful purpose, the railway sheds and godowns being adjacent.

5. Q. You bring your goods up to your own places of business?—Yes, precisely.

6. Q. So that the metre gauge would offer no advantage?—None at all.

7. Q. (*Major Shelley.*)—Do you advocate the entire conversion of the metre gauge portion of the Eastern Bengal State Railway, north of the

Ganges?—Yes, the entire system; I believe that of the two alternatives it is the better one, *i.e.*, the conversion to broad gauge as against a bridge at Sara with one transshipment. The proposition to construct a bridge which would do away with all transshipment would lessen the risk of damage to goods. Admittedly of the two schemes the one for a broad gauge system replacing the present gauge is, in the opinion of the Trades Association, more desirable if within the scope of practical politics.

8. Q. Is much traffic sent by the Association you represent north of the Ganges?—Very considerable traffic.

9. Q. How is it divided between the Bengal and North-Western Railway and the Eastern Bengal State Railway?—Decidedly in favour of the Eastern Bengal State Railway.

10. Q. You have no idea of the relative proportions?—I could not say; but, speaking of my own concern, nearly the whole goes by the Eastern Bengal State Railway and crosses at Sara, and I may say that my firm probably send more goods in that direction than any other trading houses in Calcutta.

11. Q. You attach great importance to your goods being carried without transshipment?—Precisely, there would be no risk of breakage and no loss.

12. Q. Supposing you had through communication by metre gauge into Calcutta terminating in a metre gauge goods station, would that not be beneficial to you?—It would meet the conditions in all probability.

13. Q. Of course you send your goods by broad gauge because there is no metre gauge?—Yes.

14. Q. If you had a metre gauge would you not avail yourselves of it?—There would be no alternative.

15. Q. What is your opinion of a scheme to bring the metre gauge into those Calcutta terminals where the admission is certainly possible, and to transship to and from broad gauge vehicles, outside Calcutta, all commodities sent to, or forwarded from, the termini which the metre gauge does not serve?—If the bringing in of the metre gauge is a feasible plan, goods would still require to be transhipped; I do not, therefore, advocate it. Against a metre gauge throughout I have not so much to urge.

16. Q. As an alternative to the non-conversion of the metre gauge north of the Ganges, would it be beneficial to have through communication of the metre gauge into Calcutta?—Of the two, I would decidedly favour the broad gauge with one transshipment at the Sara side, in preference to the metre gauge being brought into Calcutta.

17. Q. (*Mr. Dumayne.*)—From what stations do you despatch your goods at present?—From the Eastern Bengal State Railway.

18. Q. Do you send them direct to the station, or collect them in depôts in the town?—We send them direct.

19. Q. Are the goods that you despatch to up-country stations such as would be likely to sustain damage by mere transfer from a broad gauge to a metre gauge wagon in the same shed?—Partly yes and partly no; there is such a variety of goods that in some cases there would be risk in handling.

20. Q. The expenses are very heavy?—Yes.

21. Q. Of course the loss or inconvenience would be inconsiderable in the case merely of transfer from wagon to wagon, as compared with transshipment over the river?—Precisely.

22. Q. Have you formed an opinion as to whether you would get an advantage if the Bengal and North-Western Railway were brought into Calcutta from the bridge by the broad gauge, a transfer being made at the Ganges: presume that a bridge has been built across the Ganges and a transshipment station provided, would that be an advantage as compared with the transfer from the Eastern Bengal State Railway?—I hardly think it would, inasmuch as most of the tea and jute comes in from that section of the country served by the Eastern Bengal State Railway.

23. Q. Do you receive any goods from up-country?—No.

24. Q. Do you use the Eastern Bengal State Railway station, situated just north of the bridge, near the Strand Road, for the despatch of goods?—Yes.

25. Q. Of the two localities which do you prefer, Sealdah or that position north of the bridge?—Sealdah.

26. Q. What is the reason of your preference?—That is the opinion of the people engaged in the work of making deliveries, *i.e.*, “despatching.”

27. Q. There is no saving in cartage in having a near terminal between these two?—None.

28. Q. (*Mr. Kar*).—Are we to understand that the bulk of the trade in which you are concerned is carried across Sara?—Yes.

29. Q. And you prefer a bridge at Sara rather than at Godagiri?—Unquestionably.

30. Q. Supposing that the broad gauge is not carried over Sara to Siliguri and transshipment is found necessary, do you prefer transshipment beyond Sara, or, if the bridge is somewhere else, to have through communication to the north say by a bridge at Godagiri or Rampur Boalia?—I prefer to have the bridge at Sara and to have the transshipment there.

31. Q. (*President*).—Have you read the scheme proposed by the Railway Board?—Yes.

32. Q. Did you notice that the proposal was that the existing rates should remain the same even if the bridge was built elsewhere than at Sara?—Yes.

33. Q. Supposing that you are charged the same rates, what difference does it make to you where the bridge is built?—I don't know that it would make very much difference, except that you would be going in a more direct line by having the bridge at Sara. Sara represents, in relation to Calcutta, the most suitable point for the linking up of the railway system, but save for that point, I do not think it would make any appreciable difference were the service slightly longer.

34. Q. I understand you advocate the retention of the broad gauge between Calcutta and Sara because it could be extended to the country north of the Ganges?—Precisely.

35. Q. You think the metre gauge to the north of the Ganges should be converted to broad gauge?—Yes.

36. Q. Supposing you were told that the conversion of this line was quite outside practical politics, would you be inclined to advocate the metre gauge being brought to Calcutta?—No, I think not.

37. Q. I suppose you understand that the conversion of the metre gauge north of Calcutta would entail an enormous outlay?—Yes.

38. Q. And you understand that the finances of the Government of India are not unlimited?—Yes. But I also recognise that the broad gauge on the northern side would, in all probability, induce a larger cultivation of jute and extended tea operations.

39. Q. You read us some notice just now from the Eastern Bengal State Railway. I notice that most of the traffic would not cross by the Sara route at all?—That is so.

40. Q. There were notices also which had reference to the Sara crossing?—Yes.

41. Q. You mentioned the fact that, if the metre gauge was brought down here, there would be difficulty in getting the metre gauge to serve the eastern bank of the river?—My views on that point are that the introduction of the metre gauge system would not do away with the broad gauge; it would involve additional sidings at the mills.

42. Q. Does that affect your Association?—Yes, to the extent of the supply of stores to the jute mills.

43. Q. You said your firm did most of its business with Eastern Bengal?—Yes.

44. Q. And you thought that most of the firms of your Association did the same?—Yes.

45. Q. Have you no business at Tirhut and Darbhanga or any part of that country?—Yes. But comparatively small as against those districts where tea and jute are cultivated. There is a constant demand from such districts for stores. The demands from Tirhut, however, are single demands from individuals, rather than those from concerns.

46. Q. Has that always been the case?—Always within my recollection, and I speak with 14 years' experience.

47. Q. And you suppose that, in the country served by the Bengal and North-Western Railway, indigo concerns obtain their stores from other parts of the country?—There has been practically no indigo business for the last 15 years, I am sorry to say.

48. Q. If there were any indigo or sugar in Behar and Darbhanga and that part of the country, do you suppose that there would be any demand from your Association?—Yes.

49. Q. Considerable demand?—Yes.

50. Q. (*Mr. Inglis.*)—On the point of the site of the bridge, have the Association considered that it would probably be necessary to have one bridge to provide for the traffic of the country to the west, as well as for that of the country to the north and east, or have they only considered it from the point of view of the northern and eastern sides?—I think only from the northern and eastern sides.

51. Q. Have they considered how the Bengal and North-Western Railway should be given access to Calcutta?—No.

52. Q. (*Mr. Kar.*)—You view it from a trades' point of view, and not from the point of view of any particular Company?—My view is from a trades' point of view.

53. Q. As regards whether the Bengal and North-Western Railway should have direct access to Calcutta, you do not view it from that point?—No, I am speaking broadly.

54. Q. Trade would be better served if the bridge was built at Sara?—Yes, that is my point.

55. Q. (*Mr. McLeod.*)—There is a very large traffic coming into Calcutta both from metre gauge and from broad gauge sources, but more from the latter?—Yes.

56. Q. Would you not consider it an unwise step to suggest introducing the mixed gauge to our terminals if the same would tend to cripple the larger trade?—Yes.

57. Q. (*Major Shelley.*)—Have you any information as to how the Bengal and North-Western Railway traffic could be given trade facilities in Calcutta. There is a fairly large trade coming to Calcutta, about 300,000 tons of grain and seeds for instance?—I cannot offer any suggestion on that point. It has a special reference to produce in which the Association are not so keenly interested.

58. Q. You have not considered it advisable to assist the Bengal and North-Western Railway entering into Calcutta?—No. The Association regard the Bengal Chamber of Commerce as better able to speak with authority on that particular point.

59. Q. (*Mr. Dumayne.*)—Would you derive no advantage from the Bengal and North-Western Railway having a station in Calcutta where they would receive your goods direct, instead of through another Railway?—Doubtless some advantage would be derived, but the proportion of traffic is negligible.

60. Q. But if the Bengal and North-Western Railway could arrange to receive your goods at a near terminal; that is to say, if there was no risk of having to send it some distance, would you not get some advantage from their being in Calcutta?—Yes, certainly.

EVIDENCE OF MR. E. A. NEVILLE, AGENT, BENGAL AND NORTH-WESTERN RAILWAY, Taken on the 25th January, 1907.

(*Witness*).—Before proceeding to give evidence, at the request of my Directors, I respectfully beg to hand in a protest against the constitution of the Ganges Bridge Committee.

(*President*).—I do not think the Committee have had an opportunity of discussing this, and I think I may say that the protest does not concern us as a Committee at all, and that we cannot receive it. You must address the protest to the proper quarter. We have nothing whatever to do with it.

(*Witness*).—Having done so, I have carried out the orders of my Board, and will proceed to read to you the following statement:—

As Agent of the Bengal and North-Western Railway Company, I desire to preface my remarks by a very brief statement of the lines worked, and volume of the traffic dealt with by our administration; and beg to present herewith a map showing its system and connected railways. This map shows, in addition to the lines now open, those under construction or awaiting sanction to construction, and also those under survey.

2. For the year 1906, just concluded, the following figures may be of interest:—

	Company's.	State.	Foreign lines worked over.	TOTAL.
Open mileage on 31st December, 1906	933·40	614·97	84·81	1633·18
Number of passengers carried . . . . .	...	...	...	14,878,366
Tonnage of goods lifted . . . . .	...	...	...	2,030,750
Number of stations open and worked by the administration . . . . .	...	...	...	258

3. Within a few months we hope to add 245 miles now nearing completion, including 35 stations. We shall then have an open mileage of 1,878 miles, and work 293 stations, excluding foreign line stations, through which we have running powers.

4. We further hope to start work on about 150 miles of new line during the present season, and have surveys on hand which will bring our open system, when the lines are finished, say, in 1909, to a total of 2,295 miles, of which—

Miles.	
1,278	will belong to the Bengal and North-Western Railway,
932	" " " Tirhut State Railway, and
85	" " " Foreign lines worked over.
<hr/>	
TOTAL	2,295

This represents an increase of 40 per cent. on the mileage at the end of December, 1906.

5. The country served by these lines is a rich and populous one, producing a large portion of the wheat, rice, seeds, sugar and timber traffic of the United Provinces and Northern Bengal. The cultivation of jute is increasing in Behar.

and it appears certain that before long this staple will become an important addition to the traffic of this railway to Calcutta, while the scientific cultivation and preparation of sugar has been taken up by the planting community. The fruit and vegetable trade with Calcutta from Tirhut is of importance, but is hampered at present by the ferry and transshipment. With through vehicle communication to Calcutta this, as well as a trade in farm and garden produce of all sorts, is bound to greatly develop. Tirhut is also one of the principal centres of tobacco cultivation.

While large quantities of the products of the districts served by the Bengal and North-Western Railway are despatched, for local consumption or export, to Calcutta, it is also the chief source of supply to these districts of many necessary articles, such as piece-goods, salt, kerosine oil, metals and machinery, and the Bengal and North-Western Railway obtains from it the bulk of its railway plant and working material.

6. As giving some further idea of the extent of the country served by the net-work of lines worked by the Bengal and North-Western Railway Company, I might tell you that it embraces an area of about 33,000 square miles, with a population of over 22,000,000.

7. With this brief preamble, I shall now proceed to the question immediately at issue, the site to be selected for the Lower Ganges Bridge. The first thing that I should wish the Committee to realize is the enormous interests that the United Provinces and western districts of Bengal, including the rich districts of Behar, have at stake in this matter.

8. I have already submitted, in reply to the Committee's enquiries, statements shewing the traffic dealt with at the Mokameh ferry over which practically all our traffic with Calcutta is now routed [see Appendix D^a]. The partial failure of the wheat and seeds crops in 1905, conditions which in a less measure continued throughout 1905, with practically little or no demand up-country for export wheat, have abnormally depressed the exports of these last two years. Going back to the last normal year 1904, it will be seen that the tonnage of goods interchanged between Calcutta and our stations was 505,878 tons, and the previous year 430,297 tons. In 1903, I estimated it at an average of 1,000 tons a day throughout the year, a figure which, as you will observe, has already been greatly exceeded. As Calcutta traffic has not been taken out separately for the whole period, it will aid the Committee if they will accept $\frac{2}{3}$ of the total goods crossed as to and from Calcutta.

9. As regards passenger traffic, the increases in numbers have also been very rapid. In 1900, the number crossed was 264,161, and has gone on expanding until last year it reached a total of 583,430 which would have been greater, but for the fact that, for a considerable time, portions of the Tirhut State Railway were breached by floods and communication interrupted. The figure of 1905 was 592,900. About one-half of these passengers are to and from Calcutta stations. A large part of it consists of coolie labour, employed in Calcutta, of which, I believe, jute mills take a large share.

10. These figures amply demonstrate—

- (i) The present large volume of our traffic, both in passenger and goods, concerned with Calcutta.
- (ii) Its rapid growth.
- (iii) The certainty of its being still much greater in view of the large extensions indicated above (paragraphs 3 and 4).

11. In the year 1899, owing to the inability of the East Indian Railway to deal adequately with our export grains and seeds traffic and inward coal traffic, serious loss resulted to traders in the country north of the Ganges and Gogra rivers; a loss in which both the Bengal and North-Western Railway Company, and Government, as owners of the Tirhut State Railway, participated.

12. In consequence of this state of affairs, my Board addressed the Secretary of State, pointing out how trade was suffering from the continued attempt to force the whole enormous trade of Northern India to Calcutta over one route which was unable to cope with it, and further representing that the continuous development of traffic, consequent on the opening up of the country by new

railways, rendered it imperative on commercial grounds—apart from political and military requirements—that this trade should have a second line of access to the sea-board. My Board, therefore, expressed the hope that the Secretary of State would take steps for the early construction of a bridge over the Ganges at Bhagwangola (Godagiri), with a railway into Calcutta, either on the standard or metre gauge, with necessary connections with the Northern Bengal State Railway and this system. As their letter and enclosed correspondence will place the Committee in clear possession of the facts then existing, I beg to hand in, for your information, a copy of my Board's letter No. 45, dated 17th October, 1899, and enclosures, which I would ask to be treated as confidential, and would invite a perusal thereof.

13. Again in 1901, my Board addressed the Secretary of State inviting his attention to further blocks of traffic which had then continued annually for four years, and submitting that such a state of things should not be allowed to continue; and offering to make a railway from Katihar to Calcutta without a guarantee of any kind.

14. Since 1901, although there has been alleviation at Mokameh in regard to downward traffic, we are in as bad a plight as ever in regard to upward coal, and the periodical panics referred to in my letter No. 1521, dated 17th August, 1899 (*vide* last enclosures to my Board's No. 45, dated 17th October, 1899), have become chronic. At the beginning of last year, and again this year, we have been reduced to about a ten days' average supply for the whole line, and at some of our depôts our stock has fallen to even a day or two's supply.

15. The cause of this is admittedly shortage of wagons on the East Indian Railway, the result being that, for the current year, we have been getting on an average only about $\frac{4}{5}$ ths of our contract quantities, and our coal balances which we fix at a three months' supply have been reduced as mentioned above. Our position to-day is extremely critical, and we do not know when we may have to stop trains.

16. A bridge at Godagiri or near Rampur Boalia, with short connections from Azimganj, would economically serve a portion of our Railway, and the greater part of the Eastern Bengal State Railway as regards coal, whilst safeguarding the remainder in the event of emergencies at Mokameh.

17. Taking into consideration the enormous and rapid expansions of the coal traffic, and the recent difficulties regarding its carriage both for this Railway and the Port of Calcutta, there is, we feel, no guarantee that the present clearance of downward traffic will continue when Mokameh and up-country exports, which have recently been suffering from crop failures and floods in Tirhut, assume their normal quantities, especially as the quantities must be greatly augmented in view of the important extensions already referred to.

18. I now come to the physical difficulties in maintaining the Mokameh ferry which are, at present, most immediate and pressing. During the last few years, these difficulties have become extremely acute, and have, at times, threatened complete stoppage of the steamers working our passenger and goods traffic, as the statement of interruption of traffic already furnished to you shews [*see* Appendix D⁵]. In support of this, I beg to hand in an extract from my letter No. 2217, dated 7th March 1906, to the Railway Board, written while the difficulties referred to were being dealt with [*see* Appendix D⁶].

19. Again in October last, we were subjected to similar troubles and have had to move our crossings to a completely new site, entailing the laying down of new lines on the south bank. This shift for some time caused serious inconvenience to passengers, and goods crossing was for a considerable period restricted.

20. I trust these facts will show that the Bengal and North-Western Railway struggle in this matter, for a second line of access to the sea-board, has been in the interests of the general public, including the town of Calcutta. It must, I submit, be accepted that a ferry such as I have shown Mokameh to be, is a serious difficulty on a main line of communication.

21. The necessity for independent through communication, without ferry disabilities for Bengal and North-Western Railway traffic, having been established, I will now proceed to the question of site and gauge.

22. It is greatly to be regretted that so far the influential mercantile community of Calcutta have not had the case fairly put before them. It seems to be assumed, in some quarters, that our Calcutta traffic will continue to follow the Mokameh route, when a bridge is built. Such an assumption is quite erroneous. Moreover, the volume of this traffic has been much underestimated, while it is assumed, if comparisons with that *viá* Sara are instituted, that all the traffic that now crosses by Sara would continue to be favoured as regards distance by the Sara route. This is not so. A large portion of the present Sara traffic would find its shortest route to Calcutta *viá* one or other of the western sites, assuming that two bridges were built.

23. The increase in lead *viá* Godagiri, as compared with Sara for traffic from the eastern districts and Assam, has also been much exaggerated. It has been publicly stated to be 40 miles, while the actual distance would be about 21, and if the Rampur Boalia site is taken, the extra lead, as given by the Railway Board, is 9 miles only.

My figure is based on the following distances :—

	Miles.	Total Miles.
Santahar to Godagiri	50	
Godagiri to Ranaghat	99	
	—	149
Sara to Santahar	52	
Ranaghat to Damukdia	75	
Bridge	1	128
	—	
Difference		21

24. From questions that have been put to preceding witnesses, and from articles in the public press, it would seem that the Calcutta public believes it is offered the choice between through broad gauge connection with the north Gangetic districts of Bengal and the United Provinces, and through metre gauge connection with the same country. There is no such choice. Either Calcutta can have through metre gauge connection with these great tracts of northern India, or all traffic, both passenger and goods therewith, will be penalized by transshipment. The conversion of metre into broad gauge in India is a financial impossibility. It would reduce to bankruptcy lines that are, at present, a great asset in the wealth of the country. The commercial community should remember what a benefit to the country the metre gauge has been. By it some 10,000 miles of railway have been made that would not now be in existence had the larger gauge been adhered to, and it seems somewhat ungenerous to forget this.

25. The volume of our goods traffic with Calcutta in 1904 was, as I have already shown, 507,000 tons. That of the Eastern Bengal State Railway for the same year, the heaviest to the close of 1905, was 520,000 tons. I estimate that the whole of our own traffic, *plus* about one-third of the Eastern Bengal State Railway traffic, would be favoured by the Godagiri or other site west of Sara. The western site has, therefore, preponderating advantages at present; and in view of this and the rapid expansion of our systems, we are convinced that a bridge is needed there and are prepared to build it, whether a bridge is built at Sara or not.

26. The following considerations further support this view :—The area of the country favoured by the Godagiri Bridge, excluding Nepal territory, which is a very important addition—is roughly 40,000 square miles with a population of 25 millions of inhabitants. The area and population favourably affected by the Sara site would be about 17,500 square miles, and 8½ millions of inhabitants. These figures show that the balance is much in favour of Godagiri. It has been repeatedly claimed that the commercial interests are

those which should decide the question. I submit that both on commercial grounds, and in the interests of the general public, the site we have advocated is the preferable one.

27. Representatives of the important jute interests in Calcutta appear to have specially favoured the Sara site. I can, in a measure, understand this, as the case has been presented to them, but I would venture to offer a few remarks for consideration. I have prepared a statement, abstracted from the final jute forecast of the Director of Agriculture, which I should be glad to have checked by some expert. The statement indicates that about $\frac{1}{3}$ rd of the total jute crop comes from north Gangetic districts, including the eastern districts of Jalpaiguri, Cooch Behar and Rangpur. The figures show, (they are subject to correction if I am in error), that $\frac{1}{3}$ rd of this jute crop would naturally belong to a bridge at Rampur Boalia or Godagiri, and the remaining $\frac{2}{3}$ rds to the Sara crossing and river. If, as is certain, the western bridge will save Goalundo and the southern section of the Eastern Bengal State Railway from congestion, are not these considerations in favour of the western site? I would like to mention that jute cultivation is gradually spreading west, and the possibilities in this direction should not be lost sight of.

28. In favour of the through metre gauge, I would remark that its introduction into Calcutta will considerably reduce transshipment, and the following items of traffic could, to start with, go through in metre gauge stock:—

- (1) All passengers and luggage.
- (2) All parcels traffic, which includes fruit, vegetables, fish and bazar packages.
- (3) Horses, cattle and other live-stock and carriages.
- (4) Goods traffic which can be received for despatch at, and delivered from, one or more suitable metre gauge goods depôts in Calcutta.
- (5) Grain and seeds to the Kantapukur sheds.
- (6) Tea to the warehouse at the Docks.
- (7) Kerosine oil.
- (8) It is also believed that arrangements could be made to deal with the salt traffic without transshipment.

29. Grain and seeds for direct shipment, goods to and from the Docks (other than in (5) and (6) above), the jetties and the Port Trust stations, also jute for mills, godowns and river delivery, will have to be transhipped between metre and broad gauges to start with, but it is hoped that, in course of time and with experience, many difficulties will be overcome, and the metre gauge will be welcomed into mills and other places to which it can be taken.

30. Any alteration in the Port Trust terminal arrangements, to admit of advantage being taken of the entrance of the metre gauge must be gradual, and carefully thought out. If no alterations are made, matters will be no worse for the Docks and jetties and the tea and jute trade than they would be if the metre gauge was kept out of Calcutta, but if the metre gauge is brought into Calcutta, general trade and the public must benefit.

31. By running metre gauge wagons through between stations up-country and Calcutta with full wagon loads, the question of economical haulage and cheap freights should come into operation.

32. The handling of what has to be transhipped might be carried out where the metre gauge crossed the broad gauge on its way to Calcutta, or at some other suitable spot towards Calcutta.

33. The interests of passengers, particularly native passengers, who contribute such a large share to the revenue of railways, require consideration in dealing with this important matter. With a bridge at Sara all passengers will have to tranship, Darjeeling passengers presumably during the night. With the metre gauge into Calcutta, through passenger trains can be run to Gauhati for Assam on the north-east, to Siliguri for Darjeeling on the north, and to Darbhanga, Muzaffarpur and Gorakhpur towards the north-west.

34. As regards the engineering problem, Mr. Izat has written:—

“ My Directors have satisfied themselves that an excellent site for bridging the Ganges can be obtained at or near Godagiri, and that the cost of a bridge there should not exceed Rs. 100 lakhs, and will be less than at almost any other site. There is a straight reach of the river for nearly 30 miles, and there will be no need of heavy training works on the northern side, owing to the banks being high and permanent.”

“ Mr. Spring, who was specially deputed to investigate the question of bridging the Ganges in its lower reaches, reported that the cost of the bridge at Godagiri, would probably not exceed 110 lakhs of rupees, against 130 at Sara where, moreover, my Directors are of opinion that, from an engineering point of view, the bridge could not be safely built.”

35. I will now conclude my remarks by repeating my replies to the Committee's enquiry as to the benefit that trade will derive if the Bengal and North-Western Railway gets an independent entrance to Calcutta. This benefit may be briefly stated as follows:—

- (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 transhipment.
- (iii) Prompt provision of wagons.
- (iv) Simplification of rates and conditions owing to the 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 and opening up of new country will be stimulated, and these will feed the main trunk line with new trade for Calcutta.

* * * * *

1. Q. (*Major Shelley*.)—From the statement you have been good enough to furnish us, am I correct in assuming that about 25 per cent. of the total traffic crossing at Mokameh could not be diverted to a route unfavourable to the East Indian Railway—that 25 per cent. is the collieries' traffic?—Yes.

2. Q. Of the balance of the Mokameh traffic, about 5 per cent. being railway materials could be diverted to your route I presume?—We could hold that traffic.

3. Q. Of the remaining 70 per cent. which crosses at Mokameh, about 63 per cent. is Calcutta traffic, and the remaining 7 per cent. is what we may term local traffic. I presume the whole of this 70 per cent. would be either subject to competition or by arrangement with the East Indian Railway?—Yes.

4. Q. Can you tell us what the local traffic probably consists of?—You mean the local traffic for Calcutta?

5. Q. The local traffic short of Calcutta—A good deal of it is, I believe, traffic for the mills short of Calcutta. If you look at the statement which I gave you [*see Appendix D*], you will see a reference to it there. Practically, the whole of the traffic short of Calcutta would continue to go *viá* Mokameh, though I may mention there is a portion that might go *viá* Bhagalpur.

6. Q. In regard to the competition for the remainder, about 63 per cent., how much do you think you could hold, given command of the railway into Calcutta by a Lower Ganges bridge?—We think we could hold it all.

7. Q. The grain and seed was 45 per cent. in 1904; you consider you could hold the whole of that?—Certainly.

8. Q. Do you anticipate that your position in regard to holding this traffic would be actually affected by the precise location of the Ganges Bridge?—I do. Seeing that the competitive distances are rather close, the position of the site affects us considerably.

9. Q. The difference in distance between Godagiri and Sara is only about thirteen miles?—I would hand in a statement; it may be incorrect. I have prepared it as carefully as I can from the Eastern Bengal Railway timetable and from Mr. Spring's figures. The difference, as I make it, is 20 miles.

10. Q. Assuming that the difference is thirteen miles as taken out by the Director of Railway Construction, would your hold on the traffic be appreciably affected?—It would be appreciably affected. The bridge at Sara would belong to, and the junction would be worked by, a foreign administration. The evils of transshipment would be minimised at Godagiri if we worked the lines on both sides. It would not be the same at Sara, and, besides, we know that, at times, the section between Sara and Calcutta is liable to congestion. The Railway Board have told us that.

11. Q. I think you are, perhaps, hardly correct, because I understand from the Eastern Bengal Railway that they are very far from being congested?—My authority is the Railway Board's statement which was published in the Government of India Resolution [see Appendix A¹]. And remember, when this enormous additional volume of traffic comes, whatever they may be able to do now, it does not follow that they will be able to do it then.

12. Q. Can you tell me what the increase in the grain and seed traffic is due to?—Opening of new extensions to some extent. We have been very rapidly extending our system.

13. Q. Can you give us any estimate of the anticipated increase in the grain and seed traffic which you anticipate will result from these extensions?—In 1904, the total Calcutta traffic was 500,000 tons, and when all our extensions are open, I estimate it may be 750,000 tons, or an increase of 50 per cent. I am taking into consideration the general development of the country.

14. Q. In regard to the remaining outwards commodities, *i.e.*, saltpetre, tobacco, sugar, and miscellaneous goods, do you think you would be able to hold these items in competition?—For Calcutta?

15. Q. For Calcutta—Yes.

16. Q. They would be similarly affected by the exact location of the Ganges Bridge?—They would, by exact I mean there or thereabouts. It is merely a case of Sara *versus* the other sites.

17. Q. Now as regards your inwards traffic, what portion of the salt traffic could you hold in competition, bearing in mind that an appreciable amount might be consigned from the Howrah side of the river?—I should think all. I don't see any reason why the Salt Department should not bring their salt to a station on our line if we had an entrance to Calcutta. They probably would. Their salt godown is movable I believe.

18. Q. Salt is your big item of import; do you think it would be largely affected by your extensions?—Certainly.

19. Q. May I take it at a 50 per cent. increase?—Yes.

20. Q. Oil also is one of your important inward items. Do you think you would require any special facilities to deal with it effectually?—Probably we would. We would probably want an extension down to Budge Budge. It would be presumption on my part, at this stage, to give you a cut and dried scheme for our arrangements in Calcutta. I would not presume to do so. All I can give you is a rough idea of what we would do. It would require a great deal of time to go into the matter properly, and we should have to consult all the different commercial bodies. I think it would be quite possible to get to Sealdah, also possible to have a station at Chitpore, and possibly at some other sites and run to the docks and possibly extend to Budge Budge. I can only give you this as the general idea without professing it to be a very accurate statement.

21. Q. The result of your competing with the East Indian Railway for the Mokameh traffic would be a considerable lowering of rates on both sides?—I have not the slightest doubt that when you have a double line to the town, rates will tend to go down. It will benefit the Calcutta community.

22. Q. And cause a large loss to Government?—No. The line that is chiefly benefited by the extension from Barauni to Calcutta will be the State Railway. As a matter of fact, if we were playing a selfish game, it might pay us to tranship everything at Digha, and quote high rates over the Bengal and North-Western Railway. What I want to make clear is that we have been playing an open game in the interests of the public, and those of the State Railway of which we are the custodians.

23. Q. And you expect a sufficient development of traffic resulting from competition to justify it, whether it causes a loss or not?—I do.

24. Q. Through this competition which you anticipate the mercantile community will be in no way inconvenienced?—They will be benefited. They must be benefited.

25. Q. Once the Godagiri-Katihar link is completed, I presume the struggle will have to come off whether the bridge is or is not made?—Quite so. As soon as the Godagiri-Katihar line is opened for traffic, providing an alternative route, competition can arise, whether a bridge is built or not.

26. Q. The competition will probably ultimately terminate by an agreement with the East Indian Railway?—No doubt.

27. Q. Without forcing your hand in any way, do you think that would operate much against the figures you have given us?—I do not think it would. I do not want, naturally, to go into details.

28. Q. There being a difference of only about thirteen miles between Godagiri and Sara, competition can hardly be seriously affected by such a very short lead?—Really it is such an important point about this thirteen miles that I would like it to be definitely settled. It should not be made public that it is thirteen miles, if it is more. When you talk of thirteen miles, would the junction be at Nattore?

29. Q. The junction would be near Nattore—To the best of my knowledge the figures I have given are correct, shewing the excess distance as 20 miles.

30. Q. Now you have advocated the extension of the metre gauge into Calcutta?—Yes.

31. Q. In the event of this extension being approved, how would you propose to give facilities for the termini in Calcutta?—It would be presumption on my part to attempt to give you a cut and dried scheme.

32. Q. You do not see how it can be done?—I do not think there would be serious difficulty about it. In all these big problems there are difficulties.

33. Q. Are you actually of opinion that the metre gauge could be introduced into all the termini in Calcutta?—My own opinion is that it could be introduced into some, but not into all the termini. I tried to make it clear in my statement that I would not attempt to run to the jetties or to the wharves at the docks. I should run to a transhipment station and to the warehouses for wheat and seeds. I should have a local station at Sealdah. I should look out and see where I could get other suitable stations to meet the requirements of trade.

34. Q. I was going to ask your opinion as to serving Calcutta by a metre gauge to such an extent as is possible, and transshipping at a near junction such traffic as must be carried by the broad gauge?—I think that is the scheme that ought to be adopted. I think that is the proper way of looking at it.

35. Q. What is your opinion of the relative advantage generally of the transshipping station being near Calcutta or north of the Ganges?—My view is this, the less you have to tranship the better; and the nearer you approach to Calcutta, the less there will be to tranship.

36. Q. In the event of it being decided not to bring the metre gauge south of the Ganges, what is your opinion as to facilities which should be given to your administration to enable it to serve Calcutta properly?—Well, the minimum facilities that my Board laid down some time ago, if the bridge was

started at once, were that they should build the bridge themselves, and have their own transshipment station, with powers to quote through rates to Calcutta.

37. Q. Running powers?—The power to quote through rates is what we laid down as essential.

38. Q. Now bearing in mind terminal delays in the congested yards in Calcutta, do you anticipate any difficulty on your side in regard to either broad or metre gauge stock?—We should do as we have done in the past, provide additional stock when we want it.

39. Q. I understand that the location of the bridge at Godagiri is so important, that if a bridge was built at Sara, your administration would insist on building one at Godagiri?—They will not rest contented, till there is a bridge near Godagiri.

40. Q. You said your traffic had been seriously blocked by the inability of the East Indian Railway to provide stock for its transport, but in the statement you have put forward there is apparently no such case? [*see Appendix D*].—It is admitted that prior to 1902, there were very serious blocks. There is no doubt about this. It was brought to the notice of the Secretary of State, and there is no question about it.

41. Q. But you do not give one case?—Our correspondence with Government will prove it.

42. Q. (*Mr. Dumayne.*)—We have been studying the possibility of dealing with the metre gauge in Calcutta termini—possibly you saw the different warehouses and the general arrangement of the lines? (referred to map)—Yes, I had a good opportunity of seeing them.

43. Q. Looking at that plan (plan of lines to tea warehouse), would you say there ever would be a possibility of our working the metre gauge traffic there?—I do. You would want some sort of accommodation for shunting, etc., but there is no difficulty so far as running a metre gauge alongside is concerned.

44. Q. (Refers to map). May I ask you to notice that there is a scissors crossing, and with the broad gauge only there are eight crossings; if the metre gauge is brought in, it would increase the number of crossings to 21?—I see that.

45. Q. I am struggling to find out whether this is a feasible or non-feasible arrangement. Imagine to yourself that you have some broad gauge and some metre gauge wagons upon those lines and you have to run those in, would it not block the arrangements?—Is it not the case that you run in special trains of tea once or twice a week? Could you not arrange that your broad gauge trains came in on certain days, and the metre gauge on other days? Is it not a matter of arrangement? You deal with say from 10,000 to 14,000 tons spread out over the year. I think this would be possible.

46. Q. I wish we could put it in that way, but though I wish to be respectful to the trade, it must be remembered that the trade is very unreasonable; that it will not have a programme. It will insist on its tea going to its shed on the very day that it wants it, and I must ask you, therefore, to consider such an arrangement as that not possible?—Probably, I am not assuming that we could carry the tea from the tea warehouse to the wharf.

47. Q. (*Witness.*)—How long would it take you to unload a wagon of tea?—(*Mr. Dumayne.*)—Our contract time is 36 hours. Sometimes it would take a very short time, and sometimes we should take the whole of our 36 hours.

48. Q. The opinion I would form is that it would add very considerably to our difficulties in dealing with the traffic, and would cause many delays and risks of accidents and derailments?—As regards risks, you are running slow. It is shunting. I do not think there would be any risk.

49. Q. I do not know whether it was made clear from what has gone before as to whether you had a preference for a transshipment station near to Calcutta to a transshipment station north of the river. For which have you the preference?—Near Calcutta. As I explained, the less we tranship the better.

50. Q. You still would have to tranship then?—Yes, probably most of the jute.

51. Q. Could you, for our assistance, say what would be the possible advantage of the nearer transshipping station?—I would only say, in a general way, that it stands to reason that the nearer the transshipping station is to Calcutta, the less the traffic that would have to be transhipped.

52. Q. Could you show any advantages with regard to the export business by being nearer Calcutta?—As regards transshipment?

53. Q. With your transshipment station nearer Calcutta—I should hope that for local traffic we should be able to have stations sufficiently convenient to the seats of trade, and we would be able to obtain most of our local traffic in metre gauge wagons without transshipment.

54. Q. When you refer to the possibilities of increased traffic by the arrangements you proposed, and gave us figures for 1903 and 1904, did you reckon on the fact that this traffic is influenced by other qualities than railway facilities?—I should say that railway facilities play a very large part.

55. Q. Is not the traffic rather influenced by the condition of the crops in India, or the scarcity of crops at home?—Certainly.

56. Q. In fact India's chance has been when such occasions have arisen?—I suppose so—combination of good crops and favourable markets.

57. Q. So that the mere improvement of railway facilities would not necessarily amount to that difference between 1904 and the bad years?—Seeds have to be exported, and they would be exported to Calcutta, Bombay or wherever it may be. The idea is that having the crop to get rid of, you would have better means of getting it to market.

58. Q. You do not, in your estimates, calculate upon railways always getting that traffic?—Not always, but I take it as an average.

59. Q. Therefore it is not entirely due to extensions that these differences are due?—No, I do not think I ever meant to convey the idea that it was entirely due to extensions. It is a question of good crops, extensions and so on.

60. Q. Generally you say that the improvement of facilities would lead to increased amounts?—Undoubtedly.

61. Q. Then when you say that you were put to great difficulties with regard to coal, it would be to a large extent removed by getting access to Calcutta. You mean, I suppose, that you relieve congestion on the direct line to Mokameh?—Excuse me, I don't think that was what I said. What I meant was that it would be a great help to us to have alternative rail access to Calcutta.

62. Q. How would it help you to maintain your coal supply?—I run my trains into Katihar at present and would have access to the coal fields *via* Azimganj.

63. Q. You would have to go from the collieries?—Yes, up the Ondal-Sainthia line.

64. Q. You have spoken of the inconvenience in transfer stations; would you really be disposed to put much value upon that from a passenger point of view?—Yes, certainly.

65. Q. I speak of a transfer station merely across the platform?—Most of us will object to having to change carriages at two o'clock in the morning.

66. Q. (*Mr. Kar.*)—Do you not think that a bridge at Mokameh would remove the ferry difficulties referred to in your note?—The ferry difficulties might be removed, but who is going to make a bridge at Mokameh and why Mokameh?—You may have a bridge at Patna or Bhagalpur. What benefit having it at Mokameh? It does not get over our difficulty, or a double line access to Calcutta.

67. Q. Did you say that you would build a bridge at Godagiri at your own expense?—Yes, under certain conditions. My Board offer to make a bridge and to make a line into Calcutta. Of course, we would not build a bridge for nothing.

68. Q. With a bridge at Godagiri you want to have access to Calcutta *via* the Godagiri-Ranaghat Railway?—Well, if we cross at Godagiri I suppose we will get in by the Godagiri-Ranaghat line, but if the bridge was built in the vicinity of Rampur Boalia there would be metre gauge connection. There are certain points of advantage in the proposed introduction of the metre gauge by such a route.

69. Q. So that you also advocate the independent metre gauge connection in spite of the broad gauge lines running from Godagiri to Ranaghat and from Damukdia to Ranaghat?—Yes.

70. Q. By opening up a separate metre gauge line you will divert the traffic from the Godagiri-Ranaghat line?—Undoubtedly, a certain amount of it. Look at my map. We are now extending lines running exactly the same way as the Railway Board propose doing between Rampur Boalia and Ranaghat.

What you want is more railways in this country. The country will not suffer. The outlay will all come back.

71. Q. Have you a sufficient knowledge of the country, and do you consider it sufficiently rich to justify the opening out for traffic at such an enormous outlay?—It would not be an enormous outlay, and it would, I think, be justified.

72. Q. The distance between the Damukdia-Ranaghat line and the Godagiri-Ranaghat line would not be more than 40 miles?—I believe so.

73. Q. So that you advocate another line of railway between these two?—Yes.

74. Q. Are you aware that there are navigable rivers in that country?—I cannot speak with certainty, but I accept your statement.

75. Q. Do you think that the enormous traffic awaiting immediate handling at Sara Ghat, and the transshipment of which is now causing great loss and delay to the mercantile community, justifies the demand for a bridge at Sara?—I would sooner not answer that.

76. Q. I ask you for your opinion. It is a stern fact that a very large traffic which requires immediate and better handling is causing considerable loss to the mercantile community on account of delay in transshipment. Does this not require immediate remedy?—My reply is that a bridge at Godagiri would answer the purpose.

77. Q. Would you now, in selecting a site for a bridge, not be influenced by the fact that while immediate difficulties have to be grappled with at Sara—at Godagiri it is not even a question of the near future?—Have we not immediate difficulties at Mokameh?

78. Q. (*President*.)—You told Major Shelley that you would retain all your present traffic. Do you mean you would do that without being allowed to quote special rates?—I would do so within the prescribed minima.

79. Q. Supposing you have the concession made regarding through rates to Calcutta. How do you think the rates would affect the rates quoted over the Eastern Bengal State Railway? Would it tend to reduce their rates?—I have not the slightest doubt that it would tend to reduce the rates; it would benefit trade. [The witness subsequently stated that he had misunderstood the question and desired to answer it as follows:—I do not think it would affect Eastern Bengal State Railway local rates.]

80. Q. You do not think that there would be any loss to Government?—I do not, if you weigh other things with it.

81. Q. If the metre gauge was given partial admission to the Calcutta termini, you would even then prefer it came across the Ganges?—My Board are quite prepared to accept the decision of the Government of India in this matter. While they think it very desirable to have through running without a break, they are prepared to abide by the decision of Government.

82. Q. Returning to the Godagiri site, are you aware that Mr. Spring has stated in his report that the through distance for your traffic was the same by either route *via* Godagiri or *via* Isabpur?—Up to this date we have not

received a copy of Mr. Spring's report, except as a confidential document, and I have had no power to criticise it and some of the figures in it I note are incorrect.

83. Q. Will you take it from me that there is no difference practically?—I am prepared to accept your distances.

84. Q. Knowing that, would you still have a bridge at Godagiri rather than at Isabpur?—It would, I understand, make little difference in distance if we got a bridge at Isabpur.

85. Q. Supposing you had your own transshipment north of the Ganges and broad gauge stock running through, how many broad gauge trains do you suppose you would have up and down?—Four trains up and four trains down.

86. Q. Passenger trains?—Yes, fully that. We should also run about six goods trains each way.

87. Q. Do you think that these 20 trains would be an additional tax to the double broad gauge line with a capacity of 250 trains a day?—Not much, unless there was congestion.

88. Q. I only ask you how many broad gauge trains you would have from the transshipment station to Calcutta?—About 20. The number would, no doubt, increase.

89. Q. What have you calculated the extra mileage at if traffic goes *viâ* Sara instead of Godagiri?—Twenty miles.

90. Q. Supposing your traffic was carried free over those 20 miles, would you still object to Sara as the site for a bridge?—I think we would, I don't see how any one could carry it free.

91. (*Mr. McLeod.*)—That is the Railway Board's suggestion?—That is over the 9 miles; they refer to the State Railway traffic.

92. Q. What is your yearly loss in the way of payments to the public for damage?—So far as I have ascertained, the pecuniary loss is small, about Rs. 1,000 a year.

93. Q. The ascertainable loss is small?—Ascertainable loss is much greater. The complaints sometimes made against our railway have, in a large measure, been caused owing to transshipment. Delays in getting up goods and loss in consignments.

94. Q. You cannot be sure that it is at the transshipment station?—No. A great deal of this trouble arises in not having control of the traffic from its departure to its destination.

95. Q. And you think if you had full control all the way there would not be much trouble?—Yes. The trouble would be very much less. We would have our own staff on each side of the transshipment junction. I am only stating as a fact that loss does occur. It may be on our line. It may be on the other line. There are certain consignments such as salt and kerosine oil that suffer by transshipment, a great number of the bags and tins leaking due to additional handling.

96. Q. The loss may be removed by better supervision?—If you could put your finger on a defect you could correct it. If you cannot put your finger on the point where the trouble arises what can you do?

97. Q. Supposing that the provision of a metre gauge terminal accommodation in Calcutta cost a very large sum, do you think the traffic would cover the cost of interest and maintenance?—We recognise that there are difficulties, and my Board are prepared to leave the matter in the hands of Government. I think these difficulties are bound to occur in any scheme of this kind.

98. Q. Have you any idea of the jute mills in Calcutta which are connected by sidings to the railway?—I know there are a great number of jute mills. I quite realise the difficulty there would be in regard to them.

99. Q. I suppose you realise that if the metre gauge came into Calcutta a great deal of jute would be for the mills, and would have to be transhipped?—Yes.

100. Q. You would not recommend the introduction of metre gauge sidings into these?—I recommend the metre gauge anywhere that it could be taken.

101. Q. Jute is a far more stable article than wheat?—I am not in a position to form an opinion.

102. Q. You know jute is grown only in India?—I accept the statement from you.

103. Q. The price of jute is much like the price of wheat?—Does it not fluctuate?

104. Q. Are you prepared to admit that jute is more profitable than wheat?—I should like to suspend judgment. I do not think you could say that one crop is a more stable commodity in the country than another.

105. Q. You do not think that rail-borne jute to Calcutta fluctuates more or less than the rail-borne wheat to Calcutta?—I suspend my judgment.

106. Q. You were asked if a bridge at Mokameh would not assist you?—It would not give us a second line of access.

107. Q. (*Mr. Inglis.*)—Will you tell me at what you estimate the total annual capacity of a double line of standard gauge for goods traffic?—I cannot say straight off. I could give it to you for metre gauge if the conditions are known. It would depend upon the length of the bridge, and the time occupied in crossing from one block station to another.

108. Q. The point I was endeavouring to get at was, assuming that a certain volume of traffic came from the north-western and eastern districts, one bridge would be sufficient to convey that traffic?—I have no doubt that one bridge would be sufficient for the present, what the future would be I cannot say.

109. Q. Assuming for a moment that one bridge would be sufficient to carry the whole volume of traffic, would it not be an extravagant measure to build a second bridge?—I am not going to say it would be extravagant. The money spent on railways is a magnificent asset in the wealth of the country, and the more you extend railways without any wild-cat ideas of promotion, the better it is for the country.

110. Q. (*Mr. McLeod.*)—Apart from all question of the site of the bridge, do you recognise the urgent necessity of a bridge over the Ganges?—Yes.

111. Q. In selecting a suitable site does it not follow that the most suitable site would be where the cost of constructing a bridge is least, and the spot nearest the largest volume of traffic?—I would build a bridge where it could be built at the least cost, all other things being equal. I would not trouble over much as to the length of additional connecting lines that have to be dealt with, provided those connecting lines ran through fertile country which, in themselves, would support the connecting lines.

112. Q. You say that you would build the bridge at the spot which costs the least?—All other things being equal.

113. Q. According to the statement submitted by you, out of the total traffic passing at Semaria in 1903-1904 just under 62 per cent. was "grain and seeds" [*see Appendix D*]. I presume we take this year's traffic at the same ratio?—I am not quite sure, the wheat and seeds have been reduced, while salt and other traffic is increasing.

114. Q. What difference is there in mileage in the East Indian Railway route and other routes?—As compared with Godagiri, it is 70 miles less, excluding the ferry. This refers simply to the traffic passing through Barauni. If you look at that map you will find that the districts which are opening up will open other routes from Darbhanga and elsewhere.

115. Q. If the introduction into Calcutta of the metre gauge is found to be feasible, is it your intention to control the working?—That is for Government to decide.

116. Q. Assuming that your line ran direct into Calcutta, would it not be a loss to Government?—No, certainly not.

117. Q. Would it not suit you equally well to have a feeder into Calcutta from the broad gauge with your own rolling stock?—It would meet us. It is one of the proposals of my Board.

118. Q. Would not the increased speed in the carrying capacity of the broad gauge stock compensate for transshipment?—No.

119. Q. Would it not be a great convenience to have your supply of coal carried in your own wagons to Mokameh if you had running powers on the broad gauge system?—As a matter of fact it has been decided that we should have our own wagons for the carriage of coal from the collieries to Mokameh.

120. Q. In order to divert the traffic past the Mokameh route you must appreciably reduce your rates?—No, I don't think so.

121. Q. Assuming the metre gauge was brought into Calcutta, what junction on your system, as regards passengers, would be common to the new route and the East Indian Railway? Where would you make a start from?—Barauni I think.

122. Q. In the same way as to induce goods traffic must you not also cater for the passenger traffic from that district?—No, not necessarily.

123. Q. At what speed do you run your passenger trains?—Some at a through speed (including stoppages) of 22 miles an hour. I think the day is coming when we shall be running fast passenger metre gauge trains at 30 miles on our main line.

124. Q. If the traffic of the tract of country which you serve were to increase to such an extent as to warrant the East Indian Railway bridging at Mokameh for broad gauge near your system, would you oppose it?—Yes.

125. Q. So that while you would like to come into Calcutta you would not like any one else to trespass on your preserves?—Well, the conditions are different. Am I to understand that the Calcutta community do not want an additional communication to Calcutta?—Do they look upon it as an evil?

126. Q. Would it really not suit all concerned better if the river was bridged at Mokameh, and the traffic brought to Calcutta on the broad gauge by a shorter route over the East Indian Railway?—No, it would not. I have already told you that we want a second line of access.

127. Q. Don't you think that within the next 5 or 6 years the Railway Board would ameliorate the difficulties, and by the time the bridge is finished, the East Indian Railway would be in a better position to deal with traffic than they are now?—I have no doubt the Railway Board would endeavour to make great improvements, but while they are improving, the difficulties would be increasing.

128. Q. In the Railway Board's note, paragraph 15, it is stated that no greater charge would be levied by the new route than if it were built at Sara?—I have tried to explain that, at a transshipment station, there is great difference as to transshipment worked by one administration and transshipment by a number.

129. Q. Under the most favourable conditions you have, at present, not more than four hundred thousand tons for which you can compete?—No. I gave you 507,000 tons which was a good year. Since then we have been opening out more country.

130. Q. Is not a percentage of that quantity only problematical?—A small percentage only.

131. Q. You hold that the East Indian Railway could hold none of the traffic?—You may accept that we can, at any rate, hold the great bulk of it.

132. Q. As a Railway expert and a business man, would you not consider it very unbusiness-like to put a large traffic at a disadvantage for the benefit of a small and only problematical one?—Yes, I think so.

133. Q. Have you any knowledge of the difficulties at Sara Ghat?—I have heard of them. I know they have had difficulties.

134. Q. Your own difficulties are very light. I am only judging from the cost of it. Your lifting sidings and incidental expenses are not more

than 11 per cent. of your working expenses?—The best answer I can give is our figures (refers to statement) [see Appendix D¹].

135. Q. You do not find your wagon ferry very satisfactory?—No, though as a wagon ferry it is as good as many of its kind that exists in India.

136. Q. At Damukdia it is more unsatisfactory?—If the conditions were worse it would be more unsatisfactory. It just depends on what are the conditions.

137. Q. Have you had any representations from any public Association of Calcutta, or elsewhere, suggesting the entrance of the metre gauge into Calcutta, or is it entirely an idea of the Bengal and North-Western Railway for the good of the Bengal and North-Western Railway?—We have received no applications from any of the Calcutta community or representative bodies, and I think it indicates the necessity of our being in Calcutta, because I am certain had we been so our views would have been better known, and the views formed by the Calcutta community would have been modified a great deal. The Behar Planters' Association and the Behar Landholders' Association are in favour of the entrance of the metre gauge into Calcutta.

138. Q. The largest traffic you have is in grain and seeds. The traffic in the year 1903-1904 inwards was exceptionally large, was it not?—Yes, was exceptionally large as compared with previous years. Since then we have been opening up the country by new lines, and I am not exaggerating in stating that 500,000 tons would be a very reasonable average to put down for our traffic *via* Godagiri.

139. Q. These were abnormal years?—I do not think so.

140. Q. Have you doubled the mileage of the Bengal and North-Western Railway in these two years?—Certainly not, but increased mileage had something to do with it.

141. Q. Can you give us the percentage of extra mileage brought into force these two years?—The figures are

1902—1,265	}	miles, excluding foreign lines worked over.
1903—1,330		
1904—1,406		
1905—1,467		
1906—1,548		

142. Q. The traffic in these articles is, therefore, fluctuating. So that, including this year's figures, it would not be a very favourable average?—I have given you what I think the weight of the traffic would be.

143. Q. In the figures given by you the average cost of the Mokameh ferry is Rs. 1,72,000 roughly?—That is for working, salaries, loading, fuel and so on.

144. Q. Have you charged for block estimates?—Our block capital is about 24 or 25 lakhs. The interest came to about a lakh of rupees, and depreciation to Rs. 70,000.

145. Q. That would show that you make a large profit out of it?—Possibly.

146. Q. Take it altogether the bridge will be cheaper than the ferry?—Yes. A bridge would pay us.

147. Q. If you have to carry the whole of the Calcutta traffic by the new route, would you not still have to retain the ferry for the balance of the amount of the traffic at about the same cost?—No. We would certainly have to retain the ferry, but the amount of traffic dealt with and the cost also would be very much less as the ferry arrangements would be reduced.

148. Q. And the receipts would diminish accordingly?—Yes, certainly.

149. Q. It would, therefore, be a loss to you?—No.

150. Q. In your statement of 19th January [see Appendix D¹] you state the line between Calcutta and Sara would become still more congested. Do you mean by this that the line from Sara is not sufficient to carry your traffic?—I make that statement from an official document which is before you.

151. Q. If that was your belief, how can you suggest, further on, that the Bengal and North-Western Railway be given running powers over the broad gauge into Calcutta, providing its own broad gauge stock? You say in one case the line is insufficient, and, in the next case, you say you want running powers over it?—A certain amount of traffic will continue to go by Mokameh whether a bridge is built at Godagiri or not; in the same way, if a bridge is built at Godagiri, a certain amount of traffic will possibly go by Sara. Certainly, the whole of the Goalundo traffic, and the traffic to the south by Damukdia would go over the Sara-Ra naghat line.

152. Q. Do not these two statements made by you suggest that the broad gauge is capable of taking your own traffic on your own stated terms that is, with your own rolling stock, and that such an arrangement would be a suitable one?—It would not we think be a suitable arrangement.

153. Q. Is it not a fact that your original intention was to enter Calcutta on the broad gauge?—The official document was a claim for a second access to the sea-port either on the broad or metre gauge.

154. Q. Then the broad gauge or the metre gauge would suit you equally well?—No, I could not say that.

155. Q. You are prepared to accept one or the other?—We are prepared to accept the decision of Government.

156. Q. Have you any reason to believe that the trade in the tract of country you serve is likely to substantially increase?—Yes.

157. Q. When the metre gauge system was introduced into India, was it not in view of providing a cheap substitute for the broad gauge if the prospects of traffic did not in the near future warrant a broad gauge line?—I hardly think so.

158. Q. Speaking generally, and not with special reference to your railway, is it not the case when traffic increases very much on the metre gauge railway it becomes a main line and it loses its original characteristics of cheapness?—No, certainly not. As a matter of fact as we go on increasing, our working expenses are reduced.

159. Q. Looking at the fact that the broad gauge railway is the recognised standard in India, and is now linked between the metre gauge and the sea-port, does it not suggest that a mistake was made in the introduction of the metre gauge?—No greater fallacy was ever started. The mercantile community are indebted to the metre gauge for at least 10,000 miles of railway which would otherwise not have been made.

160. Q. You suggested that, in the event of your possibly not getting the bridge with the connections at Godagiri, traffic might go to Bombay. Can you explain how it might go to Bombay? I suppose it would have to go *viâ* Cawnpore?—Yes, *viâ* Cawnpore to Bombay.

161. Q. You made some mention of jute growing in Behar. Can you, from your own knowledge, say that the jute industry of Behar is capable of large extensions?—Not from my own knowledge, but from what I have heard it is capable of extension.

162. Q. If only partial entry could be given to the metre gauge to Calcutta, and the interest on the cost of making the line into Calcutta was greater than the cost of transshipment from line to line, would you still advocate the construction of that line into Calcutta?—I would. I think it would be to the interests of the country and the interests of the railway alike.

163. Q. If you had a bridge at Godagiri what do you intend to do as regards conversion of the broad gauge line?—Again, we are in the hands of Government. We would have to tranship at present.

EVIDENCE OF MR. C. J. KERR OF MESSRS. MACKINNON, MACKENZIE & CO. Taken on the 25th January, 1907.

1. Q. (*President.*)—On your visit to Madras did you observe the arrangement of the metre gauge and the broad gauge railways?—Only casually; I went down for the purpose of seeing the landing and shipping arrangements.

2. Q. Did you observe the manner in which the traffic was handled, and can you describe this to us?—I saw wagons being shifted both by hand and by engine, but am unable to enter into this question in any detail. I should say the majority of the metre gauge wagons are hand-shunted; that is from observation in the early morning when I used to go round the harbour. I rarely saw an engine doing the shunting work.

3. Q. Have you heard of any derailments?—I heard of no derailments.

4. Q. Have you heard of any difficulties or delays owing to the mixed gauge?—I have not heard of any difficulty, and I have not heard any complaints either from merchants or others about it.

5. Q. Do you consider the arrangements bear any comparison to the transit sheds at the Docks where the large ocean-going steamers are loading cargo direct from the wagons and the sheds?—I do not consider that they bear the slightest resemblance to our dock sheds here. In my opinion, the volume of traffic handled at the beach in Madras is infinitesimal compared to what it is in the Kidderpore Docks.

6. Q. Under what arrangements is cargo unloaded from wagons and taken to the ship and *vice versa* at Madras?—Bulk cargo, *i.e.*, generally local cargo, or bag cargo is headed by coolies. They open the doors of the wagon and the cargo is put on to the coolie's head and he heads it right through the shed and puts it into a masullah boat for shipment on the steamer. Home cargo, like railway material and cargo of that nature, is handled on the jetty. It is railed down or railed up as the case may be, and handled by steam cranes at the end of the jetty.

7. Q. Have you any knowledge as to the cost of handling cargo at the mixed gauge terminus?—It is a little difficult at Madras to ascertain the exact cost because they do not work on the tonnage basis as we do here in Calcutta. They employ labour at so much per coolie, anything from $4\frac{1}{2}$ to 5 annas a head. I estimate that it costs about 7 annas a ton to handle ordinary coast cargo, land it on the beach, bring it into the shed and take it from the shed to the railway wagons. For taking it simply from the wagon into the shed you probably pay very much less, probably $1\frac{1}{2}$ or 2 annas a ton at the outside. I think if the two godowns are kept quite separate at the terminus at destination, it is a comparatively simple matter to work mixed gauge. It probably is a simple matter in Madras, because the narrow gauge comes from the south, and the standard gauge from the north, and there is very little mixed traffic. Both railways come practically abreast of the exporting sheds, so that it would be unfair to compare Madras with Calcutta.

8. Q. You mean the broad gauge trains and the metre gauge trains work independently?—The narrow gauge trains go on to the coal and oil depôts. These are two quite distinct traffics and very little confusion could arise, because the oil is entirely at one corner, and at the other there is nothing but the coal. The distance, of course, is very short from the end of the metre gauge into the coal depôt—I should say about 2,000 yards.

9. Q. (*Major Shelley*.)—I take it the main point is that the difference in the volume of traffic handled is so pronounced, that no fair comparison can be instituted?—That is so. It strikes you at once. You see three or four wagons, at the outside six wagons on each gauge. You cannot compare that with a busy day at the Kidderpore sheds.

10. Q. You mean to say the amount of traffic there is quite insignificant?—Yes.

11. Q. The movement of stock resolves itself into wagons being mainly dealt with by hand-shunting instead of by engines?—Yes. Witness here handed in a list of exports and imports at Madras which he suggested might be of use to the Committee.

EVIDENCE OF MR. B. C. SCOTT, DISTRICT TRAFFIC SUPERINTENDENT, PORT TRUST RAILWAY,
CALCUTTA. Taken on the 2nd February, 1907.

1. Q. (*President.*)—Do you see any objections to the general introduction of the metre gauge tracks into the Port Commissioners' yards?—Yes. I do not quite think that it will be feasible to work the traffic that we have with mixed gauges, that is with broad and narrow gauge wagons at the same time on the same tracks.

2. Q. That is general introduction?—Yes.

3. Q. If such general introduction is not feasible in your opinion, is a partial introduction possible, and, if so, to what portion of the Commissioners' premises?—Yes, I think it would be possible to work a traffic into the receiving sheds, that is the Kantapukur grain sheds, but there would be considerable difficulties even there involved in working mixed gauge, such as liability to more accidents owing to a larger number of points and crossings, or to metre gauge wagons colliding with broad gauge wagons and being shunted against broad gauge wagons, which would lead to accidents probably. The Kantapukur sheds at the docks is the only yard where I think we could possibly work it.

4. Q. And even there you do not recommend it?—And even there I do not recommend it.

5. Q. Kindly give your reasons for the opinions you hold, specifying any view you hold in regard to separate and mixed track working?—Well so far as I know, I do not think there is any experience in the question of mixed gauge working as regards shunting yards anywhere, but of course mixed tracks are worked on a running line such as the section over the Kistna bridge about $1\frac{1}{2}$ miles of mixed gauge, but that is purely for running, simply for the convenience of the mixed gauges' traffic passing over the bridge. I do not think it would be possible in a big shunting yard to satisfactorily work two gauges at the same time. For instance, in the Port Commissioners' docks we are shunting all over the lines and we cannot confine ourselves to narrow gauge working at one time in the day and broad gauge at another time; we would have to work them simultaneously.

6. Q. You do not think it would be feasible for trains to be made up with the stock of the two gauges?—I don't see how it could. In the first place you cannot fasten the couplings together. I fancy that if you got a metre gauge wagon between two broad gauge you would probably pull the metre gauge off the line particularly on a heavy curve. (*Witness hands in a plan showing the relative position of buffers of broad and metre gauge wagons*).

7. Q. You do not think that difficulty could be overcome by having dummy wagons?—It would have to be a very large number of dummy wagons.

8. Q. What would be the principal commodities, inwards and outwards, carried by a metre gauge railway serving Calcutta?—Inwards you have tea, seeds and jute, and a certain amount of gunnies (by metre gauge) and outwards we have sugar, salt, railway materials, iron, rice, and a large miscellaneous traffic as well.

9. Q. What would be the ultimate destinations in Calcutta of the principal inwards commodities, giving the heaviest monthly tonnage of each commodity to each destination?—Tea would go to the sale tea warehouse and to the dock sheds, I should say in the proportion of 60 per cent. to the sale warehouse and 40 per cent. to the docks direct for shipment. The heaviest month we had in tea last year was October when we got altogether into the docks almost 5,000 tons. Then as regards seeds and wheat, 90 per cent. of that goes to our seeds and wheat receiving sheds at Kantapukur and about 10 per cent. is diverted direct to the docks. The heaviest traffic was in 1904

when we had from the metre gauge 29,000 tons, and broad gauge figures are about the same. Jute comes across mostly by Chitpore to the Port Trust railway and goes direct to the merchants' godowns, or into the Port Trust railway godowns and from there it is delivered to the merchants, and afterwards it is sent to the presses to be baled and to be sent for shipment either to the docks in wagons or in lighters to steamers loading in the stream. The heaviest tonnage we had was in September when 20,000 tons of jute were received. Gunnies we received also, about 1,000 tons in March last. As regards outwards commodities, salt goes from the salt golabs at the Kidderpore Docks. In April last we handled 9,500 tons to metre gauge stations. I do not think I mentioned sleepers. In November last the traffic was 3,450 tons of metre gauge traffic alone. Sugar goes both from the docks and the jetties. We receive it at the docks and jetties and from the docks we ship about 500 tons, the largest shipment in a month so far to metre gauge stations, and from the jetties and Armenian Ghat being 800 tons. Railway material goes from the jetties—1,900 tons in January last. Iron goes from the jetties—1,650 tons in November last. And this year we have had a large traffic in rice and handled 4,300 tons to metre gauge stations—this last is not a normal traffic. The heaviest amount of miscellaneous traffic in a month from Armenian Ghat station was 7,500 tons, which goes *viâ* Chitpore.

10. Q. You have been giving us only figures for receipts and despatches from and to the metre gauge lines?—Only metre gauge stations.

11. Q. Would it be possible to work traffic by setting apart a certain portion of the day for the working of each gauge?—It would be quite impossible. We have urgent orders for shipment and we cannot keep broad gauge wagons waiting because we happen to be working metre gauge wagons nor keep metre gauge wagons waiting for broad gauge wagons. Orders for a steamer coming down perhaps a few hours before the steamer sails would miss shipment if we had to abide by this.

12. Q. Admitting that the introduction of the two gauges into the docks and jetties is impossible generally, would any economy or other advantage be obtained by transferring to broad gauge vehicles, at a convenient outside transshipping junction, such metre gauge traffic as cannot be handled within the jetties and docks?—Of course the traffic that couldn't be handled within the jetty premises is everything except the metre gauge seeds and wheat, which is a large traffic and of that 10 per cent. also could not be handled as being for direct shipment; but the balance, I think, we could work into the Kantapukur sheds, but not economically because it would mean the laying down of a third rail in addition to a shunting yard for the metre gauge traffic, and we would have to lay down a third rail through the greater number of the receiving sheds, because we cannot reserve one particular shed or particular row of sheds for metre gauge traffic as distinguished from broad gauge traffic. There would not be any economy in doing it, though it would be possible. As regards the rest of the traffic, there would have to be a transshipment station somewhere, and whether that transshipment station is near the docks or anywhere else, the transshipment would have to occur in any case.

13. Q. The transshipment would not affect you at all?—It would not affect us. Another point that I would like to mention is in regard to putting metre gauge wagons into sheds where there are platforms for broad gauge wagons. The slope from the floor level of a metre gauge wagon to a broad gauge platform is considerable—it would be a slope of 2 to 1.

14. Q. (*Mr. McLeod.*)—From your experience of transshipping in the docks, what would you consider the actual cost of transshipping across a platform?—We do not do any transshipment in that form. The transshipment we do is into a shed and from the shed subsequently we put it into wagons on the other side.

15. Q. You cannot differentiate between the two? You cannot tell me what it would cost from the shed into the truck?—Well roughly, I think it would be about half the shipping charge of the particular commodity which was handled, it is what we would call a removal charge.

16. Q. With regard to the transhipment of tea, would you consider there was any very great liability to damage of such a transhipment across the platform?—No, not if the chests were good chests and the tea is handled with ordinary care, I do not think there should be any bad damage.

17. Q. With regard to jute would your answer be the same?—Jute there is no difficulty in handling. There would be no liability to damage except from wet.

18. Q. And the same would apply to grain?—Yes.

19. Q. With regard to outward traffic, sugar?—Sugar and such commodities could be handled perfectly in transhipment; I do not think there is any fear of damage to any of them; the only damage that can occur is from a pilferage if the goods are left unguarded.

20. Q. But in a well-organised yard that would be greatly minimised?—Certainly.

21. Q. (*Major Shelley.*)—We had a witness the other day who said that the introduction of the metre gauge to your grain sheds and the serving of the rest of the dock premises by broad gauge would benefit Calcutta and at the same time put trade in no worse position than it is now. Do you consider that is correct?—Well, I think I have said so. We could work metre gauge traffic at the Kantapukur sheds.

22. Q. The question is whether Calcutta would benefit by the introduction of the metre gauge?—Yes; of course it means one handling less always and presumably the rates would be cheaper.

23. Q. You think that argument is sound?—Yes, but of course you have to put against that the lead of the metre gauge traffic from the present point of transhipment to the sheds.

24. Q. (*Mr. Dumayne.*)—Referring to the Kantapukur depôt, it has been necessary very largely to increase it of recent years?—Yes. Four years ago we had ten sheds there, we have now 25.

25. Q. If you got a traffic such as you had in 1904 even the larger accommodation might be filled to its fullest extent?—It depends to a great extent how the grain is moved.

26. Q. If there was any check owing to the want of freight, it might lead to your sheds being immediately filled up?—It would almost certainly lead to that. It occurred in 1904.

27. Q. It would then become necessary for you to take advantage of every spare corner you had?—Yes.

28. Q. So that in one shed you might have room for three wagon loads, in another two, in another one, and you would have to fill up those places?—Yes.

29. Q. So that if the metre gauge were introduced you might have to distribute those metre gauge wagons one by one by twos and threes to all parts of the sheds to make the most of your space?—Yes. You cannot confine the metre gauge to one shed; it must go through the whole yard.

30. Q. You might have to resort to such large distribution in order to make the most of your space?—Yes.

31. Q. If you, in order to introduce a partial use of the metre gauge, set apart a portion of Kantapukur for the working of that gauge alone, this would result in a waste of space?—Certainly.

32. Q. It would result in your having to lay many more lines?—As regards the sheds themselves, about three miles of lines to serve those sheds, that is for the sheds themselves.

33. Q. It would result in your having to increase your accommodation without increasing your bulk of traffic?—Yes, certainly.

34. Q. That would mean that you would have a larger capital expenditure in respect of which a return would be required?—In respect of which, as far as I can see, we would get no corresponding return.

35. Q. And your traffic would be the same distributed between two gauges?—Yes.

36. Q. That would mean then that your local charges would be increased?—Yes, local charges would have to be increased under those circumstances.

37. Q. While therefore the introduction of the metre gauge at Kantapukur is a practicable scheme, it would increase the expenses?—I have not spoken of it from an economical point of view.

38. Q. It might be possible to partially introduce the metre gauge to the receiving sheds at Kantapukur, but it would not be economical?—No. It certainly would not.

39. Q. It would increase the charges?—Yes.

40. Q. When you say that 60 per cent. of the tea went to the tea warehouse and 40 per cent. went direct, are we to understand that it went direct from the railway wagon *via* Dock junction to the transit shed?—Yes.

41. Q. Do you not include in that what comes direct from the river side from inland vessels' shed?—No. Only the tea that comes direct by wagons from up-country.

42. Q. (*Mr. Dumayne*) (referring to plan.)—Do you see the lines in black which represent the present broad gauge arrangements?—Yes.

43. Q. Do you see above the metre gauge introduced in red lines?—Yes.

44. Q. Do you observe the number of crossings is 8 as against 21?—Yes, the crossings are very greatly increased.

45. Q. Do you think that would be a workable arrangement?—I certainly do not think it would be safe.

46. Q. Do you think it would delay your work in any way if you had metre gauge and broad gauge working over such an arrangement as that?—Yes, I do not think you could work metre and broad gauges. Certainly not in this particular place, or in any crossing like this.

47. Q. Have you not got scissors crossings at every transit shed?—Not scissors crossings, we have only the scissors crossings in three or four places.

48. Q. Has not this arrangement been approved and found to be most suitable to get alongside the platforms?—I am not quite sure. I do not remember to have seen the plans of any new sheds. I think a considerable number of these are to be introduced in the future.

49. Q. For the purpose of getting the maximum number of wagons alongside your platforms?—Yes.

50. Q. You say in a position like this that it would be quite impracticable?—I do not say it is quite impracticable. I certainly think it would be dangerous.

51. Q. Would you also say that it would involve so many complications that there would be great delays and difficulties?—Yes.

52. Q. In the face of that position would you recommend the introduction of the metre gauge here?—Not here.

53. Q. Anywhere where that exists?—Nowhere where there are scissors crossings.

54. Q. Would you recommend it at any transit sheds?—No.

55. Q. You only think it possible in regard to Kantapukur?—Yes, because we have a large number of sheds and the loading is done on one side of the shed and the unloading at another, so that it would not interfere with the two operations and there would be no chance of putting the metre gauge and broad gauge wagons at the same time on to one shed line.

56. Q. You could not put the metre gauge wagons on your loading side?—No.

57. Q. It would be confined to the unloading side?—Yes.

58. Q. You would have to go and come through that side?—Yes.
59. Q. Supposing Kantapurkur to be fairly well filled up and you had to look out for more space, you might possibly, to ease the situation, take your grain and seeds down to a shed reserved for sugar?—Yes.
60. Q. Right into the dock premises?—Yes.
61. Q. You have in fact often run into the Chitpore yard of the Eastern Bengal State Railway?—Yes, during the last two heavy seasons.
62. Q. You have run into the tea warehouse to get more space?—Yes.
63. Q. You have begged for accommodation everywhere and used it wherever it might be found?—Yes.
64. Q. Would there be any difficulty in handling the metre gauge wagons in those places?—You could not handle the metre gauge wagons in those places. The only alternative would be to tranship into our own wagons and that at a time when they were being largely used.
65. Q. Is it common for you to be called upon suddenly to transfer wheat and tea and seeds in considerable quantities to the transit sheds for shipment?—Yes.
66. Q. And often the time allowed is so restricted that the tea has been shut out?—Yes, sometimes.
67. Q. In such cases the merchants suffer considerable inconvenience and loss?—Yes.
68. Q. And yet the merchant himself might be in such a position that he could give you only a very short notice?—Yes.
69. Q. You are endeavouring therefore to arrange to minimise the time as much as possible?—Quite so.
70. Q. You are laying yourself out I presume to facilitate rapid transfer?—Yes, it is most important that we should have rapid transfer at the docks.
71. Q. Would or would not the introduction of the metre gauge interfere with that?—I consider that the introduction of the mixed gauges into the docks would interfere very substantially with that.
72. Q. Would any such delays give substantial grounds for complaints by shippers?—Certainly.
73. Q. Steamers frequently have to leave by certain tides?—Frequently by a certain hour.
74. Q. And if they miss that tide or hour they may be neaped?—Yes.
75. Q. Can you suggest any advantages that there would be by the introduction of the metre gauge into the docks?—No, I don't see that there are any advantages so far as we are concerned in the docks. There are disadvantages, such as that we would have to handle a larger number of wagons for the same volume of traffic.
76. Q. Would it increase your expenses?—Certainly it would. It would increase the hauling and stabling.
77. Q. Some of your platforms at the tea warehouse are fitted with lifts?—Yes.
78. Q. So that besides the alteration on your platforms of a sharp incline it would involve many structural alterations?—It would mean the alteration of the whole of the levels of the lifts.
79. Q. Have you noticed that the four new produce berths are to be provided with hydraulic lifts on the unloading platforms?—I understand they are to have lifts on the platforms.
80. Q. Corresponding to the lifts at the riverside shed?—Yes.
81. Q. Heavy structural alterations would also have to be made?—Yes.
82. Q. Would you take No. 14 shed in the docks as a type of an up-to-date transit shed?—It is certainly more up-to-date than the others. It is my best.
83. Q. Is the metre gauge possible there?—No, I do not think so. We have to load from both floors and unload into both floors, so that we could

not work the metre gauge as well as the broad gauge. The same objections apply to a greater extent to the other sheds.

84. Q. To get economical working in the loading of vessels you must get the great bulk of cargo as close to the shed as you can?—Yes.

85. Q. In the shed and in the open?—Yes.

86. Q. So that if your lines were spread out so as to give room for mixed gauge traffic you would be placed at a disadvantage?—Yes.

87. Q. You would have a longer lead and it would add to your expense?—Yes.

88. Q. It would add to delays?—Yes.

89. Q. It would incur more labour?—Yes.

90. Q. (*President.*)—I understood you to say that in these grain sheds you were able to put wagons on both sides?—Yes. We reserve one side for loading and the other for unloading.

91. Q. At a push you would use either lines for both purposes?—We have done so occasionally, but I have discouraged that as much as possible.

92. Q. I believe it has been suggested that one practical way of getting over this difficulty of working two gauges in the dock premises is to have entirely separate tracks. It seemed to me the idea was to confine the metre gauge tracks further back from the sheds, jetties or docks and unloading from these metre gauge tracks might be done over the broad gauge by transporters. Is anything of that sort practicable in the docks?—I don't think it is because the number of wagon movements in the dock premises is so enormous that if we had transporters travelling across those lines it would very seriously block the shunting work. I worked this out in November and found the number of actual wagon movements in 24 hours was over six thousand.

93. Q. Could space be found for these separate lines?—No. The present lines we have for broad gauge working are all necessary; in fact we want more lines than we have and I don't see how the narrow gauge could be worked there. Any scheme of that sort would not be possible for these reasons.

94. Q. So that there is no space and the transporters would interfere with the shunting, etc.?—Yes.

95. Q. The proposal is that the metre gauge goods should be taken out and run over the tops of the broad gauge wagons and dropped on the other side something like the transporters of the Bengal Nagpur Railway?—It would not be a very economical way in any case.

96. Q. (*Mr. McLeod.*)—In fact transshipment would be cheaper?—Yes, it is only coolie labour as against the cost of machinery working, etc., and we have coolie labour at either end of the transporter as well.

97. Q. (*Mr. McLeod.*)—The answers you have given us regarding the difficulties at the dock system would these apply to the jetties in a similar or greater degree?—Certainly in a greater degree, there you have cart traffic to contend with. The difficulties would be greater at the jetties than at the docks.

EVIDENCE OF MR. E. L. L. HAMMOND, I.C.S., SUPERINTENDENT OF THE COOCH BEHAR STATE.
Taken on the 28th January, 1907.

Mr. Hammond read a letter dated 28th January, 1907, from His Highness the Maharaja of Cooch Behar as follows:—

“I have asked Mr. Hammond, my Superintendent of State, to place before you, for consideration, my views regarding the subject of your deliberations.”

“I think I may fairly claim to be heard on this question as being directly interested in any railway enterprise that may connect my State with Calcutta. The State owns a railway some 33 miles in length, worked in conjunction with the Eastern Bengal State Railway. It leaves the Assam section of the Eastern

Bengal State Railway at Gitaldaha junction, 347 miles from Calcutta. I have invested nearly fifteen lakhs of rupees in this railway on which the annual gross earnings are estimated to be Rs. 1,60,000, yielding me a net profit of Rs. 95,000. Both these figures would, I am convinced, be much larger, were there a bridge over the Ganges. I am not concerned with the actual site of the bridge, nor with the gauge of railway, but I am most anxious that some steps should be taken, and those as soon as possible, to relieve the present congestion of traffic. The delay and damage, wastage and losses, which appear to be inevitably involved in the present system of transshipment, first in Damukdia and then at Sara, the chance, which increases every year, of booking being closed to goods for some time, as was done this year, all impede the development, not only of my State Railway, but of the State itself. I will, if I may, give actual instances."

"It is proposed that my railway, which is at present 2' 6" gauge, should be converted to metre gauge. The cost, including ballasting, is estimated at 4 lakhs of rupees. I am agreeable to the project, and have no doubt that this further investment would prove profitable, if there is any assurance that the consequent development of traffic in jute, timber, tobacco and tea will not be handicapped as I have pointed out already. At present, in order to avoid these difficulties, a considerable portion of the State produce is exported by boat, a most unsatisfactory means of transport, where the rivers are liable to sudden floods and diversions, as in Cooch Behar, which is at the foot of the Himalayas. Conveyance by country boat is also unsuitable and detrimental to jute and tobacco, the two main crops of the State. That such boat traffic does exist however is, in itself, testimony to the grave difficulties which at present hamper the railway. There is no doubt that the high price of all commodities at Cooch Behar is largely due to difficulties of transport."

"As a practical instance of the immediate need for a bridge I would quote the following facts, which happened recently."

"In August heavy floods occurred in Cooch Behar, and three bridges on important roads in the State were damaged. Iron girders to repair these bridges were ordered from Calcutta. Just at the time of their despatch a block occurred at Damukdia. The girders have never arrived and cannot be traced, and the bridges remained closed to traffic, causing serious inconvenience and dislocation of trade."

"This is by no means an isolated occurrence. The Eastern Bengal State Railway authorities can do no more than they do now to obviate these difficulties, and I take this opportunity of thanking them for their unflinching efforts. But a bridge, with wagon to wagon transshipment is, it appears to me, the only solution of a problem which has remained unsolved to the great detriment of my State. I believe, of the total jute crop of India, four per cent. comes from my State and zamindaris, and the cultivation is increasing rapidly. I can confidently say that all the merchants throughout my State were much hampered in their transactions by the block—the apparently inevitable block—that occurs in the height of the jute season at Sara Ghat."

"In his speech on the Indian Budget three years ago, the Honourable Sir Arundel Arundel alluded to the want of enterprise in Native States in the matter of State-owned Railways. My own State Railway has prospered, and would, I am confident, be still more prosperous were there a bridge over the Ganges, the necessity for which was never more apparent than during the past year. I trust that the Committee may be able to bring these facts to the notice of Government with a recommendation for a bridge, and that in arriving at a decision on this much debated topic, the Government will bear in mind that each year's delay means a year's loss to my State and to me."

1. Q. (*President*.)—Of course the Cooch Behar traffic to Calcutta used to go over other unbridged rivers as well as the Ganges?—Yes.

2. Q. The Teesta for instance?—Bridges have now been built over the Teesta and the Dhurla by the Eastern Bengal State Railway.

3. Q. Since those rivers have been bridged has the line proved profitable to the State?—Yes.

4. Q. Previously it was unprofitable?—Yes. Since the Teesta and the Dhurla have been bridged the traffic in Cooch Behar has doubled. No doubt a bridge over the Ganges would have the same effect.

5. Q. You have no opinion as regards the site of the bridge?—No.

6. Q. (*Mr. Kar.*)—Of course you have preference for a shorter lead than a larger one, because, I suppose, it would make a difference in freight?—Of course as far as we are concerned we would like it to be as close as possible to the point where our railway takes off from the Eastern Bengal State Railway.

7. Q. (*Major Shelley.*)—Then there is an amendment—you have a preference?—Well we would like the bridge built where it could be done the quickest. At present a lot of our traffic is going by boat.

8. Q. (*Mr. Kar.*)—Of the three sites proposed, which is the nearest to your railway communication?—I cannot say without looking at the map. (Looks at map.) I think Sara would be the nearest.

9. Q. (*Mr. McLeod.*)—There is a very large tea traffic on that side?—It would be much larger if it was not for the handling. If we converted the line, the tea traffic would pay.

10. Q. You know tea is sent from there?—Yes, and also jute. For example, there is a hat at Balarampore. There is an important jute traffic which goes by boat and does not touch the railway, while, if there was a bridge at the Ganges, it would come to us.

11. Q. (*President.*)—There is something also to pay on insurance?—Yes.

12. Q. (*Mr. McLeod.*)—You have to tranship at Gitaldaha?—Yes.

13. Q. Have you to pay heavy transshipment claims at Gitaldaha?—No.

14. Q. The transshipment of tea is a small matter in a railway yard?—Yes.

15. Q. I suppose the Cooch Behar Durbar understands there is a question of bringing the metre gauge right into Calcutta?—We have been talking the matter over, and we think if the broad gauge is unable to deal with the traffic, neither would the metre gauge. It does not seem likely that the metre gauge would do better.

16. Q. Which would your State prefer north of the Ganges, a broad gauge or metre gauge?—We should prefer to have the broad gauge undoubtedly, and if it came to Gitaldaha the Maharaja would be prepared to continue it into the State.

17. Q. Supposing a bridge was built, would you fix the transshipment north of the Ganges?—Yes, what we would like, of course, would be wagon to wagon transshipment at Parbatipur, the further north the better.

18. Q. (*Mr. McLeod.*)—You think you would get quicker transit on a broad gauge than the metre gauge?—Yes.

19. Q. Do you think the question of the bridge an important matter?—Yes, very important, half our traffic is stifled for the want of one.

EVIDENCE OF MR. A. BIRKMYRE, REPRESENTING THE INDIAN JUTE MILLS' ASSOCIATION.
Taken on the 28th January, 1907.

1. Q. (*Mr. McLeod.*)—Are you the Agent of a large jute mill on the banks of the Hooghly?—Yes.

2. Q. Where is it?—At Rishra.

3. Q. By what Railway is it served?—By the East Indian Railway.

4. Q. How many other mills have their sidings from the same system?—I should say about seven.

5. Q. You are Chairman of the Indian Jute Mills' Association?—Yes.

6. Q. And for the purpose of this Committee you represent all the mills on both sides of the river?—Yes.

7. Q. The Railway Board in a scheme for bridging the lower Ganges suggest the introduction of the metre gauge into Calcutta. How would such introduction suit the interest you represent?—Not at all.

8. Q. Would such introduction involve transshipment at the various points at which the sidings are taken off the main line?—Yes, either transshipment there or at a central station.

9. Q. Could you without great difficulty have a mixed gauge introduced into your mill premises?—There would be very great difficulty and in many cases it would be impossible.

10. Q. Even supposing it were possible, could such mixed gauge be easily worked?—No, it would be almost impossible to work.

11. Q. Would it cause delays, or otherwise would it involve a severe strain on your labour force?—Very much so.

12. Q. Would you sooner have transshipment than run the risk of having to work the mixed gauge into your mill premises?—Yes. We would rather have transshipment.

13. Q. What proportion of the jute crop do the mills of Calcutta consume?—Almost half.

14. Q. Of that half what proportion comes from metre gauge sources and what from broad gauge sources?—I could not possibly answer that without going into details.

15. Q. You could not give us details?—No.

16. Q. Can you tell us in the event of large extensions of the jute industry whether the increase would be from metre gauge sources or broad gauge?—I should not think there would be any greater proportion of increase from either source. It would probably be from all the jute-growing districts, but there is no reason to believe that the increase would be greater from the metre gauge than the broad gauge.

17. Q. We have been told that jute is now being largely grown in Behar. Can you tell us the extent of the same and the possibilities of further extension in Behar?—Last year it was comparatively small—not more than 8,000 bales—and I had a private letter the other day from a gentleman in Behar saying there were a great many people growing jute there last season who did not contemplate sowing it this season as they expected prices to be so much lower.

18. Q. Do you know if large tracts of country in Behar are suitable for jute cultivation and that a large traffic may be expected from there?—I presume there are tracts of country suitable for jute, but I do not anticipate a very great development.

19. Q. Do you recognise the urgent importance of bridging the lower Ganges at a convenient site for the traffic of northern Bengal?—Yes, I think it is a very important question indeed. It is most important.

20. Q. Should such a project have an urgent place in the Government programme?—Yes.

21. Q. In the event of it being shown that the introduction of the metre gauge into the terminals of Calcutta is not feasible would transshipment near Calcutta be more to your advantage than transshipment on the other side of the Ganges?—No.

22. Q. Would it be all the same to you?—I think it would be preferable on the north side of the Ganges.

23. Q. Is jute liable to any damage in transshipment or any other great damage?—No. I think the damage would be very slight.

24. Q. From the nature of the article would it be costly to transship it across a platform in a well-organised yard?—No.

25. Q. In the event of the metre gauge being brought into the vicinity of Calcutta which would you prefer—transshipment, or mixed gauge sidings being introduced into your premises?—Transshipment would be much preferable for the mills.

26. Q. Is Serajganj an important jute centre?—Very.

27. Q. If a broad gauge line were made from there to the Ganges which would join on to the broad gauge portion of the Eastern Bengal Railway by a bridge, what would be the effect of the same?—Increase of facilities for bringing jute down to the market.

28. Q. Would it greatly reduce the congestion of traffic at Goalundo?—Yes, very greatly.

29. Q. In connection with a bridge across the Ganges would it be a very important line for the jute trade?—Yes, very important.

30. Q. (*President.*)—I think you indicated in one of your answers that the possibility of growing jute in Behar depended very largely on the price?—Yes, at present.

31. Q. Do you think that unless jute is abnormal in price, it is not practical to cultivate it in Behar?—Yes, I think it is practical.

32. Q. I mean to sell it?—I think it doubtful that it would pay a planter to grow jute there if he only got normal prices as against other commodities.

33. Q. It would pay the planters at the present prices?—Decidedly.

34. Q. If taken against other commodities?—I am doubtful about that.

35. Q. You said just now that you would prefer transshipment on the other side of the Ganges?—Yes.

36. Q. Have you any particular reasons for that?—There are several reasons. Jute coming down to the mills on the East Indian Railway system requires to come down by Naihati: if that had to come to a central station near Calcutta and then be railed back again to Naihati in order to cross the Hooghly bridge it would increase rates. It would suit us better to have the jute transhipped on the other side and then come direct *viâ* Naihati. As regards the mills on this side of the river I should think it would suit them very much better as being cheaper to have a transshipping station on the other side of the Ganges than in the vicinity of Calcutta.

37. Q. Would you anticipate any advantage in time in running between the Ganges and Calcutta on the broad gauge compared with the metre gauge?—I think it would be very much faster.

38. Q. You think that an advantage?—Certainly, to get produce down as soon as possible.

39. Q. To have the broad gauge lead as far as possible?—Yes.

EVIDENCE OF COLONEL C. H. COWIE, R.E., MANAGER, EASTERN BENGAL STATE RAILWAY.

Taken on the 29th January, 1907.

1. Q. (*President.*)—What are the principal commodities, inwards and outwards, handled by the Eastern Bengal State Railway at Calcutta? Can you give the approximate weights, per annum, of each item separately? If so, kindly do so?—I have prepared a statement of the principal commodities of traffic, inward and outward, in 1905. The inward traffic consists of jute, grain and pulses, miscellaneous articles, tea, oils, hides and skins, and there is also a little cotton and fodder. The outward traffic in order is miscellaneous articles, salt, metals, cotton, sugar, and grain and pulses. (*Witness* here handed in a statement showing the numbers of tons, *e.g.*, of the above commodities handled) [*see Appendix E^o.*] This traffic is dealt with at Sealdah, Narcol-danga, Ultadanga, Chitpore, Chitpore Ghat, Cossipore, Baliaghatta; and what goes to the Kidderpore Docks and the Port Trust Railway is included as Calcutta traffic.

2. Q. As regards the inward traffic how is it distributed on arrival, and what is approximately the maximum number of tons, per mensem, of each principal commodity received at your different distributing centres in Calcutta?—The will be shown in these statements, though they are incomplete, as they do not show mill sidings. We treat Calcutta traffic as what goes into those places named. Traffic to mill sidings in tons from metre gauge lines *viâ* Sara, total in 1905, 64,283 tons.

3. Q. In respect to outwards traffic please state approximately the maximum number of tons per mensem of each commodity, despatched from each of your collecting centres in Calcutta?—(*Witness* said he would hand in a statement, giving the figures for both inward and outward traffic, in a few days) [*see Appendix E³*].

4. Q. In regard to the two previous questions, what weight of traffic is confined to the broad gauge portion of your system, and what weight crosses the Ganges?—These statements that I am handing in deal with the total weight of the traffic dealt with at Calcutta and mill sidings, that is, all the traffic. And I here hand you a statement of traffic crossing at Sara by half-years, including the first-half of 1906 [*see Appendix E⁴*]; the printed statistics for the second-half are not ready, but I have made out roughly what the figures for the second-half of 1906 will be. The total for 1906 is 580,000 tons, the biggest year previously being 520,000 tons in 1904. I cannot give you the 1906 figures for the broad gauge traffic, but they probably would be about the same as for 1905.

5. Q. May we assume that, on the opening of the Katihar-Godagiri line, a large amount of traffic now carried by the East Indian Railway, *viâ* Mokameh or Manihari, will be diverted to the Eastern Bengal route, and, if so, have you any idea of the weight of traffic by commodities which will be diverted?—There are in the old Ranaghat-Ganges-Katihar Survey Report some traffic statistics to which I may refer you. They estimated there that a certain amount of traffic would follow the Godagiri-Katihar route, page 74 of the Report.

6. Q. Would this weight of traffic be appreciably affected by the construction of a Lower Ganges Bridge, or be further influenced by the exact site of location of the bridge between Godagiri and Sara? If so, what do you consider would be the amount of the different principal commodities diverted over the bridge at the various proposed sites at Godagiri, Rampur Boalia, Sara?—I think the bridge would probably favour a diversion of traffic if free competition is allowed, and I think it would be favoured by putting the bridge near Godagiri. I do not think I could give an opinion on the distribution of the principal commodities. I am unable to answer the last part of the question.

7. Q. In your opinion would the provision of a second bridge above Godagiri have any effect in checking this diversion of traffic from the shorter routes, and if so to what extent?—If the Bengal and North-Western Railway had power to enter into competition, unrestricted except by minimum rates, with the East Indian Railway, and could quote through rates over the Eastern Bengal State Railway, it seems they would still be able, by putting on block rates on their line to any junction by bridge with the East Indian Railway between Godagiri and Mokameh, to divert Bengal and North-Western Railway traffic to Calcutta *viâ* Godagiri.

8. Q. (*Major Shelley.*)—If a bridge was built at Mokameh by the East Indian Railway in place of the existing ferry, would they then be able to check the Bengal and North-Western Railway competition? Would the East Indian Railway then be able to hold their own?—I think it would assist them to hold their own.

9. Q. Do you consider that if the Lower Ganges bridge be located at one of the three proposed sites, Godagiri, Rampur Boalia, or Sara, a second bridge at another of these sites will ever be required either on the grounds of reduction of lead, or to relieve congestion of traffic?—Assuming that the lengths of the lines linking up the bridge with existing lines are correctly given in Mr. Spring's report, then if the bridge is at Sara, I do not think the small extra length over which the Katihar-Godagiri line traffic will have to be diverted

will ever cause a demand for another bridge. That is, as regards lead. Then as regards congestion of traffic, if there is a double broad gauge line to Calcutta with quadruple lines for the Naihati to Calcutta portion, there should be no congestion. If the bridge is at Rampur Boalia, with double metre gauge connecting lines to Calcutta, the extra leads north of the Ganges will not be sufficient to cause a demand for another bridge to shorten the lead by either eastern or western routes, and as regards congestion, the double metre gauge line should be able to accommodate the traffic. If the bridge is at Godagiri, the diversion of the Eastern Bengal State Railway northern section traffic will be considerable, and the broad gauge single connecting line to Calcutta, *i.e.*, from Godagiri to Ranaghat, will be overburdened, and, in these circumstances, I think finally a bridge would have to be built at Sara.

10. Q. Perhaps you could say what mileage diversion would justify the building of a second bridge?—Roughly I would say anything over 25 miles; Mr. Spring's figures are 37.

11. Q. You certainly do not think 10 would justify it?—No.

12. Q. Is it possible to introduce the metre gauge into all the Eastern Bengal State Railway Calcutta yards, stations and sidings? If not, kindly enumerate the places where it could be accommodated?—It could be brought into all the goods yards, except the present Sealdah goods yard and Chitpore Ghat where space is not available, and estimates have been prepared and submitted. But though space is available in the other places, and engineering difficulties can be overcome at considerable cost, the difficulties of working traffic conveyed in wagons and on lines of different gauges in and out of one yard, prohibit my recommending the use of the mixed gauge for any of the present Calcutta termini, except perhaps Shamnagar and Budge Budge. Separate yards would, I consider, be necessary for the metre gauge to perform the services now provided for the broad gauge yards at Chitpore, Chitpore Ghat, Sealdah and Baliaghatta. The metre gauge could be brought in alongside the Sealdah passenger station. A transshipment yard for dealing with coal for northern section traffic to Howrah side mills, etc., will be required in any case. I hand in the estimate of cost of bringing the metre gauge into Calcutta termini [*see Appendix E*].

13. Q. I think you said the estimate was for 172 lakhs?—Yes.

14. Q. (*Mr. Dumayne.*)—That estimate does not go beyond the Eastern Bengal State Railway limits; it stops outside the Kidderpore Docks?—It stops at the junction of the Budge Budge line.

15. Q. So that we would have to add whatever alterations were necessary within the Docks to the 172 lakhs?—Yes.

16. Q. (*President.*)—Could the requirements of trade be met at these places by the provision, at reasonable cost, of suitable separate metre gauge accommodation, and would the inconvenience and cost to the Railway by the duplication of such accommodation be serious?—The estimates provide for a separate yard for the Sealdah goods traffic, and a separate metre gauge yard to accommodate the Chitpore traffic could be built at Baghbazar, but of course it would be very heavy for the land, and I cannot recommend it. The note accompanying my estimates deals with this [*see Appendix E*].

17. Q. Would the cost be reasonable?—No.

18. Q. Would the inconvenience and cost to the Railway be serious?—As regards inconvenience, separate yards would relieve pressure and enable the Railway to work the traffic with better despatch, but the cost of working would be greater.

19. Q. That is, compared with the cost of working it on one gauge?—Yes.

20. Q. In regard to those places where metre gauge facilities cannot be given, what would be the practical effect of its exclusion?—You would have to tranship the goods, or use transporters.

21. Q. (*Major Shelley.*)—Could you compel merchants to take delivery of their goods at other places?—I don't think that would be possible. I do not think you could force the merchant; he wants his goods delivered near the market, and I don't think you could force him to take delivery a long way off.

22. Q. (*Mr. Dumayne.*)—As a matter of fact, they often refuse to receive the goods a few hundred yards away?—Yes.

23. Q. (*Major Shelley.*)—In cases where both gauges can be worked to the entrances of private sidings, what would be the advantages and disadvantages to the owners of the sidings, and how would the movement of stock inside and outside private premises be arranged?—The advantage would be the avoidance of transshipment and the delays consequent thereon. The disadvantages are the cost of the alterations to turn-tables and weigh-bridges for taking bogie metre gauge stock which would be incurred, and the delays in shunting broad gauge and metre gauge wagons separately on sidings; coolies could not be allowed to shunt wagons so that a metre gauge wagon could collide with a broad gauge wagon. You would have to make elaborate rules for moving the broad gauge and metre gauge stock quite separately.

24. Q. You think these disadvantages more than counterbalance the advantages?—I think so. We would have to provide broad gauge and metre gauge loops outside for the wagons to stand in; mixed gauge sidings would be of no use.

25. Q. Would the movement of stock of both gauges to and from private sidings interfere with the working of main lines, increase danger to the public, or necessitate expenditure on interlocking, etc.?—That is dealt with in my note on the estimates [*see Appendix E*]. The movement of stock to and from private sidings would certainly interfere with the working of the main lines and necessitate expenditure on interlocking, and with our staff out here I certainly think it would increase the danger to the public.

26. Q. Would the owners of private sidings have to pay for metre gauge facilities within their own property, and in case of refusal how would the Railway deliver their traffic?—The first part of the question: in most cases yes, according to their agreements. I have given you an abstract of the terms regarding mill sidings and copies of the forms of agreement in force, and in nearly every case, according to their agreements, the firms would have to pay.

27. Q. In case of refusal how would the Railway deliver their traffic?—Deliveries would be made outside the mill premises, or the traffic transhipped *en route* probably at Naihati, where a transshipment yard would have to be made.

28. Q. Bearing in mind terminal delays and the time taken to turn stock, do you consider the admission of the metre gauge into Calcutta would necessitate any increase to your own metre gauge and the Bengal and North-Western Railway stock?—As regards the stock of the northern section of the Eastern Bengal State Railway, I have made out roughly with the Traffic Superintendent what the extra time would be in bringing the wagons down to Calcutta, and think that 750 more metre gauge wagons would be required to deal with the present traffic, assuming that metre gauge wagons are admitted to all Calcutta stations now served by broad gauge.

29. Q. That is on the basis of the capacity of four-wheeled wagons?—Yes, or half the number of bogies.

30. Q. Is that the result of a calculation?—Yes, an approximate calculation, based on traffic considerations.

31. Q. These calculations do not include the Bengal and North-Western Railway I presume?—I do not think I could answer that.

32. Q. Consequently a very large increase of the stock of that line would be necessary?—If a large amount of their traffic comes to Calcutta, there would have to be a substantial increase.

33. Q. (*Mr. McLeod.*)—How far would the 750 metre gauge wagons counterbalance the loss of broad gauge wagons?—Well, you would release about 750 wagons on the broad gauge as I have stated in answer to a previous question, and you would want about 750 more on the metre gauge.

34. Q. Is any portion of your broad gauge system so taxed that relief by an additional metre gauge railway is desirable, and would such form of relief be preferable to increasing the number of broad gauge tracks?—Relief is

required below Naihati, and estimates for quadrupling the line between Naihati and Dum Dum Junction have been prepared. If the metre gauge is brought into Calcutta, the relief afforded to the broad gauge line will not do away with the necessity, in the near future, for quadrupling below Naihati, in view of the probable developments of the East Indian Railway coal traffic and developments of the Eastern Bengal State Railway traffic. We think four tracks will still be required from Naihati to Calcutta.

35. Q. (*Major Shelley*.)—Would you want more than four tracks if the metre gauge is not made?—No, I think we could work it with four tracks.

36. Q. Will not additional metre gauge lines below Naihati help you?—No, we shall still want four lines for other developments of traffic.

37. Q. Putting down metre gauge tracks will only hurry up the necessity for the extra broad gauge tracks?—Putting down metre gauge tracks will not affect the broad gauge requirements as regards tracks; we shall require four broad gauge tracks below Naihati to meet developments of East Indian Railway coal traffic and Eastern Bengal State Railway traffic.

38. Q. Do you not want any relief on any other part of your line?—We do not want any relief on other running lines if the metre gauge comes into Calcutta.

39. Q. Do you anticipate any reduction in working expenditure from the entry of the metre gauge into Calcutta, or increased rapidity in the transit, collection and delivery of goods?—No reduction in working expenditure is anticipated. There would be increased rapidity in transit over a bridge as compared with a ferry. With separate yards for the broad gauge and metre gauge, the work should probably be done as quickly as with broad gauge, *i.e.*, in connection with deliveries.

40. Q. Would you be better, or as well, able to serve the interests of trade if both gauges existed in Calcutta, and what would be the general result from a working point of view if the two gauges were introduced?—I think equal facilities to the trade could be given in Calcutta, though at greater cost, provided that the metre gauge traffic is dealt with in separate yards, and that other traffic which cannot be so dealt with is transhipped.

41. Q. You anticipate no improvements so far as the public are concerned?—No, I do not anticipate any improvements.

42. Q. (*President*.)—What would be the general result, from a working point of view, if the two gauges were introduced?—There would be heavy capital outlay and greater cost of working. There would be simplification of working by avoidance of transhipment of the passenger traffic and part of the goods traffic between north and south of the Ganges.

43. Q. Assuming it is impracticable to bring the metre gauge into Calcutta, do you see any advantage in bringing it near the town, say to Naihati, and there transhipping to the broad gauge?—If a large proportion of the northern section traffic has still to be transhipped, if the metre gauge is brought into Calcutta, I do not think the cost of bringing it in is justified.

44. Q. Do you or do you not recommend an arrangement of this nature, that some of the traffic comes into the termini, and the rest has to be transhipped?—No, I do not recommend it.

45. Q. Does the area enclosed between the Ganges and the Godagiri-Ranaghat-Sara lines stand in real need of further railway facilities?—I understand the land between the existing lines is already under cultivation, and there would be no increase of yield consequent on the construction of the railway. The produce has already an outlet to market by water and by the existing railways. I should not say there was any urgent necessity for the construction of the railway.

46. Q. (*Mr. Inglis*.)—I think we have it from your statement that a line from Krishnagar to Jellingee is proposed?—A 2' 6" gauge line has been proposed.

47. Q. There was enough traffic to justify a light gauge railway?—Yes.

48. Q.—(*Major Shelley.*)—In the event of the Lower Ganges bridge being located at either Rampur Boalia or Godagiri, is there any immediate probability of traffic over the Poradah-Ranaghat section exceeding the capacity of a single broad gauge railway, and of the expenditure on doubling this section being justified?—If a bridge is made at Rampur Boalia or Godagiri, a single line between Poradah and Ranaghat would, at present, and in the near future, be sufficient to accommodate the traffic for that section. If a metre gauge line from Serajganj to a bridge at Rampur Boalia or Godagiri were made, a single line between Poradah and Ranaghat would probably be sufficient for all time, because it would be relieved of Serajganj traffic now coming *via* Goalundo.

49. Q. Presuming that the line is quadrupled from Naihati to Calcutta, would the line from Naihati to Poradah be sufficient to carry the traffic that would come from the Bengal and North-Western Railway?—I think so. We are running now between Naihati and Calcutta 63 trains each way, and between Poradah and Naihati we have never exceeded 21 each way.

50. Q.—(*President.*)—You probably have not worked the Poradah-Naihati line to its fullest capacity—only quarter its capacity?—Nothing like its full capacity; say half its present capacity; we should require many more block stations to work it to its full capacity.

51. Q. Assuming the construction of a line from Nattore to the neighbourhood of Jessail, would the location of a bridge at Sara unfairly prejudice the claim of the Bengal and North-Western Railway to a connection with Calcutta independent of the East Indian Railway?—I do not know how far the Bengal and North-Western Railway would consider that it affected their claim, but it does not seem to me that the small extra lead would affect trade to such an extent as to lead to a demand for another route independent of the East Indian Railway.

52. Q. What location of the bridge would best serve the interests of the Eastern Bengal State Railway and why?—As far as the Eastern Bengal State Railway is concerned, I am in favour of a site near Sara with a broad gauge extension to Serajganj.

53. Q. Why do you favour the case of the bridge at Sara?—A large development of traffic to and from the east is probable, and a site that gives the most direct route for this traffic and the Serajganj traffic will be best in the interests of the railway and the trade. This site also justifies the double line between Poradah and Ranaghat. I may say here I am assuming Mr. Spring's distances altogether.

54. Q. Assuming Mr. Spring's figures to be correct, that route would, at the present juncture, be the least costly?—Yes.

55. Q. Is the traffic anticipated on the proposed extension to Serajganj sufficiently heavy to justify the construction of a broad gauge railway?—The traffic anticipated on the Serajganj line was dealt with in notes on the Sara-Serajganj-Jagganathganj project. I can give the Committee all the traffic statistics prepared for that project [*see Appendix E'*].

56. Q. You can give us a statement showing the total tonnage?—I can give you the tonnage which goes by steamer to Goalundo and which, it is estimated, would go from Serajganj by rail. Then there is the direct service traffic which goes in steamers direct to Calcutta, and some of that would, no doubt, come to the Sara-Serajganj Railway. But the Traffic Superintendent does not think it safe to assume that more than one-third would go.

57. Q. What is the result?—A statement of the tonnage of traffic and passenger earnings anticipated in the project is attached [*see Appendix E'*].

58. Q. If a bridge were built at Sara do you consider it should be for a broad gauge or metre gauge line?—I consider that a bridge at or near Sara should be for a broad gauge line.

59. Q. (*Mr. McLeod.*)—You say a part of the jute traffic comes direct by steamer to Calcutta; is not this caused a great deal by railway blocks at Goalundo?—During the past season I think it was.

60. Q. (*President*).—What is the average cost per ton of transhipment at Sara, and what do you consider would be the average cost at an ordinary transhipping junction (i) at Calcutta, and (ii) near Calcutta, and (iii) well outside Calcutta?—It is difficult to answer that question. With both passengers and goods being dealt with it is almost impossible to arrive at a result of any value.—(*Witness* said that though he found it difficult, he would attempt to make out a statement taking a certain number of passengers to a ton. *Witness* also stated that he would give the approximate figures for transhipment at Calcutta, near Calcutta, and well outside Calcutta.)

61. Q. Are most of the commodities carried across the Ganges of such a nature as to suffer by transhipment?—No.

62. Q. What saving of time in transit would result from the avoidance of transhipment by the establishment of an unbroken gauge into Calcutta?—Not less than 12 hours, an average of 18 hours. If you have night working it would be less, about 12 hours.

63. Q. Are there any special advantages in the avoidance of transhipment, so far as tea and jute are concerned, to justify a large expenditure on bringing the metre gauge south of the Ganges?—No, no special advantage in the avoidance of transhipment from wagon to wagon.

64. Q. Claims of tea are now very small for damage?—Yes, very small.

65. Q. Since you have been bringing them across in the wagon ferry, the claims have been very small?—Yes.

66. Q. (*Mr. McLeod*).—Do you recognise the urgent necessity of bridging the lower Ganges?—Yes.

67. Q. Is the delay in doing so causing a great loss to the trade crossing the river?—Yes, I think so.

68. Q. Is the delay causing a loss to the Railway Company and to the Government?—Yes.

69. Q. Can you tell us roughly what that loss is?—That point I am submitting in my statement, what it costs to work the ferry.

70. Q. Have you got the statement beside you there?—Yes.

71. Q. What is the gross figure there?—It may be roughly taken at 9½ lakhs to 10 lakhs, including interest on capital.

72. Q. In addition to the actual pecuniary loss there is a further loss on account of detention of wagons?—It is very difficult to arrive at any money value on account of detentions of wagons, but I have tried to make an approximate estimate in the note I have submitted accompanying my estimate of the cost of working the ferry [see Appendix E²]. Claims for fire,—it is also very difficult to give a yearly estimate of the compensation for damage by fire. As an instance, we had a flat burnt in 1904 and the cost of repairing comes into the expenditure here during the last five years (referring to statement). We paid Rs. 89,000 account of claims for goods burnt on the flat. Of course you cannot arrive at any yearly estimate of what damage by fire will cost you.

73. Q. Is it not the case that each year's delay in bridging the river is like throwing so much money into it?—Yes.

74. Q. If a bridge is constructed either the Government would earn so much more, or you would reduce your rates for carriage, or both?—Yes.

75. Q. In the event of a bridge being made at Godagiri would you still have to keep a part of the Sara ferry in existence?—Yes.

76. Q. And you would be put to the same difficulties in the matter of expenditure?—Yes.

77. Q. Considering the rapid growth of traffic at Sara do you think the traffic necessitates a bridge there without any reference to the Bengal and North-Western Railway traffic?—Yes, I have said so in my answers. The traffic at the Sara ferry seems to be increasing year by year.

78. Q. Is the traffic there too large for coolie transhipment except at great expense and danger to the public?—Of course, labour is getting dearer every year and more difficult to obtain every year.

79. Q. What would be the result of an epidemic of cholera or a strike on your transshipment? Would it not be a serious matter?—Very serious.

80. Q. If it occurred during the busy season last year would it not have caused a famine on the other side of the river?—Yes, I should say so. I believe things got so bad that there was nearly a famine.

81. Q. What quantity of your traffic do you tranship by coolie labour?—I could not give you figures straight off. As against traffic taken by wagon ferry the majority of it.

82. Q. So that in the event of a cholera epidemic or a strike the greater portion of your traffic would be paralysed?—I should say so.

83. Q. (*Major Shelley*).—In one of your predecessor's letters to Government he states that the Bengal and North-Western Railway might be given running powers from Katihar to the Ganges, and power to fix rates from the river to Calcutta for Bengal and North-Western Railway traffic. Do you think this proposal would give that administration such facilities as would ensure their traffic getting fair treatment, or would you suggest any modification of these terms?—So far as I know my predecessor only suggested that they should be given running powers over the metre gauge, and that there should be certain restrictions on their powers of quoting through rates.

84. Q. Do you think if these were given it would ensure the Bengal and North-Western Railway getting fair treatment?—Yes.

85. Q. Is it not possible that the grant of these concessions might be prejudicial to your traffic?—They would be if granted without restrictions.

86. Q. Do you think it necessary in the event of a transshipment station being established north of the Ganges, to place independent control over the station so as to ensure the traffic of both administrations being impartially dealt with?—No, I do not think so.

87. Q. What is your opinion as to the advisability of the Bengal and North-Western Railway providing its own broad gauge stock, and running into Calcutta under its own running powers?—I am not prepared to answer that without notice.

88. Q. For what proportion of your traffic crossing the Ganges is Godagiri a more direct route than Sara?—That is I think in that statement [see Appendix E⁶].

89. Q. The Bengal and North-Western Railway tell us that *via* Godagiri is a shorter route for $\frac{1}{3}$ rd of your northern Ganges traffic than *via* Sara?—Yes, a certain amount of it goes that way as being the shortest route to Calcutta.

90. Q. Of the traffic you now carry would $\frac{1}{3}$ rd of it have the shortest route *via* Godagiri?—I cannot answer that.

91. Q. Do you think it would be a larger amount?—I should say the proportion would not be anything like a third. I would rather make out a statement and submit it.

(*Witness* was asked to prepare a statement showing how much of the traffic at present passing Sara would have a shorter route by Katihar-Godagiri, assuming there was a link from Nattore to Godagiri.) [See Appendix E⁶].

92. Q. Do you place much importance on the alleged inconvenience to the public in the matter of claims by reason of the traffic being handled by more than one administration?—No.

93. Q. (*Mr. Dumayne*).—Referring to the estimate of 172 lakhs what rate per cent. would, in your opinion, cover interest, repairs, renewals and municipal taxes in Calcutta?—I should say over 5 per cent. We now pay Rs. 7,000 a quarter for municipal taxes on Calcutta termini. If metre gauge works, included in the estimate, are provided, the taxes would probably be increased by not less than Rs. 5,000 a quarter, or say, by from Rs. 20,000 to Rs. 25,000 per annum.

94. Q. Such a rate would be an additional charge upon the goods coming to Calcutta?—I suppose so.

95. Q. On the 370,000 tons as traffic for the Bengal and North-Western Railway this would be distributed over that tonnage?—It would be so many lakhs incurred to deal with that traffic.

96. Q. And that would, of course, for economical reasons have to be compared with the cost of other arrangements?—Yes.

97. (*Mr. Kar.*)—Do you think that the difficulties and complications that are experienced at the Sara crossing on account of the silting of the river would be done away with by the bridge?—Yes.

98. Q. If the metre gauge is introduced into the Calcutta termini, or the mixed gauge where possible, do you think the arrangements will, for the time being, dislocate traffic during the laying of the third line?—Certainly, where you have a main line, it would mean a certain amount of interference.

99. Q. You said the cost of maintaining the ferry is about 9½ to 10 lakhs?—Yes, including interest, but not full depreciation.

100. Q. Would the cost of maintaining the bridge be less?—Yes, it would be very much smaller than maintaining the ferry.

101. Q. You say that it would cost about 172 lakhs to make necessary arrangements for introducing the metre gauge, is that for partial or entire introduction?—That is for introduction so far as is detailed in the estimates. It does not include a separate metre gauge yard at Baghbazar to serve traffic dealt with at the Chitpore broad gauge yard.

102. Q. If the Railway Board's scheme is given effect to, it is somewhere stated in their memorandum that a large amount of tea and jute traffic might be diverted from the Eastern Bengal State Railway. Do you think it would be a loss to the State?—It depends very much upon who gets control of the lines, whether the lines remain under Government working, or are transferred to other Railways.

103. Q. I think you already stated that the space you have available, or that is likely to be available at Baliaghatta, must be reserved for broad gauge?—Yes, I think it is absolutely necessary. All the land on the east side must be reserved for the broad gauge. Estimates are now under preparation and we are filling in tanks and putting in a goods yard, and if there is possibility of a central station being made we will want the land. We are making out plans for combining Baliaghatta and Sealdah. I don't think the metre gauge could ever go on that side.

104. Q. You said just now that you are making provision for a great deal of extra space at Sealdah. Do these operations have in view the possibility of the conversion of Sealdah into a central station?—Yes. We have a meeting on the 11th February where all these arrangements will be discussed.

105. Q. So the diversion of the lines to the docks outside Baliaghatta was with the object of a central station?—I understand that, in making arrangements to divert the Dock traffic to the chord, the possibility of having to provide for a central station at Sealdah was kept in view.

106. Q. Knowing these facts you would never recommend the metre gauge into that part?—No, certainly not.

107. Q. Speaking from the point of view of the Eastern Bengal State Railway, do you think it better to have wagon to wagon transhipment kept on the north of the Ganges or brought near to Calcutta?—We would prefer it north of the Ganges.

108. Q. Do you think it would be to the interests of trade generally?—I think it would be better to keep transhipment north of the Ganges.

109. Q. Would not transit between the north of the Ganges and Calcutta be more rapid by the broad gauge?—It would be more rapid than by the metre gauge.

110. Q. You have all the facilities for doing it on the broad gauge?—Yes, if transhipment yards are made.

111. Q. Do you think transhipment between broad gauge and metre gauge would be a source of inconvenience and loss to the trade?—No, I think tran-

shipment is managed at other big places. At Sabarmati there is a large amount of transshipment done which they get through all right.

112. Q. Do you think there would necessarily be any serious loss to rolling stock at a transshipment station?—No.

113. Q. Is not one strong objection to the Sara ferry transshipment the mixing of consignments?—Yes.

114. Q. Do you think you would be able to avoid that in wagon to wagon transshipment?—Yes.

115. Q. In wagon to wagon transshipment one of the greatest evils in the Sara transshipment will disappear?—Yes.

116. Q. Supposing the bridge is not built at Sara, but at one of the other sites and you had to connect by a line from Nattore. Would you have to maintain a ferry to serve that section of the line between Nattore and Sara?—Yes, we should have to maintain a ferry.

117. Q. You do not think you could abandon it?—No, I don't think so.

118. Q. It would not be cheaper to bring the traffic round?—No, it would be a long way round.

119. Q. It would be very costly to work the ferry for a small section of line?—Well, there would be a smaller ferry.

120. Q. Proportionately it would be more costly?—Yes.

121. Q. I suppose if the ferry is established at Godagiri, as it will soon be, and the Godagiri line diverted from Jessail to the Eastern Bengal State Railway, you will also have to keep the ferry going at Godagiri?—I do not yet know what traffic there is, it is an unopened line and could be easily abandoned.

122. Q. Judging from your answer about the Nattore-Sara section?—The difference is that the Katihar-Godagiri line has not yet been opened, and the Nattore-Sara line has been opened for a long time.

123. Q. At certain stations on your line you, at present, have wagon to wagon transshipment between the 2' 6" and the metre gauge. Have there been many claims for damage and loss in consequence of transshipment?—No, very few and very small.

124. Q. Would the traffic that, at present, goes *via* Manahari make use of the bridge if built at Godagiri, Isabpur or Sara?—Yes, I think the Manahari traffic would come down over the bridge.

125. Q. Would you be in a position to force it down over the bridge?—Yes.

126. Q. (*Mr. Kar.*)—Has there been any block in the traffic at Sara crossing on account of the want of wagons on your part at Damukdia?—I think this is fully explained in my answer about the difficulty at Damukdia and Sara; difficulties owing to the river changing its course, and also to want of wagons.

127. Q. You have had as many as 1,500 wagons detained on both sides of the river?—Yes.

EVIDENCE OF MR. H. R. IRWIN, PRESIDENT, DARJEELING PLANTERS' ASSOCIATION. Taken on the 30th January, 1907.

1. Q. (*Mr. McLeod.*)—On whose behalf do you appear here to give evidence?—The Darjeeling Planters' Association and the Terai Planters' Association.

2. Q. In what capacity are you connected with these Associations?—I am President of the Darjeeling Planters' Association, and I have been requested by the Committee of the Terai Planters' Association to give evidence on their behalf.

3. Q. Have you suffered to any extent from the want of a bridge across the lower Ganges?—Certainly. We are constantly suffering loss from damage to goods at Sara by the transshipment there, and also from the very serious detention of goods.

4. Q. Owing to the detention at Sara Ghat, the price of rice during last year was greatly enhanced in your district?—Very greatly enhanced. (Here witness reads a note as follows) :—

As representing the Darjeeling and Terai Planters' Associations, I have been deputed to give evidence before you respecting the Lower Ganges Bridge Project.

The pressing need of a bridge over the lower portion of the Ganges has long been apparent to those residing on the north bank of the river, who have had before their eyes the congestion of traffic which constantly takes place at Sara, caused by the rapidly increasing trade.

You may possibly be aware that a largely attended meeting was held in Darjeeling in December last at which I had the honour to preside.

All branches of the mercantile community, professions and trades, both European and Native, were fully represented, and strong arguments in favour of the bridge at Sara were forcibly and unanimously stated.

Briefly they are as follows :—

(a) The block of traffic which constantly takes place owing to the necessity of shifting the ghat on account of high or low water in the river, etc., etc.

The very great urgency of the case has only recently been brought home to every resident, rich or poor, on the north bank of the river by the absolute block of traffic which took place in October and November last.

This was the cause first of the greatest distress and hardship to the poorer classes whom the want of food stuffs, rice of course principally, drove almost to the verge of starvation. When I say that rice, the staple food of the labouring classes, was selling at six seers per rupee, or Rs. 6-2 to Rs. 6-4 per maund in the Darjeeling District, and that the average wage earned by a coolie amounts to some Rs. 4 to Rs. 5 per mensem, the distress caused is self-evident, and this when thousands of maunds of rice were said to be blocked at Sara merely for want of facilities for transporting it across the river. This argument alone, in the name of suffering humanity, is in itself sufficient, I think, to demand the immediate construction of a bridge without further delay, whatever the cost.

Secondly, it occasioned great loss to traders by not being able to obtain their goods for sale, within a reasonable period, when they might have received highly remunerative prices for them.

Thirdly, it caused great inconvenience, to say the least of it, to residents generally from being unable to get articles of any sort through from Calcutta for about a month.

(b) The very frequent damage done to articles in transit occasioned by the transshipment at present necessary on both sides of the river.

The loss to the railway on account of claims for damages is, I believe, very large, but the aggregate loss to the public generally is far greater still. Hundreds of articles arrive either damaged or short in weight. The damage or loss being discovered either too late for a claim to be made, or the difficulty of substantiating the claim and the long delay which always takes place before compensation is made, causing people to refrain from claiming and to put up with the loss.

(c) With easier facilities of transport enabling traders to get their goods to a favourable market, tracts of land at present lying waste would be brought into cultivation, thus increasing the prosperity and well-being of the poorer classes.

The construction of the bridge, with the least possible delay, as far as the community I represent is concerned, is what I am instructed to urge, the site being comparatively of minor importance; at the same time we are strongly in favour of the Sara site, for the following reasons :—

(1) It is the directest route, and therefore, other things being equal, seems the natural one. We are told that the increase of distance by the Godagiri or Rampur Boalia sites is small, but, as increasing the possibilities of detention, an increase of distance is objectionable, however slight, unless it has countervailing advantages of which at present we are unaware.

We are further told that the cost of freight will be the same; surely, however, the extra haulage must represent a certain amount, which could be correspondingly reduced by the shorter route.

(2) A very great objection I think to the alternative sites would be that our goods from Darjeeling would travel over an extra line, *i.e.*, three instead of two lines as at present.

At present, as I have above indicated, the difficulty of obtaining compensation for loss or damage is so great as to cause many to put up with their loss sooner than enter upon a long correspondence, which often fails in procuring any satisfaction even in the end. One line endeavours to shift the responsibility of damage or delay on to the other, until claims are abandoned in despair. In the event of a third line becoming involved, the public may as well save themselves the trouble of claiming at all. At present, I have myself a claim for complete loss of an invoice of goods consigned to the railway in November 1905. The loss or responsibility is not denied, but simply, apparently, the lines concerned hope to evade compensation by passive resistance and delay.

(3) A third objection which occurs to me is the increased delay to which goods would probably be subjected, when traffic is heavy, in passing from the Eastern Bengal State Railway to the Bengal and North-Western Railway. It would be only human nature for a line to pass on its own through traffic first, to the detriment and detention of that coming from another line.

In conclusion, my instructions are, *first*, to press for the construction of a bridge, with the least possible delay, and, *secondly*, that it would be constructed at Sara, our hope being that in course of time it may be found possible gradually to convert the metre gauge on the north bank to the standard gauge, thus obviating the necessity of any transhipment with its attendant losses from damage or theft.

5. Q. You have given us the price of rice during the last year; what is the average price during a normal year?—10, 11 and sometimes 12 seers to the rupee for good rice—Rs. 3-8 a maund.

6. Q. Was it not the case that there were famine rates prevailing in your district for rice at the same time that there was plenty of rice waiting for transport at the Damukdia ferry?—Yes, and that is *at present* occasioning a very great loss to the planters; on account of that, the coolies have got heavily into debt, because they had to borrow money and they got advances from their employers to the utmost limit that they could. The consequence is now, in order to get further advances, they are changing from one garden to another, and it is causing us very great loss.

7. Q. And if the traffic had been entirely stopped by an epidemic of cholera or anything of that sort, it would be very serious?—It would be very serious indeed.

8. Q. In consequence of these difficulties, do you recognise the urgent necessity of a bridge across the Ganges, and to it having a primary place in any Government programme?—Yes.

9. Q. You have no preference for site?—Yes, we prefer the most direct route, which appears to us to be *viâ* Sara; but that is of minor importance.

10. Q. Then do you think the bridge should be constructed at the point which would serve the greatest volume of traffic at the least cost?—Well, I think that the public advantage should be considered first as far as possible. Provided that the cost is not so very much heavier, I should say the public advantage should be considered before the matter of cost.

11. Q. You have interested yourself considerably in the question?—I have.

12. Q. With what general result; I mean what conclusions have you come to from the interest you have taken in the question?—Well, the more I look into the matter, the more urgent I see is the necessity for a bridge.

13. Q. Have you seen the note prepared by the Railway Board on the subject of bridging the Lower Ganges?—I have.

14. Q. Have you considered it?—I have, as far as I am able; of course the figures which are gone into I am not capable of commenting on.

15. Q. What does it convey to you?—Of course if their figures are correct (which I am told they are not) the huge saving by the Rampur Boalia site would seem to almost necessitate the bridge being placed there. But still I am told that the figures are incorrect, and I, therefore, favour the Sara site.

16. Q. Are you aware that the tea traffic has been given a preference in handling at the Sara ferry?—I heard so lately.

17. Q. You are proprietor of a large garden in the Darjeeling district?—I manage a large garden in the Darjeeling district, and I partly own a small garden in the Terai.

18. Q. Can you tell us the claims you have up to date from damage from transhipments during the past two or three years?—I am unable to answer that question.

19. Q. They have not been large?—No.

20. Q. So that transhipment from wagon to wagon, in a well organised yard, would not be a serious matter?—No, I should think not.

21. Q. We are told that the cost of bringing the metre gauge into Calcutta railway terminus would be 170 lakhs of rupees, to which would have to be added the cost of Docks terminals of about 120 miles. Would you rather come by metre gauge into the radius of such expenditure, or would you rather suffer some transshipment at some convenient yard?—I prefer transshipment.

22. Q. Across the Ganges or near Calcutta?—I should prefer the transshipment north of the Gauges.

23. In the event of it being found impossible to bring the metre gauge into Calcutta terminals, do you see any advantage in having the transshipment yard near Calcutta?—No, I don't; in fact I should think that the preference should be given to a site further from Calcutta.

24. Q. We are advised the annual cost of the Sara ferry, excluding loss by detention of wagons, damage in transshipment and other contingent losses, is about 9½ lakhs of rupees, while the annual charge of keeping a bridge in repair and the cost of interest and of other charges is estimated at considerably less. Do you not consider the delay in constructing a bridge is a policy detrimental to the interest of the trade, and entirely at variance with economical business principles?—Certainly.

25. Q. (*Major Shelley*.)—The only point I should like to ask you is why do you prefer transshipment taking place at some distance from Calcutta?—Of course that is rather a difficult question to answer, but I should imagine that there would be less delay at a distance from Calcutta than nearer to Calcutta. There would be greater congestion of traffic near Calcutta causing greater delay; that is only an idea of mine.

26. Q. Does not the longer length of broad gauge lead, which would result from a distant transshipping station, and consequent increased rapidity of transport appeal to you?—Certainly, it does appeal to me.

27. Q. As an argument in favour of distant transshipment?—Yes.

28. Q. (*President*.)—Your tea, I imagine, is always transhipped at Siliguri?—Yes.

29. Q. Has there been any great delay there, or great loss in consequence of that transshipment?—Not as far as I am aware.

30. Q. I suppose you admit that the conditions of transshipment are very similar to those which would exist at Sara were wagon to wagon transshipment done there?—Yes.

EVIDENCE OF MR. J. DOUGLAS, EAST INDIAN RAILWAY. Taken on the 1st February 1907.

1. Q. (*President*.)—You have, I believe, running powers from Naihati over the Eastern Bengal State Railway to the Calcutta termini?—Yes.

2. Q. What termini do you use?—Kidderpore Docks, Chitpore, Sealdah and Baliaghatta, Ultadanga, and the Port Trust depôts *viâ* Chitpore.

3. Q. What are the arrangements for disposing of your business on these termini?—The business is disposed of for us by the Eastern Bengal State Railway and the Port Commissioners.

4. Q. Do you employ your own staff to deliver and receive consignments, and to arrange for the handling of them?—No. The staff and labour are arranged for by the Eastern Bengal State Railway, or Port Commissioners, as the case may be.

5. Q. Are the arrangements under which the East Indian Railway traffic is disposed of at the Eastern Bengal State Railway termini satisfactory to your Railway?—The arrangements are generally satisfactory, except in the case of coal, the accommodation for which is insufficient at Baliaghatta. In consequence it is necessary constantly, during the busy season, to impose restrictions on the booking of coal from the collieries to Baliaghatta. Traffic, other than coal and exports for prompt shipment, is inconsiderable in quantity, preference being given to Howrah.

6. Q. Do you anticipate any difficulty in the future in meeting all the requirements of the Bengal and North-Western Railway at Mokameh; and in meeting these requirements are you compelled, or have you in the past been compelled, to restrict the supply of wagons at other stations on your system, and more particularly at collieries?—No difficulty is anticipated in the future in meeting all the requirements of the Bengal and North-Western Railway at Mokameh Ghat. At the busiest seasons the position in India generally, as all over the world, is that the wagon supply is not equal to the maximum demand for *immediate* despatch. The Bengal and North-Western Railway does not at once meet in full the demand of despatchers on that system for wagons for despatch of traffic for beyond Mokameh, neither does the East Indian Railway at once meet in full the demand from despatchers at its local stations. It may be accepted that, in providing wagons for the carriage of all traffic brought to Mokameh Ghat by the Bengal and North-Western Railway, we render necessary no further restriction on the supply of wagons at other stations on the East Indian Railway system, including the collieries, than has already been imposed at the despatching stations on the Bengal and North-Western Railway.

7. Q. Are you and Mr. Dring generally well acquainted with the Eastern Bengal State Railway and Port Trust on the Calcutta side of the Hooghly, and with the general system of the disposing of the traffic therein?—We have a general knowledge.

8. Q. What do you think would be the effect of admitting the metre gauge into these termini?—We apprehend great confusion and delay to the wagon stock.

9. Q. If a metre gauge system of the magnitude of those which the Railway Board has proposed to admit to Calcutta termini sought to obtain admission to your Howrah terminus, should you advise that it was granted such admission, or would you recommend transshipment outside Howrah?—We should recommend transshipment outside Howrah.

10. Q. What reasons would generally govern your decision in this respect?—On account of the confusion and delay to wagon stock which the introduction of the metre gauge would entail.

11. Q. In your note [*see Appendix F²*] you have referred to fair treatment by the Mokameh route. In your opinion what would be fair treatment?—The East Indian Railway claims as "fair treatment" that whatever mileage rate is given over the Bengal and North-Western Railway west of Barauni to and from Barauni for traffic by the Eastern Bengal bridge route, shall be given to and from Mokameh Ghat by the East Indian route. The admission of this claim will ensure the trade being allowed to take advantage of the shortest and, therefore, the cheapest route as well as the most expeditious. Transit by the broad gauge is accepted to be quicker than by the metre, and the broad gauge route is 25 per cent. or more shorter than the narrow gauge route. In 1904, when there was a constant through traffic from *viâ* Mokameh Ghat to the Docks in full train loads, the time taken in transit from Mokameh Ghat to the Docks was about 48 hours.

12. Q. In the event of your present Mokameh traffic being diverted to the new route over the Lower Ganges Bridge, what proportion of the upwards traffic from Calcutta could you be reasonably sure of retaining which would, practically speaking, be unaffected by competition?—It has been already stated that the termini in the Calcutta side are not largely resorted to for downwards traffic, excluding coal and exports for prompt shipment. As to upwards traffic from Calcutta, the despatches in a year (1904) for *viâ* Mokameh Ghat may be taken at 165,000 tons, of which 30,000 tons were sent from Calcutta stations proper, and from Howrah 1,35,000. The principal commodities in these totals were—

From Calcutta.	From Howrah.
Sleepers.	Piece-goods.
Salt.	Salt.
	Iron.
	Sugar.

With "fair treatment" it is difficult to see how any upwards traffic can be diverted.

13. Q. What proportion of the traffic of 1904 *viâ* Mokameh do you think would have a shorter route *viâ* Katihar which you show as going by Barauni?—None.

14. Q. Would not competition between the Mokameh and Katihar routes tend to reduce rates and be in the interest of the public, and would not a portion of the possible loss in railway revenue consequent on competition be borne by the Bengal and North-Western Railway, and not fall on Government?—Any transfer of traffic from the Mokameh route to either of the proposed routes would clearly be a loss to the East Indian Railway only and so to Government only; it would all be clear gain to the Bengal and North-Western Railway. This is apart altogether from the question of competition. What I mean is this. For the traffic that now comes from Mokameh Ghat the whole of the gross earnings go to the East Indian Railway, and so to Government except $\frac{1}{5}$ th. That has nothing to say to competition. If competition did arise it would have the effect possibly of reducing the rates. That is another question altogether from the actual transfer of traffic from one system to another. By the transfer of traffic you take the money out of the Government pocket.

15. Q. (*President.*)—The question is whether it would be in the interests of the public?—The rates at present charged by the Mokameh route have been arrived at in consultation with the Bengal and North-Western Railway, and further reductions have been proposed by the East Indian Railway for the longer distance leads, but these proposals have not been accepted by the Bengal and North-Western Railway. Having regard to the length of the leads the charges, where it is proposed to maintain present rates, are reasonable. Taking for grain and seeds a principal station on the Bengal and North-Western Railway proper, and on the Tirhut State Railway, the charges are, excluding the Mokameh ferry, as follows:—

	RATE.			DISTANCE.			RATE PER MAUND PER MILE		
	Bengal and North-Western Railway.		Total.	Bengal and North-Western Railway.		Total.	Bengal and North-Western Railway.		
	East Indian Railway.	East Indian Railway.		East Indian Railway.					
	Rs.	A.	P.	Miles.	Miles.	Miles.	Pies.	Pies.	
Uskabazar	0	2	11	0	3	2	0	6	1
Mozufferpore	0	1	4	0	3	5	0	4	9
				245	284	529	14	13	
				70	284	354	23	14	

Following recent practice, it is assumed that if an Eastern Bengal bridge is built, the bridge will be given free to the trade, other than the actual charge by distance over the bridge and its connections. The ferry tolls at Mokameh bring in a sum yearly which capitalised covers the cost of a bridge, and if a bridge is given free in Eastern Bengal, so must the ferry or a bridge in substitution of the ferry be given free at Mokameh Ghat. For this reason, the ferry tolls at Mokameh Ghat have not been included in the through rate. If by competition between the Mokameh and Katihar routes there was a serious reduction in earnings, there would be consequent obstacles in reducing rates for the general trade served by the Bengal and North-Western Railway and the East Indian Railway, and it will be prominently in the minds of the Committee that the policy of the East Indian Railway is, by general reduction throughout its system, to help the trade of Calcutta. It will also be known to the Committee that where acute competition has been resorted to in other countries, the result has been enormously high rates between the points where there is freedom from competition.

16. Q. Will not the early opening of the Godagiri route give rise to competition, irrespective of the construction of a Lower Ganges bridge?—Not if the East Indian Railway route receives "fair treatment" *viâ* Mokameh Ghat.

17. Q. You have said that, in order to compete with Howrah as a despatching station, a metre gauge terminus in the neighbourhood of Burra Bazar will be necessary. Will you kindly give full reasons for this statement?— Because Howrah is much more greatly resorted to than the existing Calcutta stations, shewing its greater conveniences and popularity. The total trade of Calcutta, sent on to the East Indian Railway system in a year, may be taken at 550,000 tons. This is contributed as follows:—

	Tons.
Howrah	400,000
Kidderpore docks (principally sleepers and salt)	80,000
Port Trust Depôts	65,000
Chitpore	1,000
Sealdah	5,500
Ultadanga	7,000

18. Q. Will you please give the details of your distances from Barauni to Calcutta *viâ* Mokameh, Sara, Rampur Boalia and Godagiri?

Viâ Mokameh—

	Miles.
Barauni to Semaria	5
Mokameh to Howrah	284
	<hr style="width: 10%; margin-left: auto; margin-right: 0;"/>
	289

Viâ Sara—

Barauni to Katihar	112
Katihar to Rohanpur (a station proposed on the Katihar-Godagiri Railway)	80
Rohanpur to Rampur Boalia	40
Rampur Boalia to Sara	34
Sara to Calcutta	132
	<hr style="width: 10%; margin-left: auto; margin-right: 0;"/>
	398
Allowance for curvature, say	4
	<hr style="width: 10%; margin-left: auto; margin-right: 0;"/>
	402

Viâ Rampur Boalia—

Barauni to Katihar	112
Katihar to Rampur Boalia	120
Rampur Boalia to Ranaghat	74
Ranaghat to Calcutta	46
	<hr style="width: 10%; margin-left: auto; margin-right: 0;"/>
	352
Allowance for curvature, say	7
	<hr style="width: 10%; margin-left: auto; margin-right: 0;"/>
	359

Viâ Godagiri—

Barauni to Katihar	112
Katihar to Godagiri	105
Bridge and approaches	3
Lalgola to Ranaghat	94
Ranaghat to Calcutta	46
	<hr style="width: 10%; margin-left: auto; margin-right: 0;"/>
	360

19. Q. Please give your reasons for submitting that the Bengal and North-Western Railway traffic is better provided for at Mokameh than it can possibly be under any of the alternative schemes proposed?—I would refer you to my remarks in reply to your question as to what portion of the upwards traffic would be unaffected by competition.

20. Q. Admitting the relief afforded by the grand chord, the conditions likely to give rise to congestion south of Asansol remain the same, I believe. Do you anticipate that congestion on this section of your line is ever likely to prejudicially affect the interests of the Bengal and North-Western Railway?—No.

21. Q. Does your Board advocate the construction of a bridge at Mokameh as part of their undertaking?—Our Board have not yet had an opportunity of expressing an opinion on the subject.

22. Q. (*President.*)—The Bengal and North-Western Railway have proposed a connection from Azimganj to Bhagwangola. Do you think the connection would be of value, and would it cause a diversion of any considerable portion of the coal traffic now passing *viâ* Mokameh?—I consider the diversion would be of value as regards coal for Eastern Bengal which now goes either by Sakrigali (Manihari) or by Sara. I don't consider it would interfere, to any practical extent, with the traffic now passing *viâ* Mokameh.

23. Q. In paragraph 9 of your printed note of the 28th of January [*see Appendix F²*] you have referred us to the Government of India Technical Paper No. 138, which, you say, might suggest cause for serious reflection. Will you say what you had in mind in alluding to that paper?—I would prefer to go through the paper again carefully and then give an answer in writing, noting the different points. I may, however, mention that I have information that the Ganges has cut its way comparatively close to the bridge, and we know from the experience of men who have lived on the spot that during their lifetime the Ganges has run considerably above (north of) the site of the present bridge [*see Appendix G*].

24. Q. Is salt despatched from both sides of the river?—Yes, it is loaded on both sides of the river. It is principally despatched from Howrah. In fact the Local Government are incurring considerable expenditure in order to make Sulkea a still more important centre for the despatch of salt. In future, Howrah will be practically the sole point of despatch.

25. Q. The Railway Board have suggested bringing in the metre gauge into Calcutta and the provision of increased facilities. From your knowledge of the terminals of Calcutta do you consider this necessary?—No, I don't think it necessary, for this reason that I think it would diminish the facilities rather than increase them.

26. Q. Looking at the shortage of wagons would not money be more advantageously spent in providing additional wagons, especially for the coal traffic?—Most decidedly. At the present time any wagons placed on the East Indian Railway would at once begin to turn in very highly remunerative earnings. Indeed they would return their full capital cost in a year, and with the prospects I see ahead for the coal trade, I consider this condition of things will continue.

27. Q. You have a lot of jute sidings on your side of the river?—Yes, we have some and are increasing the number.

28. Q. They extend from Naihati to Budge Budge?—They extend on our line from Naihati to Bally.

29. Q. And on the Bengal-Nagpur line they go as far as the cotton mills?—I believe so.

30. Q. Could you easily introduce the mixed gauge to serve these mills?—No.

31. Q. Then you would require transshipment?—Transshipment would be necessary before we came to the first of the mills.

32. Q. Would it be any advantage to have the transshipment near Calcutta for these mills or further away?—Transshipment should be at the furthest

point, that is, before coming to any of the mills, and the further this was distant from Howrah, the better?—for two reasons—(i) the land required would be more easily acquired and cost less, and (ii) labour would be cheaper.

33. Q. Would not transshipment at the furthest point, thereby getting the advantage of broad gauge capacity and speed as soon as possible, be an advantage?—The sooner you can get on the broad gauge line the better.

34. Q. Would not the competition that would arise be beneficial to the commercial community if there was any chance of rates being reduced?—So far as the additional route would have the effect of reducing rates, of course it would have a beneficial effect, but I doubt very much whether taking the whole circumstances together it would be beneficial. For instance, there would be delays in traffic. But irrespective of competition we are prepared to give the trade the lowest reasonable rates at present. At the present moment we have a proposal before the Bengal and North-Western Railway for reducing the rates for grain and seeds to Calcutta from any Bengal and North-Western Railway line, giving a considerable lead to this line. This proposal is independent of any alternative route. You don't require an alternative route in order to give the Calcutta trade lower rates.

35. Q. Supposing that a bridge was built at Godagiri, could the Bengal and North-Western Railway block the traffic on your system by increasing their rates?—If they were allowed to increase their rates they could do so undoubtedly. If they were allowed to quote block rates to Mokameh, they could block the direct route by way of the East Indian Railway to Calcutta.

36. Q. Would that be of advantage to the commercial community?—It would be of the greatest disadvantage.

37. Q. Supposing that they did so, could you block them from Naihati upwards and downwards?—Not effectually, the lead over our line would be so short, it is only 24 miles from Naihati to Calcutta. Once the traffic was diverted it would not return, it would hardly be worth our while taking the traffic back for the short lead of 24 miles.

38. Q. Now as regards the passenger traffic from the Bengal and North-Western Railway you carry it from Mokameh at 37 miles an hour?—Yes.

[*Witness* at this point handed in a statement of passenger traffic (see Appendix F³) and proceeded to say. We can carry passengers from Howrah to Mokameh in 12 hours. We submit that the 3rd class traffic must absolutely remain to us, because you cannot send people round the slow metre gauge route which is 25 per cent. longer than the broad gauge route along which, we submit, there is a very efficient service indeed for the 3rd class traffic. This is another strong point indicating that the present ferry must be maintained in a thoroughly efficient state, and it seems to me that the East Indian Railway should work it.]

39. Q. We find from the Bengal and North-Western Railway time-table that the speed of trains is 15 miles an hour, then there are 55 minutes across the Ghat. Do you think they could increase the speed for 3rd class traffic?—I have no knowledge of narrow gauge lines.

40. Q. (*Major Shelley*.)—A question was framed with the object of ascertaining whether the fixation of the exact position of the Lower Ganges bridge was, or was not, complicated by considerations of competition. I understand that we may take it from you that you consider competition must follow the opening of the Katihar-Godagiri line and, therefore, this complication does not occur?—I think the question of competition might be left aside as regards the three sites.

41. Q. Referring to question 18, since the alternative routes would be bridged, do you consider that transport *via* Mokameh will still afford the quicker route?—Yes, and further we hope to have a bridge at Mokameh.

42. Q. As regards private sidings I understand the Railway Company usually bears the cost of such portion as is situated on railway land, and that the firm or company requiring the siding pay for so much as is situated within their own premises. Is this not the case?—We make a distinction

between private sidings and assisted. In the case of sidings laid into the Company's own premises which we call private sidings, the Company pays the whole of the cost. In the case of sidings, outside Company's premises—assisted sidings—Companies pay the cost of land and sub-grade work.

43. Q. Would the East Indian Railway be prepared to pay for the alterations and additions to such sidings, both inside and outside railway limits, as would be necessary for the entry of the metre gauge?—Certainly not, why should they.

44. Q. Would the East Indian Railway be willing to bear the cost of the metre gauge running lines necessary for the service of private sidings?—No.

45. Q. (*Mr. Dumayne to Mr. Dring.*)—You travelled over many thousand miles of line in America; did you come across the Ramsay system of transshipment?—No.

46. Q. Did you hear of it?—I did not extend my studies to this development of railway working, so I am not in a position to answer the question whether the arrangement is feasible and practicable, if that is what you are intending to ask.

47. Q. (*Mr. Dumayne to Mr. Douglas.*)—As a general principle does not trade follow the shortest route?—Yes, if it can.

48. Q. Do you find any other consideration than rates are taken into consideration by a merchant in his adoption of a route?—Yes, speed on delivery is a great consideration to him.

49. Q. You are influenced by other considerations than mere competition in fixing rates?—Yes.

50. Q. The encouragement of trade, for instance?—Yes, certainly.

51. Q. (*Mr. Kar.*)—The introduction of the metre gauge into Sealdah will cost the Eastern Bengal State Railway 172 lakhs, and this does not include Chittpore Ghat; besides this there is the entry into the Kidderpore Docks which will probably cost 100 lakhs. Do you think that any proportionate benefit would be derived from the expenditure of so much money?—No benefit at all, quite the reverse.

52. Q. Would you say that there has been any demand from the mercantile community, or the public at large, for the introduction of the metre gauge to Calcutta?—I am not aware of any demand having been made.

53. Q. (*President.*)—Can you prepare a statement showing the probable loss to the East Indian Railway and to Government if unrestricted competition is permitted between Mokameh and other routes?—I think so, but I should like to consider the matter further.

[*Witness* subsequently added:—

In answer to this question I would say that I have already pointed out that there would be a heavy loss to the East Indian Railway and so to Government by any transfer of traffic from the Mokameh Ghat route. The loss would be practically the equivalent of the gross earnings (East Indian Railway) from such traffic, inasmuch as I do not see, for reasons already stated as regards empty running of wagons, that expenses would be appreciably reduced. But the question, as stated, involves further important issues. Any changes in rates at Mokameh would necessarily affect rates from all places beyond. The East Indian Railway, as is known, is endeavouring to increase the flow of export traffic from Northern India towards Calcutta, and in that view we have asked for consideration of the present minima rates with the object of enabling us to quote rates sufficiently favourable to bring back this traffic to our route. I am not prepared to admit that this would be any loss to the East Indian Railway, or to the Government. On the contrary, I am satisfied it would result in great gain to both: greater to Government even than to the East Indian Railway, as not only would the expense of empty running on the latter be saved, but the cost of empty and full running on other lines in which the Government is also largely interested; further, wagon stock now so occupied would be set free for use where it was really wanted.]

EVIDENCE OF THE HON'BLE MR. A. A. APCAR AND MESSRS. T. McMOBBAN AND M. J. CALVOCORESSI, REPRESENTING THE BENGAL CHAMBER OF COMMERCE. Taken on the 1st February, 1907.

1. Q. (*President.*)—You appear before us to-day on behalf of the Bengal Chamber of Commerce, and representing the views of the Committee and members of the Chamber?—Yes.

2. Q. How many years have you been intimately connected with the trade of Calcutta?—Thirty-seven.

3. Q. How many years have you been connected with the Chamber, and in what capacities have you served?—I have been many years on the Committee, as a member, as Vice-President, and for the last three years as President. My firm has been connected with the Chamber the whole time I have been here and before that.

4. Q. Are you, therefore, conversant with all the mercantile questions that have recently come before the Chamber, and more particularly the question of bridging the Lower Ganges river?—Yes.

5. Q. Are you also cognisant of the feelings of other mercantile bodies in Calcutta on the subject?—Yes.

6. Q. What other important bodies are there in Calcutta representing the trade of the port?—There are the Calcutta Trades Association, the Marwari Association, the Bengal National Chamber, and the Associations affiliated to the Chamber, the Calcutta Import Trade Association, the Indian Mining Association, the Indian Jute Mills' Association, the Indian Tea Association, the Calcutta Baled Jute Association and the Calcutta Wheat and Seed Trade Association.

7. Q. Do we understand, therefore, that the Chamber and other bodies you have mentioned represent virtually the whole of the trade of Calcutta?—Yes.

8. Q. What is, as near as you can give us, the total import and export trade of India?—For 1905-06, the import, excluding treasure, was 103 crores; export, also excluding treasure, 161 crores. The total is 264 crores.

9. Q. What proportion of that trade is dealt with in Calcutta?—Of the imports 45½ crores, and of the exports 67½ crores, or about 43 per cent. of the whole is handled in Calcutta.

10. Q. Does the Chamber represent the larger or the smaller part of that Calcutta trade?—The larger.

11. Q. Does not almost the whole of the traffic crossing the lower Ganges emanate from or come to Calcutta?—Yes.

12. Q. Do you, therefore, consider that the mercantile community of Calcutta should have the preponderating voice in the question of bridging the river?—Certainly.

13. Q. Have the Bengal Chamber of Commerce considered the matter, and what views have they to put forward?—They have very carefully considered the matter; and their views are embodied in the note I put forward [*see Appendix B*].

14. Q. Have you been asked by any other Association to represent their views?—Out of the Associations I mentioned just now as representing the trade of Calcutta, the Calcutta Import Trade Association and the Indian Mining Association addressed the Chamber. We have sent their letters on to you. The Indian Jute Mills' Association and the Indian Tea Association have given evidence direct to you. The Calcutta Baled Jute Association have, I understand, addressed a letter to your Commission. The Calcutta Wheat and Seed Trade Association have not sent in any views up to now; they are not concerned very much with the trade that goes over the Sara crossing, but they would be concerned with the introduction of the metre gauge into Calcutta. The Mokameh project is not under discussion, of course the Calcutta Wheat and

Seed Trade Association might have something to say to that. They may send you their views, but up to the present moment we have not heard from them.

15. Q. In the note submitted by the Bengal Chamber of Commerce they state that the primary cause of delay in constructing a bridge was the difficulty in providing funds. Can you tell us when this cause of delay was put forward?—The Committee of the Bengal Chamber of Commerce had an informal meeting with the Railway Board on the 13th July, 1906. At that meeting it was stated that the chief reason of the delay of the construction of a bridge was want of funds.

16. Q. In these circumstances, does not it follow that the spot where bridging the river costs least appeals to you as the most advisable?—It does.

17. Q. Have you considered the note prepared by the Railway Board?—Yes.

18. Q. If the difficulty in providing funds is the primary cause of delay can you suggest to us any explanation of a proposal for such a costly scheme as that put forward by the Railway Board?—No, I cannot.

19. Q. Does the note of the Railway Board convey to you any great economical reason?—I do not see any reasons given in this note. They say it will be more economical. I am afraid we differ from that. It is merely asserted. We have been credited with a scheme of 670 lakhs, but the scheme put forward by the Chamber would not amount to probably more than 150 lakhs, so that, in putting the two together, the Railway Board have done something which the Chamber has certainly not supported. Besides, the Railway Board do not give any figures of which it is possible to make a comparison. They simply say that scheme (ii) will be cheaper than (i), but they give no figures as to how they arrive at it, and, therefore, it is not possible to discuss it.

20. Q. Have you ever heard of any demand for a metre gauge line being introduced into Calcutta?—No, I have not.

21. Q. How do you view the suggestion to do so?—From all I have heard I think it will lead to a great deal of confusion, delay and expense. I view it with great alarm.

22. Q. We are advised that the cost of complete terminal accommodation for the metre gauge (apart from the Port and the East Indian Railway terminals) would cost about 1 crore and 70 lakhs of rupees. Would you consider such expenditure to be justified by any advantages to be gained?—I do not think the advantages would compensate for the cost.

23. Q. That 170 lakhs only refers to the Eastern Bengal State Railway termini from Naibati to Budge Budge. It includes all the private sidings, but not the Port Trust—No, I do not think it would compensate us.

24. Q. Are you a Port Commissioner?—Yes.

25. Q. You are, therefore, fully in touch with what is going on at the Port terminals and sheds?—Yes.

26. Q. How would you view the introduction of a mixed gauge into the Dock system of Calcutta?—I should view it with great disfavour.

27. Q. In the busy season is there any time to spare in the working of the goods traffic of the Docks?—No.

28. Q. Do you think the introduction of the mixed gauge would tend to increase (or diminish the difficulties now experienced?—It would certainly increase them considerably.

29. Q. Do you consider, looking at the enormous trade of the Port, the difficulties now attending the same, and the large expenditure and risk involved, that an experiment to introduce the mixed gauge into the Port terminals a justifiable one?—No.

30. Q. If only a partial introduction were found to be possible, would that alter your opinion?—That is a difficult question to answer. You say a partial introduction, but to what extent. I am against any introduction at all.

31. Q. We have been told it could be introduced by providing a separate metre gauge terminus alongside the present gauge at Sealdah, and also that it would be possible to get it into the grain sheds in the Docks. Could it be got anywhere else?—So far as I know a possible place is into the tea warehouse, but that affects such a small portion of the tonnage that it is not worth consideration. The trade is of considerable value, but the tonnage is small.

32. Q. If a partial introduction were found possible, would that alter your opinion?—No.

33. Q. If the introduction of the metre gauge into Calcutta were found impracticable, and transhipment is necessary, where would you prefer that transhipment to take place, near Calcutta or on the other side of the Ganges?—On the other side of the Ganges.

34. Q. Why would you have such a preference?—Because I think labour would be cheaper, and any land that may be required would also be cheaper there. In addition to that, Mr. Calvocoressi very properly advocates that transhipment should take place, other things being equal, at the point giving the longest lead over broad gauge lines, as haulage over broad gauge is more economical than haulage over narrow gauge.

35. Q. (*Mr. McLeod.*)—That is an additional reason?—Yes.

36. Q. Can you tell us who have advocated the bringing of the metre gauge into Calcutta?—No.

37. Q. Have you heard of any important commercial body who have carefully considered the scheme, express any desire for such a metre gauge into Calcutta?—No.

38. Q. In paragraphs 6 and 7 of the note by the Railway Board, they put forward the belief that a bridge at Rampur Boalia will satisfy the full legitimate needs of trade at the minimum cost to the State. Can you suggest to us any explanation of such a statement from a commercial view, seeing that the diversion of the established traffic of the Eastern Bengal State Railway is nearly equal to the diversion of a possible less traffic from the Bengal and North-Western Railway, if a bridge were constructed at Sara?—I see no advantage in that.

39. Q. Can you suggest to us any explanation, in these circumstances, why one bridge should not serve the purpose as well as another, and would not the fact that the one site has a double broad gauge line into Calcutta materially favour such a site?—We feel the advantage to be decidedly in favour of the site with a broad gauge connection to Calcutta.

40. Q. Would it not appeal to you from a financial aspect, looking to the cost of bringing the metre gauge into Calcutta, and the enormous cost that gauge would entail at Calcutta terminals?—Undoubtedly it appeals to us.

41. Q. Will you look at paragraph 14 of the Railway Board's note? Can you understand how a single bridge at Rampur Boalia can serve commercial interests equally with two bridges, one at Sara and the other at Godagiri, seeing that the latter are now in broad gauge communication with Calcutta?—It is rather a complicated question.

42. Q. You have two bridges for broad gauge into Calcutta, and one proposed bridge, with only double metre gauge, into Calcutta. Which would suit best?—So far as efficiency for traffic is concerned, undoubtedly the broad gauge.

43. Q. You do not understand how the single Rampur Boalia bridge would serve commercial interests as the other two?—No, of course not.

44. Q. Not even one of them?—If two are necessary it is impossible to understand how it could be put forward that a single metre gauge bridge would be as efficient for the traffic as a broad gauge bridge.

45. Q. We have it in evidence that the annual cost of the ferry at Sara Ghat, without including losses on account of detention of wagons, etc., is 9½ lakhs of rupees, while the estimated interest, cost and up-keep of a bridge is much less. If these facts are known to the Government of India, do you consider the policy of delay a sound one or otherwise?—Very unsound.

46. Q. Do you consider the probable traffic from the Bengal and North-Western Railway by the Katihar route justifies such a waste of money and delay?—No.

47. Q. From a calculation made for us, if the traffic which is now crossing at Mokameh were diverted *via* Katihar and Godagiri into Calcutta, the loss to Government would be nearly 20 lakhs per annum, while the gain to the other Railway systems would be very small. How would you view any proposal involving such a loss from a commercial or business aspect?—I would view it very unfavourably.

48. Q. We have it in evidence that the charge for ferrying at Mokameh would cover the interest charge on a bridge at that spot. If a second bridge is necessary, do we understand that you advocate it should be put there?—This is the first suggestion made of a bridge at Mokameh. I think we ought to have more details of the scheme put before us before we are asked for any serious opinion, but looking at it hastily I think it would be useful at Mokameh.

49. Q. Supposing one bridge is built at the Lower Ganges, and the necessity of a second bridge is approved of, would you advocate it at Mokameh?—There is no doubt of our opinion of Sara, but I think we ought to have time to consider the Mokameh question.

50. Q. Apart from the question of a second bridge, do you advocate the urgent necessity of bridging the Lower Ganges, and that at a site where the cost of construction would be least and at the site which would best serve the present largest assured volume of traffic?—Yes.

51. Q. The Railway Board have referred us specially to a meeting which the Board had with the Bengal Chamber of Commerce in July last. As regards paragraph 2 of the note can you tell us what actually was put forward by the members of the Chamber regarding the conversion of the metre gauge lines north of the Ganges?—There was nothing put forward seriously, the discussion was as to whether there was a necessity for a bridge or not; the question as to whether, if the bridge was built, the line should be on the broad gauge to Siliguri was quite incidental; it was not discussed. At the present moment all the Chamber have asked for is a bridge.

52. 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 on existing or projected lines. The diversion of the Bengal and North-Western Railway traffic *via* Sara would be $9\frac{1}{2}$ miles, the diversion of the Eastern Bengal State Railway traffic *via* Godagiri would be 41 miles; which of these might be considered the most impartial route?—The shortest certainly.

53. Q. The Railway Board consider the entrance of the metre gauge into Calcutta an essential feature of their scheme. Do you consider the entrance of the metre gauge into Calcutta expedient or advisable?—No, I do not.

54. Q. Neither the one nor the other?—No.

55. Q. On that assumption the Railway Board's scheme falls to the ground?—If it is necessary for the metre gauge to enter Calcutta certainly.

56. 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 (matter explained on map). Apart from the question of a bridge, do you consider the country sufficiently well served by the existing lines, or would the cost of a new line—Rampur Boalia to Ranaghat—be justified when money is difficult to find for the admittedly urgent purpose of the lower Ganges bridge?—I do not think that the cost is justified. In any case there is a system of rivers which provides the means of transport.

57. Q. At the meeting of the Railway Board in July the Chamber for Commerce evidently demanded a bridge at Sara. What reason was given for not acquiescing in their demand?—The main reason was want of funds.

58. Q. Does it not follow from the very much more expensive scheme now put forward by the Railway Board that that difficulty has been removed?—Yes, it would seem so.

59. Q. The Railway Board state that the cost of the Calcutta terminals of the metre gauge line is 30 lakhs ; from enquiries made, the estimate for terminals, apart from the Port Trust and East Indian Railway lines, is about 170 lakhs. Which do you think the mercantile community would look at with more equanimity, transshipment north of the Ganges, or the burden of expenditure of over 3 crores of rupees for the introduction of the metre gauge into Calcutta ?—Certainly, transshipment north of the Ganges.

60. Q. If the metre gauge were introduced into the port terminals on whom would the cost fall ?—On the trade of the port.

61. Q. What compensation would you expect for such cost ? If you were going in for large expenditure in having mixed gauge terminals you would not do it unless you expected something in return to compensate you, a larger traffic for instance ?—The Port Commissioners would have to recoup themselves for their charges and if the volume of trade increased, the extension would pay them, otherwise they would have to recover from the trade of the port the extra charges which this would bring on them.

62. Q. If the trade were not substantially increased would they not have to raise their port charges ?—Yes, in all directions.

63. Q. Are there not complaints of the charges already ?—Yes, Calcutta has always been considered an expensive port.

64. Q. You are aware that the Railway Board are experiencing difficulty in providing wagons for the broad gauge systems. As a business man would it not appeal to you that the enormous sum proposed to be spent on introducing the metre gauge into Calcutta and its terminals would be better applied in providing sufficient wagons on the broad gauge systems ?—Undoubtedly. It is a policy that the Chamber have urged again and again, and I take this opportunity of repeating the request that the existing lines should be properly equipped before money is spent on new lines.

65. Q. Can you therefore understand the policy of pressing on the mercantile community what they have not asked for, and denying them what they have urgently demanded, a bridge on the lower Ganges and additional rolling stock on broad gauge systems ?—No.

66. Q. That does not appear to you to be a forward policy ?—No.

67. Q. Nor best for the interests of the country ?—No.

68. Q. (*Mr. Dumayne.*)—When you refer to the introduction of the metre gauge to the tea warehouses, do you mean it would be an advantage or a practical arrangement in working ?—I do not think it would be a practical arrangement in working. From an engineering point of view it is feasible, but I do not think it is expedient.

69. Q. (*Mr. Kar.*)—In view of the existing difficulties of transshipment at Sara, do you think a bridge has become absolutely necessary there ?—Yes, the Chamber has been pressing for it for years. I hope there will not be much delay over the matter.

70. Q. Do you think with a bridge at Sara and a broad gauge line from Serajganj to near Nattore, it would be a great advantage to the mercantile community, especially to the jute trade, as the jute of the entire Serajganj district will go direct to destination without transshipment ?—That would undoubtedly be advantageous.

71. Q. And it would also relieve the congestion at Goalundo as the bulk of the jute goes from Serajganj, thereby relieving the broad gauge wagons ?—Yes, undoubtedly.

EVIDENCE OF BABU GIYANI RAM HALWASIYA, OF THE FIRM OF GANESH DAS, RAM GOPAL.
Taken on the 4th February, 1907.

The witness who gives his evidence in Hindustani states as follows :—

That he is a representative of the Marwari Association. The consensus of opinion of their Association is that as long as a bridge is not built over the

Ganges, trade will suffer. The present system of transshipment, particularly at Sara Ghat, by wagon ferry, causes a great deal of loss and damage and other inconvenience, sometimes there is the loss of a whole consignment. Such an occurrence results in the trade having to enter into prolonged correspondence with the Railway Company, at the end of which there is no result. If a bridge is built and transshipment from wagon to wagon is made, all the difficulties and troubles experienced would be dispensed with. The Marwari community have a large export and import trade with Northern Bengal, Eastern Bengal and Assam, and the bulk of the trade passes *viâ* Sara. Having taken into consideration the question of cost and that of convenience, the community prefer that Sara should be the site of the bridge. As to the Railway Board's proposal of opening a new line from Rampur Boalia and having a bridge there, money would be better spent if improvements are made on the existing lines *viâ* Sara. Also in having a double broad gauge line where there is a single one, and in increasing the rolling stock. If the line is opened from Ranaghat to Lalgola, and if the scheme of the Railway Board is given effect to, some of the traffic would be diverted from that line, causing loss and this loss will ultimately fall on the trade. The tract of country between Eastern Bengal and Ranaghat and Lalgola is not so rich that it requires another fresh line to be taken into it. Even if the proposed metre gauge of the Railway Board could serve with efficiency, in view of the vast difference in the carrying capacity and speed between the broad and metre gauges, the community are in favour of the broad gauge. If the introduction of the metre gauge into Calcutta causes delay and inconvenience, that may divert the trade to Chittagong and that will cause great loss to the Port of Calcutta. The difficulties in handling traffic are already great both in the jetties and docks, and fresh difficulties should not be added to hamper the trade. As regards the proposal to have a bridge at Godagiri, if the exigencies of trade require it, it might be built, but that has nothing to do with present emergency and requirements of the trade at Sara Ghat; it is quite independent of Sara Ghat.

In reply to Major Shelley, the witness said:—

The Marwari Association are interested in the traffic in grain and seeds. Under the present state of things it is not very convenient to have grain and seeds brought into the Kantapukur sheds because goods are sent to Howrah. If suitable accommodation were provided it might answer. In reply to the question as to what reasons there were for expecting that the new double metre gauge from Rampur Boalia to Ranaghat, though passing through somewhat poor country, would not develop any traffic of importance, he said that there were navigable rivers to carry portions of the traffic. In reply to a question regarding the diversion of passenger traffic from the Bengal and North-Western Railway to the East Indian Railway *viâ* Mokameh, he said that if it was a question of the difference in distance not being large it would make no difference, but that a difference of 6 hours in the time of the journey would influence passengers.

Even with a bridge at Godagiri, with so much difference in the time compared with the broad gauge route, passengers would go by the latter route, and, if there were no bridge at Godagiri, the inducement to go by that route would be still less.

In reply to Mr. Inglis, the witness said:—

In the transshipment of grain and seeds there must be some loss, but if transshipment is to be done the best way to do it is from wagon to wagon; it would not be of much importance if the handling were done carefully. It is understood that there is a proposal to run the broad gauge from Serajganj to Nattore, and it would be a great advantage to the trading community if, with the proposed bridge at Sara, the transshipment station were fixed at Nattore, so that goods may go straight through.

In reply to the President, the witness said:—

He understood that machinery, coal and tea are crossed by wagon ferry and that other commodities are crossed in flats. Of the two modes of transshipment, *viz.*, by hand and wagon ferry he complained of the wagon ferry, but the hand transshipment was still worse.

EVIDENCE OF BABU UPENDRA NATH SAWOO, REPRESENTING THE BENGAL NATIONAL CHAMBER OF COMMERCE. Taken on the 4th February, 1907.

In reply to Mr. Kar, the witness stated as follows :—

That he is a member of the Bengal National Chamber of Commerce, and a representative of the same. He belongs to the firm of Messrs. P. G. W. Sawoo, Jute Balers. He is a proprietor of two jute presses. As such he requires to buy a large quantity of jute. He buys jute from Northern Bengal in large quantities. He also buys largely from Serajganj; he generally purchases about 6 to 7 lakhs of maunds in a year; he suffers great loss and much inconvenience on account of the delay and detentions at Sara Ghat; he feels very uncomfortable if he has 20 to 30 thousand maunds awaiting at Sara while the market is falling appreciably; much of the loss and anxiety would be removed if a bridge were made over the Ganges somewhere near Sara; of the three sites proposed, Sara, Rampur Boalia and Godagiri, he prefers the shortest route and that is Sara; he has seen the scheme of the Railway Board; if jute is carried over the bridge at Rampur Boalia without transhipment he has no objection to the route; if the introduction of the metre gauge into the termini of Calcutta is found impracticable he would not still be in favour of the partial introduction of the metre gauge into Calcutta; he would suffer great loss if jute, instead of being delivered at Chitpore, Baghbazur, Rutholla, Hatkholah, or Ultadanga, were delivered at some other point, say Kidderpore; there would be inconvenience if there was delivery from any other station beyond the present termini; he agreed that the principal advantage claimed by the Railway Board is the delivery of traffic without a break of gauge; if transhipment be necessary the introduction of the metre gauge affords no other advantage; if transhipment cannot be avoided he cannot see any advantage in the metre gauge coming into Calcutta; he could see no proportionate advantage in the scheme if told that the introduction of the metre gauge into Calcutta would cost something like two to three hundred lakhs; he agrees that if transhipment from wagon to wagon is necessary it is desirable to have it done north of the Ganges where both labour and land are cheap; the only other advantage in transhipment north of the Ganges is greater lead in broad gauge and quicker transit; a bridge at Sara would be of great advantage to the jute trade; he considers Sara the best site for the bridge.

In reply to Mr. McLeod witness said :—

If the bridge were at some other spot near Sara, and it did not cost any more to bring the jute to Calcutta, it would make no difference to him; what he wished to do was to particularly emphasize the necessity for a bridge.

In reply to Major Shelley he said :—

He attached equal importance to the avoidance of transhipment, and to the delivery of jute at the existing termini; if he could not get both he preferred that traffic should be delivered at the existing termini with transhipment.

In reply to the President he said :—

He could not give any idea of the amount of jute which would come from Serajganj *via* Sara to Calcutta, except to say that it was a large quantity.

EVIDENCE OF BABU NIVARAN CHANDRA DUTT, REPRESENTING THE BENGAL NATIONAL CHAMBER OF COMMERCE. Taken on the 4th February, 1907.

The witness stated that the existing traffic of Northern Bengal and other metre gauge State Railways was enough to make the Sara Bridge a paying one. Darjeeling must have uninterrupted communication with Calcutta.

Disadvantages of the Godagiri site.—Traffic at Godagiri was doubtful, at least at present.

Disadvantages of the Rampur Boalia site.—The site is not desirable as it has no railway connection on either side of the river.

The total mileage on Indian Railways, as published in the Railway Administration report for 1905, is 28,295 miles out of which the broad gauge is 15,028 miles, or 54 per cent., the metre gauge 11,905 miles, or 43 per cent., in Bengal proper. The Eastern Bengal State Railway with branches has 1,319 miles, out of that the broad gauge was 497 miles, or 37 per cent., and the metre gauge, 682 miles, or 51 per cent. The Bengal-Dooars Railway was entirely metre gauge, a distance of 152 miles, the Bengal and North-Western Railway was entirely metre gauge, a distance of 1,466 miles, and the Assam-Bengal Railway, metre gauge, a total distance of 740 miles. Thus in the total mileage, over 3,000 miles are metre gauge, and only 500 miles broad gauge. The last Census report shows that the density of population in broad gauge districts is in no way heavier than in metre gauge districts, therefore, the metre gauge districts should have the preference over broad gauge districts.

Two questions suggest themselves, the extension of the metre gauge to Calcutta, or the extension of the broad gauge beyond Damukdia. The latter would be expensive and almost impracticable in hilly tracts, the distance from Damukdia to Calcutta being only 119 miles, the metre gauge extension cannot be expensive; to the backward tracts of Assam and Tipperah, which are not fully explored, the metre gauge extension would facilitate their exploration, and through railway communication in future between Rangoon and Calcutta might for ever be precluded by having a broad gauge bridge at Sara; for instance, the Barisal famine accentuated the delay in the transit of Rangoon rice. The volume of traffic is not at all inadequate as suggested, and the total imports are about one-third through the metre gauge, and two-thirds through the broad gauge, the traffic from Damukdia wholly going from the metre gauge.

The relief to congestion is one of the chief advantages of metre gauge extension, it will save time by avoiding transshipment, and will reduce the idle hours of wagons on the broad gauge and prevent damage to goods.

The mills being situated on the west side of the Eastern Bengal State Railway, the shunting of a single wagon to the mills often interrupts the working of the main line; the metre gauge extension will minimise these difficulties and will not create unfair competition, but still be a help to the broad gauge lines. The supposed difficulty in introducing the metre gauge to the mills is not an insuperable one; the Eastern Bengal State Railway main line embankment is high enough for metre gauge engines to pass underneath; this obviates interference with the main line working, the mills on the west of the Hooghly can be fed by a wagon ferry at Shamnagar to Cossipore; any additional expenditure will be compensated for by the benefits the mills will derive.

The difficulty of working a mixed gauge to the Docks.—No insuperable difficulty, the increased accommodation and extension of the Docks should minimise the supposed difficulties, the necessary expenses should be incurred by the Port Commissioners for the public benefit. Madras and other cities have been working with a mixed gauge.

1. Q. (*Mr. McLeod.*)—On what experience do you base the statements that you have made?—I am a railway contractor and projected two or three bits of railway, also an electric tramway.

In reply to further questions, he said that the tramway in question was 7 to 8 miles long; it was not only on this experience that he based his recommendations, but as a railway contractor he had to deal with traffic coming from a distance of 700 miles; he quite recognises the urgent necessity for a bridge over the Lower Ganges; in selecting the site of the bridge he agrees that the best one would be where the bridge connections were least, and a spot nearest to an assured volume of traffic; he had not made a statement to the effect that the metre gauge could pass alongside the broad gauge, but underneath; there were several points between Dum Dum and Naihati where the line could pass underneath the broad gauge; he was not able to mention the exact mileage of these spots, but there were spots where the embankment was 15 to 16 feet high; at Barnagore they are near the place where the sidings are taken off for the mills; as regards the line further out he remembered

several culverts where passengers and carts pass underneath the railway bridge; he did not think the difference between the height of a tikka ghari and of an engine was very considerable; his statement was only a very general one; he had not examined the point carefully; there might be difficulties that he did not know of, but he did not anticipate any; he did not think it would cost very much; by the term "mixed gauge" which he had used in his opening statement he referred to stations where both the metre and broad gauges came in; that is, lines working in different parts of the yard; with reference to his remarks as to the majority of the lines in Northern Bengal being on the metre gauge, he did not, however, advocate the abolition of the broad gauge on this side of the Ganges; he referred to the bringing in of the metre gauge without reference to the broad gauge; the broad gauge should be left where it is; the introduction of the metre gauge would tend considerably to the avoidance of congestion in Calcutta: as a railway contractor he had had large experience in the handling of goods; he had seen that a great portion of the day was taken up in shunting, and in handling goods under the present system; he was of opinion that if the metre gauge were introduced into the same terminals it would greatly facilitate business; he also suggested a wagon ferry at Sharnagar and Cossipore; he had not considered the cost of a wagon ferry; he agreed that it would be large; the jute trade could very easily bear the cost of it, a very large sum was, at present, spent on the fleet of boats; a portion of that should be sufficient to maintain a wagon ferry; he suggested, in fact, the abolition of the fleet of boats and the maintenance instead of a wagon ferry; as to whether the jute trade would view that suggestion with equanimity, he replied that he had not consulted anybody on the point, but understood that the trade would hail with delight any plan which would get rid of the tardy system of boats.

If the metre gauge were introduced into the docks the cost would fall entirely on the Port Commissioners; in reply to the question as to whether additional charges would not have to be made in consequence of the extra expense, he replied that the cost would bear a very small proportion to the amount which it is contemplated to spend shortly on dock extensions.

In reply to Major Shelley he said that:—

In reply to the question as to the running of the metre gauge under the broad gauge to serve the mills, and how he would get over the difficulty of working a metre gauge wagon up a severe rising gradient into the mill premises, he replied that, in most instances, the broad gauge had to go down to the mill level, the level of the mill premises is not very much higher than the road; he had considered this point in connection with his electrical scheme.

In reply to Mr. Dumayne he said:—

His business led him to the docks 15 to 20 times a year; his business there was as labour contractor and the supply of boats, etc.; he had seen the tea arrangements in the docks; he had no practical knowledge of the shunting of wagons in terminals, nor of marshalling and stock collecting, etc.

Mr. Dumayne showed witness the plan of the tea arrangements in the docks.

He had never seen the working of a mixed gauge anywhere; as to whether the plan shown suggested that there would be difficulties in working the mixed gauge at the places he thought there might be difficulties; to prevent misunderstanding he would like to repeat that what he means by "mixed gauge" is the putting in of a third line; as to how he proposed to get into the tea warehouse on the plan shown, he thought that, as it was intended to extend the docks, it should be possible to find space for the metre gauge also; it was for engineers to say; he could not say how the lines should be laid. The metre gauge should be brought in on a third line; but he had not considered any details of how it could be done. He agreed that if there were broad and metre gauges there would be double shunting, because the same engine could not pull both gauges at the same time; in reply to the question whether this would not mean twice the delays which are caused just now, he

said that there would no doubt be delays if the working goes on as it does just now; he agreed that there being one sale tea warehouse the metre and broad gauges must go there; because, if they went to another it would have to be transferred and such transfer would cost money, there being one tea warehouse, there would be one platform on each side, one for despatching and one for receiving, and both metre and broad gauges must go to the same platform; therefore he agreed that the third line system must be employed; he admitted that that would involve additional shunting and trouble; as a railway contractor he would be prepared to admit that considerable alterations would be necessary in the platforms of the sheds because the metre gauge is lower than the broad gauge; he would be prepared to admit that the locomotives could not haul both metre and broad gauges at the same time; so that it would be necessary to increase the number of locomotives.

Witness was next shown a plan of the docks, and the arrangements for receiving hides, tea and coal were explained in detail.

If told that it would cost 50 lakhs to introduce the metre gauge into the docks he was prepared to admit that the Port expenses would be increased by the interest on that capital cost, repairs, maintenance and municipal taxes; as a contractor he would put the cost of laying a metre gauge line at 35 to 40 thousand rupees per mile; as to whether this would include crossings he said it would, because though the docks would necessitate many crossings, there were no stations, culverts or bridges which would, therefore, neutralise the extra cost for crossings; he was of opinion that 5 to 10 miles of sidings would be sufficient if the metre gauge were brought in to handle tea, hides and sugar; he was prepared to admit that there being depôts for tea, grain and seeds and hides, it was not possible to have other depôts made; in reply to the question as to how access could be got to the hide depôt except by the mixed gauge, he said that it would have to be by mixed gauge; and there would, therefore, necessarily be some trouble in shunting; he admitted that the introduction of another line into the wheat and grain depôts would also mean extra shunting and complications; on its being pointed out to witness that the space between the sheds is filled with broad gauge lines, that there was no room for a metre gauge line, and that it could only come in by a third rail, the witness said that he found it very difficult to discuss this point without surveying the whole place, and this he had not done.

He went on to say that when he spoke about there being no insuperable difficulties he had not carefully surveyed the localities; he was not prepared to admit that there would be considerable expenditure on the introduction of the metre gauge lines on any plan, though no doubt there would be some expense; it surprised him to hear that the estimate furnished by the Eastern Bengal State Railway, for introducing the metre gauge at Chitpore and other terminals outside the docks, was 172 lakhs; if something more were added for entry to the docks it would undoubtedly mean additional charges to the trade; but the benefits to be derived would cover that; he was not prepared to admit that if the charge ran into 2 to 3 crores that that would increase the charges by several rupees a ton; the interest should, in his opinion, be distributed over all the traffic. It was pointed out to the witness that it comes in now without additional expenditure.

2. Q. I mean to say that if this additional cost is incurred, some trade will have to pay it. Would the compensating advantages be sufficient to cover the interest, maintenance, repairs and municipal taxes upon so high a capital expenditure?—It is very difficult for me to say without having the details before me.

3. Q. The docks already do not pay; if you spend so much more money upon them does it not follow that they will pay even worse?—Yes.

In reply to further questions, he said that he was acquainted with the line to Cossipore, also with the arrangements at the jetties; there was no room for the introduction of a separate metre gauge line; there was no room for expansion; the metre gauge could only come in by a third line; he was not prepared to alter the statement made earlier that "the increased accommodation and extension of docks should minimise the supposed difficulties,

necessary expenses should be incurred by the Port Commissioners for the public benefit ;" he explained the statement that difficulties would be minimised by the fact that there would be more space available ; it was pointed out that this was not the case, but that more was being made of the arrangement ; he thought that extension would make it easier to bring in the metre gauge by a separate place being made for it ; the change should be brought about gradually as traffic offered.

The method of taking cargo was explained, and it was asked if the dock were expanded whether it would not have to be expanded, so that both broad and metre gauges could get access to the same ship ; to this he agreed.

He would recommend a transfer station for the metre gauge ; it was pointed out to the witness that the Committee were trying to discover a feasible method, if one existed, of getting in the metre gauge ; the witness had admitted that the third rail would multiply the difficulties. As regards shunting and delays, it was asked how it would make any difference if the number of berths was repeated, the difficulties by the side of the sheds would remain all the same ; he agreed that it would mean having the transfer yard at another place ; he had not seen Madras ; nor seen the mixed gauge working there. The way in which the metre gauge would abolish delays was that it would relieve the congestion on the Eastern Bengal State Railway ; the present lines were congested ; goods trains are frequently detained by passenger trains ; if statistics were taken it would be found that goods wagons only run on the average about 5 hours a day ; if it were possible to arrange that goods stock should run 12 hours a day there would not be such detentions ; he agreed that this was an argument which told in the direction of separate goods and passenger lines ; it was pointed out that metre gauge lines would have the same difficulties to contend with ; to which he agreed ; he went on to point out that when the Barisal famine occurred lakhs of maunds of rice were offered to the Eastern Bengal State Railway which they were unable to accept ; this was either due to shortage of wagons or want of accommodation. Floods may have had something to do with the difficulty, it was for these reasons that he thought the metre gauge would abolish delays to some extent ; the transport of manufactured goods by the mills to the docks by river was not due to economical reasons, but because there was no other alternative ; it does not pay the Eastern Bengal State Railway to carry export goods for such short distances ; the Eastern Bengal State Railway earns Rs. 7-8 to Rs. 8 per wagon during the busy season, whereas by accepting the mill traffic they could only earn Re. 1 or annas 8 per wagon because there would be detentions at both ends, causing a loss of two days.

In reply to Mr. McLeod the witness said that :—

It was not a question of cheaper freight rates by boat, but because the Railway refused to carry the cargo.

In reply to further questions by Mr. Dumayne, he repeated that the Railway would not accept the goods, and that for one wagon the working of four lines was interfered with ; he has seen all the mills on the Eastern Bengal State Railway ; at Gouripore there is ample room for an additional line like the metre gauge ; he was not prepared to make that statement about all the mills, he had only seen Gouripore. He recommends a bridge across the Ganges, the advantages would be that transshipment at Sara would be avoided and passengers would have direct communication with Darjeeling ; he recommends a wagon ferry at Ramnagar and Cossipore because a ferry does not cause break of bulk ; a metre gauge ferry would cost two annas and six pies or three annas per ton ; including interest and maintenance of plant it would come to six annas. In answer to the enquiry whether it would not be cheaper to transfer from wagon to wagon at a transfer station from the metre to the broad gauge, he thought it might be, though transshipment would cause damage to the goods ; he could not give any figures in support of the statement that there would be little expense in introducing the metre gauge into Calcutta ; the metre gauge would, however, cost much less than the broad gauge ; he was of opinion that with the metre gauge the volume of traffic handled would be greatly increased ; the

reason being that there would be through communication ; the traffic does not come to Calcutta now by broad gauge but by boat ; the metre gauge would, to a certain extent, diminish the boat traffic from the eastern districts, the traffic to which he referred was jute ; the reason this traffic does not come by the broad gauge is that there is a great shortage of wagons ; he did not agree that it was a question of more wagons ; he did not believe in increasing the wagons very much ; as to whether more stock would not be wanted for the greater length of line consequent on the introduction of the metre gauge, he said that a few more wagons might be required, but this would be made up by the saving of detentions at the Sara end.

In reply to Mr. Inglis he said :—

The approximate figures of the cost of transshipment from the metre gauge to the broad gauge was Rs. 5-8 to Rs. 6 per thousand maunds ; that amount would include contractors' profits ; if the Sara bridge is built for the metre gauge extension to Calcutta this would give an impetus to capitalists or Government, and the metre gauge connection with the Assam-Bengal Railway might lead to some connection with Rangoon ; he did not think that all the Assam-Bengal Railway traffic would go towards Chittagong ; Calcutta being the seat of intellect and capital it would attract some of the traffic ; the impediment to this traffic is the transshipment from the metre gauge to the broad gauge wagons ; and the long steamer service between Chandpur and Goalundo ; if a standard gauge bridge was built and a connection given by Serajganj that would develop trade, he does not consider the existing broad gauge rails laid into Calcutta are sufficient to deal with the traffic.

In reply to the President he said :—

As regards the question of the metre gauge passing under the broad gauge, he remembered one road which passed under the railway between Dum Dum and Naihati ; he did not remember seeing any roads carried under the railway between Belghurriah and Naihati ; he did not know how many jute mills were connected with the Eastern Bengal State Railway between those stations ; it was pointed out to witness that there were 19 mills in that distance, and he was asked how it would be possible for the metre gauge to reach those mills ; he had himself admitted that there were no public roads at the place ; in reply he said he did not think it was necessary for each mill to have a separate outlet, it would be sufficient if one outlet were found ; he said that his idea was that from the metre gauge a branch might be taken which would run to each mill ; there might be engineering difficulties which he was not aware of ; he is quite familiar with the Chitpore and Cossipore yards ; there was not much congestion in these yards during the past jute season ; he agreed that if the metre gauge were brought into the broad gauge termini, the number of wagons to deal with a thousand tons of jute would be a good deal in excess of the number required to deal with the goods if the broad gauge wagons were used ; as to whether the greater number of wagons would not increase the difficulties at termini as to shunting, marshalling, etc., he thought that the metre gauge wagons being more easily released the working would be easier ; the metre gauge is more easily released than the broad gauge, because it contains a smaller quantity of goods ; in connection with the jute traffic he thought the present arrangements at Shamnagar should continue, also those at Chitpore ; he admitted that the working of both gauges at the docks would require a great deal more space than carrying the same traffic on the one gauge ; his remark about the delays to wagons on the road and in yards had reference to all broad gauge wagons coming to Calcutta ; the Eastern Bengal State Railway and the East Indian Railway wagons both run for only four or five hours a day at the outside ; the length of the detention he agreed should be calculated on the distance the wagon had run ; in reply to the question whether his remarks about the metre gauge, if built, taking a large part of the boat traffic were merely based on assumptions, or on facts which he was prepared to prove, witness said he was unable to prove what might happen in the future ; if the metre gauge traffic were allowed to go direct to Calcutta without burdening the broad gauge portion from Poradah to Sealdah, the broad gauge portion would be in a position to carry a much greater traffic ; as regards the rate quoted by Messrs. Bird & Co.,

Rs. 3-8 per thousand maunds, for transshipping from wagons to flats at Damukdia, he thought that it must be at least four times that amount, besides which there was *bakshish*, monthly; he was of opinion that the transshipment rate would work out to Rs. 10 or Rs. 11.

4. Q. Are these views which you have given us your own views, or those of your Chamber?—Both; he was instructed to give them by the Chamber; he did not discuss the points with the Chamber, but simply asked the Assistant Secretary what views he should convey. On learning what he had to say, and finding that they agreed with his own, he came before the Committee.

(*President.*)—I think I must say that, bearing in mind the discrepancies between your views and those of your colleagues, we shall have to ask the Bengal National Chamber of Commerce to kindly say what views they do support.

EVIDENCE OF MR. T. R. FILGATE, GENERAL SECRETARY, BEHAR PLANTERS' ASSOCIATION.
Taken on the 8th February, 1907.

The witness read a statement as follows:—

I have been resident in North Behar for more than 30 years, and have been deputed by my Association, which represents the planters of the four districts of Mozufferpore, Chumparun, Sarun and Darbhanga, to give evidence before the Committee. The estimated capital invested in indigo in 1897 was over three millions sterling, and although the industry has passed through a serious crisis, better times are in store for Behar, and as soon as Java Natal is introduced generally it is hoped Behar will turn out 60 to 80 thousand maunds of indigo annually. Since 1901, eight sugar factories have been erected. The cultivation of jute is extending rapidly and attention is being paid to flax, and the improvement which we hope will take place in agriculture generally by the establishment of the Pusa Institute should mean an increase of field produce all round, and the fact should not be lost sight of that the Bengal and North-Western Railway will soon have to double their main lines in order to deal with the yearly increasing traffic from Behar. The cheaper the Railway can carry the Behar agriculturist's produce to the market, or bring to his farm, factory, or estate, manures, coal, or stores, the better able is he to compete in the markets of the world. When a transshipment from one gauge to another costs 5½*d.* per ton or equal to a haulage of 20 miles, and in cases of large rivers and no wagon ferry, 9*d.* to 10*d.* a ton. The advantages to Behar of bridging the Ganges at Godagiri and communication with Calcutta without break of gauge are obvious, the Behar planter does not concern himself with the difficulties and objections that many experts have raised as to admitting two different gauges into the docks in Calcutta, but he is confident that English engineers can overcome these difficulties just as well, if not better, than those in other countries have done. It would be presumption on the part of the planter to give his opinion as to the metre gauge entering the docks, but he is convinced that the suggestions (which I quote below) of such eminent experts as Sir Frederick Upcott, Sir Henry Kimber, Sir Guilford Molesworth, Mr. Henry B. Molesworth would, if carried out, be of undoubted benefit to the agriculturist of Behar, be he a planter or ryot. Again, through communication with Calcutta (provided the Bengal and North-Western Railway put on an accelerated service) would undoubtedly tend to increase and help dairy and poultry farming as well as market-gardening in Behar. The risk to valuable horses that constantly come and go would be considerably lessened if there was no transshipment at a Ganges ferry. The great delay that at times occurs in delivery of consignments would not happen. Last year had there been a sudden rise in the Ganges in May there would have been complete stoppage of the traffic, as I myself saw 3 or 4 miles of the line was laid in the river bed, and it should be borne in mind that May and June, in years of scarcity or famine, are often the worst, and as a Famine protective work money spent on a Ganges bridge would not be thrown away. Amongst our mofussil community cases occurred where

invalids, almost at death's door, have to be removed to Calcutta to save their lives. Only those who have had experience can realise what a bridge might mean in such cases.

EXTRACTS FROM MINUTES OF PROCEEDINGS OF THE INSTITUTION OF CIVIL ENGINEERS.

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Pages 196-327.

Sir Frederick Upcott, K.C.V.O., C.S.I., page 206.

"The use of overhead transporters spanning several lines will solve, to a large extent, the difficulty of loading and unloading ships from wagons of different gauges should doubling the existing gauges be found more advantageous than conversion of the single track; so that it appears probable that, when the circumstances of trade demand it, the metre gauge lines might be allowed access to the ports of Bombay, Calcutta and Karachi."

Sir Henry Kimber, page 232.

"Both systems should ultimately meet at all terminals and at the coal fields, and should tap the ports and the large Presidency towns."

Sir Guildford Molesworth, page 236.

"Secondly, to give the metre gauge system north of the Ganges access to Calcutta by bridging the Ganges, and to construct a metre gauge double line from the Ganges to Calcutta."

Mr. H. B. Molesworth, page 299.

"The development of Calcutta, as a first class port, would, probably, at no very remote date, lead to the canalization of the Mutla river where access to the docks on the metre gauge could be arranged."

Sir Frederick Upcott, page 325.

"Transshipment at the port itself from a line at some distance from the quay wall had been successfully carried out in America and elsewhere by transporters, and he saw no insuperable objection against it in India."

1. Q. (*Mr. McLeod.*)—As Secretary of the Behar Planters' Association and expressing their views how far are they interested in the question of bridging the Lower Ganges? I mean what volume of traffic do they control?—I cannot give you the actual figures.

2. Q. It is not very much I suppose?—There is a certain amount of country produce, some of it is shipped direct to Calcutta; there is also a good deal of other produce, and it would make a good deal of difference in the price if it could get into the market by direct communication.

3. Q. What are the commodities?—The principal commodities in Behar are indigo, sugar, and jute is commencing. We anticipate that jute will increase largely in the future.

4. Q. Indigo I suppose at the very outside would be 60,000 maunds?—60,000 to 80,000 maunds would be an outside figure.

5. Q. Can you give us the figures as regards sugar?—No, I cannot.

6. Q. Is it capable of very much expansion?—It is likely to increase as far as I know; three new concerns have gone up this year.

7. Q. Is that for Calcutta or for consumption up-country?—I cannot say.

8. Q. Is it not a fact that India is importing sugar and not exporting it, so that it would be likely to be consumed in the country?—The Behar planter does not think that sugar would go out of the country.

9. Q. So that a good deal might go by a route other than by a bridge at Godagiri?—It might.

10. Q. Have you personal knowledge of the jute crop grown in Behar?—At present it is small.

11. Q. What would be a large crop for Behar?—I really don't know. The members of the Association had 5,000 acres under jute last season.

12. Q. That would be 15,000 bales?—Besides the Association the ryots are also going in for jute.

13. Q. The jute crop would be an infinitesimal part of the whole. Would it not?—I presume it would be.

14. Q. Regarding the site of the bridge, have you any particular preference and why?—I understand that the Godagiri route is a considerably shorter route than either of the other sites; the Sara Bridge takes us 71 miles out of our way.

15. Q. You prefer Godagiri to Rampur Boalia?—I think so.

16. Q. Do you know that there is a broad gauge line in existence from Calcutta as far as Godagiri; does that fact alter your opinion in any way and make you give the preference to Rampur Boalia?—No.

17. Q. You would have transshipment in any case going by Godagiri?—The bridge with transshipment would be better than no bridge.

18. Q. Still you would have transshipment?—If the metre gauge was not carried into Calcutta.

19. Q. Have you considered the case of the Calcutta termini with reference to the metre gauge entrance?—No.

20. Q. If the cost were greater than the cost of transshipment, would you still be in favour of the entrance of the metre gauge?—No, I think not; probably we would have to pay heavier taxes.

21. Q. If the cost of the terminals was so great as to enhance the price of imports and to diminish the return from exports, would you be in favour of the entrance of the metre gauge to Calcutta?—No.

22. Q. By trade statistics it is shown that imports and exports from metre gauge sources are small as compared with those from broad gauge sources; how, in that case, would you be prepared to allocate the charges consequent on the introduction of the metre gauge? Would you spread them over the whole trade, or charge the metre gauge traffic only? Would you suggest that the metre gauge should pay for its own introduction?—Yes, I think it ought to.

23. Q. Your Association have no idea what the cost would be?—No.

24. Q. If I told you the cost for the terminals would be something in the region of two crores of rupees, would your Association view the introduction of the metre gauge with the same equanimity?—I don't suppose they would if it ran into such enormous figures as that.

25. Q. Great stress has been laid on the damage done in transshipment. Can you give us any specific instances of damage to indigo, sugar and the other commodities you mentioned?—There have only been one or two complaints as regards indigo spread over several years; as regards sugar I cannot speak; there have been complaints as regards kerosine oil; and there have also been some complaints about petty thefts of coal.

26. Q. Supposing there was a bridge with transshipment, would that damage be minimised if the only transshipment took place from wagon to wagon in a well-organised yard?—Most certainly.

27. Q. In your note, written in October 1906, you say "if the site of the bridge is to be at Sara it will take the traffic 70 miles out of the way, which means extra freight, etc." I should like to know where you got those figures?—I got them from a note by the Agent of the Bengal and North-Western Railway.

28. Q. We find that the distance is only about $13\frac{1}{2}$ miles; would that materially alter your views on the subject, $13\frac{1}{2}$ miles against 70?—Certainly, it would only be $2\frac{1}{2}$ pence per ton.

29. Q. You also say that "far larger and more important interests will be served by the bridge at Godagiri than at Sara." Can you give us any

figures in support of that statement?—I cannot say; Mr. Neville has given you some figures as regard his line, which has over 2,000 miles open.

30. Q. In the same note you lay great stress on the subject of fruit, garden produce, etc.; can you give us any statistics regarding that?—No, undoubtedly I think there would be an increase.

31. Q. But as compared with 5 lakhs of maunds of traffic, it would be small, it would only be 25,000 to 30,000 maunds?—Certainly, the amount would be small as compared with 5 lakhs.

32. Q. The route by ferry at Mokameh is 70 miles shorter than by the proposed direct metre gauge route. Would your Association be prepared to suffer the delay rather than send you goods by way of Mokameh?—The Association would certainly prefer the shorter route.

33. Q. Can you give us any specific instances of delays referable to the want of wagons on the East Indian Railway since 1902?—I cannot give you any specific instances of delay.

34. Q. Can you give instances of injury or loss at Mokameh?—No.

35. Q. Would you be prepared to send goods direct to Calcutta by the longer route or incur the risk of transhipment at Mokameh, and the goods got through in a shorter time?—I think the planters would prefer to avoid transhipment. I know cases of horses being sent round to avoid their being removed for one box to another.

36. Q. The traffic in horses is small?—It is not large.

37. Q. Have your Association considered the question of passenger traffic?—No.

38. Q. Do you think passengers would rather go 70 miles more and take 7 to 8 hours longer in the journey than tranship at Mokameh?—No, I don't suppose they would.

39. Q. Have your Association ever considered whether it would suit them to have a bridge at Mokameh, and retain the benefits of the shorter lead into Calcutta?—I don't think they have ever considered it.

40. Q. Will you give us your personal opinion upon the question?—I am not able to do so.

41. Q. The Bengal and North-Western Railway have sent us in a statement of grain and seeds which is as follows:—1900, 1,46,000 tons; 1901, 1,68,000 tons; 1902, 1,68,000 tons; 1903, 3,05,000 tons; 1904, 3,35,000 tons; 1905, 1,24,000 tons; 1906, 1,49,000 tons. Can you suggest what was the cause of the sudden rise in the years 1903 and 1904? Do these figures point to the fact that there was something abnormal somewhere?—Perhaps they were tapping new markets.

42. Q. (*Mr. Dumayne.*)—Are you familiar with the use of transporters?—No, the planter knows nothing about them.

43. Q. (*Major Shelley.*)—I suppose the ideal conditions would be a bridge in the neighbourhood of either Isabpur or Sara, and if a second one is required then one in the neighbourhood of Mokameh?—No doubt, I should like to mention that I was also asked to approach the Behar Landowners' Association who have held a Committee meeting, and they approve of the Godagiri site.

44. Q. (*Mr. McLeod.*)—Were they also labouring under the same misapprehension as regards the difference in mileage?—My note was forwarded to them.

45. Q. (*Major Shelley.*)—Do you think the public will be inconvenienced by the traffic having to pass over two railway systems instead of one?—Certainly.

46. Q. For instance, there are routes composed of the Bengal and North-Western Railway and the East Indian Railway, or the Bengal and North-Western Railway and the Eastern Bengal State Railway. Under the projected system there would be the Bengal and North-Western Railway all through. In that case you will have to deal with only one administration?—The inconvenience is the break of gauge.

47. Q. And having to deal with two administrations?—Not as far as I know.

48. Q. (*Mr. Kar.*)—Assuming the traffic to and from Calcutta and the Bengal and North-Western Railway is 5,00,000 tons; do you think the metre gauge line proposed will be able to deal with it adequately, in addition to what it would be expected to carry on behalf of the Eastern Bengal State Railway?—I certainly think the present Bengal and North-Western Railway with their bogie stock and big engines can carry nearly as big loads as the East Indian Railway.

49. Q. You think they would be able to deal with the combined traffic satisfactorily, and also with the passenger traffic?—I presume so. From the way in which they deal with the passengers coming to pilgrimages at Sonapore, I think they could satisfactorily deal with any traffic that offered.

50. Q. Your principal objection is the ferry transshipment at Mokameh; if a bridge is built at Mokameh do you think it would remove the existing difficulties so far as your Association are concerned?—I certainly think a bridge at Mokameh would suit the Behar planter better than a bridge anywhere else, that is, if the metre gauge does not run into Calcutta.

51. Q. If you are of opinion that nothing short of the delivery of traffic without break of gauge would satisfy you, then I think the Railway Board's scheme would meet your purposes. The Railway Board's scheme is to run a double metre gauge line to Rampur Boalia, a bridge there would then suit your purposes?—That would give unbroken gauge.

52. Q. Then in that case I don't think you have any objection to the Rampur Boalia site of the bridge?—No, if it gave unbroken gauge.

53. Q. It is apprehended that a block may arise owing to the difficulty in maintaining the ferry at Mokameh. Are you aware that at Sara this apprehension has become a reality, and that a dislocation of traffic has occurred more than once there?—I think the same thing has occurred at Mokameh, there has been no actual stoppage of traffic, but it would have taken a very slight rise in the river last year to entirely stop the Mokameh traffic for ten or twelve days.

54. Q. If you were told that the state of things at Sara is much worse, would you say a bridge has become a necessity there?—No doubt a bridge is required; what the planter wants is a bridge as near as possible to his own place of business.

55. Q. Do you not think, in consideration of an assured volume of traffic at Sara, it would be risky to build a bridge at Godagiri where traffic is uncertain?—Certainly, but there is a large amount of traffic that has to go to Calcutta *viâ* Mokameh; I don't know how the figures compare; this would go *viâ* Godagiri if there was a bridge.

56. Q. You have said a bridge at Sara would take traffic from the Bengal and North-Western Railway 70 miles out of its way. Don't you think the same objection might be urged on behalf of the Sara traffic?—Statistics will show how the largest amount of traffic is benefited.

57. Q. (*President.*)—Does any traffic from your districts go to Bombay?—I think there is very little.

58. Q. The Bengal and North-Western Railway do despatch goods to Bombay *viâ* Cawnpore?—Yes, some planters export oats.

59. Q. The Rajputana-Malwa Railway must drain a large expanse of country?—Presumably so.

60. Q. It is connected with the Bengal and North-Western Railway, and the Rajputana-Malwa Railway takes traffic from there?—Yes.

61. Q. If the metre gauge traffic by the Bengal and North-Western Railway is entitled to communication with Calcutta without break of gauge, don't you think the Rajputana-Malwa Railway is also entitled to direct communication with Bombay without break of gauge?—Most certainly, the time has come for the entrance of the metre gauge into the ports.

62. Q. The trade of Bombay *via* the Rajputana-Malwa Railway has always been transhipped at Sabarmati, do you know whether the traders complain of inconvenience and delay there?—I cannot say.

63. Q. Have you ever seen any protests in the papers?—No.

64. Q. Have you seen complaints of the trade to Calcutta in the press?—Yes.

65. Q. Does your Association obtain many commodities from Calcutta?—A certain quantity of general stores goes up.

66. Q. It was represented to us by the Trades Association here that, compared with their business in Northern Bengal and Eastern Bengal and Assam, the amount of business done with your districts is infinitesimal?—No doubt; their statement is correct.

67. Q. There is a statement made in the letter from Mr. Neville to you "from an engineering point of view we hold that Godagiri is far preferable in every way to the site at Sara." Would you not regard that as an *ex parte* statement?—I presume when that statement was made the Engineers of the Bengal and North-Western Railway had examined the sites.

68. Q. Mr. Spring, who is an expert on bridging big Indian rivers, was specially deputed to examine the various proposed sites and wrote a report. Have you seen this report?—No.

69. Q. His report is on record, and in it, it is said that from an engineering point of view there is nothing to choose between the Sara and Godagiri sites. Would you not prefer that opinion to the Bengal and North-Western Railway's *ex parte* statement?—Certainly. But experts often differ.

70. Q. In your letter of the 1st of October to the Behar planters in the first paragraph you say "there cannot be the least possible doubt that far larger and more important interests will be served by the construction of a bridge at Godagiri than at Sara." Do you still believe that to be a correct statement of the case?—I am not acquainted with the full figures; these can be ascertained.

71. Q. Were you influenced by the note written by the Agent of the Bengal and North-Western Railway?—Taking his figures I prepared this note and put it before the Association.

72. Q. You came to this conclusion on the figures supplied by the Agent, Bengal and North-Western Railway?—Yes.

73. Q. Do you think the whole of the traffic could be diverted to the Godagiri route?—I cannot say.

74. Q. Could the whole of the downward traffic be diverted?—Presumably it could.

75. Q. Could the upward traffic be diverted, the traffic which originates at Calcutta?—I should think that it would, presuming that the metre gauge came into Calcutta.

76. Q. (*Mr. McLeod.*)—You refer particularly to the probable increase in dairy produce traffic. From the nature of that traffic, would it not seek the shortest and quickest route?—I think in my statement I made reference to an accelerated service.

77. Q. Do you think a train of that description would pay?—I cannot say at present if an accelerated direct service to Calcutta would pay.

78. Q. We must take the actual facts. Do you think there is a sufficient quantity of these articles at present to warrant an accelerated service for 359 miles?—No.

79. Q. Under these circumstances, traffic of that nature would seek the shortest and quickest route?—Certainly, it would.

EVIDENCE OF MR. W. H. MILES, A REPRESENTATIVE OF THE DARJEELING AND DOOARS SUB-COMMITTEE OF THE INDIAN TEA ASSOCIATION. Taken on the 4th, February, 1907.

My position is that of Chairman of the Darjeeling and Dooars Sub-Committee of the Indian Tea Association; this is my fourth year of office as

Chairman of the Committee; that Committee are specially deputed to look after matters connected with the Darjeeling and Dooars district, as apart from other districts which the Tea Association have to deal with. In that capacity, and also as Manager of the firm of J. Mackillican & Co., I have had considerable experience of tea being carried from the Dooars to Calcutta.

I have read the statement of the Bengal Chamber of Commerce [see Appendix R¹], and I may say that I am fully in accord with the statement that the only means of improving the traffic between Calcutta and Northern Bengal and Assam, is by having a bridge at or near Sara.

I have only to refer to the great trouble we were put to last November, when we could not send stores up to the Dooars, and to emphasize that I may mention that, in the present week, the Traffic Superintendent of the Eastern Bengal State Railway has issued a notice refusing to accept goods for upward despatch.

I am not in favour of the metre gauge being brought into Calcutta; I have had an opportunity of seeing the traffic worked both at the jetties and docks, and I think if the metre gauge were introduced it would lead to endless confusion.

I have been in Calcutta for twenty-three years and know something of the trade.

1. Q. (*Mr. McLeod.*)—Would you prefer transshipment to the introduction of the metre gauge into Calcutta?—Yes, on the northern side if possible.

2. Q. If transshipment were necessary have you any opinion as to where it should be done, near Calcutta or on the other side of the river?—I think it is better to have transshipment as far away as possible from Calcutta, then you are able to work your traffic much quicker by the broad gauge.

3. Q. As regards transshipment, since the improvement in the handling of tea at Sara, have there been many large claims for breakage in your experience?—During the present season our claims have not been heavy or many. Previously they were both many and very heavy.

4. Q. So that there has been an improvement, and wagon to wagon transshipment in a well-organised yard would mean a further improvement?—Yes.

5. Q. With regard to upward traffic are claims heavy?—Yes, and I have great difficulty in getting our claims admitted and settled by the Railway.

6. Q. And the delays were serious?—It was a matter of very serious import to many gardens in the Dooars who wanted food supplies during the time of scarcity; we could not get rice up by reason of the delays on the Railway.

7. Q. In fact the want of a bridge at Damukdia ferry almost caused a severe famine?—Yes.

8. Q. (*Major Shelley.*)—Do you find any difference in respect of claims which concern one Railway only, and those which concern two?—I cannot say as our claims have been in respect of goods forwarded over two lines of Railway.

EVIDENCE OF MR. F. PALMER, CHIEF ENGINEER OF THE CALCUTTA PORT COMMISSIONERS.
Taken on the 18th February, 1907.

1. Q. (*President.*)—Have you considered the question of introducing the metre gauge at the termini of the Port Commissioners, and what conclusions have you come to on this question, and on what grounds are those conclusions based?—I have come to the conclusion that it is utterly impracticable to introduce the metre gauge into the docks and jetties, and on to the lines of the Port Commissioners generally. The conclusions are based on the difficulties illustrated by this model. [The witness here showed by means of a model of the existing three lines between the tea sheds with a third rail added that various

difficulties would arise in connection with platform levels, platform clearance between stock and edge of platform, loading or unloading of flap door wagons, and also the buffer difficulty in shunting rolling stock of two gauges mixed.]

2. Q. What structural alterations and additions will be involved if the metre gauge were introduced in the Calcutta termini, and could you give some approximate estimate of what the cost would be?—It depends on what is to be estimated for. The structural alterations alone would take some weeks to estimate.

3. Q. Can you give any approximate estimate of the cost?—It will be very difficult. There are in all 80 miles of line at Calcutta. We have got in the Docks 545 sets of points and crossings, and 131 in the jetties and up to Chitpore.

(The witness showed the Committee a diagram (not printed) illustrating the introduction of a third rail to a scissors crossing, shewing that the number of crossings would be increased from 8 to 21, and that one crossing on the broad gauge would be increased to 3 for mixed gauge.)

4. Q. (*Mr. Dumayne.*)—Would the introduction of the metre gauge mean a proportionate increase throughout?—Yes.

5. Q. Have you estimated the cost?—No, I have not.

6. Q. Would it be considerable?—Yes, each set of points and crossings, costs Rs. 500, and the sleepers are in addition to that.

7. Q. (*President.*)—The Railway Board have considered that the metre gauge could be got into the Kantapukur sheds; can you give us an estimate of that?—Yes, I could give you that.

8. Q. (*Major Shelley.*)—And of tea warehouses?—The witness stated that he considered the idea so impracticable that he had not made any estimate, but would endeavour to do so if the Committee could give him more definite details as to what was required, and after some discussion it was decided to subsequently do this [see Appendix H].

9. Q. (*President.*)—What is the mileage of the Port Commissioners' Railway, including termini, and can you state approximately what works should be carried out in order to adapt these works for double gauge working?—There are 115 miles, 80 at the Docks, 20 in Calcutta, and 15 at Howrah. It is difficult to answer the second part of the question, it is impracticable to work the thing at all. When you get the third rail it is right for one platform and wrong for the other, and you get into an impossible position.

10. Q. Would the construction involve any serious dislocation of traffic while the alterations of the works to suit the entry of the metre gauge were in progress?—There would necessarily be a dislocation of traffic in putting in the points and crossings.

11. Q. (*Mr. Dumayne.*)—At the tea warehouse is there any space where business could be done while the changes were going on?—No.

12. Q. And at the hide sheds is there any place where you could work traffic while the changes were being carried out?—No.

13. Q. Yet the hide and tea traffic are almost continuous throughout the year?—Hide traffic is continuous, and the tea trade goes on for 8 or 9 months in the year.

14. Q. You consider there would be dislocation of traffic?—Very serious dislocation.

15. Q. (*President.*)—Is sufficient land obtainable for the working of both gauges in the Port Commissioners' premises?—A good deal of land is available. It depends on what you propose to do; if you are going to put the metre gauge throughout the Docks you will have to buy land, if only at Kantapukur there is enough land for simply a receiving and sorting yard.

16. Q. (*Mr. Dumayne.*)—Is it possible to get any place along the jetties or Cossipore line?—The price is very high.

17. Q. (*Major Shelley.*)—It would mean the demolition of the jute godowns at Hatkholah and taking up more ground?—Yes, up the river it is practically impossible to get land.

18. Q. (*Mr. Dumayne.*)—The whole of the foreign import and the inland vessels trade is done in that section?—Yes.

19. Q. You already have considerable inconvenience in providing accommodation for the import foreign trade?—Yes.

20. Q. In order to provide that space you are obliged to carry your buildings into upper floors?—Yes, four storeys.

21. Q. In the transit sheds as well as in the storage sheds?—There we have three floors.

22. Q. Have you considered the question of a third line at the sheds with the necessary points and crossings?—No, I think it is impracticable.

23. Q. Do you mean impracticable as an engineering work, or as a working scheme?—Both.

24. Q. Has it ever been represented that there was difficulty in dealing with the existing traffic within the sheds?—Yes, for want of room.

25. Q. Could you deal with the mixed gauge at the sheds without having stabling lines for one or other close by?—No.

26. Q. Is there room for stabling lines?—No.

27. Q. (*President.*)—Would such alterations stand in the way of your carrying out any scheme that you have now under consideration for the improvement of the shunting yards at the Port Commissioners' termini?—The introduction of the metre gauge would mean the duplication of large and costly shunting yards, the construction of which is now under contemplation. The witness produced a plan shewing various alterations and extensions to docks and receiving, sorting and despatching yards, which it was proposed to put in hand at once.

28. Q. These schemes could not possibly be put into execution so long as this matter about the introduction of the metre gauge was not settled?—No, but I believe the metre gauge cannot be brought in.

29. Q. (*Mr. Dumayne.*)—The plans and estimates are subject to the approval of the Government of Bengal and also of the Government of India, and it is possible that they might return these plans for reconsideration with a view to our adapting them for metre gauge working; and this would delay the carrying out of these schemes?—Yes.

30. Q. The preparation of a large scheme like this involves years of careful study?—Yes, I think it would take at least two years to make out detail plans.

31. Q. It might mean a very serious matter to the trade if they were delayed by the discussion of the metre gauge scheme?—Yes.

32. Q. It is in your experience no doubt that schemes have often been delayed in the course of such discussions for several years?—Yes, the Ganges Bridge question for instance.

33. Q. (*President.*)—Are you of opinion that any increased facilities in regard to the handling of the Port Commissioners' traffic would result from the admission of the metre gauge?—The greatest inconvenience.

34. Q. And would there be loss of facilities?—Distinctly. You cannot work two gauges together, you would have to separate them, shunting the stock of the 2 gauges together would mean numerous derailments. You would have to work them separately, meanwhile one class of stock is hung up while the other is being unloaded.

35. Q. Have you any experience or seen the working of both gauges in confined yards, and what remarks have you to offer on the subject?—I have not seen it at all except in a casual way at Madras.

36. Q. Can you give a rough idea of the cost involved in double gauge working?—No, I don't think I could. There would be delays and consequent demurrage to be paid on the stock; of course, the risk of accident would affect the cost very much. We get 400 derailments in the year, with this system the derailments would have to be counted not by hundreds but by thousands; the trucks would be constantly shunted together by accident, no matter what rules you made.

37. Q. Would the mileage at termini have to be increased in handling both the broad and the metre gauges, because of the introduction of the metre gauge, and roughly to what extent?—The introduction would necessitate a third rail throughout and receiving, sorting and despatching yards for metre gauge wagons.

38. Q. Would the introduction of the metre gauge increase the danger of working the yard?—Every pair of switches and every crossing is an element of danger; if you had three crossings where there is now one the danger would be three-fold.

39. Q. Do you consider that special crossings, etc., would be needed if the metre gauge were introduced?—The angles would vary, but they could be standardised as much as the others.

40. Q. What would do for one yard would do for another?—Yes.

41. Q. (*Mr. Dumayne.*)—Are you prepared to admit that there would be no engineering difficulties in laying a third rail, and of making this arrangement of points and crossings?—I think it is not impossible, but it is very difficult.

42. Q. It would certainly be very costly?—Yes.

43. Q. Presuming that it was done, as far as the tea warehouses are concerned, what would be the position as regards the traffic; would that traffic be considerably delayed?—It would be delayed, and, at the same time, you would be blocking broad gauge traffic. Traffic from the tea warehouses is very heavy indeed in the tea season.

44. Q. If an order came to despatch 90 wagons to a single ship, as sometime happens, would it be likely to cause great difficulty if your sidings were occupied by metre gauge stock?—You could not do it.

45. Q. You could not do it within the short space of time allowed by the trade?—No.

46. Q. While it may be physically possible to bring the wagons to the tea warehouses to unload them there, your gain would simply be that the tea would be discharged from the wagon direct to the tea warehouse, as compared with the risk and delays and expense of transshipment?—Yes, there would certainly be loss, in not being able to carry out orders.

47. Q. So that the saving might be only a few annas per ton?—Yes.

48. Q. Such that it could just as easily be carried out at another place?—More easily.

49. Q. Would you be prepared to say that it would be preferable that the transfer should be made at another place, rather than that the Docks should be hampered with a difficult scheme?—Undoubtedly.

50. Q. There can be no doubt that it would be more economical?—Distinctly.

51. Q. In speaking of the structural alterations, can you roughly indicate to the Committee how many sheds in the existing docks would be affected by this?—There would be 13 transit sheds, 3 tea warehouses, half a mile of hide sheds, and 4 salt golahs.

52. Q. And in addition 9 more sheds to be constructed in the new Docks?—Yes.

53. Q. So that the alterations would mean considerable delay?—Yes.

54. Q. Would it seriously interfere with the working of your lifts and other mechanical contrivances?—All lifts would have to be altered to suit the altered conditions.

55. Q. In making your plans you have considered the possibility of some day having to work imports at the Docks?—Yes.

56. Q. Imports that may consist of very heavy articles?—Yes.

57. Q. Such heavy articles would be very difficult to handle over platforms with a ramp such as we have discussed on the model?—Yes.

58. Q. What would be your opinion with regard to the possibilities of the introduction of the mixed gauge on the Cossipore section north of the jetties?—I think it is absolutely impracticable there.

59. Q. The position is worse there than at the Docks?—Yes.
60. Q. Are some of your lines laid with pot sleepers?—Yes.
61. Q. That would mean the entire reconstruction of the lines?—It would mean new wooden sleepers for many miles of the line.
62. Q. Have you ever seen the mixed gauge at any other station in India?—I have seen separate gauges with a transfer platform, but not mixed gauge.
63. Q. You have seen nothing similar to what would be required at the Docks?—Nothing whatever.
64. Q. Can you give the Committee some approximate estimate of the cost of laying the lines?—I can, if you tell me what to estimate for.
65. Q. You have not considered the cost of laying this third rail to all the transit sheds?—No.
66. Q. Yet a large proportion of the tea, and some of the wheat and seeds coming by the metre gauge, might have to go direct to them?—Yes.
67. Q. So that any estimate of yours would have to take into account the necessity of taking the metre gauge wagons to the transit sheds?—Yes, or else tranship outside.
68. Q. That might mean an estimate for many miles of rails alone?—Yes, there are 80 miles of line in the Docks, including coal lines.
69. Q. Otherwise you would simply have a transfer station?—Yes.
70. Q. And that transfer station might be anywhere?—Yes, but preferably outside the Docks.
71. Q. (*President*.)—In the matter of the tea warehouses, the idea seems to be that the mixed gauge would have to be used over the existing three tracks?—Yes.
72. Q. Supposing somebody made a proposal to put in both broad and metre gauges, that would mean widening out the space between the different sheds?—They could not both come in separately; there is no room for more than the three tracks.
73. Q. If you wanted more tracks between, you would have to put the warehouses back?—Yes.
74. Q. Is there room to remove the sheds?—No, it is physically impossible to move the sheds back.

EVIDENCE OF THE HON'BLE MR. J. STUART, LATE TRAFFIC MANAGER, ASSAM-BENGAL RAILWAY.
Taken on the 18th February, 1907.

The witness commenced by reading a statement as follows:—

I hope it will not be deemed presumptuous on my part if I endeavour to place my views before the Committee now sitting to enquire into these questions. I have had some Railway experience and I am now proceeding to Europe on long leave, and in passing through Calcutta I find this question the absorbing topic of the hour. I have given the matter some consideration, and trust that the few remarks I am able to place before the Committee will be found deserving of attention.

In the first place, it is necessary to point out the extent of territory lying to the north of the Ganges, and served by a metre gauge system of lines. At the present moment, we find 3,000 miles or more serving that extent of country; the country served by the Bengal and North-Western Railway covers an area of roughly 33,000 square miles. The area served by the Eastern Bengal State Railway metre gauge covers an area, roughly, of 22,000 square miles. The area served by the Bengal and North-Western Railway contains a population of approximately 22,000,000 of people. The area served by the Eastern Bengal State Railway metre gauge contains a population of 11,000,000, but one-third of the area and one-third of the population of the Eastern Bengal State metre gauge lie within the sphere of the Rampur Boalia route, and not within the sphere

of Sara. It will thus be observed that the extent of country, and the population which comes within the sphere of Rampur Boalia, far exceed the area and population of the Eastern Bengal State Railway metre gauge districts. At present, all that country lying to the north of the Ganges may be compared to other countries which are land-locked, and which do not possess a sea-board. Very much like Russia which has no sea-board to the south; very much like Switzerland lying in the centre of Europe, or like Afghanistan. We all know the importance which these countries would attach to the possession of a sea-board by which their own products and manufactures could be carried unfettered and free from the help of their neighbours; similarly, it is only natural that the Bengal and North-Western Railway Company should desire, by all means in their power, to possess a through and unbroken line of communication to the sea-board for the carrying trade of that country through which it passes. The natural course these metre gauge railways must follow, in order to obtain an outlet to the sea, must be towards the south-east portion of the territory north of the Ganges lying between Godagiri and Sara where the line would pass due south by a direct route to Calcutta. At the present moment, the whole of the traffic emanating from the Bengal and North-Western Railway, and destined for Calcutta, must be handed over at Mokameh to the East Indian Railway; the Bengal and North-Western Railway are, therefore, deprived of a large portion of revenue by not being able to convey the goods past Mokameh, and to reach Calcutta by a through metre gauge connection. I understand that no less than 500,000 tons of goods from the Bengal and North-Western Railway and *vice versa*, pass through *via* Mokameh in connection with Calcutta traffic alone in a year. This traffic, which has to be conveyed by the East Indian Railway from Mokameh to Calcutta, opens out the question of the East Indian Railway wagon supply. If the East Indian Railway left all such goods to be carried by the Bengal and North-Western Railway by a direct metre gauge route to Calcutta, consider the number of wagons which would be available to cope with the coal traffic; in my opinion the Coal or Mining Association have not taken this great factor into account. The Bengal and North-Western Railway is a purely private enterprise Company, with a capital of £5,000,000, and is a unique example of a Railway working without a subsidy of any kind, or guarantee from Government. I have seen in the Press statements made comparing the Bengal and North-Western Railway Company to an octopus which wished to devour everything for the sake of its own interests, or that they were adopting methods similar to the Standard Oil Company, or the American Beef Trust. In my opinion this is a most uncharitable view to take of the position; there is nothing to show, in the history of the Bengal and North-Western Railway Company, that they have attempted to squeeze the public in charging higher rates for goods or passengers. In fact, the facts are all the other way, and it is well known that the Bengal and North-Western Railway Company were the pioneers in the introduction of the lowest possible fares for third class passengers; the third class fares on that line are, I understand, $1\frac{1}{4}$ pies per passenger per mile, so it is clear from actual facts that the Bengal and North-Western Railway Company are a progressive and enlightened Company, conferring great benefits upon the people and the country through which their railway runs.

I will now endeavour to refer to a few of the chief products which are carried by these lines north of the Ganges, and the various mercantile interests concerned.

Let us begin with tea, which is a valuable commodity. At the present moment, tea from the Dooars is placed in metre gauge wagons, and transhipped at Sara from one gauge to the other; needless to say that the damage to such a valuable commodity must be considerable. If there was an unbroken line of metre gauge communication to Calcutta *via* Rampur Boalia, this tea could be loaded in metre gauge wagons near the tea garden, and landed in the same wagon alongside the tea warehouse at Kidderpore; there would then be no necessity whatever to tranship tea at Sara, and to place the same in broad gauge wagons. Regarding the terminal at the tea warehouse, without being fully aware of the actual position of this warehouse, I still feel that I am in a position to state that Messrs. Dumayne and Palmer, with that wonderful ability which

they possess, and that great capacity for working out details, which is characteristic of these gentlemen, are of opinion that such an arrangement can be made by which the tea can be placed in the warehouse and then sent to the Docks for export. If such is the case, then I am surprised at the attitude of the Tea Association in not advocating the immediate entry of the metre gauge railway into Calcutta. This disposes of the tea question.

The next important product which I would direct your attention to, is that of wheat and seeds. I think it has been admitted that one-half of the total wheat and seeds which arrive in Calcutta, either for local consumption or export, emanates in all that country served by the metre gauge railways. There can be no doubt in my mind that by a through metre gauge connection with Calcutta that half of the total wheat and seeds now entering Calcutta can be dealt with at Kantapukur by the erection of two or more new sheds, along one side of which the metre gauge would enter with a dead end, and on the opposite side the broad gauge would be laid with a loop, connecting the lines leading to the export sheds. I am sure that Messrs. Dumayne and Palmer will be able to surmount any difficulties which might arise in connection with this proposal.

In regard to the coal traffic, I have already shown how the coal traffic can be dealt with by having an addition to the rolling stock, owing to the release of wagons locked up at Mokameh, and now used to carry Bengal and North-Western Railway traffic. In regard to upwards coal, destined for the metre gauge lines north of the Ganges, all that coal would be transhipped at Naihati into metre gauge wagons, thus releasing a greater number of wagons than is now available for the coal supplies. These wagons would not have to be sent forward, as at present, from Naihati all the way to Sara for transhipment.

In regard to kerosine oil traffic, it has been admitted that the metre gauge can, without difficulty, be brought to connect at Budge Budge, where kerosine oil could be loaded into metre gauge wagons, and despatched to any station north of the Ganges without transhipment. As you are doubtless aware, this is a commodity which is liable to serious damage when undergoing transhipment, and this has to be done now at Mokameh; why those representing the kerosine oil interest in this city do not press for this before the Committee I am at a loss to understand.

The next and most important product of all is, undoubtedly, jute, and this interest for very good reasons dominates the Calcutta mercantile community. I have always done my utmost to further the jute interests in the locality where I reside, and I reckon, among members of the jute interests, many of my best friends, and it is, as a friend of the jute interests, that I have taken the trouble to write this paper. In my opinion, the jute interests can never be served effectively by a bridge at Sara, even with a broad gauge line connecting Sara with Serajganj. If this came to pass we should then have a transhipment station at Sara in order to tranship all jute coming from the north, and tea and other commodities, and in a few years hence I have no hesitation in stating the blocks to traffic would become frequent, and that the last position would be, if not as bad, nearly as bad, as the first. In considering this question I am not looking at the present; I am looking, however, to the immediate future, a few years hence, when traffic will have so much increased in the ordinary course that congestion at Sara will become inevitable. Colonel Cowie, in a recent statement to the Committee, admitted that, even if the metre gauge line was brought into Calcutta, he would still require, in order to cope with the natural increase in traffic, to quadruple the line from Naihati to Calcutta. This, in itself, speaks volumes, and requires the most careful consideration. In dealing with the jute traffic to which I am now referring, I would propose that the jute traffic be carried, as it has hitherto been carried, across the river at Sara, and transhipped on the other side into broad gauge wagons. I would propose that a metre gauge line should be brought to Serajganj *via* Nattore, and that all this traffic be transhipped, as at present at Sara, by taking across wagons on flats, as has recently been adopted at that ferry. During the jute season, there do not appear to be any difficulties in regard to churs and sand banks. There is sufficient water at that time of the year by which ferries

can ply regularly, and I do not believe that the expense of ferrying the Ganges at Sara is much greater than the expense of ferrying from the Bengal and North-Western Railway to the East Indian Railway at Mokameh. If, at any time, it was found that a block of jute was impending at Sara, it would be a simple matter to divert the wagons *via* the Rampur Boalia bridge, and forward them to Calcutta. By this means the jute industry would have two strings to their bow, and would be able to send their jute by the Sara ferry, as they have done for many years past, or to send their jute *via* Rampur Boalia practically at the same rate either way; thus the jute industry would be in possession of two main independent lines or routes for their traffic into Calcutta. There would appear to be some difficulty in regard to the disposal of the jute at destination, if jute were sent by the Rampur Boalia route. It has already been shown by Colonel Cowie, that it is quite possible for the metre gauge line to obtain an approach to Chitpore, the metre gauge having a goods yard of its own at that point. At this point it is well known that all jute mills on the river can be served, and are now served by shipping the jute, which arrives by rail, by the various boating Companies to all the mills situated on the river. Colonel Cowie has also shown that the metre gauge railway can be brought into Sealdah, and have a yard to itself and with its own goods-sheds for local traffic. There still remains the question of how the few mills on the river, which have sidings running into them on the broad gauge, near Tittaghur and other places, are to be served in the event of jute being sent by the Rampur Boalia route. For these few mills, I would propose a small transshipment station at Naihati to meet this difficulty, although I am of opinion that, with a third rail, metre gauge wagons would be sent over these sidings. It is not as if these sidings were fully occupied the whole day, taking in and out wagons on the broad gauge. I presume a broad gauge engine takes in wagons, and takes out empty wagons, or wagons loaded with gunnies, once a day only and there ought to be sufficient time for the broad gauge to do its work and for the metre gauge work to be performed during defined periods of the day, but if this was found not to be feasible by the Engineers who know best, then transshipment at Naihati would have to be resorted to, and this would be a very small matter indeed.

I have already pointed out that Sara should be allowed to remain, as at present; that a metre gauge line should be constructed for the convenience of the jute interests from Serajganj to Nattore, and that all goods such as jute, and especially jute for the mills which have sidings, should be transhipped at Sara. And I would also suggest that the Sara ferry be confined only to the carriage of goods, and that all passenger traffic should, of necessity, be sent by the metre gauge *via* the bridge at or near Rampur Boalia.

I think I have now finished directing your attention to the manner in which the chief products of the country may be dealt with, but there is a much more important product than all others, than even jute itself, to be taken into consideration, that is, the human product, if I may so term it, otherwise the passenger traffic; this you will readily admit is the most important of all. At the present moment, we find the transshipment of passengers takes place at Sara, and, even with a bridge there, this transshipment must still go on chiefly during night, because passengers must change from the broad gauge to the metre. It is only the Railway man who can fully appreciate the difficulties which the ordinary third class passenger has to contend with, when changing from one gauge into another, especially in the middle of the night. A Railway man does know and can appreciate those difficulties. There are old men and women and children to be considered, and with their bundles and other paraphernalia, the infinite difficulty and worry which they have to go through, is more I believe than the public can understand. The Government of India have always displayed the utmost solicitude in regard to the treatment of third class passengers and it is laid down in our railway rules that the first and most important duty of a railway servant is, to attend to the safety and the convenience of the passenger. The Railway Board have also, quite recently, from time to time, called the attention of the various railways to the necessity of better treatment of the third class passenger, and railway men are now earnestly endeavouring to do what is possible to ameliorate their lot, whilst travelling by

rail. The question of transshipment during the night also affects the higher class passengers, gentlewomen and tender children. The transshipment at all times is a bogey to be feared. Now, if we have the metre gauge brought into Calcutta let us glance for a moment at the opposite side of the picture. What should we see, and how would passengers be carried? It is not difficult to imagine that a metre gauge train, all bogie stock with saloon carriages, with dining car attached, and refreshments for third class passengers on board, would leave, say, Sealdah by mail train for all stations north of Sara, ending at Siliguri, without the necessity of any transshipment at all, with a direct through and unbroken communication which is a consummation which must be devoutly desired by the great bulk of the travelling public, European and Native. I am even led to understand that this particular train would be in a position to reach Siliguri in from one to two hours less time than is now occupied on the journey by the present arrangements and route. There will probably also be a through train metre gauge running direct to Mozufferpore and the Tirhut districts, and a third train to Gorakhpore. It has been pointed out that many passengers would not go so far as Gorakhpore, but that they would take the East Indian Railway train and cross over at Mokameh. I, for one, doubt this very much. With a well-laid metre gauge line kept up to full standard, the Government of India are empowered to sanction, on the metre gauge, a maximum speed of 40 miles an hour, and it is common for metre gauge trains to run at a speed of 35 miles an hour between stations, so that any one proceeding to Gorakhpore would find it to his advantage to travel through by the metre gauge, without the worry of transshipment at any point.

The question of expense of bringing the metre gauge into Calcutta has been considered, and I understand that several members of the mercantile community consider the cost more than Government could afford. This is the first time in my career that I have heard of the mercantile community being solicitous regarding an expenditure by Government for the construction of an additional railway, or highway, in order to assist in the carrying trade of the country. I doubt if the Mining Association will cavil at the cost which Government will have to bear in providing additional wagons to meet the coal demand. But whatever the cost may be of bringing the metre gauge into Calcutta, I am strongly of opinion that Government and the mercantile community will be amply repaid by the incalculable benefits which must naturally accrue from the addition of an altogether new and direct highway to Calcutta for purposes of expanding the trade and commerce of the country.

This question is not by any means a new question, the matter of connecting Calcutta by a metre gauge line has been in the minds of railway men for many years past, and some years ago I remember touching on this very question when speaking on the occasion of a dinner in Simla at which all the chief railway men of India were present, along with the representatives of Government.

One word more and I have done. Why have I troubled myself at this time to write on this subject? Not from any selfish motive I assure you. I cannot, neither do I expect to, gain anything by doing so. I have endeavoured to write simply, yet earnestly, about this matter which concerns us all greatly. It is for the good and benefit of the country and for the people at large, and in my advocacy I believe the proposals I place before you will confer the greatest good upon the greatest number, and will be found not to lend itself to any one interest or party. I have also troubled myself to write upon this occasion, from the fact that I have eaten the salt of India for 32 years, and because I love the land I live in.

1. Q. (*President.*)—Apart from all questions of the site of the bridge, do you consider the bridging of the Lower Ganges is a matter of urgent necessity?—Yes, it should be no longer delayed.

2. Q. Would you allow that the site of the bridge should be at the spot where the cost of the bridge and the necessary connections would be the least, while at the same time, serving the largest volume of established traffic?—Yes, provided the site would serve the largest volume of traffic established or to be established.

3. Q. Is it the fact that, other things being equal, traffic usually follows the shortest and quickest route?—Yes, this is so, but, unfortunately, it often happens that all other things are not equal on Indian railways, and it happens that the shortest route is sometimes the slower route and not the quickest. Allow me to explain further; say, the contents of a Bengal and North-Western railway wagon from Gorakhpore is booked *viâ* Mokameh to Calcutta, the time taken for these goods crossing the river and transshipping into broad gauge wagons must be considerable, so considerable that I do not hesitate to say that the goods, if sent through in a wagon *viâ* Katihar and Rampur Boalia to Calcutta, would reach Calcutta in the ordinary course as quick, if not quicker, than by the Mokameh or shorter route. It should be noted that the distance is only 70 miles greater *viâ* Rampur Boalia, and this can be covered by a metre gauge train in 4 to 5 hours. I can scarcely conceive it possible for goods to be ferried at Mokameh, and transhipped and sent off in broad gauge wagons within this period.

4. Q. In your statement you have said that the damage to tea in transshipment at Sara must be considerable. Can you verify this statement from actual facts?—When I referred to this matter I understood that tea was transhipped across the river at Sara in flats. I now understand that tea is sent across in wagons by means of the wagon ferry. There is no reason, under these circumstances, why tea should not be transhipped with a minimum of damage.

5. Q. We have it in evidence that the damage to tea in transshipment at Sara Ghat has, of late years and with new arrangements, been reduced to a minimum. Do you not think that, with a bridge and a well-organised transshipment yard, the damage would be still further reduced?—No, I do not think that, with a bridge at Sara, the damage would be reduced in the handling of tea. At present the wagon ferry fulfils the part of a bridge, and no damage can take place while the wagon is crossing the river. On arrival at the Damukdia side, the wagon is transhipped into a broad gauge wagon conveniently placed alongside, and the handling would, therefore, in my opinion be exactly the same whether done at Sara or at Damukdia after crossing in the ferry. I doubt very much whether a well-organised transshipment yard at Sara would prove more beneficial in the treatment of tea than the present system of transshipment in the yard at Damukdia; there is I understand a well-organised transshipment yard there now. I should not like to be too decided, however, in this view. There may be some advantage in having a permanent yard at Sara *versus* a kutchra yard at Damukdia, but the advantage, if any, would be very small.

6. Q. In your statement reference is made to Messrs. Dumayne and Palmer; if you were told that these gentlemen had said that the introduction of the metre gauge into the tea warehouse was impossible, would you still adhere to your opinion that it could be done?—If Messrs. Dumayne and Palmer were to say that it is impossible for the metre gauge to approach the tea warehouse, I should, in that case, accept their statements as final.

7. Q. In the same way, against the opinion of these gentlemen, would you adhere to your opinion that the introduction of the metre gauge into the Kantapukur sheds is easily feasible?—I should not like to say that the entry of the metre gauge into the Kantapukur yard was easily feasible, but I do consider that the metre gauge can be brought in, so as to serve the three or four sheds lying in the most easterly direction of the Kantapukur yard, or to serve additional new sheds if the three or four sheds now there are not considered available. Regarding the question as to whether I would still adhere to this opinion against the opinion of Messrs. Dumayne and Palmer, I can only answer by saying that I do not believe that they will ever say that the metre gauge cannot be accommodated so as to serve a certain number of sheds in the Kantapukur yard. This is my humble opinion. I do not attempt, however, to pose as an expert in this matter, and I may be wrong in my views.

8. Q. (*Mr. McLeod.*)—Messrs. Dumayne and Palmer say it is not a feasible scheme; would you alter your opinion in consequence?—I am not really an engineering-expert; I rather demur to giving an opinion myself, as against the

opinions of an engineer like Mr. Palmer, or a gentleman like Mr. Dumayne, who both have a thorough knowledge of the conditions.

9. Q. Does not the silence of those interested in kerosine oil point to the fact that they prefer present arrangements to doubtful experiments in the carrying of their oil?—The largest importer of kerosine oil at this port informs me that it may be taken as an accepted fact that the whole of the oil trade in Calcutta would hail with satisfaction the advent of the metre gauge wagon at Budge Budge, because, owing to transshipment at present, the loss by leakage is considerable, and not only this, but this importer actually keeps an office and staff at Sara in order to see to the careful handling of the oil while in transit, and he pointed out that all this would be saved by the advent of the metre gauge.

10. Q. (*Mr. McLeod.*)—Surely that is only hearsay; why did those interested not come forward to give their evidence?—I think the general public seem to be particularly callous on this question; they are depending on the Government to a great extent, and on the deliberations of this Committee, for a solution and seem to be taking no active part in it.

11. Q. Why did we not get direct evidence on the point. The Bengal Chamber of Commerce said nothing on the point?—This is simply a statement made to me by the head of the firm.

12. Q. You have referred to a statement made by Colonel Cowie as to quadrupling the line from Naihati to Calcutta. Was not the necessity for such a step more to accommodate the increasing traffic across the Naihati Bridge than any congestion of the Eastern Bengal State Railway lines north of Naihati?—I am in a position to say that, not only was the increasing traffic *viâ* Naihati in Colonel Cowie's mind, but also the increasing traffic to be expected on the lines north of Naihati.

13. Q. You have stated that the jute traffic should be transhipped, as hitherto, at Sara Ghat. Do you consider present arrangements satisfactory?—No, they have never been satisfactory as far as I am aware.

14. Q. Are you aware that, in January last, and for some time previous, churs and sand banks had formed in front of the station at Damukdia, which necessitated a carriage of jute by river to Golbathan, 9 miles down stream?—No.

15. Q. Are you aware, also, that there was a danger of the transshipment station at Golbathan being rendered useless before very long, and that a new station would have to be made?—No, I am not aware of these particulars, but I always understood that such difficulties had to be contended against at Sara, pretty much in the same way as the difficulties have to be dealt with at Goalundo every year.

16. Q. Do you consider this state of affairs satisfactory or economical?—I consider them neither satisfactory nor economical.

17. Q. Have you lately seen the wagon ferry at Sara-Damukdia?—Yes, I saw the wagon ferry working in November last; it appeared to be working well, and the gentlemen, I had a conversation with, gave a favourable account of its working.

18. Q. Are you aware that, in January and December last, a staging had to be made into the river on the Damukdia side of over 1,000 feet long, to find deep enough water, and that the same had again to be abandoned?—I did not hear of these particulars.

19. Q. In these circumstances, would you still advocate the continued use of transshipment as at present?—Yes, certainly, so long as there is an alternative route *viâ* Rampur Boalia, which would be an all the year round open route, so that goods could be diverted at any time *viâ* that route, thus having two routes to Calcutta, one route being always a certain route.

20. Q. Then you state that you cannot believe the expenses of ferrying the Ganges at Sara are much greater than the expenses of ferrying at Mokameh Ghat. We have it in evidence that the expense of ferrying at Sara Ghat is about 9½ lakhs, while at Mokameh, it is only Rs. 3,40,000 per annum.

Were you not under a misapprehension when making that statement?—I was under the impression that the expenses of ferrying a ton of goods by wagon ferry at Mokameh would be pretty much the same as at Sara. Naturally, the gross expenditure would be greater at Sara, because more goods go by that route. The more correct comparison would be to give the cost of crossing over and transhipping a ton of goods at each of these places by wagon ferry. I regret these figures are not available. Anyhow, it is reasonable to believe that a considerable amount of goods traffic from the metre gauge north of Sara would flow *viâ* Rampur Boalia, and this would reduce the expense of handling at Sara; the expense of handling all the through passengers from Calcutta to all stations north of the Ganges would, also, be less I presume. Again in the 9½ lakhs mentioned, the cost of handling and supervision is a large item, and, even if a bridge was built at Sara, there would still be considerable expenditure in regard to those services at Sara in connection with the transshipment yard, and this figure of 9½ lakhs in my opinion, taking these facts into consideration, could be considerably reduced, and the actual cost would be shewn at a less figure than now.

21. Q. Would you then recommend a scheme involving the continuance of such an expensive ferry as the one at Sara, with all its attendant difficulties?—Yes, I would still work Sara as it has been always worked for very many years but only if a bridge is placed at or near Rampur Boalia, with a metre gauge line running into Calcutta, then the mercantile interests would have one uncertain means of communication which they have always had, and one certain means of transport by an unbroken line of communication, connecting with 3,000 miles of metre gauge line north of the Ganges and Calcutta.

22. Q. Have you considered the cost of bringing the metre gauge into Calcutta termini?—I was under the impression that 130 or 140 lakhs was the figure.

23. Q. From an estimate made for us, the cost would be 170 lakhs (apart from Dock terminals). Do you consider such cost is balanced by the advantages to be gained?—I understand that 15 crores of rupees will be placed at the disposal of the Railway Board next financial year, and I think the sum of 170 lakhs may well be spared to effect such incalculable benefits which must accrue in the linking up of the metre gauge with Calcutta. It is necessary to have some idea of the volume of traffic likely to pass over the proposed metre gauge connection; it is very difficult to estimate what the volume would be. I think the Bengal and North-Western Railway Company have stated that they send and receive *viâ* Mokameh, yearly, in connection with Calcutta, 500,000 tons of goods, and I understand that it was estimated that 700,000 tons a year passed from the north bank of the Ganges *viâ* Sara. I would point out that there is one large item of 225,000 tons of jute which represents the jute production of Purnea and Malda, and half the production of Rajshahi and Dinajpur; all these places lying in a direct line, and within the sphere of the Rampur Boalia route, it is natural to assume that the bulk of this jute would go *viâ* Rampur Boalia. It may not be generally known that Purnea is a large jute area; that its acreage was 25,000 more than Pubna, where Serajganj is situated; that, during the last 10 years, Purnea has increased its acreage under jute by 258 per cent.; while Pubna, where Serajganj is situated, has only increased its acreage to the extent of 14 per cent, and a railway is now proposed from Serajganj. I am now doubtful if such a railway would be justified, the Steamer Companies tap Serajganj and render good services there. The volume of traffic I have given and taken with the whole of the through passenger traffic between Calcutta and the north bank of the Ganges in my opinion fully justifies the expenditure in bringing in the metre gauge railway into Calcutta.

24. Q. How would you propose to serve the jute mills on the East Indian Railway side of the river?—I should serve the jute mills on the East Indian Railway side of the river in the same manner as other jute mills are served lower down, that is, by booking the jute *viâ* Chitpore Ghat for mill delivery; this is now done under contract with the Eastern Bengal State Railway, the Landing and Shipping Company who carry it in boats and deliver it at the mills, and this could be or should be done at no greater expense.

25. Q. (*Mr. McLeod.*)—That would involve transshipment of course?—I do not call that transshipment. Practically the goods have arrived at destination when they have arrived at Chitpore. But sending them up or down the river is not equivalent to transshipment. What I understand by transshipment is, when the goods are transhipped, the wagon and goods may be run for many miles after, but that is simply a terminal arrangement at Chitpore.

26. Q. Taking the goods from one wagon to another is less risky than unloading it from a wagon to a boat?—If you can send the goods direct to the mill, in preference to sending it by boat, and the risks attendant on the river Hooghly, it would be better certainly.

27. Q. Would you not then have for a part of the jute trade transshipment which you wish to avoid?—As I have already explained, I would scarcely call this transshipment, the jute, when it reaches Chitpore Ghat, has practically finished its journey, and has only to be boated a mile or two to the mills, as has to be done in hundreds of cases in the jute season.

28. Q. How would you propose to serve the jute mills on the Eastern Bengal State Railway side of the river, and how would you suggest wagons should be taken across the broad gauge or metre gauge, as the case may be?—I should think if it can be done (and I believe it can) that a third rail should be laid on the present broad gauge sidings leading to the mills, and that the metre gauge should be on the river side of the broad gauge, and the broad gauge should cross the metre gauge to get into the mill sidings; I would, however, point out that the Engineers, who are best qualified to judge, may consider the delay to traffic would be considerable, and I am afraid I cannot venture an opinion about this, but if it was deemed impracticable then the transshipment should be conducted at Naihati. I would point out that with normal conditions, that is, with Sara Ghat in working order and not blocked, the bulk of the jute could be sent *via* Sara specially to the mills with sidings, it would only be during the period when Sara was actually blocked that heavy traffic in jute might require to be dealt with at Naihati if a third rail could not be put into the sidings leading to the mills.

29. Q. Would such cause delays and be dangerous on main lines of heavy passenger traffic?—I should like to leave the decision to the Engineers.

30. Q. (*Mr. McLeod.*)—They said it was exceedingly dangerous and that it caused many delays; would you be inclined to agree with that?—I am not acquainted with the position of these lines.

31. Q. You take exception to some of the mercantile community objecting to the entrance of the metre gauge into Calcutta. Have you read the note sent in by the Bengal Chamber of Commerce? (Read paragraph 7.)—Yes, I have read the note.

32. Q. Do you think that sound argument or otherwise, and why?—I do not consider the two questions should be mixed up, the question of fully equipping the broad gauge lines to bring them up to standard is one thing, the question of bringing the metre gauge line to Calcutta is another, and the one should not be subordinated to the other. I might as well refer to the immense sums spent on new canals in the north-west of India and suggest the money be spent on railways. I recognise that the broad gauge lines are not up to standard, and that a fully equipped metre gauge line will have nearly as great a carrying capacity as the broad gauge lines now working. I am aware of cases where 900 tons gross load is hauled daily by one engine, and, in some cases, 1,000 tons is hauled on the metre gauge; and the broad gauge, owing to not being up to standard, cannot do much more than this.

33. Q. (*Mr. McLeod.*)—Do you think that it is justifiable to spend such a large amount of money in bringing the metre gauge into Calcutta, when the broad gauge is not fully equipped?—The questions are distinct. If there is difficulty in getting money, I would say, in answer, why not get the Government to curtail their military expenditure, or their canal expenditure. I consider the metre gauge entry into Calcutta is a most important thing.

34. Q. Supposing the Bengal and North-Western Railway were given entrance into Calcutta by the metre gauge, would not that result in competition

with the East Indian Railway from Mokameh?—I should scarcely call it competition, the natural flow of the traffic to Calcutta from the Bengal and North-Western Railway is from west to east, in the same direction as the river Ganges flows, this is the natural route, it is not the natural route to send goods across the Ganges to the south bank when the goods are destined for Calcutta.

35. Q. Would such competition and reduction of rates be beneficial, and who would benefit?—Competition seems to me to be beneficial; it adds an incentive to improve the Railway services. In regard to reduction of rates, I do not suppose that rates *viâ* Mokameh to Calcutta would be altered, and that the Bengal and North-Western Railway would carry the longer distance at the same rate; this would be beneficial; and I believe the metre gauge systems and the public would benefit.

36. Q. (*Mr. McLeod.*)—Have you seen the letter from the Agent, Assam-Bengal Railway, in 1903 to Mr. Spring on the Ganges Bridge site?—I beg to mention that these are my own personal opinions, quite apart from the Assam-Bengal Railway; and in regard to the letter you refer to, I have never seen it.

37. Q. (*Major Shelley.*)—You say the whole of the Bengal and North-Western Railway traffic must be handed over to the East Indian Railway at Mokameh. On what reasons do you base this statement?—Because I understand now that all goods destined for Calcutta from the west must come *viâ* Mokameh to reach Calcutta.

38. Q. There are other ferry services?—They are insignificant.

39. Q. You say it *must* come?—I mean it *does* come.

40. Q. Where *viâ* Mokameh is the shortest route? Do you consider the Bengal and North-Western Railway should be helped to carry traffic past a favourable junction in order to obtain a longer lead over their own system?—I do not consider that Mokameh is a favourable junction. I believe that wagons from the Gogra river to Calcutta will reach Calcutta on the metre gauge as quickly as if they were diverted *viâ* Mokameh over the East Indian Railway.

41. Q. If you were told that such diversion would, at the most, produce increased receipts of 3½ lakhs of rupees per annum on the Bengal and North-Western Railway, and would cause a loss to Government on the East Indian railway and the Eastern Bengal State Railway of 18½ lakhs, would you still advocate this diversion being encouraged?—I don't see how these figures are arrived at?

42. Q. The figures are based on those supplied by Mr. Burt—I regret I cannot follow them.

43. Q. Then you refer to the large number of East Indian Railway wagons which would be released by the entry of the metre gauge into Calcutta. Can you give us an idea of the number, and what extra metre gauge stock would be required?—I cannot say what number of East Indian Railway wagons would be released, because the volume of traffic would vary at different times of the year. In regard to the increase of the metre gauge stock, that would be borne by the Bengal and North-Western Railway who have no guarantee, they are not connected with Government in the least as far as I know.

44. Q. With regard to the coal traffic, the down traffic is now conveyed in returning coal wagons which, with the diversion of traffic from *viâ* Mokameh, would run empty. As the upwards coal traffic amounts to 150,000 tons per annum, do you not think this consequence of adopting a *viâ* Katihar route would operate against your estimated release of stock?—I think the coal for the metre gauge section north of the Ganges, if transhipped at Naihati into metre gauge stock, would release broad gauge stock.

45. Q. The East Indian Railway would never allow their traffic to be diverted in that way?—At stations beyond the Ganges, the metre gauge wagons may be reckoned in thousands, and the broad gauge wagons in hundreds.

46. Q. As large transshipping stations are now being worked expeditiously in India, what are your reasons for thinking that the officers of the Eastern

Bengal State Railway will be unable to do at a Sara transshipment yard what other railway officials can do elsewhere?—I think the best managed transshipping station is at Sabarmati, but there the traffic, namely, wheat and seeds, is more easily handled. At Sara, the traffic is very bulky, it is chiefly jute and tea.

47. Q. (*Mr. McLeod.*)—Are not jute and tea very easily transhipped?—Jute is very easily transhipped, but 4 maund and $3\frac{1}{2}$ maund bales are heavy, and tea has to be transhipped gently; the boxes are liable to be broken; they must not be allowed to drop even a foot. The traffic generally is more miscellaneous in its nature.

48. Q. (*Major Shelley.*)—What is the economy of maintaining a large ferry service at Sara in addition to a bridge elsewhere?—I think the ferry at Sara would still be convenient for local traffic, and it would still constitute one of two routes. I would not close the Sara route at first, not unless absolutely necessary.

49. Q. Does not your proposal rather point to the desirability of the bridge being located on the spot where, otherwise, extensive ferrying arrangements must be maintained?—I consider that the bridge should be near Rampur Boalia because it is common to both systems.

50. Q. As a railway man do you consider transshipment from wagon to wagon the great evil it is popularly supposed to be?—No, I do not, if properly conducted.

51. Q. Is it not a fact that, in making up wagon loads, transshipment is in ordinary railway working, a very frequent occurrence, even though there is no break of gauge necessitating it?—Yes.

52. Q. Considering that passengers travelling between main and branch lines generally have to change carriages, why do you consider it such a hardship, when conducted with proper facilities, and at convenient times?—Because the bulk of the passengers who are affected on branch lines are few compared with the main line passengers, and it is not at a convenient hour that the transshipment has to take place. As regards Sara transshipment of passengers for Siliguri must be carried out at night.

53. Q. It might not be in future?—It is because the Darjeeling-Himalayan Railway cannot run at night.

54. Q. The number of passengers for the Darjeeling-Himalayan line is infinitesimal, as compared with the bulk of the passengers?—I quite agree, but there are passengers for Parbatipur and other points who will be affected.

55. Q. Do you still consider it a very great hardship?—Yes, I do.

56. Q. You had, I presume, branch lines on the Assam-Bengal Railway?—Yes.

57. Q. Did you work through carriages at each junction, served at inconvenient times to alleviate the hardships you depict?—We had a certain number of through third class carriages for the convenience of travellers. This was done in order to prevent transshipment.

58. Q. Do you consider passengers would prefer a change of carriage, or an increase of 50 per cent. in the duration of a journey?—I do not see where 50 per cent. comes in, but I think third class passengers, who have little regard for time, would prefer to the bustle of crossing the river at Mokameh an increase of 50 per cent. in the duration of the journey.

59. Q. (*Mr. Dumayne.*)—Would you be prepared, speaking generally, to admit that the admission of the mixed gauge into the terminals would complicate the arrangements?—I have no doubt it would, but the gauges need not be mixed. That would result in work not being so smartly done?—Yes.

60. Q. In your experience minor accidents may sometimes greatly dislocate a day's work?—Yes.

61. Q. Do you think that the mixed gauge would tend to more minor accidents?—Yes.

62. Q. Would the working of the mixed gauge, presuming it is feasible, lead to certain increased expenditure, in staff and engines?—I don't think there would be any increase of staff. If the metre gauge were brought in and worked independently, it would come to the same thing.

63. Q. A yard that was all broad gauge, as compared with a yard that was partly broad and partly metre, would be more easily supervised and worked than one that was mixed?—Certainly.

64. Q. And it would be more economical?—Probably.

65. Q. The introduction of the mixed gauge would admittedly involve a large expenditure where there was as much as 80 miles of line?—Yes.

66. Q. Would you take, speaking generally, the total amount to be expected from the Bengal and North-Western Railway at 500,000 tons?—Yes, it might be taken at that figure.

67. Q. Supposing you could get that 500,000 tons into the terminals direct by metre gauge, and supposing that the entry of the metre gauge into Chitpore, the jetties and docks ran into 200 to 300 lakhs of rupees, would that not greatly increase the terminal charges?—Yes.

68. Q. And that increase would bear a large proportion to the mileage run and would be a serious increase?—The difficulty is as regards the volume of traffic that would come; it would be necessary to have an estimate; I doubt if 500,000 tons would come to Kantapukur sheds, a good deal would go to Sealdah for local consumption in the shape of wheat and seeds. I don't think 500,000 tons go to Kantapukur, I think half goes to Sealdah.

69. Q. Would it not be rather inexpedient for the sake of any small advantage, that is, for the sake of 500,000 tons to interfere with seven millions which is the total amount coming in now?—From the Bengal and North-Western Railway, and north of Rampur Boalia, $1\frac{1}{2}$ to 2 millions is possible. From the Bengal and North-Western Railway, and parts north of Rampur Boalia, $1\frac{1}{2}$ to 3 millions tons are possible.

70. Q. Do you think that the proportion of 500,000 tons to 7 millions is likely to increase?—I should not be surprised if you got $1\frac{1}{2}$ millions in two to three years.

71. Q. That is problematical?—Yes.

72. Q. Have you seen the letter of the Wheat and Seed Trade Association?—No.

73. Q. (*Mr. Kar.*)—As regards the jute traffic that comes to the mills you proposed to tranship that from Chitpore Ghat?—For jute mills on the East Indian Railway side of the river.

74. Q. And you want to tranship the balance of the jute traffic from Naihati?—Yes, in the event of a third rail not being found possible.

75. Q. Are you aware that a very large volume of jute traffic has to be distributed in the jute markets at Hatkhola and Rutholla?—No.

76. Q. How would you distribute the jute traffic to these most important centres?—I am not in a position to say as I do not know the position. I suppose it could be done by boat. But I am ignorant of the locality.

77. Q. (*Mr. McLeod.*)—What is the volume of the tea traffic crossing at Sara?—I am not aware.

78. Q. (*Mr. McLeod.*)—Are you aware it amounts to 23,000 tons only?—The whole of the Dooars and Darjeeling traffic for tea passes there. It may be a small amount, as you state, but it is a very important traffic.

79. Q. As regards what you said about the third class passengers preferring to go by train a distance half again as long as that by the other route, we have it in evidence that that is not the case. Would you put your opinion against that of the native gentlemen that we examined?—I think those native gentlemen are talking from their particular point of view, they are not the same class of men as the ordinary third class passenger. I think the ordinary passenger would prefer to stick to the train, especially when with his family.

80. Q. You mentioned that you thought the traffic north of the Ganges would increase from $1\frac{1}{2}$ to 2 millions. In what commodities do you think the increase would occur?—I believe in wheat and seeds and jute. The Jute Export of Eastern Bengal and Assam has written that he believes that Rajshahi

and Dinajpur are capable of growing, in the immediate future, a much larger quantity of jute than is grown now, and that this is also possible in other districts than those named. There is now only 10 per cent. under jute in Rajshahi and Dinajpur. The whole of this increase would go by way of Rampur Boalia. Then again there is room for further large increases in Purnea.

81. Q. Have you got any evidence to show in regard to the extraordinary increase expected in wheat and seeds?—You have to consider all the country to the west as far as the Gogra, and also Rohilkhand and Lucknow. I believe that all the wheat of those parts will come *viá* the Bengal and North-Western Railway, and it would be a very large quantity.

82. Can you give us any figures regarding this sudden increase in wheat and seeds?—No, I cannot.

83. Q. It does not necessarily follow that all this would go by the Bengal and North-Western Railway. Besides, all this is problematical, is it not?—That is true, estimates of volume of traffic are always more or less problems.

84. Q. Do you consider that the wheat and seeds trade is sufficiently interested to have a voice in the matter?—I think they ought to have a voice in the matter.

85. Q. The Wheat and Seed Trade Association have said that they do not want to divert the traffic from Mokameh. Do you, in that case, think that the Bengal and North-Western Railway could divert it?—The trade should be allowed to choose its route, I have not said that Mokameh should be closed.

86. Q. (*President.*)—As regards what you said about the running of the East Indian Railway stock with coal, is this not rather a question of increasing the stock of the East Indian Railway?—Yes, certainly; there are, I understand, difficulties in the way of their doing so.

87. Q. Then again you said that the Bengal and North-Western Railway was a private concern and had no assistance from Government. Is it not the case that they are allowed to work the Tirhut State Railway, a Government line, and that they get part of their profits in this way, which amounts to a subsidy?—It is for services rendered.

88. Q. Then the Bengal and North-Western Railway get their land free?—Yes, but the Government will be allowed to take the railway over after a certain number of years.

89. Q. As to what you said about transshipment at Sara, you mentioned that the blocks of traffic would be just the same as at the ferry?—I believe there would be frequent blocks of traffic there.

90. Q. Do blocks occur at Sabarmati under similar circumstances?—I think Sabarmati is the best transshipping station in India, but the traffic handled there is of a comparatively simple character.

91. Q. It is simple to tranship from wagon to wagon?—Yes.

92. Q. Would you propose both a bridge at Isabpur and the maintenance of the ferry at Sara to carry the jute traffic?—Yes.

93. Q. Both to serve the same traffic?—Yes, the same traffic and the local traffic between Bogoola and Sara.

94. Q. Talking about the jute mill traffic you say:—“It is not as if these sidings were fully occupied the whole day taking in and out wagons on the broad gauge. I presume a broad gauge engine takes in wagons and takes out empty wagons or wagons loaded with gunnies once a day only.” You are only considering the jute traffic; what about the coal?—I think the wagons are simply mixed together. I believe they are put in indiscriminately, when going to the mill.

95. Q. Perhaps it might be the case that the sidings in the mills are more important for coal than for jute?—Perhaps so.

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 Goalundo 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, Baliaghatta 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 ghats for half-year ending 30th June, 1903.

Articles.	Vid MONGHYR GHAT.		Vid DIGHA GHAT.		Vid 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	8	13	160	1	...
Wheat	1903	3	141	2	...	...
	1902	58	156	65	...	...
Rice	1903	26	186	39	...	1
	1902	40	116	65	1	...
Other food-grains	1903	15	910	23	...	...
	1902	65	626	24	...	...
Gunny bags	1903	8	72	146	...	1
	1902	25	50	168	...	2
Metals	1903	7	104	148	...	1
	1902	36	61	262	...	...
Oils	1903	...	22	18	1	...
	1902	...	27	21	1	...
Seeds	1903	...	325	6	...	4
	1902	...	464	2	...	7
Salt	1903	...	13	11	...	...
	1902	24	96	19	...	...
Saltpetre	1903	...	...	...	...	...
	1902	...	...	1	...	...
Sugar	1903	8	392	11	...	...
	1902	7	272	8	3	...
Tobacco	1903	...	1,104	2	...	3
	1902	7	1,146	6	3	3
All other traffic	1903	127	1,424	1,598	47	24
	1902	1,678	1,036	1,977	19	17
Total	1903	207	4,715	2,064	48	32
	1902	1,924	4,063	2,768	27	30

Half-year ending 31st December, 1903.

Coal	1903	...	...	...	...	...
	1902	...	...	...	...	...
Piece-goods	1903	21	2	70	...	1
	1902	5	15	1,590	...	...
Wheat	1903	8	28	5	...	...
	1902	43	198	17	...	...
Rice	1903	162	75	189	3	1
	1902	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 Ghat, 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		162,331	123,477		188,388	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	305,434	160,503	187	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	...	12,073	6,939	...	11,159	4,996	16	9,395	5,029	9	9,803	9,803
	2nd-half	4,375	...	5,109	...	5,059	...	10,106	5,721	...	12,073	5,120	...	11,159	4,381	2	9,395	4,764	1	9,803	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	6,814	1,670	1,020	9,040	1,942	1,108	8,190	1,176	3,368	...	11,493
Tobacco	1st-half	3,152	7	4,627	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	...	5,880	4,102	...	10,002	4,268	...	10,214	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	43,659	15,025	3,115	41,761	21,023	8,772	58,069	12,835	8,721	54,224	18,223	10,707	64,016	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	823,662	87,830	66,690	376,622	79,354	61,334	387,573	139,636	71,266	547,852	184,808	75,193	592,140	75,155	80,897	407,452	76,838	108,237	463,488

APPENDIX D^a.

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.

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GANGES BRIDGE COMMITTEE:

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

$$\frac{1}{3} \text{ of } 250 \times 3\frac{1}{2} \quad . \quad . \quad . = 292$$

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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		
	32,400	33,000	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		
	79,854	79,430	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	
			8,42,834	

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 Baliaghata 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 Naihati-terminating trains and engines would run back to Bandel. Watering arrangements for broad gauge exist at Naihati 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 Agarpara 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 E.

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 line.	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	

APPENDICES.

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, Bahaghat, 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.	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

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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.

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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.

Ruthollah.			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.			
<i>Maximum traffic in tons in a month, 1906.</i>					
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 *via* Manihari Ghât and the only traffic at present passing Sara which would under the conditions named have a shorter route to and from Calcutta *via* 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 *via* Mokameh can be held against a combination of the Bengal and North-Western Railway and the Eastern Bengal State Railway *via* 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.

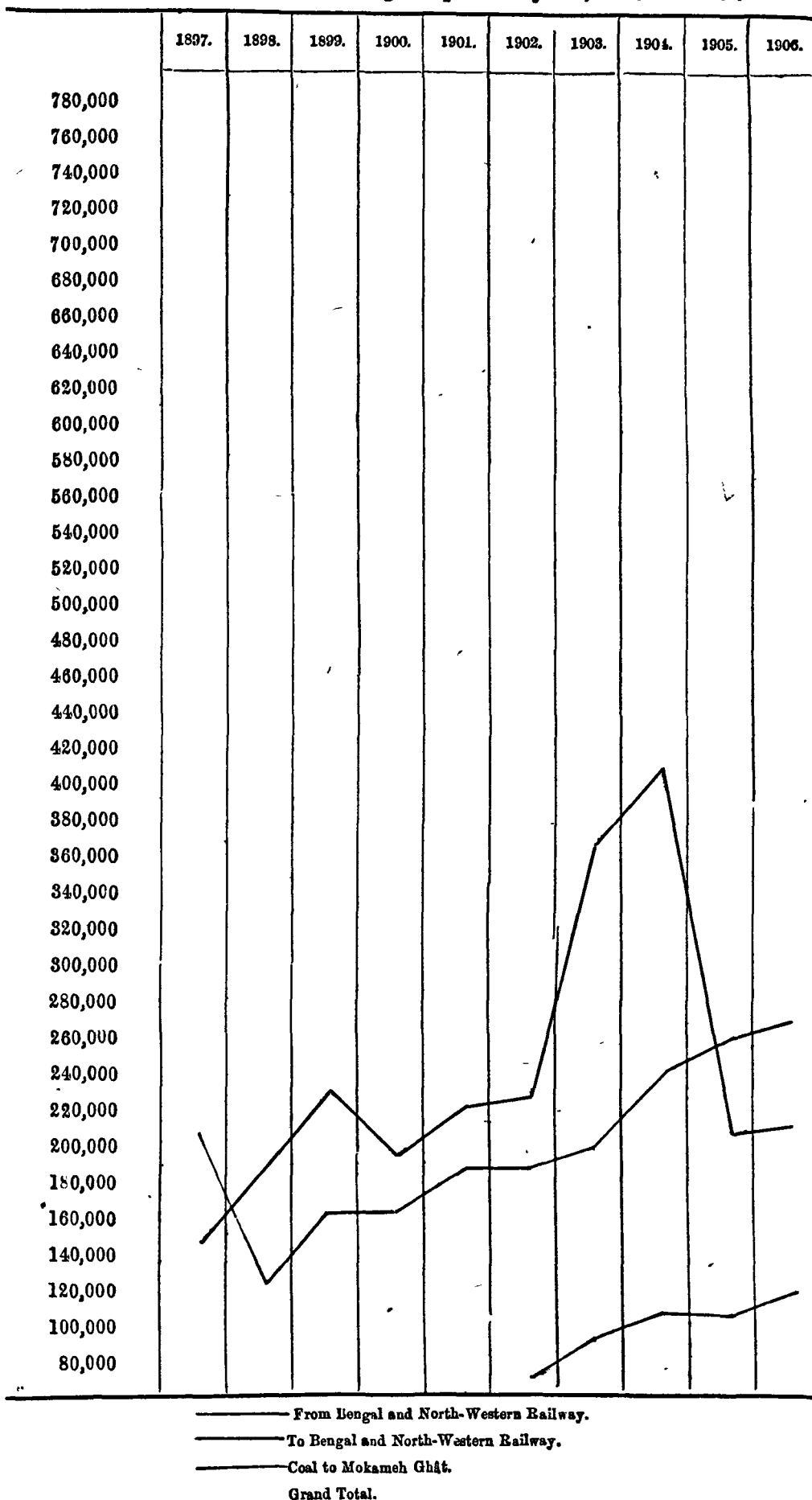
The concern of the East Indian Railway with the proposals under consideration by the Committee is—

- (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.

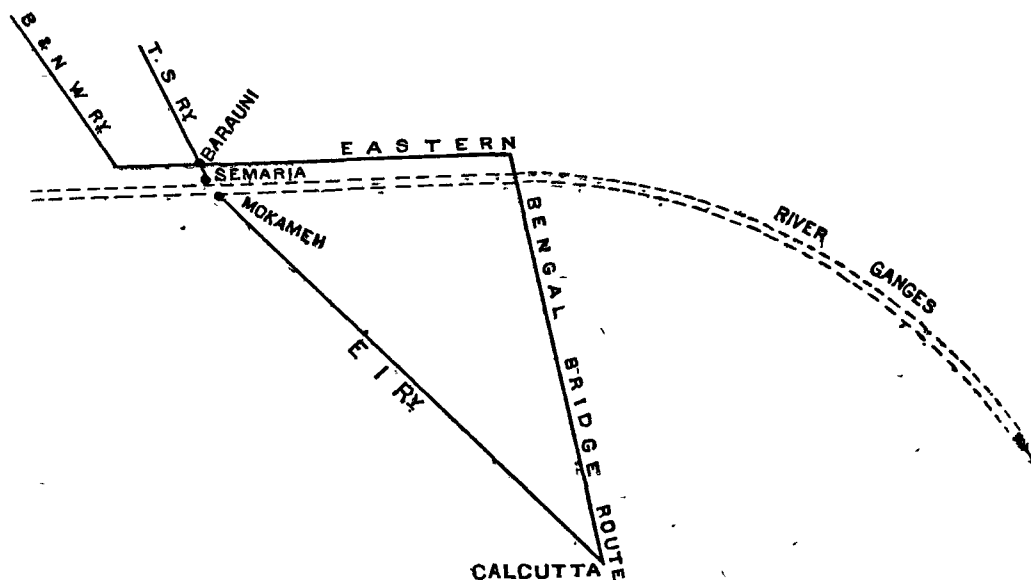
4. Passing now to a consideration of the case in connection with the proposals before the Commission, it seems desirable to first shew the extent of the traffic which could at all possibly be affected, and for this purpose it will be best to take the figures of 1904, when it will be seen the traffic 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	...	508	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	4	...	4	...	...	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 Kantapukur 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
		<u>63,700</u>
<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
		<u>86,300</u>
Carried over		1,50,000

	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>3,55,300</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.

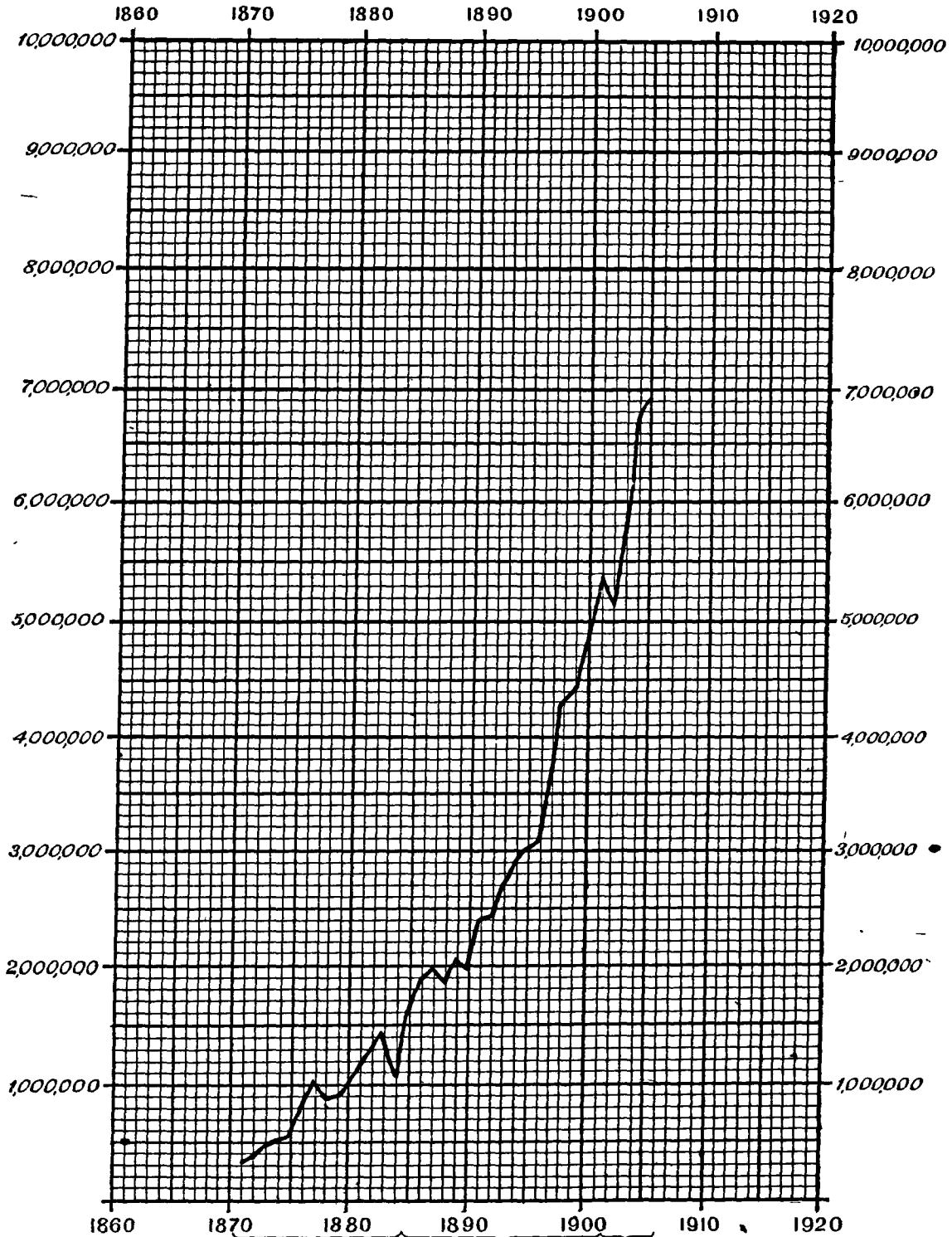
	Rs.	Rs.	Rs.
11 bighas land	2,000	22,000	
2,216,000 cubic feet filling	21	46,536	
2 miles lines	30,000	60,000	
20 sets points and crossings	700	14,000	
		<u>1,42,536</u>	
Contingencies at 5 per cent.		7,164	1,49,700
		<u>7,164</u>	

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.



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	8½ " "
(13) Total annual of cost of rolling stock 12 per cent. of cost (3½ + 8½).	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
	5,80,973

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.
	Port Trust Railway .	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 ½rd.
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.