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REPORT

ON THE

DMINISTRATION AND WORKIN(

INDIAN RAILWAYS.

BY

THOMAS ROBERTSON, C.V.O.,

SPECIAL COMMISSIONER FOR INDIAN RAILWAYS.



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ERRATA.

PAGE 33, paragraph 98, second line. *After* " rupees," *insert* " annually."

PAGE 74, paragraph 208, ninth line. *Insert* " by " *after* " and."

PAGE 81, paragraph 238, third line. *For* " higher," *read* " heavier."

PAGE 82, paragraph 246, first line. *After* " replaced," *insert* " or where new stock is being provided."

PAGE 102, paragraph 312, twentieth line, from top of page. *Delee* " that "

PAGE 103, paragraph 315, eighth line. *After* " Indian," *add* " 5′ 6″ gauge "

PAGE 103, paragraph 315, ninth line. *After* " the," *add* " 5′ 6″ gauge."

PAGE 103, paragraph 318, eighth line. *After* " these," *insert* " latter."

REPORT

ON THE

ADMINISTRATION AND WORKING

OF

INDIAN RAILWAYS.

INTRODUCTORY.

By letter under the direction of His Majesty's Secretary of State for India in Council, dated 22nd August 1901, I am asked—

I "to enquire into and report upon the administration and working of Indian railways, whether controlled by the State or by Companies, with special reference to the system under which they should be managed in India in the future:"

II "to report upon the feasibility of a systematic plan of railway development in India, to be worked up to by the Government over a series of years:"

III "to advise as to the management and development of the traffic, the convenience of the public, and the improvement of the revenue:" and

IV "generally to make such suggestions as you may think useful for any or all of these purposes, including the extension of branches and Light railways as feeders of the main lines."

2. In order to be in a position to advise fully on the subjects referred to me I have travelled extensively over the railways in India, and have exhaustively investigated their general working and administration. In doing so, I have met the various heads of Departments, also the Government officers, with all of whom matters were fully discussed, and have likewise considered the representations made to me by the various Chambers of Commerce, Associations, and other public bodies.

3. I have also, as desired, visited the United States of America, as well as Canada. To enable me to enquire fully into the arrangements in operation on the various lines and study the methods of railway management and working in these countries, I had to cross the continent twice, and in this Report will be embodied such of their arrangements as can, in my opinion, be adopted with

advantage in India. My enquiries and studies were not confined to specific Departments only, but embraced the entire system of administration. From the time I left England in October 1901, until I return, I shall have travelled over 76,000 miles in connection with my Reference.

4. I have now the honour to submit my Report, and, as it has necessarily to cover a very wide field, the scope of the Reference being so extensive, I think it better for simplicity and brevity to classify the subjects and to deal with them under their respective heads.

5. Speaking generally, I think there can be no doubt that the present administration and working of the Indian railways cannot be regarded as at all satisfactory. But I attribute this more to the system than to any particular individual action on the part of the Railway or Government officers.

6. The revision of a large Department of the State, which has been the slow growth of years and which controls many thousands of miles of railway and many varied interests, is necessarily a problem of no small magnitude and of no little difficulty. I have, therefore, naturally approached the subject with some degree of hesitation and concern. But after long and anxious consideration, the conclusion forced on me is that root-and-branch reform alone will be productive of lasting good, and that if the development of railways in India is not to be hampered, and if they are to render that full and efficient service to the country of which they are capable, they must be permitted to be worked more as commercial enterprises than they have been in the past.

CHAPTER I.

ADMINISTRATION OF RAILWAYS.

7. The first subject referred to me is—

"The administration and working of Indian railways, whether controlled by the State or by Companies, with special reference to the system under which they should be managed in India in the future."

8. This subject really involves two, namely, (1) Administration, which in its widest sense includes working, and (2) Working, which is limited to details of management but does not include administration in its broader sense. The latter falls more correctly under Subject III of my reference, and I shall deal with it under that head, confining myself here to Administration, as distinguished from Working.

9. At the close of the year 1902, there were 25,936 miles of railway open for traffic in India, which were worked (for details see Appendix A) by 33 separate Railway Administrations as follows:—

23	by Companies	operating a total of	17,754	miles;
5	by Native States	„ „ „	2,184	„
5	by the Government	„ „ „	5,998	„

10. The several Administrations work groups of lines owned, some by Companies, some by Native States, and some by the Government, but, broadly speaking, the railways of India may be divided into two main groups, *viz.*:—

Class A.—Railways for which the Government have no financial responsibility, amounting to 5,462 miles. These consist (for details see Appendix B) of—

(i) Railways financed by Companies without assistance from the Government other than free land, amounting to 1,104 miles;

(ii) Railways financed by Companies with assistance from Local Bodies in the form of a subsidy or guarantee, amounting to 350 miles;

(iii) Railways financed by Companies with assistance from the main line in the form of a Rebate on traffic interchanged with the main line, amounting to 766 miles; and

(iv) Railways owned or financed by Native States, amounting to 3,242 miles.

Administration of Railways.

Class B.—Railways for which the Government have full financial responsibility, amounting to 20,474 miles. These consist (for details see Appendix C) of—

(i) Railways owned entirely by the Government, amounting to 8,538 miles;

(ii) Railways purchased by the Government from Companies but which have been leased to the latter to work, amounting to 4,615 miles; and

(iii) Railways promoted by Companies on the guarantee of the Government, amounting to 7,321 miles.

11. All the railways in both classes are at present controlled by the Government, but the system of control differs according to the class to which they belong, and may be described as follows.

12. In the case of railways in Class A, that is, railways for which the Government have no financial responsibility, the control is practically limited to—

(i) the inspection of the railways at intervals of not less than once a year to see that they are maintained and worked in such a manner as will secure the safety and convenience of the travelling public; and

(ii) the investigation of accidents.

13. The Government exercise no control over details of administration, and under present arrangements the railways in Class A have been left free and unhampered by the Government, to be controlled by their Boards of Directors and to conduct and develop their business in the best interests of all concerned, the safety and convenience of the travelling public being held to be sufficiently safeguarded by the general control exercised by the Government.

14. The railways in Class B, that is, those for which the Government have full financial responsibility, are worked—

(i) either directly by the Government, as State railways; or

(ii) by Companies under Contracts.*

15. In the case of the State-worked railways in Class B, the system of control is similar to that exercised over railways in Class A, the Government of India taking the place of the Board of Directors. These State-worked railways are inspected periodically by a Government Inspector independent of the railway management, and accidents are investigated by this officer, but the management of the railway is placed in the hands of a Manager who has extensive powers, and is controlled and supervised direct by the Government without the intervention of any intermediate agency in the form of Consulting Engineers.

---

* There are two exceptions to this, namely, the Jodhpur Frontier-Hyderabad and the Bezwada Extension railways. These two sections are worked by the Jodhpur-Bikaner and by His Highness the Nizam's State railway, respectively, under short-term agreements.

16. In the case of the Company-worked railways in Class B the chain of Government control in England and in India may be stated to be as follows *:—

(*a*) *In England*—

(i) The Secretary of State in Council, who has absolute control over the railway within the terms of the Contract;

(ii) The Government Director, who is appointed to the Board of Directors by the Secretary of State and who "shall be *ex-officio* a member of all committees appointed by the Board of Directors of the Company, or by the Company in relation to the undertaking or any matter connected therewith, and he may, moreover, exercise at his discretion an absolute right of veto in all proceedings whatever at the Board of Directors. The Government Director shall not be removable, except by the Secretary of State;" and

(iii) A Consulting Engineer, who is not a servant of the State, but who is consulted by the Secretary of State on technical matters as occasions arise.

(*b*) *In India*—

(i) The Governor General in Council, who, within the terms of the Contract and subject to the Secretary of State, exercises, through the Railway Branch of the Public Works Department of the Government of India, absolute control over the working of the railways both in regard to management and expenditure, but who has not the power to appoint or remove from office any employé of the Companies.

The Railway Branch of the Public Works Department of the Government of India consists of the Member of the Viceroy's Council in charge of the Public Works Portfolio, who is a member of the Indian Civil Service, and who hitherto has had no previous training in the working and management of railways, and 12 officers, *viz.*, one Secretary, three Deputy Secretaries—one each for Traffic, Accounts, and Construction—four Under Secretaries and four Assistant Secretaries.

(ii) A Consulting Engineer (assisted by Deputy Consulting Engineers) for each of seven circles (in Bombay, Madras, and Burma he is also Railway Secretary to the Local Government), who is in

* There are two exceptions to the procedure described, namely, the Bengal and North-Western and the Rohilkund and Kumaon which, though themselves railways for which Government have no financial responsibility, work the Tirhut State and the Lucknow-Bareilly State railways. In their case the Secretary of State is not represented on the Board of Directors.

immediate control of the railway on behalf of Government, and has extensive powers.

The Consulting Engineers and their Deputies are also Government Inspectors under the Railway Act, and are required to inspect the railways under their control at stated intervals, and to report in detail on the upkeep and general management of the railways in all departments.

They are further required to investigate and report upon accidents.

(iii) A Government Examiner of Accounts for each of the seven circles who is responsible to the Government that no expenditure is incurred by the railways without authority.

17. This organisation has grown up with the increasing mileage of railways, but the system of control has always existed, though in a modified form, and was introduced because of the terms of the original contracts of the railways first constructed in India. Under these contracts, the Government guaranteed the Companies 5 per cent. on their Capital, and divided surplus profits over 5 per cent. on the half-year's earnings, the rate of exchange for the remittance to England of the guaranteed interest being reckoned in the calculation of surplus profits at 1*s.* 10*d.* to the rupee. Railways which saw no prospect of earning surplus profits had little or no inducement to economy, their dividends being assured to them whatever their income might be. Railways which did a larger business in one half-year than in the other, and which saw a prospect of surplus profits in one half-year and not in the other, were encouraged thereby to confine as much as possible of their Revenue expenditure to the bad half-year, since the lower expenditure in the good half-year increased their dividends, while the increased expenditure in the bad half-year did not affect the minimum return guaranteed by the Government. The interests of the Government and of the Companies were consequently apt to be antagonistic, and a system of supervision and control over the management and expenditure of these railways had to be introduced, to prevent extravagance in construction and subsequent waste in maintenance and working, and to ensure expenditure being undertaken in, and charged to, the half-year to which it was properly attributable.

18. With two exceptions, all these old contracts have since fallen in, and these two are terminable—the Bombay, Baroda and Central India railway in 1905,* and the Madras railway in 1907.

19. The contracts, however, of two of the later railways promoted by Companies contain some of the objectionable features of the old guaranteed contracts.

---

* The Bombay, Baroda and Central India railway also work the Rajputana-Malwa and other State railways under contracts not free from objections. All these expire with the principal contract in 1905.

These railways are—

(i) The Southern Mahratta railway, the contract of which is terminable in 1907; and

(ii) The Assam-Bengal railway, the contract of which is not terminable until 1921.

20. In the case of the first, the Government guarantee a dividend of 3½ per cent. on the Company's Capital, and allow the Company to retain one-fourth of the net earnings, that is, of the gross earnings less the actual working expenses without deductions on account of interest on Capital. The Company, therefore, while interested in keeping down Revenue expenditure so as to make their receipts as large as possible, have not the inducement of self-interest to keep down Capital expenditure and, in other respects, are apt to find their interests conflicting with those of the Government.

21. The Assam-Bengal railway, on the other hand, is guaranteed 3 per cent. only, and is entitled to receive a share of the surplus earnings after all interest charges have been met. But as the Capital outlay has been very large and the prospects of the interest charges being earned are remote, there is not the same reason for keeping down either Capital or Revenue expenditure as would exist if the Company's dividends in any degree depended upon economy of management.

22. With these four exceptions, all the old contracts have been revised. In the revised contracts, and in the later contracts which have been entered into for new lines, the objectionable features of the old guaranteed contracts have been avoided and the interests of the Government and of the Companies have been brought more into harmony and are now for all practical purposes no longer antagonistic or divergent.

23. The Company-worked railways operated under the revised forms of contract are—(1) The East Indian, (2) the Bengal Central, (3) the Bengal Nagpur, (4) the Great Indian Peninsula including the Indian Midland, (5) the South Indian, and (6) the Burma railways.

24. These railways, as well as all the others in Class B [redacted]d by Companies, are each managed by—

(i) A Board of Directors in England repres[redacted]e shareholders, with a Government Director appointed by [redacted] Secretary of State to represent the Government; and a C[redacted]lting Engineer who in many cases is the same person as i[redacted]loyed by the Secretary of State as Consulting Engineer to t[redacted]overnment.

(ii) An officer similar to a General M[redacted] on English railways, who represents the Company in Ind[redacted] is styled the "Agent," and the usual staff of departmenta[redacted]rs

Government Control.

Government Control.

25. In paragraph 5 I said that I attributed the unsatisfactory administration and working of the railways in India in a large degree to the system under which they were controlled. The machinery for this control has been described in paragraph 16. In England, the Government Director has the absolute power to veto all proceedings whatever at meetings of the Board of Directors. In India, the power reserved by the Government for interference in all details of management is so extensive, that the Government control is now carried down often to the most trivial matters; and no expenditure, however small, whether on Revenue or on Capital Account, can be incurred without the prior sanction of the Government.

26. Against the control as exercised over the Boards of Directors in England I received no complaints; but strong representations * have been made to me by Railway Administrations of the great inconvenience and difficulty which they experience in carrying out their duties owing to what they consider to be the excessive interference of the Government Consulting Engineers in India and their Deputies, and the Government Examiners of Accounts, in all matters connected with the administration of the railway. It was urged that, whereas previously the Government control extended only to principles and main items of expenditure, it had now developed into a close examination and criticism of the most petty details, and that fault was found about the most trifling matters and opinions exp essed how things might have been done differently, which led to no good and were only a source of irritation.

27. Complaint was also made of what is regarded as the high charges the Railway Companies were required to pay to the Government for supervision and control. For the year 1901 the sum paid by all railways on this account amounted to Rs. 11,15,706.

28. The excessive interference referred to was ascribed by the Railway Administrations to the following causes:—

(i) The Consulting Engineers spending a large part of the summer months in the hills at the summer head-quarters of the Local Government and away from the head-quarters of the railways. This, it was pointed out, prevented the verbal discussion of matters with the responsible controlling officers, caused delay—sometimes serious delay—in the conduct of business, and often led to misunderstanding and irritation.

Seeing how close and detailed is the control required to be exer-

* The substance of these has recently been communicated to the Government in response to a letter issued by them, asking Consulting Engineers and Railway Administrations for their views on the subject.

cised by the Consulting Engineer, his absence from his headquarters for several months in the year cannot work for the good of the railways.

(ii) The frequent changes in the staff of the Consulting Engineers' offices. This, it was stated, rendered it impossible for these officers to acquire a thorough knowledge either of the railways or of the Company's officers or their methods of working, and resulted in vexatious references, and necessitated the whole ground being gone over again with each new arrival.

This seems to receive support from the statement printed as Appendix D. Theoretically the Deputy Consulting Engineers are only assistants to the Consulting Engineer and are supposed only to carry out his orders, but if they are to be of proper assistance to him, they must prepare the cases for orders, and it is in doing so that the harmful effect of constant changes in their personnel is felt.

(iii) The growing disinclination on the part of the Government officers to recognise that the work being found fault with and criticised was that of men often of greater practical experience than, and at least as capable of forming as sound an opinion as, themselves. This, it was urged, had led to much irritation and retardation of work.

(iv) The greater exercise of the full power reserved by the Government under the contracts for interference in the working of the railway. This, it was represented, had grown much greater in recent years and now extended to matters of unimportant detail.

29. Many examples * were cited by the Company's officers in support of the third and fourth causes. On the other hand, the Consulting Engineers represented that in exercising the very close and detailed control complained of they were merely carrying out the orders of the Government of India, and quoted instances * to justify this interference.

30. There can be no question that the Administrations of the Company-worked railways in India have not always been as careful in their management or as considerate of the interests either of the Government or of the Company as they might have been. But failure in some instances does not seem a sufficient reason for the permanent application of the brake, and I am of opinion that there are grounds for believing that the Companies' officers are, as a consequence of the excessive control now exercised over them, prevented from performing their duties in the manner which would conduce most to the benefit of the public, the shareholders, and the Government.

31. That a close control was at one time necessary must, I think, be readily

* The substance of these, as explained in the footnote to paragraph 26, has been communicated officially to the Government.

Government Control.

admitted after a perusal of paragraph 17. Conditions such as those which existed at the time the old guaranteed contracts were entered into required special treatment. These conditions have not wholly disappeared yet, and while it has been recognised by the Government that a change was desirable, it was not found to be possible to revise in any comprehensive manner the present system, so long as many railways were being worked under the old contracts which still had a long currency. The contracts of this class of railway remaining undetermined, however (as shown in paragraphs 18 and 19), will, with one exception, the Assam-Bengal railway, soon expire, and the question as to the system under which the Company-worked railways shall in future be controlled now becomes both important and urgent, as it does not seem reasonable to continue to place all Company-worked railways under the present disabilities for the sake of the few worked under the old conditions.

32. The present system must, I think, be regarded in the nature of an excrescence which resulted from the state of things at the time obtaining, and the question now is—

Have the conditions ceased to exist or so altered as to practically amount to the same thing? and, if so,

Can the objects, for which the present system was brought into existence, be equally well secured by some other and simpler procedure?

33. I do not think there can be any doubt, in the case of the railways mentioned in paragraph 23, that the conditions which led to the creation of the present system have ceased to exist, but so long as the old-contract railways continue to be worked under their original contracts, the system of control which is exercised over them must differ from that which may be adequate for Company-worked railways in which the interests of the Government and the Company are more in harmony, since the method of treatment which would be suitable for one would not be suitable for the other. It is necessary, therefore, that the two classes of railways for which the Government have full financial responsibility, namely, the Company-worked lines in which the interests of the Government and the Company are, for all intents and purposes, identical and those in which they are divergent, should be kept separate; and I propose to so deal with them.

34. To understand the status of the Company-worked railways for which the Government have full financial responsibility and in which the interests of the Company and the Government are in harmony, it is necessary to consider how these Companies came into existence.

35. The Government have a large railway property in India. This they have divided into separate systems of railway. Some of these systems they operate directly as "State railways." The others they have deemed it expedient to employ an outside agency to work.

36. The former they work through a Manager to whom they give extensive powers and pay a fixed salary which in no way depends upon results. They consider it sufficient to exercise only a general control over him through their Directors of Railway Traffic and Construction, and they leave him, within the powers assigned to him, to manage the railway in the best interests of the public and the country.

37. The latter they work through a Company in London, whom they pay by results. The Company from among its members appoints a Board of Directors to administer its affairs, and the Board appoints an Agent to represent the Company in India and to work the railway. But while the Government give one of their agents, namely the Manager, extensive powers, and exercise only a general control over him, they allow the other agent, namely the Board of Directors, no power whatever, and exercise the most minute control over its operations.

38. The question, therefore, arises—Is there anything in the constitution of these two agencies to make it necessary in the interests of the country that there should be so great or any difference in their treatment ?

39. It was urged by the Companies' officers—

(i) that whatever the necessity for close control may have been under the original contracts where the interests of the Companies and of the Government were often divergent, the conditions had been greatly altered, and although under the revised contracts by far the larger share of the profits resulting from the operations of the Company went to the Government, the Companies were interested in making their share as large as possible, and could not increase it without proportionately increasing the Government share; in other words, that the Companies' interests and those of the Government were no longer in any way opposed, and that in serving themselves the Companies must necessarily equally serve the Government;

(ii) that a very close control was exercised over the business of the railway by the Boards of Directors, among whom were gentlemen who had held high office in India, either on railways or on the staff of the Government of India in connection with the management and administration of railways; and that the Government were represented on the Board of Directors in London by a gentleman of similar training and experience, who further had the absolute right to veto any or all proceedings of the other Directors; and

(iii) that the officers in charge of the different Departments on the railways had been specially selected for their positions; that though they might not always be the best men of their class, they

Government Control.

had generally had a long training, and, to the extent of their ability, were zealous and faithful in the discharge of their duties; that they were very jealous of their own reputations; and that they had an incentive to good work in the knowledge that their retention in the service depended on the successful administration of their Departments and on the satisfactory performance of their duties.

40. On the other hand, it is urged—

(i) that the present system has prevented waste by the adoption of immature and ill-considered schemes; and

(ii) that the Government of India are able to confer greater powers on their Manager because they can at any time remove him or his officers if they fail in their duty, whereas they have no such power over the Companies' officers in India.

In regard to the former, there does not appear to be any reason to believe that there are fewer mistakes, or that there is less waste, on State-worked railways with the limited control exercised over them, than there would be on Company-worked railways with the greater control exercised by the Boards of Directors.

In regard to the latter, it must be remembered that the Government Director in London has absolute power over every act of the Board of Directors and that if a Company's officer in India fails in his duty, the Government, through their representative on the Board of Directors, have as much power to effect his removal, as they have to order the removal of an officer employed on a State-worked railway.

41. Having regard, therefore, to the fact that in the case of railways of the class now under consideration, the interests of the Companies and the Government are in harmony, and that the Boards of Directors and their officers have the strongest of all reasons—namely self-interest—for economical working and for preventing as far as possible wasteful and unnecessary expenditure, their shareholders' dividends depending on the careful conduct of the business entrusted to them; and bearing in mind the power of the Government Director on the Boards, I am of opinion that, to interpose another agency in India for purposes of control between the Government of India and the Companies, is to add a fifth wheel to the coach, with the result which usually follows such an encumbrance.

42. The present Consulting Engineers are a body of conscientious, zealous, and capable gentlemen, and I can only speak of them with high praise; but under the new order of things which has arisen since contracts were revised, a continuance of the system of control now exercised through the Consulting Engineers can only result in hampering development and retarding progress.

43. Similarly with the Government Examiner of Accounts, while they

had to watch over interests which were antagonistic, their appointments were necessary; but with the changed conditions now obtaining under the revised contracts, each railway cannot require both a Railway Auditor and a Government Examiner. The Railway Auditor who is appointed by the Board of Directors with the approval of the Government Director is responsible that no expenditure of any kind is allowed without proper sanction, and that it is incurred in such manner only as may be authorised. The interests he is guarding are in harmony with those of the Government, so that the necessity for a concurrent audit and certification by the Government Examiner before the accounts of such railways as I am now considering are passed does not exist, unless it is assumed that the Railway Auditor is incompetent, or dishonest, or both. In the case of the State-worked railways, a concurrent audit of the accounts by an Auditor independent of the railway is not found to be required, and there is no reason for considering that in the case of the Company-worked railways, whose interests are in harmony with those of the Government, the interests of the Government would not be sufficiently protected by an Accounts officer being specially sent out at stated intervals to audit the accounts of the railway.

44. In all human affairs, it is impossible to lay down the scope and extent of the duties of individuals so as to have every one interpret those duties alike or the orders in connection therewith. To multiply the links in the chain of control, therefore, to a greater extent than is necessary to secure the object aimed at, is to delay and hamper business and possibly to court failure or at all events to obtain only indifferent success.

To further combine in the same person the duties of Controlling Officer and Government Inspector is absolutely wrong in principle, as it necessitates, when occasions arise (and it is not difficult to conceive of them arising), the Government Inspector sitting in judgment on himself in his capacity of Consulting Engineer or Controlling Officer.

45. After giving the fullest consider[illegible] to all the circumstances, and after weighing very carefully the adva[illegible] and disadvantages of the present system, the conclusion I have arrived a[illegible]hat it should not be necessary to exercise a greater degree of contr[illegible]r the Company-worked railways in which the interests of the Governme[illegible]d the Company are in harmony, than is now exercised over the State-wo[illegible]ailways; and that, while it is essential that the Government should r[illegible] full power of control, the *exercise* of that power *in the form which it* [illegible]*akes* over the management and revenue expenditure on railways work[illegible] Companies under the revised contracts is not only productive of no g[illegible]t is both wasteful and harmful; that neither the Government nor the p[illegible] would suffer by the entire withdrawal of such control; and that the onl[illegible]dy which will be thoroughly satisfactory and

Government Control.

lastingly beneficial in the case of such Company-worked railways is to adopt the system of control exercised over State-worked railways and—

(i) To discontinue the Office of Consulting Engineer, with its establishment ;

(ii) To withdraw the Government Examiners of Accounts ; and

(iii) To permit the Boards of Directors and their representatives in India to administer and work the railways entrusted to their care both as to management and revenue expenditure, under such control (as I shall presently indicate) by the Government of India as will ensure the interests of the public and the Government being adequately protected and under such general rules as the Government may deem it necessary to lay down.

The only logical alternative is to do away altogether with Companies, as, if Consulting Engineers are to be retained to control them, no advantage is gained by employing Companies to work railways, and the simpler and much less costly method would be to work them through a Manager as State railways.

46. In regard to the Company-worked railways in which the interests of the Government and the Company are apt to be antagonistic, control of a closer nature than has been advocated in the foregoing paragraphs for railways in which the interests of the Company and the Government are in harmony, is necessary, unless the contracts can be so revised as to reconcile as far as possible the conflicting interests of the two parties. But even in the case of these railways it does not seem to me that any danger would result from a modification of the present system. Exactly what the nature of the control should be, would depend upon the system introduced for controlling railways in which the interests of the Government and the Company are not opposed. But paragraph 26 indicates the direction which the change in system might take.

47. I have so far considered the question of control as exercised by the Government of India's representative, the Consulting Engineer. Turning now to the Supreme Government, the detailed control exercised over Company-worked railways by the Government of India, whether directly or through their representatives, the Consulting Engineers, is to a large extent due to "Code" requirements, the Finance Department exercising as close and detailed a control over the Government of India in the Railway Department, as the latter are, as a consequence, obliged to exercise over railways. The reproductive Railway Department, with a capital expenditure which runs into several hundreds of thousands of rupees (actually Rs. 9,88,84,000 in 1901) and gross earnings and revenue expenditure of still larger amounts (actually Rs. 31,65,79,000 and Rs. 15,75,64,000, respectively, in 1901), is governed by the same general rules and principles as Departments of the State which are non-productive, and in which the money transactions are comparatively

insignificant; and, in matters governed by the Code, the highest officers of the Department are practically as powerless to act as the lowest, even in matters the most trivial, without reference to, and the approval of, the Finance Department.

48. The present system is the growth of many years, and there is much to be said in excuse of it. The Codes were created to meet one condition of things. When a new and totally different condition of things arose in the shape of railways, it was convenient to apply the Code to railways also as they had not attained great importance or great magnitude.

49. But with the ever-growing mileage of State railways, with the altered terms on which most of the Company-worked railways are now operated, and with the enormous development in the business done by the railways in India, the circumstances have entirely changed, and the old methods as embodied in the Code, so far as railways are concerned, have become archaic. The whole Government organisation as at present constituted seems to be regarded as one big chain, and the procedure for control which was drawn up to suit one link in the chain, is applied to all the links as if the conditions and needs of all were the same. Under the present procedure, any proposal to depart, in the case of an individual Department, from the procedure prescribed for the Government machine as a whole, is regarded with suspicion and jealousy, lest acquiescence should create a dangerous precedent when dealing with questions, similar but not comparable in degree or circumstance, affecting other Departments. In fact, the great railway undertakings in India are reduced more or less to the same dead level as other Departments of Government, and are not administered as large commercial concerns on the lines on which such undertakings can only really be successfully worked.

50. I said in paragraph 47 that the detailed control now exercised by the Supreme Government over Company-worked railways was to a large extent due to "Code" requirements, but these are not wholly responsible for the procedure followed in the Railway Department of the Government of India in dealing with questions which come before it.

51. There is an Assistant Secretary, an Under Secretary, and a Deputy Secretary for each section of the office, besides the office superintendents and clerks. Over all these are the Secretary and the Honourable Member in charge of the Public Works Portfolio. All cases pass through the hands of, and are usually noted upon by, all the officers of the section to which they relate, and are often passed on to the Secretary and Honourable Member through the other sections, not infrequently six and sometimes eight and ten officers noting in the Railway Department alone on cases. If the case requires the sanction of the Finance Department, it is further noted upon in that Department by two or more officers. If there is any difference of opinion between the Railway and

Finance Departments, it is again noted upon by both Departments. Finally, it may require to be laid before His Excellency the Viceroy. When the orders which are to issue have been agreed upon, the draft goes through the same process, in many cases all the officers who previously saw the case requiring to see and approve of the draft. The examination of a question in this exhaustive manner, before passing orders on it, may prevent mistakes which it is very undesirable that the Supreme Government should make, but it should be possible to arrive at the same result without this cumbersome machinery, which is apt to impair the sense of responsibility, crush initiative, check progress and delay business to an extent which would be fatal to any other commercial enterprise.

52. The procedure, so far as the Railway Department is concerned, appears to be due chiefly to the fact that the administrative head of the Department, namely the Member in charge of the Public Works Portfolio, has never had any previous training in railway working and management, and it is necessary that he should have presented to him the various sides of a question. In every other Department of the Government of India, the administrative head is an expert in his own business. The Military Department has a Military officer; the Finance Department an officer trained in finance; the Legislative Department, a trained lawyer; and the governing Department an officer trained in the several subjects which come before him. The highly technical Railway Department of the Government of India alone has placed at its head a non-expert officer.

In the early days of railways, when there was insufficient work in connection with them to occupy the attention of one man, it no doubt was convenient and economical to place railways in charge of one of the other Members of the Government. But since railways began to extend and to interlace and overlap one another, the questions which arise in connection with their management have become of a very technical and complicated nature, and it does not seem reasonable to require these questions to be submitted to, and decided by, an officer (very able men though the Public Works Ministers always are) who has spent the whole of his official life outside the Railway Department, and who cannot consequently be expected to understand intricate technical questions which, to the experts themselves, are full of difficulty.

Railway Board.

53. Having regard to the important factor which railways must form in the development and welfare of the country, and in view of the magnitude to which they have now attained; also bearing in mind what railways in other countries have accomplished, and comparing like with like, and giving due

consideration to all the interests affected; I am of opinion that if the railways of India are to be raised to, and maintained at, that standard of usefulness to which they could and should attain, their control should be entrusted to a small **BOARD** composed of specially qualified railway men and that the time has now fully arrived when this could with advantage be done. The Board should consist of men of home training to begin with, not because suitable men may not be available in this country, but because in the initial stage and while the Department is being put into proper working order, they should be free from local traditions and prejudices. The operations of this Board, to be successful, must necessarily be excluded from the general administration of the Government; and, unless they are so excluded, and the Board allowed to manage the railways entirely on commercial lines, the success which they should achieve cannot possibly be secured.

Subject to the control of the Governor General in Council, the Board should otherwise be left entirely free to administer the railways, and they should be judged by results.

The appointment of such a Board would relieve the Home and Indian Governments of much complex work which they now have to undertake, and would very materially strengthen the hands of both.

Further, the change would lead to no increase of expenditure, but, on the contrary, would, after making a liberal allowance for the salaries of the members of the Board, their officers and staff, result in a saving which I estimate (*vide* Appendix E) at over Rs. 5,00,000 annually.

54. The Board should consist of—

A President or Chief Commissioner, who should have a thoroughly practical commercial knowledge of railway working, and who should be a member of the Viceroy's Council for railway matters; and two other Commissioners, who should be men of high railway standing, and should have a similar training to that of the President.

55. The Board should, in addition to the necessary office establishment have the following staff to assist them in the conduct of their business for all of whom provision is made in the estimate printed as Appendix E:—

(i) A Secretary, who should have received a suitable training in the practical working of railways, and who could be *ex-officio* a Secretary to the Government of India;

(ii) A Chief Inspector of Railways, whose duties should be to advise the Board on all technical engineering and mechanical questions, to exercise supervision over the other Railway Inspectors required, and generally to perform such duties as the Board may assign to him;

The necessary number of ordinary Inspectors whose duties should be the detailed inspection of railways at such intervals as the

Board may prescribe, and the investigation of accidents under such rules as the Board may lay down; and

(iv) The necessary number of Government Auditors whose duties should be the inspection of the accounts of the several railways at such intervals as the Board may decide, and to assist the Board in such other ways as they may require.

56. The Board should have transferred to them the authority now vested in, and exercised by, the Government of India as regards railways, and, subject to the Governor General in Council, they should have entire control over all railway operations in regard to—

(i) The administration and working of railways;

(ii) The construction of additional lines; and

(iii) All financial arrangements connected with railways.

57. In the case of State-worked railways, and of Company-worked railways in which the interests of the Government and the Companies are not opposed, the control of the Railway Board should not usually extend to minor details of railway administration and working. In the case of the latter, the Board should lay down general rules (which might follow on the lines of the rules prescribed for State-worked railways modified in such manner as the experience of the Railway Department has shown to be desirable and as will leave the management reasonably free to conduct their business as a commercial undertaking) within which the administration should be permitted to act without reference to the Board. In the case of the State-worked railways they should leave the details of administration and working to the Manager, and in the case of the Company-worked railways to the Boards of Directors in London and their staff in India; and should generally confine their control to the broader principles of railway management. But to ensure the railways being operated in the best interests of the Government and in the manner which will conduce most to the safety and convenience of the public and to the development of the traffic, in addition to the inspections which will be made, of the working and management by the Inspectors, and of the Accounts by the Government Auditors, the President and Commissioners should, as they may mutually arrange among themselves, make frequent tours of inspection of the railways.

58. In the case of railways the interests of which are antagonistic to those of the Government, the Board should exercise such detailed control as will in their judgment safeguard the interests of the Government and the public.

59. The Board should be in direct communication with the Government Director in London, who, subject to the orders of the Secretary of State. should make it his duty to see that the Boards of Directors in England [illegible] form in their staff in India to conform with the instructions and orders of the [illegible] magnitude to ment of India, as conveyed through the Railway Board in India. [illegible]ays in other [illegible]d giving due

Organisation of Departments.

60. The President of the Railway Board, subject to the general control of the Governor General in Council, should be the final authority in India on all railway matters.

61. The Commissioners, in addition to their duties on the Board, should be employed in association with a Law Member when a question of law arises, as Commissioners for purposes of Chapter V of the Indian Railway Act (IX of 1890), which regulates "Railway Commissioners and Traffic facilities," the present Act being revised on the lines of the English Railway and Canal Traffic Act, 1888 (a copy of which is printed as Appendix F), so as to permit of the Railway Commission always being in session. Under the provisions of the present Indian Act, the calling into existence of the Railway Commission to hear complaints against railways is considered so costly an undertaking that the Commission has never once been created.

62. To afford the public and the railways the greatest advantages of which the Commission is capable, it should be required to hold its Court not only at a few chief centres, but, where exceptional circumstances arise, at the place nearest and most convenient to the complainant, having regard to the general convenience of all others interested.

63. The Board should further be employed to hear evidence on questions [redacted] the construction of new lines of railway and such other matters as do not come under the purview of the Railway Act, where the interests of two or more railways may conflict. When so employed, the Commissioners should be empowered to employ technical assistance, and to associate with themselves a member of the mercantile community whenever they deem it desirable.

64. As the members of the Board and their employés will usually be non-pensionable, and their employment on and under the Board will deprive them of the benefits of the Railway Provident Funds, a Provident Fund should be created for them on the same lines as the Railway Provident Fund.

65. The Board and their staff should also have accorded to them the same railway travelling privileges as obtain between Railway Companies.

Organisation of Departments.

66. Closely connected with the question of the Administration of Railways is the question of the Organisation of Departments. The system now followed may be suitable enough for small lines, but is no longer applicable to the larger railways like the East Indian, Bengal-Nagpur, Great Indian Peninsula, and the Bombay, Baroda and Central India Company-worked railways, and the North Western and th[redacted]astern Bengal State-worked railways.

Organisation of Departments.

67. In England it was long ago recognised that the same man could not look after both the commercial and the transportation side of the business, and the arrangement there now is as follows :—

(i) A General Manager, who is the Chief Officer and controls all Departments;

(ii) A Goods Manager, who deals solely with all goods matters;

(iii) A Superintendent of the line, who deals with all passenger matters and the working of all trains, that is, for goods as well as passengers;

(iv) A Civil Engineer;

(v) A Locomotive Superintendent.

68. The equivalent in India is :—

(i) An Agent or Manager, but whose position and training differ materially from those of a General Manager in England ;

(ii) A Traffic Manager, whose duties combine those of both Goods Manager and Superintendent of the line;

(iii) A Civil Engineer; and

(iv) A Locomotive Superintendent.

One man cannot efficiently perform all the duties now required of a Traffic Manager in India on a railway of any importance ; and by having the two Departments, of Goods Manager and Superintendent of the line, distinct as in England, proper supervision, efficiency, and economy in working would be secured.

69. It is, however, very desirable that the principal officer, that is, the Agent or Manager, on each railway, should have had a special training in the *working* of traffic. It is difficult otherwise for him to deal efficiently with the many questions which must come before him in connection with the chief business of the railway. At present, this appears to be the last qualification required of an Agent or Manager.

Further, in a country like India, especially in the case of Company-worked railways where the authority centred in the Boards of Directors is so far away, it is very important that sympathetic and hearty co-operation should exist between the respective Departments.

70. The senior officers on every railway should be sent home at the expense of their employers at regular intervals to study improvements made since their last visit, so as to keep themselves abreast of the times in their railway knowledge. This would not involve any change of permanent incumbents, and would not, therefore, in any way interfere with continuity of policy. The President of the Railway Board, or one of the Commissioners, should also visit England periodically to consult with the authorities there, the Government Director coming to India when the President cannot go home. Such an arrangement

would p[redacted] of the officials in India and those in England being brought into clo[redacted]uch with one another, and would conduce largely to the better adminis[redacted]ion of railways.

71. The question of salaries paid to Indian railway officers has been repeatedly brought to my notice. It was urged that a man was not paid for his qualifications or the work he had to do but according to a standard which took little consideration of either and was fixed to meet the circumstances of all the other Departments of the State, *vide* paragraph 75 (vi). The salaries paid to the heads of Departments on State railways are, in my opinion, inadequate having regard to the duties devolving on them. The Company's officers generally are much better paid, but I am of opinion that in the case of the more important railways, the higher appointments are entitled to special consideration and should be paid for at a rate more commensurate with the responsibilities of the office. I think, too, that the practice of fixing a salary for an appointment and then refusing to pay a particular individual more to retain his services, is not conducive to the best interests of a commercial business. There is a limit beyond which it is economically undesirable to go, but the question of raising the pay should be considered from this standpoint, not from that of a hard and fast rule, as the permanent retention of the services of a thoroughly competent officer is most essential for satisfactory administration and continuity of approved policy, and it is always worth while paying something extra to secure this.

London Boards.

72. Another subject in connection with the administration of Indian railways which has presented itself to me is the Boards of Directors in London. So long as the Government employ Companies to work a part of their property there must be a Board of Directors, but it is open to question whether the expense in connection with them could not be modified, and the number of members in some cases reduced without in any way impairing efficient and economical administration.

I think, too, that much good might be done if a member of the Board of Directors visited India periodically to inspect the railway and see for himself how it was being operated. He should, however, come invested with some power to settle questions of minor importance on the spot.

73. It would undoubtedly be in the better interests of the undertaking if the Board could have its head-quarters in India; but as this is out of the question, it would seem very desirable that more extensive authority should be given to its representative in India, so that he may, in matters of urgency at all events, be able to act without waiting for the approval of his Board of Directors.

State *versus* Company Management.

Greater powers should also be given to heads of Departments. Satisfactory results can only be expected by a reduction of unnecessary routine, and by giving each head of a Department (within prescribed limits of course) a free hand, without which real responsibility is impossible, and by then holding him entirely responsible for the efficient and economical administration of his Department.

Some of the Boards keep in excellent touch with the railways in India which they control. They give their officers every encouragement and allow them considerable powers, a policy which is not only very helpful, but is attended with very beneficial results and which might with advantage be generally adopted.

STATE *VERSUS* COMPANY MANAGEMENT.

74. I have so far considered the administration of railways in India as a whole, but it may not be out of place for me to make some observations on the question of the merits of State *versus* Company management.

75. I may state at once that I cannot say I have noticed any very marked superiority in practical management in the Company-worked railways over those worked by the State, or *vice versâ*; but different countries have different circumstances to deal with.

In India, the objections to State management appear to me to be :—

(i) The difficulty in which the Government must often find themselves through having to adjudicate in disputes or differences in which they themselves are really one of the interested parties.

As an instance of this, the treatment of the Southern Punjab railway may be quoted. The Company were unable to obtain redress for their grievances against the North Western State railway, and finally had to appeal to arbitration, which resulted in the Cripps award against the State railway.

(ii) The danger that the interests of the State railway may be sacrificed to serve some object, political or otherwise, which it is desired to attain, or because it is less difficult to yield to the other party's demand than to resist it.

As an instance of this, the Southern Punjab railway may again be quoted. The interests of the North Western State railway were to no small extent sacrificed to secure the early construction of the Southern Punjab railway by a Company.

(iii) The danger that something necessary in the interests of some other railway or the public may be withheld because it may be regarded as being in some way injurious to the interests of

the State railway. The general good is liable to be sacrificed for the benefit of the individual.

As an instance, the dispute between the Bengal and North-Western and the Oudh and Rohilkhand State railways over the metre-gauge link may be quoted.

(iv) The difficulty of working the railway on strictly commercial principles when a part of the staff is pensionable and is not confined to one railway.

In 1881, when the idea was conceived of working the State railways on strictly commercial lines, it was decided to employ no more men on the pensionable establishment, either in the superior or subordinate branches, of the Traffic, Locomotive and Stores Departments. These Departments have since been recruited accordingly, but the Engineering and Accounts Departments still retain the pensionable service, and the officers of these Departments, instead of being confined to one railway, are eligible for service all over India. The commercial success of an undertaking depends on continuity of service in its servants. Pensionable service does not necessarily mean indifference to the interests of the employer, but non-pensionable service ensures greater zeal as a general rule in a commercial undertaking.

(v) The danger that continuity of policy will be absent from the management of the property.

As an example, the case of the Eastern Bengal State railway may be mentioned. In the five years 1898 to 1902, there were no less than seven changes in the Manager of the railway as follows :—

	Commencing and closing dates of service in appointment.		Total period of service of each in the capacity.	Reasons for the change.
	From	To		
	D. M. Y.	D. M. Y.	Y. M. D.	
Mr. S. Finney . . .	1 1 1898*	10 4 1899	1 3 10	Transferred on promotion.
Lieut.-Col. Constable, R.E. .	11 4 1899	19 4 1900	1 0 9	Colonel Constable proceeded on furlough
Mr. W. Drew . . .	20 4 1900	30 4 1900	0 0 11	Officiating, pending arrival of Mr. Lightfoot.
„ H. Stuart . . .	1 5 1900	22 8 1900	0 3 22	Do. do. do.
„ J. Lightfoot . . .	23 8 1900	12 1 1901	0 4 21	Proceeded on furlough pending retirement.
„ H. Stuart . . .	13 1 1901	8 2 1901	0 0 27	Acting, pending arrival of Mr. Burt.
„ H. P. Burt . . .	9 2 1901	21 9 1902	1 7 13	Transferred to Oudh and Rohilkhand railway on return of Colonel Constable.
Lieut.-Col. Constable, R.E. .	22 9 1902	31 12 1902	0 3 9	

* Mr. Finney held the appointment from 12th October 1892.

State *versus* Company Management.

(iii) That the State lines are needed as a training ground for the supervising staff in the offices of the Government of India and of the Consulting Engineers; and it has been stated that the State railway training is so good that the Companies select their Agents from among the State railway officers.

Speaking generally, I have not found that Company-trained officers are inferior to State railway officers, and I am of opinion that, if the field for the selection of officers for the higher railway appointments under the Government were widened and made to embrace all railways in India instead of only the State railways, the Government administration would be strengthened, no weakened

(iv) That the State-worked railways afford an excellent opportunity to the Government of holding them up as object lessons to all other railways of the best practice in railway management

If they were ever used in this way the argument would be a very strong one for their being worked as State railways; but I am of opinion that the retention of the North Western State railway alone would be sufficient for this purpose.

77. From the foregoing it would appear that the disadvantages of direct State-management outweigh any advantages which it may possess. But it will probably also be seen that the majority of these disadvantages are not due to State-management *per se*, but to the system of working some railways through Companies and some directly by the State; and that if the duality of system were eliminated, most of the objections to direct State-management would disappear.

It would seem clear, therefore, that the two systems should not both be in operation in India, and that the Government should either work *all* the railways as State railways, or lease them *all* to Companies to work. The latter, I consider, would on the whole be the best course for India, as, in the first place, the Government would then be in a much stronger position to watch the interests of the country and to hold the scales evenly between contesting parties than they are at present, on account of having so large a personal share in the direct management of some of the railways, and, in the second place, the public would have the benefits resulting from healthy competition between bodies independent of each other and who were each anxious to increase their business as much as possible.

78. If it is decided to transfer all State lines to Companies to work, provision should be made in the contracts for the Companies to take over all the existing State railway staff on their present terms of service.

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If it is decided to retain State railways, I am of opinion that the scale of pay of heads of Departments and others is inadequate and that these should be brought more into line with those prevailing on the neighbouring Company-worked railways.

CHAPTER II.

FINANCIAL ARRANGEMENTS.

79. The second subject of my reference is—

"To report upon the feasibility of a systematic plan of railway development in India, to be worked up to by the Government over a series of years."

This was the first question in connection with Indian railways that engaged my attention on my arrival in India, and in October 1901, I discussed it very fully with the Railway Officers in Simla. On my return in 1902, I found my views had been very exhaustively and accurately recorded in a paper prepared in the Railway Department of the Government of India; and this being the case, I have not hesitated to make use of that document in compiling this Chapter of my Report.

80. In conducting the business of a great commercial undertaking like railways, Capital is necessarily required to admit of their progressing with the times and keeping abreast of the public requirements. Many expedients have been tried to overcome the difficulty connected with the provision of Capital, and a brief retrospect of the policy pursued by the Government may not be without value.

81. When the question of introducing railways into India was first under consideration, the Court of Directors of the Honourable East India Company found that capitalists and investors could not be persuaded to undertake their construction without a guarantee. After some hesitation, therefore, a guarantee was agreed to, but, as the country was at the time in a very unsettled condition, the money could not be obtained except on terms which were very onerous.

82. Subsequently, after the Mutiny had established more firmly the British power in India, the guarantee system was regarded as too burdensome to the country, and, as unaided private enterprise still held aloof from Railway Projects, it was decided to build all railways in the future by the State, and to provide the Capital from loans or from the surplus revenues of the country. This policy was followed for a few years, when expenses connected with war and famine necessitated the stoppage of work on railways.

83. Endeavours were then again made to induce Companies to enter the field without State assistance, but they met with no success, and the Government had again to fall back on a guarantee.

84. When the country had recovered from the effects of war and famine, construction by the State was reverted to, but the continued fall in exchange made it necessary for the Government to curtail their gold liabilities, and

Financial Arrangements.

they had again to resort to Companies for the promotion of their Railway Projects.

85. The terms hitherto allowed to promoters had not proved sufficiently attractive, and a resolution was issued in 1893 specifying the conditions on which Government would grant concessions in the future.

86. These proved no more attractive than the former conditions, and the terms were revised in 1896. Under the new terms, a Company was permitted to construct approved branch lines and to pay interest out of Capital during the period of construction, and was allowed a rebate up to the full extent of the net earnings of the main line from traffic interchanged with the branch in supplement of its own earnings, so as to permit of a dividend of $3\frac{1}{2}$ per cent. on its Capital.

87. A few railways were constructed on these terms, but the new conditions have not met with much favour with the investing public. The reason for this is perhaps to be found in the fact that the only lines which the Government were prepared to allow Companies to take up were those which were not expected to be the most remunerative, and that they have undertaken the construction of the most promising projects themselves, or have reserved them for construction as State railways. A reference has only to be made to the Histories of Railway Projects prior to that issued in 1900, to appreciate how much this view is impressed on the reader after a perusal of the book. There has consequently been no inducement to the investor to enter the field of railway enterprise in India; and at the present time the Government find it most difficult to get capitalists to take up railway schemes without a guarantee in some form or other, and are, speaking generally, obliged to give a guarantee or to find the Capital themselves for all new lines of railway.

88. In addition to the Capital required for new lines, Capital is also required for the improvement of existing lines to cope with the increasing traffic.

89. Under the present procedure, all money required for Capital expenditure by railways for which the Government have full financial responsibility is governed by what is known as "The Programme," under which the Railway Department is annually allotted a sum of money, the amount depending on the state of the Treasury, the money market, and the general conditions of the country at the time. The money so allotted is apportioned at the commencement of the year among the several railways which look to the Government for funds, and among any new projects for which money may be available. No railway knows, or is able to form any accurate estimate of, the sum which will be allotted to it during a series of years, or even during two successive years. As any unspent balance lapses at the close of the year, these allotments are, at intervals, examined to see what money has been spent and is likely to be spent during the year. These examinations frequently show that the allotments

made cannot be spent, and in order to avoid a lapse in the total grant to the Department, the money so found to be available is re-distributed among other railways, large grants being often made within a very short period of the close of the financial year. As invariably occurs in such cases, the work has to be hurriedly proceeded with, and rushed through in such a manner as to interfere seriously with its satisfactory execution and the expenditure of the money to the best advantage.

90. Again, where the exigencies of the State necessitate a reduction of the grant, work has to be stopped, often in the middle of operations, and complications arise with Contractors and others.

91. The uncertainty which always prevails as to the amount which will be allotted in any year, the doubt whether the amount allotted will really be available for expenditure, the sudden curtailment or withdrawal of grants, the equally sudden allotment of new and large grants at the close of the year which must be expended within a very short space of time, the effect this procedure has on the minds of Contractors in fixing their prices when framing their estimates,—all this, I say, strikes at the very root of commercial success, and must lead to a waste of public money and to business being seriously hampered.

92. For many years the amount of money which was allotted to railways had, for various reasons of State, to be limited, and expenditure on improvements of existing lines was restricted to permit of the construction of new lines; but the old lines were found to have outgrown the facilities with which they were provided, and it was decided in 1900 that they should have first claim on the Programme, railways already under construction coming next, and lastly entirely new projects.

93. If the money allotted to railways were sufficient for all these purposes, there would perhaps be little to find fault with in this arrangement. But as it is not, the actual effect is to restrict expenditure under all three heads. Any restriction in the construction of new lines can only mean that tracts—possibly large tracts of country—are deprived of reasonable means of communication, and consequently continue to be cut off from the rest of the world, and are kept in a backward condition; also that existing lines are deprived of feeders which would add materially to their prosperity. But to limit in any way expenditure on facilities required to meet a growing traffic is to stunt the growth of the traffic and to court failure. The decision, therefore, to give priority to demands for improvements was a wise one, but to still require the expenditure to fall within the Programme is to deprive the decision of much of its value.

94. As already shown, Railway Capital expenditure falls under two heads, namely,—

(i) Improvements of existing lines; and

(ii) Construction of new lines.

Each requires different treatment, and I propose to deal with each separately.

Expenditure on Improvements.

Expenditure on Improvements.

95. Under the arrangement introduced in 1900, the money allotted in the Programme for Improvements of existing lines amounts to rather more than half of the total money available for Capital expenditure on railways, the sum allotted for the year 1902-03 being a little over 550 lakhs of rupees, or over 3½ millions sterling.

96. During the preceding ten years the amount expended on Improvements was as follows :—

Year.	Outlay in improvements.
	Rs.
1892 . .	1,64,00,000
1893 . .	2,06,00,000
1894 . .	1,36,00,000
1895 . .	1,94,00,000
1896 . .	2,01,00,000
1897 . .	2,50,00,000
1898 . .	1,74,00,000
1899 . .	4,02,00,000
1900 . .	4,53,00,000
1901 . .	4,30,00,000
1902 . .	5,50,00,000 *

* Allotted.

The sum allotted for the purpose was somewhat greater, but as the grant is only made from year to year and unexpended balances cannot be carried forward, it has not, for reasons stated in paragraph 89, been possible to expend all the money allotted.

97. Notwithstanding, however, this increase in the grant for Improvements, all the railways in India, without exception, are, in some respect or other very much behindhand in the provision of adequate protection and facilities for their traffic. On railways where trains are fast and frequent, the interlocking of stations has, as will be shown later, been neglected to the no small danger of the travelling public, and the introduction of some safe system of train signalling with Block instruments has only reached the experimental stage; on some railways carrying a large Passenger traffic, trains are still lighted with only vegetable oil lamps to the great discomfort of the passengers; and the use of automatic brakes on Passenger trains is not nearly as far advanced as it should

be, if the safety of the travelling public is to receive that attention to which it is entitled.

98. As is shown in paragraph 96, the allotments for Improvements during the past four years have exceeded 400 lakhs of rupees, and now amount to rather more than half of the total sum available for Capital expenditure; but, as I shall show in Chapter III when dealing with the question of Working, the amount has clearly not been sufficient to permit of railways proceeding with as much rapidity as is desirable, if we may judge from the progress which has so far been made. The fact of the matter is, that railways were so seriously limited in funds during many years while the traffic was increasing, that they are seriously behind-hand, and a very large outlay will be necessary for some years to come, if they are to even keep pace with their business. Good management, however, requires that demands should be anticipated and that facilities should be provided slightly in excess of the actual requirements of the day, so that when the traffic comes, the railway may be ready to carry it and help on its development.

99. To give some idea of what the increase in business has been, I give below the total traffic carried by all railways during the five years 1897—1901:—

Year.	No. of Passengers.	Tons of goods.	Gross earnings.
			Rs.
1897 . . .	150,584,000	33,926,000	25,60,11,000
1898 . . .	151,566,000	36,354,000	27,45,59,000
1899 . . .	161,720,000	40,592,000	29,41,25,000
1900 . . .	176,308,000	43,739,000	31,59,65,000
1901 . . .	194,749,000	44,142,000	33,65,79,000
Increase of 1901 over 1897 . .	44,165,000	10,216,000	8,05,68,000

100. Exactly how much should be spent annually in Improvements it would be difficult to say until the Government have arrived at a decision as to what they are prepared to do in the way of providing funds; but I shall indicate in the proper place what, in my judgment, the progress should be under the different heads.

101. Up till 1896, the Capital expenditure on railways guaranteed by the State was excluded from the Programme, and was not affected by the exigencies of Indian finance; but difficulties arising out of the exchange question led to this expenditure also being brought within the operations of the general finances of the country, and all such expenditure is now included in the Programme.

102. The Capital expenditure of Company-worked railways is almost entirely

Expenditure on new lines.

connected with Improvements; and it seems to me to be quite certain that if this expenditure is to continue to be governed by the Programme, it will be impossible to give railways the facilities they require within anything like a reasonable time, unless the present limitations of the Programme are removed.

103. Railways for which the Government have no financial responsibility are not included in the Programme (nor are all the other numerous private commercial industries, large and small, such as gold mines, coal mines, factories, etc.). These railways receive no guarantee, that is, involve the Government in no liability. The Government are only incidentally interested in the increase of their Capital, and they recognise that prudential considerations will prevent the Boards of Directors from lightly increasing that Capital. They are, therefore, permitted to go on the market and raise, independently of the Government, any Capital which the Government may agree they require to enable them to meet their obligations to their constituents, the public, and to cope with their growing business.

104. The position of the Company-worked lines, in which the interests of the Government and the Company are in harmony, is exactly similar, since any injudicious or unnecessary increase of Capital must affect their dividends; and if these railways are to render full and efficient service to the country, and if their natural development is not to be impeded, I am of opinion that their expenditure on Improvements must be excluded from the influence and restrictions of the Programme; and that not only this class of railway, but all Company-worked railways for which the State has full financial responsibility, should be permitted themselves to raise such money as they may require on this account and as Government may sanction, on the best terms obtainable; and that these transactions should be kept entirely free from the exigencies of Indian finance. In this way only, it seems to me, will it be possible for them to make efficient arrangements for the economical conduct of their business and adequately to serve the districts which they traverse.

105. As to State-worked lines, the Capital required must necessarily be found by the Government, and the present methods of providing it must continue.

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106. The Capital required for new lines falls under a totally different category, and the question in regard to it is, how fast is it prudent for the State to proceed in the provision of new lines of railway and what is the best policy for it to pursue. At the close of the year 1900, the latest date for which I have been able to obtain figures for the whole world, India had a mile of

Expenditure on new lines.

railway for every 82·36 square miles of territory and for every 12,231 inhabitants. Appendix G shows what the railway mileage was in other countries of the world.

Taking the more advanced, the railway mileage was as follows :—

	Per mile of railway.	
	Inhabitants.	Square miles.
Great Britain and Ireland	1,889	5·53
France	1,451	7·78
Germany	1,701	6·52
Italy	3,307	11·28
United States of America	383	15·48
Spain	2,138	23·11
Portugal	3,581	24·22
Russia	3,556	68·32

In the less advanced but more progressive countries the railway mileage was as follows :—

	Per mile of railway.	
	Inhabitants.	Square miles.
Russia (Trans-Caspia)	422	129·22
Siberia and Manchuria	1,499	1,242·28
Japan	12,713	33 58
Egypt	4,671	183·96
Natal	1,056	3,714·00
Transvaal	721	99·03
Orange River Colony	348	84·80
New Zealand	326	45·89
Victoria	366	27·48
New South Wales	480	109·66
Queensland	173	238·74
Venezuela	3,856	635·74
Brazil	1,845	351·09
Argentine Republic	471	109·53

107. So far therefore as railways per square mile of territory are concerned India is rather better served than most countries outside Europe, but the only one of those enumerated which she is in advance of as compared with population, is Japan, and there the mileage is one for every 33·58 square miles of territory against India's 1 to 82·36. India does not, therefore, appear to me to be adequately provided with railways, and it seems to me that more rapid progress should be made in their construction, so as to open up the large tract which are now entirely deprived of suitable means of communication.

108. The total mileage of the railway projects which have actually been submitted to the Government for construction amounts to 13,187 miles, *vide* Appendix H. The mileage sanctioned for construction during each of the past seven years, the mileage actually opened during the same period, the amount

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spent thereon and the Agency by which the lines have been constructed, were as follows:—

Year.	1		2				3			
	Capital expenditure incurred on new lines (in lakhs of Rs.)		Mileage of railways sanctioned for construction during each year.				Mileage of railways opened during each year.			
	Programme lines	Private Companies' lines and Native States' lines which fall outside the Programme.	Programme lines. (a)	By Companies outside Programme. (b)	By other agencies outside Programme. (c)	Total (a, b and c).	Total (d, e and f).	Programme lines. (d)	Companies' lines outside Programme (e)	Other Agencies outside Programme. (f)
1896 . .	3,38	2,28	416	243	60	719	706	608	64	34
1897 . .	5,52	2,67	393	33	694	1,120	845	245	486	114
1898 . .	5,56	2,78	203	248	78	529	898	647	170	81
1899 . .	6,00	2,75	534	...	332	866	1,484	550	418	516
1900 . .	3,94	1,48	88	28	51	167	1,237	848	83	306
1901 . .	4,09	1,35	483	100	133	716	576	394	12	170
1902 . .	* 5,49	†	754	56	174	984	568	365	4	199

* Allotted ; † information not available.

109. The average mileage opened each year therefore amounts to—

	Miles.
Lines constructed out of funds provided or guaranteed by the Government, that is, Programme lines	522
Lines constructed by Companies without guarantee, that is, Non-Programme lines	177
Lines constructed by other Agencies, chiefly Native States, outside the Programme	203
Total .	902

110. The number of projects undertaken by Companies without State assistance has been steadily falling, and, under present conditions, no reliance can be placed on this agency for the construction of railways in the future. The Native States also cannot be depended upon to assist for some years, as they were hard hit by the famine of 1900-1901 and they have been unable to complete railway projects which they had actually begun. The Government must, therefore, depend for the construction of new lines on funds raised by themselves by loans or under guarantee.

111. To meet the difficulty arising out of the demands of existing lines for Improvements, the Programme was expanded in 1902-1903 to 11 crores of rupees, or £7,300,000 sterling. Of this sum Rs. 5,50,82,000 or £3,672,000 was appropriated to Improvements. As I have stated in paragraph 97, railways are now very behindhand in the matter of Improvements, and if they are made to progress in the future at a more rapid rate than they have done in the past, they will require considerably more than the 5½ crores now allotted for this purpose.

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112. The demands of railways for funds for Improvements to meet increasing traffic must necessarily also increase. With an 11-crore Programme, therefore, the money available for new lines must grow less yearly.

113. The projects now before the Government (Appendix H) are all regarded by their proposers as immediately necessary for the development of the various Provinces through which they pass, and there are numerous other schemes of less importance which it has not been considered worth while to put forward.

114. The mileage of Programme lines constructed during the past seven years has averaged only 522 miles a year. If it is assumed that it will be possible to continue this rate of progress, it will take over 25 years to complete all the projects now before the Government. But Improvements must absorb (and in an ever-increasing amount) the greater part of the money now allotted for Capital expenditure, and the only way in which it will be possible to get new lines constructed even at the present rate of progress will be either—

(*a*) by increasing the amount of direct borrowings by the State for railway purposes, that is, by expanding the Programme; or

(*b*) by inducing private enterprise to take up railway projects in India.

115. To the former there are the very serious objections that money borrowed from year to year by the Government (1) is liable to violent fluctuations on account of the exigencies of the State, (2) leaves every one in uncertainty and doubt as to what will be available for expenditure in the next year, and (3) makes a comprehensive economical programme of outlay impossible. If these objections could be overcome in a practical manner, there can be no question that direct borrowing by the Government for railway purposes would be the cheapest for the country, but I understand there are financial objections to the expansion of the Programme and to its amount being made fixed and unalterable.

116. It remains, therefore, to see what can be done to induce private enterprise to come to the assistance of the Government.

When considering the question of railway extension in India in 1868, the Secretary of State of the day remarked in his despatch No. 3 of the 16th January 1868:—

> "Railways are not likely to be made in India without the aid of Government. The Capital which has hitherto been invested in them has almost entirely come from England. It has gone to make probably the most profitable lines; and if even for these it could not be obtained without a guarantee, it is unreasonable to suppose that it would be forthcoming without similar support for the less profitable.....
>
> It seems desirable that projects for future railways should be arranged in two separate classes, as commercial or political..... .....

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I am, therefore, anxious to know whether any or what additional precautions can, in your opinion, advisably be taken to secure good workmanship under the guarantee system, which, in spite of its obvious defects in certain particulars, I am disposed to regard as, upon the whole, the one best adapted for the expansion of one class of railways, *viz.*, the commercial.....

For the political class, I am inclined to think that direct Government agency might be preferable.....

The guarantee system seems to me to be properly applicable, only when there is a reasonable hope that the profits of the undertaking will in moderate time, rise above the amount which the guarantee covers. If a line is to be made for Government purposes, at the risk of probable commercial loss, it will be best that the Government itself should make it, and should not weigh down the market for railway securities by the introduction of a stock which is never likely to rise to a premium."

In a later despatch, No. 90 of the 24th November 1868, he further stated that—

"It is essential in working out the guarantee system that the confidence of the investing public, or, in other words, of the 'money market' should be secured.....and if a certain class of railways in India is to be constructed by the agency of guaranteed Companies, such terms must of necessity be given as will attract them and not such as must repel them from entering into contract."

117. The views here expressed have been fully borne out by the experience of the past sixty years. Unguaranteed enterprises have always been unpopular, and when projects have been promoted without State assistance, it has generally only been possible to get them undertaken on terms which are far more costly to the country than a direct guarantee would have been. Guaranteed schemes have been only a little less unpopular, as the terms offered have not been such as to insure a reasonable return in the first instance (such a return as can be secured from Government Paper, for instance), and there has been no "reasonable hope that the profits of the undertaking will, in a moderate time, rise above the amount which the guarantee covers."

118. But, under the present rules, the guaranteeing of a project brings the expenditure just as much within the Programme, as if the Government raised the money by a direct loan.

Up till 1896, however, the Capital expenditure of guaranteed Companies was not included in the Programme and was not affected by the exigencies of the State. The conditions which led to a change in the procedure have

since passed away, the free coinage of silver having been prohibited and stable exchange having been established. If, therefore, there are no other causes (and I have been unable to ascertain that there are any others), militating against a return to the old procedure, there would seem to be no reason why Capital expenditure incurred by guaranteed Companies should not be excluded from the Programme.

119. A guarantee in any form, however, involves a liability on the general revenues of the country, and if this liability is real, and not nominal, there is always present the fear that an increase in the liabilities of the Government may lead to additional taxation. It becomes necessary, therefore, to consider what the nature of this liability is and whether the Government are ever likely to be called upon to meet it in the future.

120. The liability arising out of expenditure on new lines of railway covers two periods, namely,—

(i) that during which the line is under construction and is unproductive; and

(ii) that after it is opened to traffic and has commenced earning revenue.

During the period of construction all interest charges are paid out of Capital (if the Company is authorised, as they may be, to do so), and there is no liability on the Government.

After the line is opened to traffic, the interest charges have to be met from the earnings derived from the traffic created by the opening of the branch. If these earnings fall short of the liability, the difference has to be made good from the general revenues, and there is danger of additional taxation having to be resorted to to meet it.

121. In calculating the earnings derived from the traffic created by the opening of a new line of railway, it is usual to take into account the net earnings of the new line alone, and to ignore altogether the indirect earnings which are derived from its construction, although these latter may be and generally are far and away greater than the direct earnings.

These indirect earnings may be stated to be—

(*a*) the net earnings which old lines secure from traffic which they interchange with the new lines; and

(*b*) the increase in the General Revenues of the country resulting from the provision of improved transport facilities.

They form an essential part of the income attributable to the new line, and must be taken into account if it is desired to arrive at the true earnings derived from its construction. The net earnings derived by main lines from interchanged traffic are easy of calculation. Those secured by an increase in the General Revenues of the country must necessarily be largely conjectural.

122. Appendix I gives the net earnings of certain Branches for which

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information was available or procurable, and the net earnings of the main lines directly connected therewith from traffic interchanged with the Branch. Of course, it is true that all the interchanged traffic is not ascribable to the Branch, as some of it was booked to the junction before the Branch was opened; but this does not materially affect the contention as will be seen from paragraph 125. To arrive at the true net earnings from interchanged traffic, however, the net earnings derived by *all* railways (not only those directly connected with the Branch) from traffic interchanged with the Branch should be taken but this information is not available. Again, traffic is often booked to the junction, which is a centre of distribution, and re-booked from there, and, in the case of the main line, such traffic is not considered when estimating the traffic yielded by the Branch to the main line, that is, it is not included in the interchanged traffic which strictly speaking it is. The figures given in Appendix I therefore, *understate* (to what extent cannot be said) the actual earnings derived by the main lines from the opening of the Branch. Further, to avoid all possible grounds for controversy, the net earnings of the main line from interchanged traffic have been arrived at by taking working expenses at the same proportion to the gross earnings as the working expenses of the system bear to its gross earnings. Now, however much room there may be for doubt as to the actual cost of working a Branch, it cannot be disputed that the cost per unit of working extra or incremental traffic is nothing like so high as the cost per unit of working the whole traffic of the railway. Here too, therefore, the net earnings derived by the main line from interchanged traffic have been *under-estimated.*

123. Turning now to the statement (Appendix I), it will be seen (column 10) that in a very few cases only was the Branch, gauged by the standard above mentioned, unproductive during the first two or three years of its existence; that the only conspicuous case of failure is the Gwalior railway, which has been the subject of comment by the Government of India and which is admitted to have never been worked on commercial principles; that the large majority of the branches covered interest charges, that is, the liability which was incurred in their construction, several times over from the day they were first opened to traffic; and, lastly, that in most cases the income derived by the main line from the Branch was greatly in excess of that directly earned by the Branch itself. If the cost of working interchanged traffic had been taken at the correct figure, or if the lines which did not pay their way from the day of opening, had been constructed to a standard more consistent with the needs of the district traversed (the Bina-Goona-Baran railway is a line which has been built to a higher standard than was necessary), it is not unlikely that, with the exception of the Gwalior railway, *all* the Branches would have shown an "income" considerably in excess of their liabilities from shortly after opening.

124. In calculating the net earnings of the Branch (column 6 of Appendix I), the working expenses have been taken at the same proportion (or

more or less where the contract prescribes more or less) as the main line's working expenses bear to its gross earnings, but I have heard it contended that in India it is not possible to work a Branch for the same proportion of its gross earnings as the main line is worked, and that the loss which the main line suffers by undertaking to do this should be taken into consideration in calculating the effect of the construction of a Branch.

Separate accounts of the actual cost of working a great majority of the Branches in India have not been kept. It is impossible, therefore, in *every* case definitely to show to what extent the parent lines would have benefited or suffered by working the Branch lines at the same proportion of gross earnings as their whole system is worked. But there are some Branches which are worked as separate undertakings, and an examination of their accounts will show how far this view is correct.

Taking first the case of the Jodhpur-Bikaner railway, until 1901, when it was connected with Hyderabad (Sindh), it was a Branch, pure and simple, off the Rajputana-Malwa railway, but unlike most Branches, it has from its inception been worked as an independent undertaking. A comparison of its working expenses with those of the Rajputana-Malwa railway, therefore, should give some idea of the loss which the latter would have suffered, had it undertaken to work the Jodhpur-Bikaner railway at the same rate as its system cost. The first section of the Jodhpur-Bikaner railway was opened in June 1882, and taking the figures from 1883 onwards, they compare as follows :—

Year.	Jodhpur-Bikaner railway system.				Rajputana-Malwa railway system.			Gain (+) or loss (—) to Rajputana-Malwa railway (6—5).
	Mileage worked (open).	Earnings per mile per week.	Return yielded on Capital outlay.	Proportion of working expenses to earnings.	Proportion of working expenses to earnings.	Mileage worked (open).	Earnings per mile per week.	
1	2	3	4	5	6	7	8	9
	Miles.	Rs.	Per cent.	Per cent.	Per cent.	Miles.	Rs.	Per cent.
1883 . .	18	42	4·62	42·74	52·18	1,117	219	+9·44
1884 . .	44	39	3·92	50·59	56·92	1,120	223	+6·33
1885 . .	64	54	7·80	34·30	52·81	1,411	224	+18·51
1886 . .	64	62	6·23	35·20	50·27	1,665	212	+15·07
1887 . .	124	5	8·40	39·86	50·89	1,688	189	+11·03
1888 . .	124	56	8·40	46·91	48·30	1,692	213	+1 39
1889 . .	124	56	8·45	46·50	45·87	1,700	227	—0·68
1890 . .	124	58	8·63	47·09	50·45	1,700	198	+3·36
1891 . .	291	65	6·00	45·45	43·49	1,767	242	—1·96
1892 . .	291	68	9·63	45·89	41·01	1,767	247	—4·88
1893 . .	364	49	6·18	48·84	41·12	1,809	246	—7·72
1894 . .	364	61	9·57	38·83	38·21	1,899	267	—0·67
1895 . .	364	56	8·30	42·11	41·03	1,899	252	—1 08
1896 . .	364	68	10·92	36·69	45·26	1,925	215	+8 57
1897 . .	364	65	9·57	34·67	47·97	1,979	194	+13·30
1898 . .	406	64	6·52	40·55	43·31	1,980	222	+2·76
1899 . .	449	89	7·75	38·99	42·83	1,979	261	+3·84
1900 . .	609	74	5·72	44·39	45·40	1,983	290	+1·01
1901 . .	736	59	4·85	55·59	46·21	1,954	280	—9·38

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During these 19 years the proportion per cent. of working expenses to gross earnings was on seven occasions greater, and on twelve less, on the Jodhpur-Bikaner than on the Rajputana-Malwa railway. Taking all the nineteen years together, that is, the good with the bad, the advantage lay in a marked degree with the Rajputana-Malwa railway.

Taking next the case of the Udaipur-Chitor railway, 67 miles in length, the Branch was opened in August 1895 and up to the close of 1897 was worked by the Rajputana-Malwa railway. From the 1st January 1898 it has been worked as a separate undertaking, and its cost of working per cent. of gross earnings compares with that of the Rajputana-Malwa railway as follows :—

	Cost per cent. of working in			
	1898.	1899.	1900.	1901.
(1) Udaipur-Chitor railway .	57·33	50·21	41·59	57·64
(2) Rajputana-Malwa railway .	43·31	42·83	45·40	46·21
Difference between (1) and (2) .	14·02	7·38	—3·81	11·43
Representing . . . Rs.	20,164	15,537	—12,113	25,394

When the Rajputana-Malwa railway worked the Branch, they incurred no *extra* expenditure on "general superintendence," and it may be assumed that any expenditure under this head by the Udaipur-Chitor Railway Administration would not have been incurred had the Rajputana-Malwa railway continued to work the Branch. The expenditure under "general superintendence" compares with the difference resulting from the difference in cost of working on the Rajputana-Malwa and Udaipur-Chitor railways as follows :—

	1898. Rs.	1899. Rs.	1900. Rs.	1901. Rs.
Difference arising out of difference in cost of working . .	20,164	15,537	—12,113	25,394
Cost of "general superintendence" on Udaipur-Chitor railway .	12,822	16,575	20,374	28,701
Gain (+) or loss (—) to Rajputana-Malwa railway if it had worked Udaipur-Chitor railway at same proportion . .	—7,342	+1,038	+32,487	+3,307

These two railways, the Jodhpur-Bikaner and the Udaipur-Chitor, have been selected for illustration as the country traversed by them is, if anything, less favourable than that traversed by the Rajputana-Malwa railway. They are also the only two railways worked as independent undertakings which are on the same gauge as the main line and which have always had earnings of well under Rs. 100 a mile a week. In both cases, without allowing any credit for the fact that separate management involves separate workshops and numerous other expenses which would be either altogether unnecessary or considerably less if the main line operated the Branch, the results show, not only that the Rajputana-Malwa railway would have suffered no loss if it had worked the Branches for the same rate as obtained on the main line, but that it would have benefited considerably.

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It may, therefore, be reasonably assumed that a Branch can always be worked without loss for the same percentage of gross earning as obtains on the main line, and that generally the main line benefits when it is paid at this rate.

125. It is also sometimes urged that the opening of a Branch does not lead to any appreciable increase in the traffic, and that the traffic credited to the Branch is traffic which originally was booked to and from the junction and which, on the opening of the Branch, is merely transferred to the Branch stations.

All the traffic which the Branch brings to the main line is of course not wholly new, but Appendix J will give some idea of how much of the traffic is old and how much may be directly ascribed to the construction of the Branch. Only one year's figures before and after opening have been taken instead of an average of several years, as the information cannot be presented in a form which would be absolutely accurate, since it is not easy always to assign causes for fluctuations in traffic, and it would be quite impossible to do so after the lapse of many years. The statement must, therefore, be regarded only as an indication of the effects which follow on the opening of a Branch.

The Branches which have been classed A show the falling off in revenue at the junction which is generally to be expected on the opening of a Branch. It will be seen that the loss at the junction (column 8) was more than made up for by the traffic exchanged with the Branch at the junction (column 10), and that in six cases out of ten the main line was so much the richer for the opening of the Branch even in the first year of its existence, that it would have paid it (column 15) to stock and work the Branch for nothing rather than have had its construction postponed. In the case of the exceptions, the Barsi Light railway has, ever since it was opened, suffered from the effects of plague and famine ; but both the Barsi Light and the Sialkot-Tawi lines have, within five years of opening, produced sufficient revenue to have justified the main line in stocking and working them for nothing rather than have had their construction deferred. The loss in the other two cases is explained by the high charge made for working expenses, it having amounted in the case of the Rajpipla line to 64·55 per cent. and in that of the Birur-Shimoga line to 63·43 per cent.

The Branches which have been classed B show an increase of revenue at the junction. With the exception of Seoraphuli and Siliguri, all the junctions are large distributing centres, and traffic is booked to the junction for distribution. The increase at the junction, therefore, is directly attributable to the opening of the Branch. In these cases also, with one exception, the main line is so much the richer for the opening of the Branch that it would have paid it to work and stock the Branch for nothing rather than have had its construction deferred. The exception is the Darjeeling-Himalayan railway, and that is due to the line being under independent management.

The Branch which has been classed C is the unproductive Gwalior railway.

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126. It would seem clear, therefore, that, as a general rule, once a Branch is opened for traffic, the income which it will produce, from its own and the main line's earnings, will more than cover the liability which is incurred in its construction.

127. The same conclusions apply to what are known as "short circuit lines." It is sometimes assumed that such lines do serious injury to the line they short circuit, and that, therefore, it is most undesirable that they should be financed by agencies other than those which own the short circuited lines. Appendix K shows that there are no grounds for this theory. Even the Southern Punjab railway, which is the worst example of short circuiting that has occurred in India, shows that the short circuited line, the North Western railway, was in no way injured by its construction.

The fact is, that unless a new line has been constructed parallel to, and within sight the whole way of, the old lines, that is, unless it is a competitor of the worst type, the revenue which it brings to the old lines always greatly exceeds that which it deprives them of; and that any new line, whether Branch or "short circuit," which brings a new area within carting distance of a railway station (in India, this would probably be about 25 miles), must improve the earnings of the main line.

128. As regards the indirect earnings which new lines produce through an increase in the General Revenues of the country, it will doubtless be admitted that every improvement in the communications of a country results in a development of trade, and that a development of trade results in an increase of revenue; that, in fact, railway development and prosperity and advancement go hand in hand, as is evidenced both by the general conditions of the country and by the particular conditions of each region before and after a line of railway is driven through it.

What the exact money value of these indirect earnings is, it is impossible to say, but Appendix L shows what the development of trade has been and to what extent the revenues have increased during the past 20 years. The results may be summarised as follows :—

Years.	Railway mileage opened during period.	Capital outlay on mileage shown in column 2. Lakhs of Rs.	Interest charges at 4 per cent on Capital outlay shown in column 3 Lakhs of Rs.	Increase in Gross Revenues of India		Increase in value of Exports and Imports.		Increase in net earnings derived from duties on exports and imports.		Increase in Railway Net Earnings.	
				Amount. Lakhs of Rs.	Per cent. of 5 on 3 per annum.	Amount. Lakhs of Rs.	Per cent of 7 on 3 per annum.	Amount. Lakhs of Rs.	Per cent. of 9 on 3 per annum.	Amount. Lakhs of Rs.	Per cent. of 11 on 3 per annum.
1	2	3	4	5	6	7	8	9	10	11	12
1881—1891	7,420	88,83	3,55	13,46	15·15	52,12	58·67	—58	...	5,49	6·18
1891—1901	8,059	1,07,16	4,29	25,68	23·96	50,09	46·74	+318 *	2·97	5,16	4·81
1881—1901	15,479	1,95,99	7,84	39,14	19·97	1,02,21	52·15	+260 *	1·33	10,56	5·43

* Increase between 1891 and 1900, and 1881 and 1900, respectively, as the figures for 1901-02 are not available.

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129. It will thus be seen that every rupee which is spent on railways comes back many times over to the country, and that any liability which may hereafter be incurred on railway outlay would be amply covered by the resulting increase in the net earnings of railways themselves taken as a whole.

130. So far, therefore, as the liability is concerned, it would seem that far from there being any danger of an increased Capital expenditure on railways leading to extra taxation, there is every reason to believe that any expenditure on new lines of railway, provided of course that they be located with judgment, will materially add to the general revenues of the country.

131. This being so, I am of opinion that the proper course for the Government to pursue in the extension of its railway system would be to revert to a system of guarantee, which is much the cheapest for the country failing direct borrowing by the Government.

It is true that the agency of Companies costs, in one way or other, more than the average rate at which the Government could themselves borrow. But, on the other hand, there are some real advantages in Companies. The greatest is that if the money is raised, as it would be, with a proper deposit paid at first, the railway is safe of getting the balance as it wants it, by making calls; and if the Government can create, through the agency of Companies, a capital of 10 or 20 millions with 5 millions paid up and a certainty of getting the other 15 millions by calls just as they are wanted, and whether the money market is good or bad, it is an important advantage, and worth paying something for.

132. But if the guarantee system is to prove attractive to the investing public, the terms at present offered will need to be considerably altered. Broadly speaking, the present terms may be stated to be—

(i) The Company receives an absolute guarantee of interest at a rate not exceeding 3 per cent. *in rupees* on the Capital as entered *in rupees*, and is required to share with the Government net earnings yielding over that amount in such proportion as may be agreed upon (it is usually shared equally);

(ii) Interest, at a rate to be agreed upon in each case, is permitted to be charged to Capital during construction;

(iii) Working expenses, which include provision of rolling-stock, are fixed at the same ratio as the system's working expenses bear to its gross earnings, but subject to a maximum of 50 per cent. of the gross earnings of the Branch;

N.B.—Home Board expenses are permitted to be charged against Capital during construction, and thereafter against "working expenses" until the Branch earns $3\frac{1}{2}$ per cent., when the charge must be met from the general receipts of the Branch line.

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(iv) Land is provided free; and

(v) Such survey reports as are available are placed at the disposal of promoters free of charge, subject to the proviso that *no responsibility is accepted for the accuracy of any information thus supplied.*

At the same time Government require—

(vi) The right of purchase after 21 years, based on the average net earnings of the three years preceding purchase, with a maximum price of 120 and a minimum of 100 per cent. of cost price *on a rupee basis;* and

(vii) Large powers of control.

133. Experience has shown that these terms have not commanded "the confidence of the investing public or in other words of the money market," or that they are such "as will attract them, and not such as must repel them from entering into contract." They further fall very far short of what the Secretary of State regarded as essential to the success of the guarantee system, since the guarantee does not yield as much as Government Paper and there is no "reasonable hope that the profits of the undertaking will, in a moderate time, rise above the amount which the guarantee covers," much less to the level of Government Paper.

134. The question as to what terms would prove sufficiently attractive to the investing public is not a new one, and when it was considered in 1867, Sir (then Captain) E. C. Williams, R.E., remarked:

"Looking to the objections that have been made to the present system, it would seem that any new system of affording encouragement to railway enterprise should fulfil the following conditions:—

(*a*) It should be as little onerous as possible to the State by conceding the minimum terms on which the funds can be obtained, and experience shows that those terms must ensure to the promoters an absolutely fixed minimum return from the outset;

(*b*) It should appeal directly to the self-interest of the promoters so as to secure—

(i) a minimum capital outlay, *i.e.*, economy and rapidity of construction;

(ii) a minimum revenue expenditure, *i.e.*, economy of working; and

(*c*) It should involve a minimum of interference in the internal management of the undertaking on the part of the Government.

The advantages that should be secured for the State are—

(*d*) The power of fixing maximum tariffs with "parliamentary" rates, and special rates for mails, public stores, soldiers, sailors, prisoners, paupers, etc.

(*e*) The power of regulating the mail service.

(*f*) Participation in profits in view, at least, to the reimbursement of previous payments made under the guarantee, with simple interest thereon.

(*g*) Right of purchase at certain periods, and of re-entry in cases of default.

(*h*) Reversion of the way and works of the railway to the State on the expiration of the term of the concession, and, in expectation thereof, special power to compel their proper maintenance during the later years."

135. The same considerations apply in the present day and with the same force. I propose, therefore, to take Sir E. C. Williams' conditions *seriatim* and to suggest such terms as, in my judgment, will relieve the State of all but a nominal liability, and which at the same time may prove acceptable to the investing public.

136. *Terms should be as little onerous to the State as possible.*—The least onerous terms to the State would be such as would free it from all but a nominal liability. By charging interest to Capital, the State is relieved of all liability during the period of construction. It is only necessary, therefore, to consider the period subsequent to the opening of the line for traffic. Appendix I shows, in the case of a large number of branch lines, what income has been produced from the Branch lines' own earnings and from interchanged traffic. With very few exceptions, the income procured by these railways exceeded 3 per cent. on the Capital from the day they were opened to traffic. That amount would be the least that would satisfy investors, and the Government could always agree to allow a guarantee of 3 per cent. on the Capital after the railway shall have been opened to traffic with little risk of being called upon to meet the liability.

It is important, however, that the guarantee should be in gold or that the Government should undertake to remit interest to England at a fixed minimum rate of Exchange. With Exchange practically fixed at 16 pence, it would cost no more to guarantee in gold than to guarantee in silver, and it would make the securities much more valuable. An increase in the sterling payments now is not open to the objections which attended it when Exchange was a variable factor, and it would seem to be to the advantage of the State to guarantee in sterling an unlimited market at low rates, rather than in rupees a narrow market in which a higher rate prevails.

137. *Terms should secure investor an absolutely fixed minimum return from the outset.*—With Government paper yielding nearly $3\frac{3}{4}$ per cent. and with India Stock yielding nearly $3\frac{1}{4}$ per cent., it is evident that nothing less than a return of 4 per cent. during the period of construction will suffice. For the

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same reason, there must be some reasonable prospect of the Capital receiving not less than 4 per cent., with a possibility of something more, after the line shall have been opened to traffic.

The terms, therefore, might be—

(1) Free land.

(2) Carriage of construction material over *all* Indian railways at revenue rates, not public rates.

(3) *During construction* and to the close of the year during which the line is completed, a gold guarantee of 4 per cent. to be paid out of Capital.

(4) *After opening*—

(i) Line to be worked by an existing line for the same proportion of gross earnings as the working expenses of the main line bear to its gross earnings, subject to a maximum charge of 50 per cent. of the new line's gross earnings.

Reasonable Home Board expenses to be a charge against working expenses until the line pays 5 per cent. clear from its own earnings, as also *at all times* charges for Government supervision and for New Minor Works, about which see paragraph 147.

(ii) Where the line is on the same gauge as the main line, rolling-stock to be supplied by the main line; where the gauge differs, the new line to provide its own stock; the charge for working expenses in either case remaining as in (i).

N.B.—This will mean that the narrower gauge will pay 5 per cent. extra for working expenses which will be sufficient to cover the extra cost to the main line on account of the difference in gauge.

It is desirable that the main line should provide rolling-stock when the new line is on the same gauge, so as to prevent disputes as to the actual requirements of the new line.

(iii) A minimum dividend of 3 per cent. in gold to be guaranteed, the Government making up the deficiency if by any chance the net earnings of the new line and the Rebate from interchanged traffic together do not produce the sum guaranteed.

(iv) The new line's net earnings to be supplemented by a Rebate of the whole of the main line's net earnings from interchanged traffic, or such smaller amount as will allow of a return of 4 per cent. in gold on the new line's Capital outlay.

The net earnings from interchanged traffic to bear the same proportion to the gross earnings from such traffic as the net

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In any year that the new line earns enough to receive a return of 4 per cent. from its own traffic, no Rebate to be paid by the main line for that year.

(v) The new line to retain all its net earnings up to 5 per cent., dividing all excess over that amount equally with Government.

These terms will ensure an absolutely fixed minimum return to the investor from the outset; and will offer him prospects of a higher return when the traffic develops. They should, therefore, prove sufficiently attractive to him.

To the Government, on the other hand, they will prove as little onerous as possible; they can only very rarely be required to make any payment on account of guarantee, and even when the whole of the net earnings from interchanged traffic are required to be paid over to the Company, there will still be coming in to the Government the difference between the assumed and the actual cost of working the traffic interchanged by the main line, and the whole of the net earnings from traffic interchanged with the new line by lines other than the main line. After the new line has begun earning 4 per cent. from its own traffic, the main lines will receive the whole of the net earnings from interchanged traffic; and, where the new line earns over 5 per cent., the Government will receive half of such surplus. They will further derive all the indirect benefits which follow on the increased prosperity of the country. These are solid advantages and are not dearly purchased by the loan practically of only the name of the Government.

138. *The terms should appeal directly to the self-interest of the promoters so as to secure a minimum of Capital outlay*, i.e., *economy and rapidity of construction.*—With a dividend guaranteed which is not in itself sufficient to attract Capital, the Company would naturally be anxious to keep down outlay, so as to make more reasonable the chance of their receiving the higher return of 4 per cent. One of the most prolific causes of extravagance in the past has been the unnecessarily high standard up to which lines have been required to be constructed before they are permitted to be opened. A 5′ 6″ gauge line has been insisted upon where a metre or a narrow gauge would for many years have met all the requirements of the district, and a standard of excellence in construction has been demanded quite unsuitable to the traffic which the line is likely to have to carry, for instance, the Bina-Goona-Baran railway referred to in paragraph 123.

Each project must necessarily be considered on its own merits. The inconveniences of a break of gauge are undoubtedly very great, and, though the cost to the railway of transhipment is equivalent to freight on from three to six miles only, a break of gauge necessitates a separate supply of rolling stock and usually involves the up-keep of separate workshops. But these drawbacks are all calculable, and if a break of gauge is found economical, unless the prospects of a

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line are very good, or it is likely to develop in the near future into a through line, or, in the case of very short Branches, it can be constructed on the same gauge as the main line for practically the same outlay, it is not necessary, from the point of view of the travelling public, that it should be on the same gauge as the main line, since a break of gauge involves the public in no extra expense, no charge being made for transhipment. Even in the case of lines which are likely to form a through connection, all that need be insisted on is that bridges should be constructed to take the gauge of the main line.

What is wanted is a line of railway, and the gauge and the standard of construction should be governed entirely by the consideration whether "there is a reasonable hope that the profits of the undertaking will, in a moderate time, rise above the amount which the guarantee covers," "guarantee" here being understood to mean the actual guarantee *plus* the Rebate payments, that is, 4 per cent. To secure this end, the new line might, whatever its gauge, be entirely a "feeler" or surface line, and its further development might be left to the traffic to decide. There will usually come a point beyond which the line will not be economical to work on a different gauge, and the Company may be depended on to change the gauge when this point is reached. These principles have already been accepted by the Government and need only to be applied now. To the investor these conditions will naturally appeal, and it will be to the interest of the Company to keep down the outlay, as the higher it is, the less prospect there will be of the shareholders receiving the higher return of 4 per cent.

Some provision would require to be made in the contract for the circumstances under which conversion to a wider gauge may be required, but this difficulty can be minimised by the adoption of the suggestion in paragraph 149 or that in paragraph 150.

139. *It should appeal directly to the self-interest of the promoters so as to secure a minimum revenue expenditure,* i.e., *economy of working.*—The line would be worked by the main line agency, and its interest in economy will be secured by the limit which is placed on the charges which it may make for working the new line.

140. *It should involve a minimum interference in the internal management of the undertaking on the part of the Government.*—I have dealt with this point in an earlier part of my Report.

141. As to the advantages to be secured to the State, Conditions (*d*) and (*e*) (paragraph 134) are always required, as also conditions as regards Telegraph and Police.

142. *Participation in profits.*—This is provided for in paragraph 137 (4) (v), the Government receiving half over 5 per cent.

From numerous cases which have occurred, it seems clear that any division of surplus profits before 5 per cent. is earned by the Company would not be

popular. It is also unnecessary, since the interchanged traffic and other indirect earnings would generally be yielding Government larger returns than the Company would themselves be receiving.

143. *Right of purchase at certain periods.*—The terms hitherto demanded have not proved very acceptable to the public.

In the first place, the period for first purchase is regarded as too short. It is now 21 years. It might be made 33. The terms now proposed can never be onerous to the Government, and there is, therefore, not the same necessity to exercise the right of purchase, as existed in the case of some of the old guaranteed lines.

In the next place, the terms of purchase, which limit the price to a premium of 20 per cent., together with the short currency of the contract, do not permit of the line ever obtaining its right position in the market. With a return of only 3 per cent. guaranteed, if the line ever did rise to a price higher than would be represented by a premium of 20 per cent., it would be because of its own intrinsic value, and if the Government paid 25 times the average yearly net earnings during the three years preceding purchase, without restriction as to the maximum, they would not be paying more than the market value of the property. The maximum limit might, therefore, be removed, the minimum continuing as at present, as the Government are not obliged to purchase.

144. *Reversion of way and works to the State on expiry of contract.*—These terms are no longer applicable under the new form of contract.

145. To the above may be added the following :—

(*i*) Promotion money.

(*j*) Payment for New Minor Works.

(*k*) Payment of interest on additional Capital.

(*l*) Formation of Company and appointment of Directors.

(*m*) Fixity of Terms on which concessions will be allowed to Companies.

146. *Promotion money.*—With the terms now suggested, it should not be necessary to pay a high price on this account. What the exact amount should be, it is difficult to say, but whatever is decided upon should be stated in the Terms. If the proposal in paragraph 149 is adopted, it will probably be unnecessary to allow any Promotion money at all.

147. *Payment for New Minor Works.*—This is one of the most fruitful sources of friction between Companies and the Government, and it would save much trouble if it were laid down that all Capital expenditure incurred on open lines, up to a certain limit per mile per annum, no matter what the nature or the value of the work might be, should be charged to Revenue, the remainder being a charge to Capital. But in view of the fact that the line would probably

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not have been built up to full standard, the limit of the charge to Revenue should not be fixed too high.

148. *Payment of interest on additional Capital.*—It should be made legal for existing Companies to charge to Capital, interest on any Capital which they may raise for extensions of their line or for new lines, whether such Capital is raised in the form of shares or debentures. Interest on Capital required for the improvement of existing lines to meet the demands of increased traffic should, of course, continue to be a charge against Revenue.

149. *Formation of Company and appointment of Directors.*—It is very desirable that the number of Companies with which the Government have to deal should be kept down. The main lines of India are now established and recognised and all future extensions will be in the nature of developments of these lines. It would, therefore, be more convenient, where the main lines are worked by Companies, to employ the main line Companies to finance all Branches to, or extensions of, their own lines. It would also be very much cheaper, as all incidental expenses such as Promoters' fees, etc., would be saved. Under present conditions, however, this is not practicable. It is undesirable to create new share Capital in connection with the Company-worked railways which are practically owned by the Government; and it is not permitted by law to charge to Capital interest on Capital raised by debentures. But there does not appear to be any reason why the law should not be altered to remove this disability where the Capital is required for the construction of new lines, and it might be considered whether a change in the law is not possible.

150. If, however, the employment of the existing Companies is altogether impracticable, to prevent conflict of interest and to simplify control, one subsidiary Company might be formed in connection with each of the recognised main lines, which might be called "the —— Railway Branch Line Company," and this Company should raise the Capital for all lines to be undertaken in connection with the main line, the right being of course always reserved to the Government to employ any other Company should the Branch Line Company concerned object to the construction of any particular line which the Government wished them to undertake.

The Directors of this new Company, where the extensions are to a line controlled by a Company, should be the same as the Directors of the main line Company, and the Government should have the right of appointing one of the Directors. Where feeder Companies already exist in connection with the main line, they might, where possible, be consolidated and incorporated into the new Branch Line Company.

Similarly, in the case of the State lines, the Southern Punjab Railway Company might be expanded into the North Western Railway Branch Line

Company, and the promoters of the Hardwar-Dehra and the Brahmaputra-Sultanpur lines into the Oudh and Rohilkhand and Eastern Bengal State Railway Branch Line Companies, respectively.

With one such Company controlling the construction of all new lines connected with one large railway, there would be no difficulty in carrying out the idea of cheap surface feeler lines, as the material could always be passed on to the next line to be made, when it had served its purpose in the place where it was first laid down. With the same Directors representing the main line and the Branch line, there could never be any conflict of interests.

151. *Fixity of Terms.*—It would save much trouble and uncertainty if the conditions are definitely fixed, and if no departure is permitted from them. The only condition which should be left indefinite is the gauge and the standard up to which the line is to be constructed, as these necessarily will vary with each project.

152. I have so far considered whether it is desirable to revert to the guarantee system, and if so, on what terms this system should be worked. There remains for consideration, the rate at which the Government should proceed in the construction of railways.

153. I have already said that I consider more rapid progress should be made in the construction of railways; but I do not consider it expedient to suggest that not less than a definite number of miles should be undertaken yearly. In view of the fact that the liability of the Government when they guarantee a return of 3 per cent. is in reality only nominal, the only limit which it seems really necessary for the Government to place on the rate of progress is the practical one of the money market. Other considerations such as the labour market and the ability of manufacturers to supply material would in practice help to limit the rate of progress, and it seems to me that these would probably be found sufficient to regulate the amount of new mileage which should be taken in hand every year.

Railway Fund.

154. But so long as there is any possibility of the Government being called upon to meet the liability from the General Revenues, ordinary prudence requires that, while freeing the present system from all its disabilities, some check should be exercised to keep the liability within reasonable bounds, in case it should ever become real.

155. In Ireland, a similar difficulty was met by the passing of its Light Railways Act of 1886 (the Act is printed as Appendix M), under which a sum of money was hypothecated for a period of years for the promotion of railways in Ireland and, by arrangement with the Treasury, placed for this purpose at

the disposal of the Board of Public Works, who drew on the National Debt Commissioners from time to time for instalments as the money was required to meet expenditure on the works.

156. In India, the difficulty could be overcome in a similar way, and a **RAILWAY FUND** might be created to be applied in providing Improvements on State railways (expenditure on Improvements on Company-worked railways should not be a charge against this Fund) and towards the construction of new lines.

157. The money thus hypothecated would necessarily require to be kept entirely distinct from the general finances of the Government of India. It should, as was done in Ireland, be placed to the credit of the Railway Board, who, subject to the control of the Governor General in Council, should be left free and unhampered to administer the Fund in such manner as would be most advantageous to the country.

158. This Railway Fund might be started with a contribution of, say, ten millions sterling, or 15 crores of rupees; and the surplus profits accruing to the Government during the year from all the railways in India after payment of all charges for interest and redemption of Capital should in the first instance be credited to it.

If the total amount to the credit of the Railway Fund at the close of the calendar year exceeds the original contribution, the surplus should be transferred to the general revenues of the country. If it falls short of that amount, the deficit should, for the time being, be made good to the Railway Fund by the Government.

159. In the case of projects for new lines, if the Capital is provided by the Railway Board, the whole amount thereof should be a charge against the Railway Fund.

Where the Capital is provided by a Company under a guarantee, the amount of the liability which the Railway Board incur for the payment of interest (not the amount of the Capital) should alone be a charge against the Railway Fund during the period that such liability continues; and the liability should cease when the income derived from the new line from its own and the main line's net earnings from traffic interchanged exceeds the guaranteed rate of interest. It is the liability alone which affects the question of possible additional taxation. The Capital would seem to be entirely an executive difficulty affecting the ability of the Treasuries to meet demands for cash, and this it should always be possible to overcome by coining more rupees provided timely notice is given of requirements, which could, of course, always be arranged for.

160. In Ireland the Irish Light Railways Act proved of the greatest benefit to the country, and I feel confident that, if a similar arrangement could be introduced in India and the Railway Board given a free hand within such conditions

as Government may consider it necessary to lay down, a great impetus would be given to railway construction in India and the Government would rarely be required to provide any more Capital than the original contribution. On the contrary, I am satisfied that the Railway Board, as soon as they got into full working order, would always have a handsome balance to hand over to the country at the close of each year.

CHAPTER III.

THE WORKING OF RAILWAYS.

161. The third subject of my Reference is—

"To advise as to the management and development of the traffic the convenience of the public, and the improvement of the revenue;"

that is, the question of the practical working of the railways in India as distinguished from their administration.

162. The most important point connected with the working of a railway is the transit of its traffic. The traffic consists mainly of Passengers and Goods and each needs different treatment.

PASSENGER TRAFFIC.

163. *Speed of Trains.*—Taking India as a whole, the speed of trains, that is, the average speed between the station of origin and the station of destination of the trains, is not as high as might have been expected in a country which has had the benefit of railway communication for nearly fifty years.

On newly-opened lines a very high running speed may not be practicable till the road has consolidated, and on sections of line with light traffic and on the shorter branches it may not be economically justified, but on the main routes, I think, the public have a right to expect that they shall be carried in a much shorter time from point to point than they now are.

164. Taking the principal centres in India, the average distance which a passenger travels per hour by the fastest train is shown in the following table :—

Stations between which trains run	Railways	Year railway opened throughout for traffic between stations named	Distance.	Average speed of the fastest trains between stations named	
				Up	Down.
			Miles.	Miles.	Miles.
Bombay and Calcutta	G. I. P. and E. I.	1871	1,400	31·08	30·77 *
	G. I. P. and B. N.	1900	1,221	27·13	27·47
Bombay and Kalka (for Simla)	G. I. P. and E. I.	1891	1,142	29·72 †	29·28
Bombay and Lahore *viâ* Delhi	G. I. P., E. I. and N. W.	1891	1,289	29·41	28·86
Bombay and Madras	G. I. P. and Madras.	1871	793	22·52	24·43
Calcutta and Kalka (for Simla)	E. I.	1891	1,116	31·25	31·04
Calcutta and Lahore *viâ* Delhi	E. I. and N. W.	1891	1,264	30·46 ‡	
Ditto *viâ* Ghaziabad	...	1871	1,278	...	29·19 ‡
Calcutta and Madras	B. N. and Madras	1900	1,031	23·86	23·02
Kurrachee and Lahore	N. W.	1878	782	22·91	22·80

* The average speed of the Postal Special is 34·64 miles an hour.

† „ „ „ „ „ „ „ „ 31·43 „ „

‡ By arrangement between the railways, the passengers *from* Lahore are carried by the North Western railway up to Ghaziabad and those to Lahore by the East Indian railway up to Umballa Cantonment.

Passenger Traffic.

The less important trains show a much lower average speed, and on the Branch lines it falls lower still as will be seen from the following statement:

Railway.	Stations between which trains run.	Distance.	Average speed of the slowest train between the Stations named.	
			Up.	Down.
		Miles.	Miles.	Miles.
E. I. Ry.	Calcutta to Mokameh	346	17·39	17·97
	Ondal to Alipur Branch	32	7·97	11·10
G. I. P. Ry.	Tundla to Jhansi	151	14·58	...
	Bina to Katni Branch	163	...	13·39
N. W. Ry.	Delhi to Peshawar	636	14·76	13·99
	Amritsar to Pathankote Branch	67	13·3	—
B., B. & C. I. Ry.	Ahmedabad to Colaba	310	16·58	21·3
	Anand to Ujjain Branch	224	11·11	11·41
M. Ry.	Arkonam to Raichur	308	10·80	—
	Podanur to Madras	302	7·70	—
S. M. Ry.	Poona to Mysore	711	16·47	—
	Gadaj to Hotgi Branch	173	10·53	—
S. I. Ry.	Villupuram to Trichinopoly	150	10·79	—
	Tinnevelly to Kallidaikurichu Branch	19	8·59	7·55

165. The average number of passengers in a train is greater in India than in any other country in the world. For the railways enumerated in the preceding paragraph it was:

Railway.	Average number of passengers in a train.				
	1st class.	2nd class.	Intermediate class.	3rd class.	Total.
East Indian	1·35	4·43	14·69	207·93	228·40
Great Indian Peninsula	2·08	8·88	14·90	128·55	154·41
Bengal Nagpur	0·87	3·09	6·40	232·33	242·69
North Western	1·35	4·36	14·27	177·19	197·17
Madras	1·90	6·62	0·85	192·94	202·31
Bombay, Baroda and Central India	1·95	12·66	27·55	185·58	227·74
Southern Mahratta	1·14	3·78	...	172·63	177·55
South Indian	0·85	3·51	...	262·93	267·29

166. A rate of speed which does not exceed an average of 31·25 miles an hour for the fastest train and which falls as low as 13·99 miles an hour for an ordinary train, and 7·55 miles an hour for a branch train cannot, therefore be justified by the poverty of the traffic offering. In America, over large tracts of country fairly comparable with India, the fast passenger trains run at an average speed of from 50 to 55 miles an hour and the ordinary trains at from 30 to 35 miles an hour.

167. The slowness of the average speed in India is due partly to the very large amount of time allowed for stoppages at stations, and partly to the trains being actually timed to run at a speed which, outside India, would be regarded as low.

168. In regard to the former, the time is given either (i) for meals, or (ii) for the watering of engines, or (iii) for the work of the station staff in connection with the train.

The first point I shall deal with in paragraph 176.

Much time might, I think, be saved in the watering of engines by having arrangements for a quicker discharge of the water into the engine tanks and by insisting upon greater expedition on the part of the drivers.

The dilatory, almost casual, way in which the station and train staff often deal with trains is a matter which impresses one the more one travels in India. The remedy is sometimes the simplification of methods but chiefly closer supervision to ensure that every man is at his post when the train arrives, that he understands the duties he has to perform in connection with it and that he perform these duties in a more energetic and methodical manner than is at present done.

The saving of even one minute at each station may amount to hours on a long journey, especially in the case of single line working where trains from the opposite direction are affected, but it will benefit no one if time is saved in the Time Table figures and no effort is made to see that the work is done within the time allowed. At present even the long time provided is often exceeded, and the punctual running of the train thrown out. The passengers themselves sometimes are a difficulty by their slowness in getting in and out of trains, but, I think, it will generally be found that they will move just as quickly as the railway staff show by their own exertions to be necessary.

169. In regard to the latter, that is the low speed at which trains are actually timed, speaking generally, I am of opinion that the speed of trains, both in actual running time and in average, is much too low for the volume of traffic offering. There are undoubtedly places where the population is sparse and there is not a full amount of work for more than one train a day, and to run this train at a greater speed than it is run at present might result at first in the service being performed at a loss, but even in such cases a reasonably fast service would in my opinion, always result in an increase of revenue.

Passenger Traffic.

A very material acceleration of the speed of trains is, in my judgment, necessary for the proper cultivation of the traffic, and the staff in India are I consider, quite capable of working trains, with safety, at such higher speed.

170. *Through trains.*—On some of the railways there is only one through train per day each way carrying passengers, and these are often run at a very slow speed. A service of this nature entirely precludes the proper development of traffic.

On the principal main lines there should be not less than two fast through passenger trains each way per day, and, if necessary, a gathering train should precede, and a distributing train follow these fast trains to accommodate the passengers from and to the intermediate stations at which they do not call. The present traffic on these lines fully justifies such a service. On every other main line there should be not less than two trains carrying passengers each way per day. On branches, the number of trains should be regulated so as to fully meet the requirements of the district. Trains should also, when possible, be so arranged as to admit of business men from neighbouring towns getting to and from business centres on the same day.

171. *Mixed trains.*—A good deal of the traffic in India is carried by mixed trains, and the practice of running them could not be entirely discontinued without adding seriously to the cost of working railways and branches where the traffic is not sufficiently heavy for separate passenger and goods trains. On the main routes, and in other places where the traffic is heavy, the running of mixed trains is economically an unsound arrangement as it necessarily involves a low rate of speed, but otherwise, I do not consider that there is any objection to mixed trains and I do not recommend the running of them being prohibited in India.

172. *Carriages.*—The accommodation provided for the conveyance of passengers is as good as the construction of the present vehicles will permit, but, having regard to the nature of the climate, much remains to be done to secure satisfactory public transit, especially with respect to the third class traffic, the present arrangements in connection with which cannot be regarded as at all satisfactory.

Third class accommodation is not provided to the extent to which it should be on the fast trains and except in the case of a few "joint-stock" trains *third class carriages* are not run through to the final destination of through trains at all, subjecting third class passengers thereby to considerable hardship. Seeing that the bulk of the revenue from passenger traffic is derived from third class passengers, this traffic is entitled to much greater consideration than it now receives, and third class carriages should certainly be run through to the same points to which the higher class carriages are run.

In fact, it would almost seem that the railways in India were insufficient

appreciative of the value of their third class passenger traffic. The less paying first and second class traffic appears to receive all the attention, whereas the traffic which really needs to be fostered is that represented by third class passengers, who are the backbone of the passenger business of every railway in India, their numbers in 1901, excluding season ticket-holders, amounting to nearly 170½ millions, against 9½ millions of all the other classes put together.

The carriages used on branches are not to be expected to be always up to the standard of those used on the main lines, but many of them cannot be considered as being in a satisfactory condition or at all cleanly kept.

173. *Third Class carriages—Overcrowding of.*—The third class carriages are often much overcrowded. Possibly where there are family parties travelling together in such numbers as to fill more than an ordinary compartment they themselves, with the desire to all travel together, may to some extent be responsible for this, but I am of opinion that passengers, especially those going on a long journey, would not wilfully overcrowd themselves, if sufficient accommodation was provided on trains for them.

The system of conveying pilgrims in goods wagons, at all events to such a large extent as at present, also points to the same absence of proper facilities for the traffic.

Generally speaking, the amount of stock provided on the trains for the third class traffic is inadequate and the treatment to which third class passengers are subjected in India calls for very special attention.

174. *Third Class passengers—Treatment of.*—It has been strongly represented that a very extensive system of levying unauthorised charges obtains at stations; that the native police not only interfere with passengers in their carriages, but endeavour to prevent them from even getting their tickets at the booking office unless they are given a gratuity; that in some cases they actually take money from the passengers for the purpose of buying their tickets, and instead of procuring them for the distance required purchase them for a station short of destination, the passenger only finding this out after the train has started when no redress can be had; and that, if they do not succeed, by coercion or otherwise, in obtaining money from the passengers, they intimidate and harass them in such a manner as to make them shrink from travelling by railway at all.

Complaint was also made that the subordinate station staff are given to the same practices, and that, if they do not coerce the passengers, or in some way obtain money from them, they use abusive language, and in other ways do what they can to annoy and molest them, and frequently resort to personal violence.

It was also stated that many of the native Station Masters considerably increased their incomes by requiring traders to pay them fees before they will supply them with wagons to carry their traffic and in other ways pursued the same policy as the Police.

Passenger Traffic.

I was necessarily unable, in the limited time at my disposal and on account of my slight acquaintance with the language of the country and the difficulty there is in India of obtaining evidence in matters of this kind, to verify these reports by personal investigation, but from the statements made to me by officers (both railway and non-railway) in whose credibility I have the fullest confidence, and from the fact that the practice appears to be a custom of the country, I feel satisfied that there is a good deal of truth in them. With my limited knowledge of the people it would be idle for me to attempt to suggest a complete cure, but I think the position might be ameliorated by—

(*a*) closer supervision on the part of the station officials; and

(*b*) making the Ticket Examiner at the entrance gate, whenever irregularities are suspected, enquire of the passengers before they pass on to the platform for what station they have purchased their tickets and to see that they have them for the proper station. If there has been any fraud, it will then be immediately discovered and steps could at once be taken to detect the offender.

175. *Refreshments.*—These may be divided into (1) light refreshments, and (2) regular sit-down meals.

The former, as also drinking water which is supplied free, are retailed to passengers without requiring them to leave their compartments and are chiefly suitable for native passengers. The latter are in the European style entirely and are served in refreshment rooms at regular hours.

For natives, because of caste difficulties, it has never been the practice to provide refreshment rooms, where regular sit-down meals can be obtained; but, in response to a strong desire expressed by the Mahomedan and Hindu community, native refreshment rooms have been opened at a few stations as an experiment, and their extension should be determined by results.

176. *Dining Cars.*—The time, however, which is occupied in refreshment rooms in serving the numerous meals usual in India, tends seriously to pull down the average speed of trains. Attempts have been made to introduce dining cars, but these must be regarded as half-hearted, since the principal trains do not provide them.

The only dining cars at present run in India are the following :—

Oudh and Rohilkhand State railway.—A car runs daily on both the mail trains in both directions. This is the only railway which has a regular service.

East Indian and Great Indian Peninsula.—A car runs once a week each way on the overland mail special between Calcutta and Bombay.

Rajputana-Malwa (*B., B. and C. I. ry.*).—A car is run daily between

Nana and Soojat only, on the up mail to serve breakfast and on the down mail to serve dinner.

Assam-Bengal.—A car is attached daily to one train each way between Chittagong and Silchar.

Southern Mahratta.—This railway, I understand, intends running a car daily on its mail train between Poona and Bangalore.

It would obviously be a waste of money to provide dining cars on railways where the European passenger traffic is light and very variable, but on the fast through daily services between (i) Calcutta and Bombay, (ii) Calcutta and Lahore, (iii) Bombay and Lahore, and (iv) Bombay and Madras; and possibly, also, (v) Kurrachee and Lahore, I am of opinion, that a dining car should always be provided. The trains on these services never lack European passengers. They run between the chief centres in India, and on their journey pass through many towns of importance, between all of which a fair number of Europeans are always moving about. The average number of upper class passengers in a train is no criterion of the number travelling by the fast trains. That is always higher than the average, as most of the higher class passengers use the fast trains.

In Europe and America the success of the dining car has been acknowledged from the point of view both of the travelling public and the railway, and I think no time should be lost in providing a similar convenience on the principal trains in India.

177. *Booking offices.*—At all terminal and at most of the larger stations the booking offices are kept open for the sale of tickets for the whole, or for the greater part of the day. But on many of the railways there is much need for improvement at the intermediate stations, where the offices are often not opened till the train practically arrives at the station.

All booking offices should be opened sufficiently early to admit of the passengers obtaining their tickets without crowding or difficulty, and in good time for the train by which they intend to travel. This may appear a small matter to the station officials but to the travelling public it is one of importance.

The rules of course require that this should be done, and the railway authorities should see that these rules are carried out.

In the cities and large towns where these do not already exist, sub-offices should be opened for booking, not only passengers but parcels and light goods traffic, under somewhat similar arrangements to those in operation in Calcutta. These sub-offices exist now in England not only in the large towns, but in almost every village of importance.

178. *Communication between passengers and guards.*—It was originally required by law that there should be some means of communication between passengers and the guard, so that the former might be able to stop the train when

necessity arose, and for many years a "communication cord" ran along outside the carriages between the brakevan and the engine. This arrangement was discontinued as it was found ineffectual, and, except in a very few instances no communication now exists between the passengers and the guard.

The exceptions are—

(*i*) The Madras railway which has adopted "Winter's system of electric communication" on all its stock both coaching and goods.

(*ii*) The Rajputana-Malwa (worked by the Bombay, Baroda and Central India Railway Company) which has adopted the same system on its Mail trains only.

(*iii*) The South Indian railway which has also adopted Winter's system on its Mail trains only.

(*iv*) The Eastern Bengal State railway which has adopted a system by which the passenger can apply the automatic brake when necessary.

(*v*) The North Western State railway which has tried, but which has not yet finally adopted the same system.

(*vi*) The East Indian railway which is making experiments with an invention of one of its own officers.

The matter is one of great importance and should be enforced by law, if necessary. The Board of Trade in England make a point of never recommending any particular system, and I do not think I could with propriety follow a different procedure. But the system permitted to be introduced on any railway should meet the conditions (1) that it can be relied on, (2) that it can be easily reached by the passenger, and (3) that a notice is placed in a conspicuous part in each compartment, immediately beside the communication, showing how it is to be operated and the penalty for its misuse.

179. *Lighting of trains.*—The lighting of trains in India must be regarded as on the whole unsatisfactory. The through trains on the through routes are well lighted with gas, but many railways still use oil lamps and none of the railways are fully equipped. Appendix N gives the railways which are lighted by gas or electricity. It shows that even old-established railways like the East Indian and the Madras railways still have a large percentage of vehicles using vegetable oils and that the North Western State railway has only 53 per cent. of its vehicles burning gas. The Bengal and North-Western railway which carried over 9 million passengers in 1901 has every single carriage lighted with vegetable oil, and the Rajputana-Malwa railway (worked by the Bombay, Baroda and Central India Railway Company) which carried nearly 13 million passengers in 1901, has only one train (the mail between Delhi and Ahmedabad) lighted by electricity, all others being lighted with vegetable oil.

Electricity would appear to be specially adapted for the lighting of

rains in India, having regard to the nature of the climate, and I think it is very desirable that this should be kept in view in future. It furnishes relatively a much better light than gas or oil, and gives out little or no heat. It would also prevent the delay which is now necessary at stations in lighting the oil and gas lamps, particularly in the case of heavy trains. The electric lighting of trains has now passed beyond the experimental stage. It effects considerable saving in upkeep and working expenses, and English and Continental Railway Companies are now adopting the system very extensively. Its introduction, too, would permit of fans being provided in carriages during the hot weather at comparatively little extra expense.

Whatever the system may be which is decided upon, I think its introduction should be made compulsory on all railways within a fixed number of years, say, five, as the system of lighting trains with vegetable oil lamps does not conduce to the comfort of the travelling public, or to the safety of their property in a country where train thieves appear to be so numerous.

180. *Loading of trains.*—The figures presented in paragraph 165 show that the trains on the principal railways in India are well filled. The experience of other railways is the same.

Goods Traffic.

181. *Speed.*—The time taken by goods in transit between stations is so slow as seriously to interfere with the proper development of the traffic. Numerous complaints were made to me of this during my tour in 1901-1902 and again in 1902-1903. The question had attracted the attention of the Government of India some short time previously and particulars were called for in 1901 from the principal railways, which are summarised below, as they bear out the complaints made to me at a later period :—

Goods booked.		Distance between stations named.	Travelled on the through journey at an average speed in miles per hour varying from	
From	To	Miles.	Highest miles per hour.	Lowest miles per hour.
Howrah (E. I Ry.) . .	Lucknow (O. and R. Ry.) .	466	4·41	3·7
Lucknow (O. and R. Ry.) .	Howrah (E. I Ry.) . .	466	6·0	6·0
Howrah (E. I. Ry.) . .	Delhi (E. I. Ry.) . .	954	11·0	7·25
Delhi (E. I. Ry.) . .	Howrah (E. I. Ry.) . .	954	12·0	4·75
Howrah (E. I. Ry.) . .	Jabalpur (E. I. Ry.) . .	784	6·25	6·0

Goods Traffic.

Goods booked.		Distance between stations named.	Travelled on the through journey at an average speed in miles per hour varying from	
From	To	Miles.	Highest miles per hour.	Lowest miles per hour.
Bombay (B., B. and C. I. Ry.)	Cawnpur (B., B. and C. I. Ry.)	1,071	5·50	5·50
Bombay (G. I. P. Ry.) . .	Cawnpur (G. I. P. Ry.) .	839	8·0	7·0
Cawnpur (G. I. P.) . .	Bombay (G. I. P. Ry.) .	839	10·0	6·0
Kurrachee (N. W.) . .	Delhi (N. W. Ry.) . .	907	8·0	7·0
Delhi (N. W. Ry) . .	Kurrachee (N. W. Ry.) .	907	7·0	7·0

182. Strong complaints were also made by the Coal Merchants and the Indian Mining Association as to the manner in which the coal traffic is conveyed by the East Indian railway between the coal-fields and Calcutta, a distance of about 180 miles, and the latter mentioned the following specific cases in support of their statement:—

(*a*) from the time 18 wagons of coal were handed over for conveyance until they were delivered at destination the time taken on the journey gave a through speed of less than 2 miles an hour;

(*b*) in the case of 19 wagons similarly handed over for conveyance the speed was under 5 miles an hour;

(*c*) for 25 wagons the speed was under 4 miles an hour for 12 wagons, and 13 of the 25 had not arrived at destination at the time of the complaint;

(*d*) for 27 wagons, 10 were conveyed at the speed of 6 miles an hour, 6 at under 5 miles, 10 at under 4, and one had not arrived;

(*e*) of 25 wagons, 17 were delivered at a speed of under 5 miles an hour, and one was outstanding; and that

(*f*) of 29 wagons, 7 were delivered at 5 miles an hour, 10 at under 4 miles, and 12 were outstanding.

183. The foregoing examples represent the time taken by goods in travelling between some of the principal centres. Between stations of less importance, traffic travels at a still lower speed.

184. These low averages are not so much due to the speed at which goods trains are timed to travel, as to the delays which are permitted to occur at starting, at intermediate and at engine-changing stations and junctions *en route*.

Speaking generally, there is insufficient forethought displayed in the arrangement of loads both for wagons and trains, and not so much importance

attached as there should be, to the necessity, in the first place, for loading consignments for one station in the same wagon or wagons or so loading small consignments as to avoid transhipment in transit as much as possible; and, in the next place, (1) for making up the loads of trains as far as possible for the same point, whether on the home or a foreign railway, that is, for junctions, terminals or for a given point and stations beyond, so as to avoid as far as practicable the delay in shunting and finding loads at intermediate stations, and (2) for arranging for the loads to go on from engine-changing stations and junctions with the least possible intermediate shunting and delay.

185. If delay in transit is to be avoided, it is necessary that there should be a service of through trains for goods as well as for passengers; and if trains were made up so as to give a load with wagons for one station, as it should be possible to do in the case of the coal traffic, or, failing this, to give a load with wagons for the furthest consecutive stations; and if the staff looked ahead more and arranged through trains with loads to the furthest points and for engines to be ready to take the loads on as soon as they arrived; in other words, if more efficient methods of working were introduced, there is no reason why the average speed at which goods are carried could not be increased to twice and in many cases three times what it now is, and that without increasing the actual speed at which the trains are timed to travel in the Working Time Tables.

186. As an illustration of the great advantages which may be expected from an acceleration of the goods traffic, it may be mentioned that, by increasing the speed at which goods are now carried to twice the present average, a railway would immediately increase the work done by its rolling stock by 100 per cent., less the time taken to load and unload the second consignment, and could thus carry the same traffic as it now carries with half the stock necessary under present conditions, thereby saving the enormous outlay incurred in the provision of so excessive a supply of rolling stock as now exists on some of the railways, and in addition the great after-expense of maintaining and renewing these unnecessary wagons, and it could do all this without any increase in the running speed of its trains. If, at the same time, the running speed of the trains was raised, the amount of work which could be obtained from the rolling stock would be still further increased.

187. The introduction of a practical system in connection with the working of the goods traffic such as that indicated in the previous paragraphs would thus not only materially help to develop business and consequently increase receipts, but would considerably minimise shunting at intermediate and changing stations and junctions, and thereby reduce working expenses and increase net earnings. It would further do away with the need for a number of the sidings rendered necessary at stations by the present methods of working, thus saving large capital outlay on standing room and marshalling yards and the expense of maintaining

them, and would greatly expedite the transit of wagons, thus permitting of a greater amount of work being got out of the same wagons and reducing the outlay on rolling stock and subsequent maintenance and renewal expenses.

188. It has been urged that the apparent excess of rolling stock is due to the busy season traffic, for which extra wagons have to be maintained even though they lie idle for a greater part of the year, but this does not in any way explain the low average speed at which goods traffic is carried, nor does it, in my judgment, in any way justify the large excess of wagons over normal requirements which is now maintained on some of the railways.

Where the volume of traffic varies during different periods of the year, greater economy would, in my opinion, be found to result from an increase in the running speed at which trains travel, coupled of course with the elimination of the delays to which I have just made reference. This would not only increase the work done by wagons and so allow of a given amount of traffic being carried with proportionately fewer wagons, but would save much of the outlay for standing room for the wagons during the slack season which has now to be incurred, and would generally lead to savings in many directions.

189. *Marshalling arrangements.*—There should be a much more expeditious system of marshalling trains at terminal stations, junctions, and collecting depôts, as much time is lost in transit, and much unnecessary extra expense incurred, and the proper use of rolling stock is considerably interfered with by the present methods of working.

This is to a large extent attributable to the manner in which the station yards have been laid out which do not sufficiently permit of the quick and easy handling of traffic. The advantages of a scientifically laid out yard, such, for instance, as that at Edgehill near Liverpool, are incalculable. This is fully appreciated by the Government of India, who recently issued a technical paper on designs of shunting yards showing the latest practice in England and America, which should be given the most careful consideration and study by Railway Administrations.

190. *Loading of trains and wagons.*—The average load given to wagons and trains in India as compared with their carrying capacity is good, and special attention appears to be paid to this point as a general rule by all concerned.

Fares and Rates.

191. *General.*—The Fares and Rates charged in India, judged from the standpoint of the actual money payment made, are considerably lower than those charged in England; but for a comparison to be of any value, consideration must be paid to the circumstances of the two countries. Taking the cost of

construction and working in England and comparing them with the cost of construction and working in India, and in every other respect if like is compared with like, I think it will be found that the fares and rates in India should, broadly speaking, be only about one-sixth of those charged in England.

192. The *average* fares and rates charged in India are given separately and collectively for all the railways in India in the Railway Administration Report, and there is, therefore, no difficulty in showing what these are; but similar information is not available from published official sources for English railways. I am, however, able to show very approximately what the corresponding *average* rates are on the principal railways in England, and they compare with the corresponding Indian figures as follows :—

PASSENGERS.

Rates per passenger per mile.

	ENGLAND (excluding season ticket holders).	INDIA (excluding season ticket holders).
	Pies.*	Pies.*
First Class †	19·68	12·75
Second Class †	13·08	5·49
Third Class	9·84	2·31
GOODS.		
Rate per ton per mile.		
Merchandise	23·76	6·72
Minerals	9·34	3·55

193. Before, therefore, the fares and rates in India can be regarded, relatively, as even equal to those in England, the former would require to be lower than the rates now charged—

For passengers by about from 18 per cent. to 40 per cent.;

For general merchandise by about from 30 per cent. to 60 per cent.; and

For coal by about from 40 per cent. to 60 per cent.

194. That such low rates as these reductions would involve are not impossible of adoption is evident from the fact that, in America, the rate for all merchandise averages under 0·724 cents or 4·344 pies per ton per mile, and, where water competition exists, wheat is carried *at a profit* at as low a rate as two pies a ton a mile, and other commodities, such as maize, at still lower rates, and both the cost of construction and working are greater in America than in India.

In saying that these articles are carried *at a profit*, I do not lose sight of the fact that many railways in America have been through the Receiver's hands,

* One pie is the one-twelfth part of one anna, and one anna is equal to one penny. A pie is, therefore, one third of a farthing.

† In the case of First and Second Class Passenger fares, some allowance requires to be made for the extra accommodation provided for each such passenger in India; but the third class passenger in India gets no advantage in the matter of seating room, and seldom gets as good accommodation as is given in England.

and that their Capital has been written down. The question of profit, however, does not depend on Capital but on cost of haulage; and, as I shall show later, American railways have been able considerably to reduce their cost of haulage (a charge which in such circumstances would necessarily take into consideration all items of expenditure of every class except interest on Capital) by introducing economical methods of working, and are, as a consequence, able to charge rates now, which a few years previously would have forced them into bankruptcy.

195. It is not suggested that such large reductions as those indicated should be made straightaway in India. This could obviously not be done without seriously disturbing the finances of the Government and the railways. But I am of opinion that considerable reductions are immediately possible, and that they are necessary, more especially in regard to the long distances for the proper development of the traffic. Exactly what the extent of reduction on each railway should be, and how it should be applied, I am unable to advise as definitely as I would have wished (the question needs a much longer study of the local conditions on each railway than I have had time for, considering the very extensive ground embraced in my Reference). But I have shown to what extent relatively these reductions can be carried. Speaking generally, they should be on a sliding scale, the percentage of decrease starting at a comparatively low figure for short distances and increasing as the distances grow greater.

On through traffic, that is, traffic going over more than one Company's line, all fares and rates should be calculated on the *through* distance (this is really expected by the Railway Act, but in practice is rarely done), and the reduction should always be applied on the entire distance and not merely on the local distance of each railway. It is the practice that prevails in India, of calculating rates on the distance to the junction only, which is to some extent responsible for a good many of the high rates now obtaining, since the traffic only gets the benefit of sliding scales of rates on the local distance to the junction instead of on the whole distance that the traffic is carried. But if the long distance traffic is to be developed in the manner that such traffic has been developed in America, the distance must be taken from the station of origin to the station of destination, and the charges calculated on this through distance at the reduced rate.

The percentage of reduction would necessarily differ on each railway, and the reduction would have to be larger on some railways than on others, since the rates at present charged, and the conditions, are not the same on any two railways. Further, the figures I have given all deal with averages. It does not, therefore, necessarily follow that every rate at present charged in India will need to be reduced—some might possibly need to be raised, though I think this doubtful—but *on the average*, there would require to be a reduction to the extent named to secure relative equality.

Fares and Rates.

196. Any reductions of Fares and Rates must necessarily result in a falling-off of revenue in the first instance; but, if the experience of other countries similar to India may be taken as any guide in this respect, the impetus which the reduced rates will give to travel and commerce will be so great as to throw fresh vigour into the whole business of the country, and to amply repay in a very short time the temporary loss.

197. It may perhaps be properly mentioned here that the rates for coal were generally reduced in August last, the amount of reduction varying with the distance, and it has been suggested that the result has not been very satisfactory I do not think any argument can be based on this experience, as it would be obviously unreasonable to say that a reduction in rates had led to a lower volume of traffic being moved (as has actually occurred), and it is well known that the present dulness in the coal trade is due to causes entirely foreign to any reduction of railway rates.

The effect of a change in rates can rarely be judged in the short space of four or five months, but, given a reasonable time for the trial, I feel satisfied that the reductions in fares and rates which my remarks point to will be shown by experience to have been fully justified.

198. *Minimum rates.*—A point connected with all Fares and Rates which has some importance is the Schedule of Maximum and Minimum rates prescribed by the Government. The rates vary to a small extent on the several railways, but under the revised contracts they are usually as follows:—

	Maximum. Pies.	Minimum. Pies.
Passenger Traffic—1st class .	18	12
2nd „ .	9	6
Inter. „ .	$4\frac{1}{2}$	3
3rd „ .	3	$1\frac{1}{2}$
Goods Traffic—Special class .	$\frac{1}{3}$	$\frac{1}{10}$
1st „ .	$\frac{1}{3}$	
2nd „ .	$\frac{1}{2}$	
3rd „ .	$\frac{2}{3}$	
		$\frac{1}{6}$
4th „ .	$\frac{5}{6}$	
5th „ .	1	
Explosives class .	$1\frac{1}{2}$	

Fares and Rates.

In the contracts with the original guaranteed Companies, the English practice was followed and only a maximum was prescribed. When, however, the railway system expanded and competition became possible, it was deemed desirable to prescribe a minimum to prevent railways which had nothing to lose by so doing, their dividends not being affected, from carrying traffic at rates which it was considered could not possibly pay. Under the revised contracts, there is no longer any necessity for placing the restraint of a minimum on such Companies, and I am of opinion that where necessary to secure and develop traffic, railways should be empowered to lower rates below the prescribed minimum; in other words, that the minimum should be withdrawn. A Company working under the revised contracts cannot enter into competition with another at unremunerative rates and keep this up for any time without suffering in its income, and I think self-interest will be found to exercise a sufficiently strong control against reckless competition. If it does not, Government always have the power to step in and stop it when they please.

199. *Villa tickets.*—Turning from general principles to details, to encourage the erection of substantial villas or residential houses along the lines of railway in the vicinity of large towns or business centres, and to induce business men to live in the country instead of staying in town, a free ticket covering the distance from the one place to the other, within a radius of, say 20 miles, might be issued to the occupier for a series of years (10 is the usual period) in consideration of the traffic which may be expected from his family and visitors travelling to and fro. This would create a new and permanent source of revenue, and, wherever the arrangement has been adopted, it has proved satisfactory to the Railway Companies.

200. *Week-end, Excursion, and Tourist Tickets.*—With few exceptions, no cheap week-end, excursion, or tourist tickets are issued in any part of India. These should be provided, and more facilities in connection with Bank and other holidays extended to the public.

201. *Coolie traffic.*—To meet the case of the labour traffic, there should be specially low fares for coolies going to the tea gardens or for sowing or harvesting operations, the rate at the most not exceeding half the ordinary rate, in consideration of the objects for which the passengers are travelling.

202. *Season and workmen's tickets.*—The train service for this traffic is on the whole I think reasonable, but the charges for both season and workmen's tickets are too high and need revision. They should bear the same relation to the charges made for similar services in England as in the case of ordinary fares. The *average* charges for season tickets in England are approximately 4·08 pies per passenger per mile as against 1·41 pies in India.

203. *Traders' tickets.*—To enable traders to help in the development of the traffic, a system of Traders' Tickets might be introduced on Indian railways.

I understand the practice was followed on some railways but was discontinued as the Railway Conference expressed disapproval of it because it was considered that it encouraged unfair competition. It has been attended with satisfactory results wherever it has been adopted in other countries, and I am of opinion that it could with advantage be generally introduced in India.

204. *Classification of goods and through Rates.*—For through booking, that is, in the case of traffic passing over more than one railway, there should be one general classification of goods for all India, and subject of course to exceptions, one scale of rates applicable on the through distance from station of origin to station of destination. This is now the general practice both in England and in America. The present practice of permitting each railway to have a separate classification and a separate scale of rates applicable on the local distance to the junction only, leaves the public in much uncertainty as to what the rates are and gives the goods and other clerks a great deal of unnecessary trouble in calculating the charges and preparing the way-bills and invoices.

All rates should be calculated on the prescribed scale by the shortest route and divided in mileage proportion, between the railways forming the shortest route, or, between the railways forming such other longer route as may by mutual agreement be used for the traffic.

205. *Invoicing and Way-billing of Traffic.*—As a consequence of the present procedure, the way-bills, invoices and registers have numerous columns in which the forwarding clerk has to fill in each Company's proportion of the through rate. The amount of labour and unnecessary expense that this involves, to say nothing of the delay in booking and forwarding the traffic and in preparing the receipt for the consignor, are considerable. The clerk should be furnished with a table of distances and a scale of rates and he should be required to enter only the through rates in the way-bill or invoice. The division of charges between the several railways is a matter entirely for the Audit office. This is the system followed in England, and it is very advisable that in the interests of all concerned a similar system should be adopted here without delay.

206. *Goods and parcel collection and delivery.*—It is not the general practice on Indian railways to undertake the cartage, collection, and delivery of goods and parcels, but the convenience and economy of the arrangement to the public, and its benefits to railways themselves wherever it has been tried are so great, that the system might with advantage be introduced on a more extensive scale, especially in the larger towns in India.

207. *Erection of Passenger stations and Goods depôts.*—Indirectly, but still intimately, connected with the question of Fares and Rates is the location of Passenger stations and Goods depôts. In a good many cases these have not been so placed as to meet, to the best advantage, the requirements of the public, and

they are in consequence costly to work, and subject the public to unnecessary inconvenience and expense.

To enumerate instances of bad location would be futile, since every railway in India affords numerous examples of this. The mistake was chiefly made when railways were first begun in India, the idea at that time apparently being that the further the station was placed from a town, the less it would be in the way. Wiser counsels have since prevailed, but the evil has not yet been completely removed. Stations and Goods depôts should always be placed on the town or business side of the railway, and in the position most convenient for the public. Otherwise a tax is imposed in perpetuity on the people and the trade, since the further the station is from the centre of business the greater is the expense of getting to and from it.

208. *Development of local industries.*—I do not think sufficient attention is given to the creation and development of local industries. The more numerous the local industries are along a line of railway, the greater always is the prosperity of that railway. They not only give their products to the railway to carry but their presence creates a great deal of traffic in both passengers and goods, which but for the local manufactories would never come to the railway at all. Every encouragement should, therefore, be given to the opening up of more local industries by offering special facilities in the way of rates and accommodation, at all events until they are fairly started and giving more easy terms in regard to the laying down of sidings to the works.

209. *Equalisation of traffic.*—A very large part of the traffic on Indian railways is forced into two or three months of the year. It is, I am aware, very difficult to alter long-established customs of Trade, but if what is known as the "busy season traffic" could be spread over a longer period, it would be an enormous advantage economically not only to railways but to the trade of the country as well. Fewer engines and wagons, fewer ships, fewer warehouses in towns where land is expensive, would be required and the cost of transportation generally could be considerably reduced. The unaided efforts of railways alone cannot bring about the necessary reform, but railways might help towards it by the quotation of lower rates during what are known as the slack seasons of the year, so as to encourage the public to forward more of their heavy traffic during the slack season and thereby relieve the pressure during the busy period. The idea may sound Utopian, but it is well worth an effort, in view of the great benefits which would result from its realisation.

210. *Risk Note.*—The conditions attaching to the Risk Notes in use on Indian railways, which it may be mentioned have the sanction of law, are of a very onerous nature. Railways are not only exempted from all liability for loss or damage to the property while in transit which they could not with due care have prevented, but they are relieved of responsibility for the wilful acts

of their own servants. In other words, if a consignment has totally disappeared while in the possession of the railway, the Law Courts hold that no claim lies against the railway under the present wording of the Risk Note.

In England, a railway is not exempted from liability for the wilful acts of its own servants, and the present conditions in the Indian Risk Note cannot work in the best interests of the country. For convenience of reference copies of the Indian and English forms of Risk Note are printed as Appendix O, and I am of opinion that the Indian form should be assimilated to the English form.

211. *Claims.*—There is general complaint against and considerable dissatisfaction with the delay which occurs in dealing with Claims for compensation and refunds of over-charges as also with applications in connection with railway questions, for which I find there are good grounds. It is very desirable that matters of this kind should be dealt with expeditiously.

212. *Coal traffic.*—Strong complaints were made, with the reasonableness of which I was satisfied, of the loss sustained through abstractions from the trucks while in transit and through coal being piled up to a greater height than the sides of the wagons, which resulted in the falling off of the contents while the train was running and during shunting operations. Complaint was further made of the refusal of Railway Companies to weigh wagons at the journey's end and to pay compensation for the difference between the weight delivered and that invoiced and charged for, or even to allow credit for freight charges on the undelivered weight. In dealing with a commodity like coal, some allowance is necessary for dryage during transit, but the amount of this is easily ascertainable. The loss referred to is, however, attributed to other than natural causes, and to ignore the reasonable representations of the trade in regard to it, practically amounts to a raising of the rate and the imposition of restrictions on the development of the traffic. The public have a right to expect that they shall have delivered to them the same weight of traffic as they deliver to the railway for carriage, that their goods shall be re-weighed at the time of delivery, and that they are required to pay freight on no more than is delivered to them after making due allowance for differences in scales and losses due to natural causes.

213. Complaints were also made with respect to the high rates for coal generally, and especially for long distances. The rates have very recently been reduced, though the concession has been deprived of much of its value by the new rates being made "Owner's Risk Rates." But, as I have shown in an earlier part of this chapter, the rates are still very high and, in my opinion, require to be considerably reduced, if the traffic is to be fully developed.

214. In connection with the question of the coal rates, the charges made on coal to Bombay were specially brought to my notice. At present the traffic is carried by rail (about 180 miles) to Calcutta and from there by sea (about 2,080 miles), the rate by the direct rail route (about 1,147 miles) being prohibitive.

Fares and Rates.

The charges by the two routes are at present as follows:—

Viâ Calcutta—

	Per ton. Rs. A.	Total per ton. Rs. A.
By rail . . .	2 10	
By sea . . .	4 8 *	
Dock charges at Calcutta	0 10	7 12 †
Viâ rail route—	16 2	16 2

215. To the Calcutta or sea route the objection is made that the purchaser is never sure of getting the particular quality of coal he purchases and, I am informed, that the coal is subjected to so much handling and consequent damage, that, to avoid this, the large consumers of coal in Bombay and the coal merchants in Calcutta are prepared to pay as high a rate as Rs. 11-8 a ton by the all-rail route.

These rates, however, are below the minimum which the railways concerned (the Bengal Nagpur and the Great Indian Peninsula railways) are permitted to charge, and some doubt has been expressed whether the traffic could be profitably carried at Rs. 11-8 a ton.

216. In America, to meet water and other competition, the loads of trains are now as high as 4,000 tons. In India the highest load at present is 1,000 tons, and on this basis, assuming that one-third of the load is tare or dead weight, there would be 666 tons of paying load in each train which would yield a gross revenue of . . . . . Rs. 7,659

	Rs. A. P.	
Deduct Rs. 1½ per mile for working expenses (As a matter of fact a train of this nature could be run for little over one rupee a mile.)	1,720 8 0	
Allow the same for the empty wagons returning, and even assuming none of them get a back load	1,720 8 0	3,441
The profit per train of coal would be		Rs. 4,218
Which would be equal to a profit per train mile of		„ 1·83
The average gross earnings per goods train mile on the Great Indian Peninsula and Bengal Nagpur railways in 1901 amounted to about	3·60	
and the working expenses, including all charges for supervision and other fixed expenses which are not affected by variations in traffic, amounted to about .	1·93	
showing a profit per train mile of about . . .		1·67

* The rates, I am informed, vary between Rs. 6 and Rs. 4-8 a ton.

† To this have to be added Dock and other charges in Bombay, the amount of which is unknown.

217. While, therefore, there can be no doubt that the Bengal Nagpur and the Great Indian Peninsula Railway Companies could carry the coal from the coal-fields in Bengal to Bombay at a rate of Rs. 11-8 a ton without loss, and could earn from the traffic at least as great profits as they now earn on an average from each goods train they run, I think there can be equally little doubt that it would pay them to carry the traffic for a great deal less than their normal profits on each ton handled, when the alternative is the loss of the business altogether. The railways could, therefore, afford to carry the coal even at a lower rate than Rs. 11-8 a ton without suffering any loss.

If heavier engines were employed to haul the traffic and if the high carrying capacity American wagons, which are particularly suitable for this class of traffic, were used, the rates could be still further reduced, as the working expense would be materially reduced, since the more the tonnage carried by each train the less would be the cost of haulage and the greater would be the profits.

218. I said in another place that in America wheat was being carried for long distances *at a profit* at two pies a ton a mile and maize at a still lower rate. What America has been able to do, India should be able to do and much more, seeing how much more expensive everything is in America.

A reduction in rates by the rail route may lead to competition with the sea route, but that does not, in my opinion, appear to be a sufficient reason for depriving the great coal industry of India of the means of development which would be secured by the reduction in rates by the rail route which is sought. It is not merely a question whether the traffic shall go by land or by sea. The disabilities under which the traffic at present labours open the door to the introduction of English and Japanese coal, and these should be removed.

Rolling Stock.

219. The Rolling Stock on Indian railways, speaking generally, is not well adapted to the requirements of the traffic either in design or utility, and, in my opinion, falls short to a serious extent of what is necessary for economical and efficient working.

220. Railway Rolling Stock consists of (1) Engines, (2) Passenger vehicles of the different classes, (3) Goods vehicles, and (4) Miscellaneous vehicles. The last class needs no comment, as the service in which it is employed is special and limited. The remainder I will deal with *seriatim*.

221. *Engines.*—The conditions of the traffic in America and India are very similar, and a comparison between the two countries would, I think, be not unreasonable. In America loads of 3,000 tons are now quite common and loads of 4,000 tons are fast being introduced. In India the best load on any railway is the East Indian railway load of 1,000 tons which is much above the average.

Rolling Stock.

222. The question of introducing engines of higher power and of limiting the number of types of engines has been dealt with recently by a special committee, and it is unnecessary to refer to it here further than to say that, unless in quite exceptional circumstances, five different types of engines should be ample for the train service of even the largest lines, *viz.*, one for fast passenger trains, one for either ordinary passenger or fast goods trains, one for heavy goods trains, one for branches, and one for shunting yards.

223. The high-speed passenger and high-capacity goods engine at least should be of the most powerful build consistent with safe working, and the permanent way and bridges should be strengthened where necessary, on the principal routes at all events, to permit of their being introduced, just as is done in the United States in similar circumstances.

Shunting engines should be of such construction as to permit of their being moved backward and forward with the utmost expedition, and the work now performed by special shunting engines should not be left to be done, as in most cases at present, by the ordinary train engines, or by old engines quite unsuitable for the purpose. The "Tank" engine is now recognised as the most efficient type for this service, and has been introduced on some of the railways with the successful results which were to be expected.

224. In India, railways profess to run a train with as many wagons as the engine is economically capable of taking at the speed prescribed, which is usually very slow. There can be no doubt that the principle of working an engine to its highest pulling power consistent with a satisfactory service is a sound one. But I would recommend that railways should be required to make experiments to see whether they are getting full work out of their engines, as, from a series of test cases which I had made, I am not satisfied that this is the case on all railways.

225. *Engine mileage.*—In the compilation of Time-Tables, railways should particularly endeavour to arrange their goods trains in pairs, that is, an up train to pair with a down, so that an engine going out from its home station shall always have a timing to come back to as soon as it has had a reasonable halt at the out-station.

In practical working, an engine is usually required for a load either from its home or from the out-station. In any case the traffic is usually more important in one direction than in the other. The direction in which the load is to travel fixes, or should fix, the train in that direction, and this train, and the one which is paired with it, should be simultaneously notified to run, so that the engine may be certain of returning home as quickly as possible. Any system which permits of trains being ordered to run without regard to the train by which the engine is to return, must lead to engines being delayed needlessly at out-

stations, deprive the railway of the full use of them, and necessitate the employment of more than the service really needs.

The question of re-arranging the distances between changing stations, so as to get a full day's work out of the engine on each trip, might also be reconsidered to see if any alteration would be economically possible.

The extra number of engines at present kept to meet the periodical pressures of traffic no doubt contributes to the lowering of the average, but notwithstanding this drawback, I am of opinion that the daily number of miles run by an engine in India, especially where there are long leads, could be considerably improved by more methodical working.

226. *Delay in repairs.*—Another of the causes operating against better results would seem to be the number of engines constantly under repairs. Appendix P shows the percentage for the several railways. It varies from 7·14 per cent. on the Darjeeling-Himalayan railway to 26·24 per cent. on His Highness the Nizam's railway, the average being generally over 15 per cent. In England and America the average does not usually exceed 8 per cent. An engine is a costly article, and I do not think the results presented in Appendix P can be regarded as at all satisfactory.

227. *Passenger Vehicles.*—Indian railways are very backward in their employment of bogie carriages. No other kind of vehicle is used in America, as they are now considered to be much superior to the four or six-wheelers in comfort and convenience to the passenger and in economy of working to the railway. So much is this now recognised to be the case that bogies are being extensively introduced all over Europe. The bogie appears to me to be a class of vehicle specially adapted to Indian conditions, and the building of any more of the present type of four-wheeled vehicle should, in my opinion, be discouraged. The composition of all the important trains should be made to consist of bogie stock. The attachment of bogies and four-wheelers on the same train should be avoided as far as practicable, and four-wheelers (of which there are more than enough for such traffic as they may be regarded as useful for) should be confined, as far as possible, to these special uses and to the less important trains and branch line services. Of course it will not be possible for some years to ensure that the composition of even the important trains shall be entirely bogies, as there are so many four-wheelers, but that is the object which, it seems to me, should be kept in view, and it cannot be attained while railways continue to construct four-wheelers.

228. All new passenger vehicles should be provided with lavatory accommodation in the third as well as in the higher classes, and the existing lower class carriages travelling on all but short distance trains should be fitted with lavatory accommodation as soon as this can be conveniently arranged.

I received numerous complaints of the great inconvenience suffered from

the absence of this accommodation, and, considering the conditions of railway travel in this country, there can be no doubt that the complaints were well founded. Since my first arrival in the country, however, the question has been taken up and orders have already been issued by the Government of India for the necessary accommodation to be provided, and it only remains now to see that they are carried out without undue delay.

229. One of the peculiarities of Indian railways is the provision of carriages for no fewer than four different classes of passengers. This unduly increases the dead weight of trains and the cost of working. The average number of passengers of the different classes in each train, in 1901, was—

Gauge.	1st.	2nd.	Inter.	3rd.	Season tickets.	Total.
Broad . . .	1·48	5·45	13·64	173·65	4·56	198·78
Metre	0·88	3·45	3·59	217·37	0·63	225·92
Broad and Metre . .	1·31	4·86	10·65	186·66	3·39	206·87

and it becomes a question for consideration whether it might not be expedient to reduce the number of classes. I am disposed to think that if some railways (for instance the railways in Southern India and in Burma) find three classes sufficient, all should be able to do so.

230. *Goods vehicles.*—On the metre-gauge railways bogie wagons (but with a low carrying capacity) are used to a limited extent. On the broad-gauge railways, they are used to a still more limited extent. But the high-capacity American bogie exists nowhere in India.

231. For the higher class traffic which is consigned in small quantities, the four-wheeled wagon is, perhaps, the more suitable type of vehicle, though in America they have not found this to be the case economically; and for such traffic a percentage of the four-wheeled low-capacity stock might be retained. But for the heavy traffic which represents 80 per cent. of the whole traffic carried by Indian railways, the most economical vehicle is pre-eminently the high carrying capacity American bogie truck. The conditions in regard to traffic in India are not at all dissimilar from those in America, and I can see no reason why India should not be able to derive from the use of such vehicles, the very great benefits which America has done.

232. Without going into the scientific value of large wagons, or why these are more economical if placed on bogies, a few practical considerations may be mentioned to show the great advantage of the high-capacity American bogie over the most up-to-date four-wheeled stock in India.

233. The chief of these is the high ratio of paying load to dead weight. The best vehicle on the East Indian railway, which carries the bulk of the coal traffic in India, is a four-wheeled open wagon, the tare of which is 7 tons 17 cwt. and 2 qrs., with a carrying capacity of 16 tons, that is, the ratio of

paying load to dead weight is roughly 2 to 1. (I am informed this railway has now under construction four-wheeled stock with a tare of 7 tons and a carrying capacity of 17 tons.)

234. In America the best vehicle is an open bogie, the tare of which is 17 tons 10 cwt. with a carrying capacity of 50 tons, that is, the ratio of paying load to dead weight is roughly 3 to 1.

235. The load of the Indian train is 1,000 tons (though in practice about 10 per cent. extra is taken), which would be made up—

—	Tare.	Capacity.	Total.
	Tons.	Tons.	Tons.
In the case of the Indian vehicle, of 45 wagons .	354	720	1,074
Do. do. American bogie, of 16 wagons .	280	800	1,080
Difference in favour of American bogie . .	—74	+80	

236. In other words, assuming that the engine can only take the same weight of bogies as it does of four-wheelers (as a matter of fact, as will be shown presently, it can take considerably more), with the American vehicle 80 tons more of paying load are secured over the present Indian train, that is an increase of over 10 per cent. in paying load with a reduction of over 20 per cent. in dead weight, while with the four-wheeled vehicle the paying load is sacrificed to the dead weight.

237. Now the greater is the average load in a vehicle, the greater will be the average paying load in a goods train and, consequently, the lower will be the cost of hauling each ton moved. When, therefore, the saving in one train is multiplied by the large number of trains which is run during the year, the enormous economy that would result from the introduction of the American high-capacity wagon becomes apparent.

238. But the improvement in train load does not stop here. Experiments in America have shown that the higher the gross weight of the vehicle, the lower is the ton resistance, and consequently that an engine can haul a higher load on bogies than of four-wheelers, and of high-capacity bogies than of low-capacity bogies. The mere fact of concentrating the weight of the train into a few cars makes it possible, (1) if the load is not increased, to effect a marked saving in the consumption of coal by the engine, or (2) to increase, and considerably increase, the paying load of the train, on the principle that "the nearer the load is to the horse the easier is the draught," and because the fewer the vehicles the less in proportion is the friction, also the fewer the spaces between vehicles the less is the energy of the engine absorbed in overcoming air resistance.

I understand these conclusions are not borne out by the experience of the North Western State railway, but the results obtained in America would appear to be so obviously what might be expected, that I think it may be reasonably

assumed that the failure of the Indian vehicle must have been due to faulty construction.

239. Again, the use of the high-capacity American bogie reduces the initial outlay on stock and the subsequent maintenance charges, one 50-ton American bogie costing less to buy than three four-wheeled Indian vehicles, and obviously much less to keep up, an important consideration in railway working.

240. Further, there is also the great saving which it effects in the length of a train. A bogie and a four-wheeler train of the weights referred to in paragraph 235 would measure respectively $36\frac{1}{2}$ ft. $\times$ 16=584 ft. and $22\frac{2}{3}$ ft. $\times$45=1,020 ft. That is, the four-wheeled train, in addition to carrying 80 tons less of paying load and 74 tons more of dead weight, is nearly twice as long as the bogie train.

241. The saving in this direction must lead to saving in another, since the longer the train the greater the standing room required for the trucks in the station yards and the accommodation required for refuge sidings at passing places. In the large yards, marshalling depôts, and at terminals, that is, at points where traffic concentrates, this becomes a very important consideration, as land can only be obtained at such places at an ever-increasing cost.

242. Finally, there is the important fact that where any portion of a railway is overcrowded with trains, and more cannot be run without laying down additional lines, the use of the large wagon with the large engine would at once relieve the congestion by reducing the number of trains, while at the same time permitting of the traffic being wrought with a smaller staff and a smaller number of locomotives.

243. These are all solid advantages and it is worth the while of any railway to introduce any type of engines and vehicles which will shorten the length of its trains and make it easier to handle them and to haul them weight for weight.

244. An objection advanced to the use of the heavy bogie, namely, the difficulty of moving it by manual labour, has been overcome in America by special contrivances, by means of which one man is able to move along the heaviest wagon, so that this objection can no longer be urged against its adoption.

245. It is not proposed that the present vehicles should be at once superseded; but in building new stock, the existing type should not be extended beyond what is necessary for the conveyance of the traffic consigned in small quantities, for which there is now an ample supply of these trucks for many years to come.

246. At present, where old and worn out stock is being replaced, the efforts of railways are being directed to the designing of four-wheeled vehicles which will increase the ratio of paying load to tare or dead weight. Whatever may be done in this direction is so far satisfactory that it reduces the

non-paying weight in a train, but even when the four-wheeler has the same ratio of capacity to tare as the American bogie, the latter would still be by far the superior vehicle, as the long wheel-base with resulting rigidity would remain with the four-wheeler, and it is the flexibility of the bogie with its comparatively short length which gives it the great advantage over the four-wheeler.

247. *Wagon supply—Increase of.*—With the great development which is taking place in the traffic in India, indents are constantly coming in to the Government for an increase of the wagon supply, but as I have shown in an earlier part of this chapter, wagons are not at present being worked to their full power because of the time taken at the despatching station between the time they are put into the sidings to be loaded and the time they are forwarded, and at the terminal stations before they are unloaded and made available for a second load or for return, and because of the time they take in transit between the station of origin and the station of destination. These delays naturally restrict the wagon supply, and seriously interfere with the utilisation of the rolling stock to the best advantage.

To meet the large increase of traffic which comes during the busy season it has hitherto been the practice to supply extra vehicles, but I am of opinion that this over-pressure would be more satisfactorily met, not by running the heavy and unwieldy trains necessarily at slow speeds which may be suitable for normal times, but by running trains with lighter loads at a higher speed. An increase in the speed of goods trains would not, as is amply borne out by experience, lead to anything like a proportionate reduction in the load of the train. By increasing the speed of trains, therefore, during times of pressure not only would more work be got out of both engines and wagons, but a much smaller number of both would be required than would be necessary at the slower speeds, and large outlay on Rolling Stock with subsequent maintenance expenses would be avoided. The provision of a special supply of engines and vehicles to meet the busy season's traffic is very far-reaching in its consequences. Apart from the stock lying idle for the greater part of the year or rendering insufficient service, it involves outlay in the provision of standing room at stations and possibly leads to a duplication of the track with all the subsequent expense of maintaining them.

I do not think too much importance can be attached to this question. An enormous amount of money could be saved by a better utilisation of the rolling stock, and I am of opinion that before the Government sanction any increase to the present supply, they should require very clear evidence that the difficulty in which railways find themselves cannot be overcome in some less costly way.

Rolling Stock.

248. For minimising the extent of rolling stock and securing economy in working, wagons of large carrying capacity are peculiarly fitted for the grain, seed, cotton, jute and coal traffic. In short, the sound principle to be adopted for the economical working of any railway is to have vehicles of large carrying capacity with the least possible dead weight, a policy which has been attended with such very satisfactory results in the United States and Canada.

249. *Axle loads.*—Such stock, however, as the very economical 50-ton American bogie or high power engine, is not possible in India under the restrictions at present imposed by the Government on the loads which may be placed on engine and wagon axles. This restriction is due to the fact that the roadway and bridges are not considered strong enough for higher loads. The railway bridges in India are much more substantially built than those in America and, generally speaking, have a considerable margin of safety. The permanent-way can always be strengthened by closer sleepering.

250. In view, therefore, of the axle loads permitted in other countries and the large margin of safety which admittedly exists in the case of all Indian bridges, in view also of the great savings which would result from the adoption of the larger engine and wagons, the question of increasing engine and wagon axle loads is entitled to most serious consideration. That consideration it is now receiving at the hands of the Government, on the report submitted on the question by Mr. C. W. Hodson, Director of Railway Construction, and it is only necessary for me to remark that true economy lies not in making the stock to fit the road, but in improving the road to fit the stock. In America the greatest importance is attached to this policy and any outlay incurred in the attainment of it is regarded as immaterial in view of the great advantages secured thereby. In fact, it may with truth be said that America owes her present commercial position in the world to no small extent to her low freight rates, which have been only rendered possible by the enormous loads her trains haul; and that some American railways which were in financial difficulties were only able to save the situation by adopting the arrangements advocated.

251. *Repairs to Rolling Stock.*—The number of engines and vehicles under repairs at one time on Indian railways is very high as will be seen from Appendix P, and this cannot be regarded as at all satisfactory. I was assured that special efforts were made to turn out of the workshops as much stock as possible during the busy season and to defer repairs till the slack season, but I did not find that this was always done.

There is, in my opinion, room on all railways for a very marked improvement indeed in connection with this important matter.

252. *Automatic coupling.*—The centre-buffer coupling in use on the metre-gauge railways in India, should be on the principle of the central automatic buffer coupling in use in America, which has double instead of single action'

These couplings afford much greater security to the shunting staff, expedite marshalling arrangements, and make it immaterial in which direction the coupling of the next vehicle faces.

It is deserving also of serious consideration whether the central buffer coupling should not be adopted for the broad-gauge stock. The Great Eastern railway in England is introducing this type of coupling (in combination with the ordinary style of coupling for use when an old and a new type vehicle come together) and its advantages have been fully demonstrated in America. I shall have occasion to refer to this question again later.

253. *Widening of vehicles.*—In America and on the Continent, the gauge of railways is 4′ 8½″ and the width of vehicles 10′ and 10′ 6″ respectively, whereas in India, where the broad gauge is 5′ 6″ the width of the vehicle is only 9′ 6″. It becomes, therefore, a question for consideration whether more advantage cannot be taken of the broader gauge in India in building vehicles in the future. The subject is involved in the general question of gauges, and I propose, therefore, to defer dealing with it till I come to the larger question.

Train working by Absolute Block.

254. It is not the universal practice in India to work trains on what is known as the Absolute Block System. Still less is it the general practice to employ any system of Block Instruments to provide the necessary authority for a train to proceed from one station to another.

255. Even the main routes over which the fastest trains run, are not supplied throughout with Block Instruments, as will be seen from the following statement; and, where such instruments are at present employed, they are not in all cases of the type which supplies tangible evidence to the driver in the form of a token, that authority has been duly received from the station to which his train is about to proceed :—

Section of lines.	Railway.	Number of stations in section.	Number supplied with special Block Instruments.
Bombay to Calcutta	Great Indian Peninsula	115	115
	East Indian	169	45
Bombay to Kalka	Great Indian Peninsula	157	110
	East Indian	50	12

Train working by Absolute Block.

Section of lines.	Railway.	Number of stations in section.	Number supplied with special Block Instruments.
Bombay to Lahore	Great Indian Peninsula	157	110
	East Indian	44	12
	North Western	30	0
Bombay to Madras	Great Indian Peninsula	78	78
	Madras	62	51
Calcutta to Kalka	East Indian	240	57
Calcutta to Lahore	East Indian	234	57
	North Western	30	0
Kurrachee to Lahore	North Western	100	0

256. The number of stations supplied with special Block Instruments on each railway is shown in Appendix Q. The percentage of stations so supplied for all India was, at the end of 1902, only 17·58 per cent., so that the number at present fitted is not large and the progress towards a general adoption of the system is very small.

257. Not only is this so, but, as I previously remarked, all railways do not work on the system which prohibits one train from entering a section until the previous one has cleared it, and the following railways still work on what is known as the "Line clear and Caution message system:"—

(1) His Highness the Nizam's railway; (2) The Bengal Central railway; (3) The Bengal and North-Western railway; (4) The Jodhpur-Bikaner railway; (5) The Darjiling-Himalayan railway; (6) The Morvi railway; (7) The Assam-Bengal; (8) The Burma; and (9) The Bhavnagar-Gondal-Junagad-Porbandar railway.

Up till September 1902, the East Indian railway followed this system on sixteen sections of its main line, but steps are being taken to discontinue it as soon as possible, and it is expected that the practice will very shortly cease. The three State railways (North Western, Eastern Bengal and Oudh and Rohilkhand) only recently abandoned it, but have not done so wholly. On branches, two trains are permitted to be on the same section, that is, between two stations, at the same time, and on all portions of the line, a ballast train is permitted to follow an ordinary train before the latter has cleared the section by reaching the station in advance.

Train working by Absolute Block.

258. In England, this procedure would never be permitted even on lines with the lightest traffic, and I do not think that the arrangements in India in connection with this most important matter can be regarded as at all satisfactory.

259. On lines, or parts of lines where the traffic is never heavy, the cost of adopting a system of high-standard Block Instruments would no doubt be prohibitive, and it would not be expedient to force the expense of special instruments on such poor lines. But it is possible to secure absolute Block working, where the traffic is light, without special instruments (even the old "Train Staff" system, a very cheap method, would secure this on such lines); and I am of opinion that Government should prohibit absolutely the employment of any system which permits of one train leaving a station, before the previous train has reached the station in advance.

260. While, however, I consider that on the less busy lines special Block Instruments might be dispensed with, the main routes and all busy lines (for instance, the main lines of the East Indian, the Great Indian Peninsula, the Madras, the Bengal Nagpur, the Bombay, Baroda and Central India system, the North Western, the Oudh and Rohilkhand and the Eastern Bengal State railways) should be compelled to adopt some system of Block Instrument which gives out a token, and which makes the withdrawal of a second one impossible until the first has been put back into one or other of the instruments controlling the section between two stations.

261. There are many kinds of such instruments now on the market, all of which have passed beyond the experimental stage, and two systems have recently been invented, one by Mr. Neale the Telegraph Superintendent of the Great Indian Peninsula railway, and one by Mr. Theobald a Telegraph Engineer on the Madras railway.

I could not with propriety recommend any particular system for India, but I think that the invention of local officers is entitled to consideration.

Nor do I think it necessary that one system should be adopted all over India. I do, however, consider that there should be only one system permitted on each railway and that that system should be of the nature stated in paragraph 260.

262. Within what time the system should be adopted would depend upon the decision at which Government arrive in regard to the provision of Capital for Improvements.

263. But the matter is one of great importance in the interests of the travelling public, and I am of opinion that they should not be deprived of the security which the system affords for a longer period than five years.

Interlocking of Points and Signals.

Interlocking of Points and Signals.

264. Even on the main routes where the fastest trains run, the important precaution of interlocking points and signals has been neglected at most stations, as will be seen from the following statement:—

Section of line.	Railway.	Number of stations on sections.	Number of stations interlocked.
Bombay to Calcutta	Great Indian Peninsula	115	16
	East Indian	169	51
Bombay to Kalka	Great Indian Peninsula	157	29
	East Indian	50	7
Bombay to Lahore	Great Indian Peninsula	157	29
	East Indian	44	7
	North Western	30	25
Bombay to Madras	Great Indian Peninsula	78	20
	Madras	62	6
Calcutta to Kalka	East Indian	240	45
Calcutta to Lahore	East Indian	234	45
	North Western	30	25
Kurrachee to Lahore	North Western	100	84

265. The number of stations interlocked on each railway is given in Appendix R and a reference to it will show that, taking the busiest lines in India, on the East Indian, only 24·74 per cent. of all the stations were interlocked in 1902, only 12·07 per cent. on the Great Indian Peninsula and only 8·29 per cent. on the Bombay, Baroda and Central India system. The North Western and the Oudh and Rohilkhand State railways are the best equipped of all the railways the percentage on these lines being 44·80 and 47·44 respectively. But all the others are very much behindhand, and some of the railways carrying a large passenger traffic, for instance the Madras,* the South Indian and the Burma railways, have not yet got beyond the experimental stage, and others like the Bengal and North-Western have done nothing to provide this protection to their constituents.

266. As in the case of the Block Instruments, while I think that, on railways or parts of railways where the traffic is light and the number of trains

* The stations shown as interlocked on the Madras railway are almost entirely on the State section recently ceased to the Company to work.

small, the interlocking of points and signals at stations might be deferred till business improves, on the main lines where the traffic is heavy and fast trains are run, it is my opinion that the points and signals should be interlocked at every station.

267. On what sections this should be done would depend on the volume of the traffic. Every station between Bombay and Calcutta, Kalka, Lahore and Madras, Madras and Calcutta, Kurrachee and Lahore, Bombay and Delhi by the Bombay, Baroda and Central India railway, Bombay and Calcutta by the Bengal Nagpur railway, Moghal Sarai and Saharanpur by the Oudh and Rohilkhand railway, Calcutta and Siliguri by the Eastern Bengal State railway, on the main line of the Burma railway, Madras and Trichinopoly on the South Indian railway and Poona and Bangalore on the Southern Mahratta railway should, in my opinion, be interlocked without delay; and there are doubtless many other sections of line where the volume of traffic and the speed at which trains are run require the protection.

268. The rate at which the work shall be proceeded with, depends again on the decision of the Government of India as to the method of providing money for Improvements. The question is one of great importance to the safety of the travelling public, and I do not think the provision of the precaution should be undertaken at a slower rate than will permit of the work being finished within five years.

269. Attention may also be called to the marked absence of uniformity in connection with the fixed signals on many of the railways in India. On some the distant signal is treated as an absolute stop signal, on others it is a stop and draw-in signal, and on others again it is sometimes used merely as a repeater of the Home or Starting signal. The same signal should always have the same significance, that is, should convey the same meaning, on all railways, and this is the universal custom in England.

The question is one which has been under the consideration of the Railway Department of the Government of India for some time, and it is very desirable that an early decision should be arrived at.

Automatic Brakes.

270. Fair progress has been made towards the provision of automatic brakes on all coaching stock, but much still remains to be done.

271. Appendix S shows the number of engines and coaching vehicles on each railway fitted with automatic brakes.

The North Western State railway is the best equipped of all the railways in India, and of the rest the East Indian, the Great Indian Peninsula, the Bengal Nagpur, the Madras, the Oudh and Rohilkhand State, the Eastern Bengal State and the Bombay, Baroda and Central India (broad-gauge section) are

fairly equipped; but railways carrying a large passenger traffic like the Rajputana-Malwa (worked by the Bombay, Baroda and Central India Railway Company), the Bengal and North-Western, the South Indian, the Southern Mahratta and the Burma railways are either very badly equipped, or entirely un-equipped. In England and America it is compulsory to provide every coaching vehicle with an automatic brake, and I think the same rule should be applied to India. It is difficult to confine the order to main lines as vehicles used on branches do find their way on to the main line, but it might be made permissible to only pipe vehicles usually employed on branch and mixed train services.

It may be observed that in the United States not only are all passenger vehicles required to be provided with automatic brakes, but all goods vehicles also, and I am of opinion that the time has arrived when India should make more rapid progress in the same direction.

Miscellaneous.

272. *Permanent-way.*—The permanent-way, both rails and sleepers, on Indian railways, while well maintained, is not always up to the requirements of the increasing traffic. All railways appear to be fully alive to the necessity for strengthening the road-bed, but their progress is not always as fast as they would like it to be on account of the difficulty about getting money.

273. *Dust prevention on railways.*—On a number of the railways, the dust created by trains during their journey, on account of the nature of the ballast used or the country traversed, subjects the public to much discomfort, and the bearings of the engines and vehicles to undue tear and wear. In America, railways spray the lines with mineral oil, and the experience is that up to a speed of between 40 and 50 miles an hour the arrangement is satisfactory, but much over this speed its advantages decrease on account of the greater suction of the train breaking the crust. The sprinkling is done about once a year, and for a very dusty line twice for the first year. From 1,500 to 2,000 gallons of oil a mile are used in the first instance and about half this quantity thereafter.

I would suggest that, in the first instance, an experiment might be made on a railway particularly subject to the dust nuisance, say, the North Western railway, with a view to deciding with what advantage the arrangement could be adopted in India.

274. *Ballasting arrangements.*—In America, hopper bottom wagons are employed for ballasting. They are 40 to 50 feet long, from 30,000 to 35,000 lbs. in weight, carry from 90,000 to 100,000 lbs. of ballast, and are fitted to automatically spread the ballast to any depth. The great advantage of the

trucks is that they permit of work being expeditiously done and without the stoppage of the train, and save the carriage of coolies, who are necessarily idle while the train is travelling between the place from which the ballast is obtained and the place at which it has to be laid down, and who could be better employed in getting another load ready.

Labour is no doubt cheap in India, but the recurring charge of wages, it seems to me, would tell against the economy of the present arrangement in the long run. On busy sections of a railway, too, saving in time would be an important factor, as a ballast train working between stations under present conditions must block the line for a longer time than is convenient.

In America, where labour is expensive, the arrangement has naturally been found most satisfactory, and I am disposed to think that, notwithstanding the cheapness of labour here, it would be found economical in India also.

275. *Gradients.*—Built, as many of the railways in India were, with a view to economy of construction, there are many portions of them which might be aptly termed humps and hollows. These all tend to limit the loads of trains and to increase the cost of working; and a good deal of economy would result from the easing of the grade by slicing off the tops of the humps and filling in the hollows. In America and Australia the process has been attended with much success, and it might be found advantageous to give it attention in India when other more pressing matters have been disposed of.

276. *Hours of Labour.*—It is difficult to record what the terms of duty of the staff are on each railway, as the period of work necessarily varies with the local conditions. But, speaking generally, except under exceptional circumstances, the hours of duty in India are on the whole of a reasonable nature, and range from eight hours a day at the larger stations where the work is continuous, to about twelve at the smaller stations where the work is intermittent and long intervals for rest are obtainable between trains.

277. *Training of Signalmen.*—I noticed that the men in charge of the interlocking frames in signal cabins were not always as well acquainted with their duties as they might have been. It is very necessary for the safety of the travelling public that they should have a thoroughly practical knowledge of their work, and they should, I think, be taught their work in a training school before being put in charge of a cabin. To permit of this, I would suggest that one or more such training depôts should be established on each line or on collective lines under thoroughly experienced instructors, and that no man should be given employment as a signalman unless he possesses a proper certificate of efficiency from this institution.

Signal cabins differ from one another in importance and it would be impossible to suggest a rate of pay for these men, but I may say that I heard nothing to lead me to the belief that they were underpaid at present.

Outdoor Supervision.

278. *Sight and Colour-testing of Railway Employés.*—It does not appear to be the general practice on railways to test the sight of the staff connected with the outdoor working of trains at stated intervals. It is very important that the examination should be repeated at intervals, which should be made shorter as the men grow older.

Outdoor Supervision.

279. I have reserved my remarks on the question of supervision for the conclusion of the chapter on the Working of Railways. The successful working, or otherwise, of a railway depends entirely on the quality of the supervision which the staff generally receive, and I am of opinion that very considerable leakage might be prevented on Indian railways by a more effective system of outdoor supervision.

The conditions of the country necessitate a greater amount of writing than would be required elsewhere, but to try and work a railway system satisfactorily by that means alone, or largely by that means is quite impracticable. What is absolutely necessary for the proper conduct of the business of the railway is the possession of more knowledge by the directing officials of how the outside working is being carried out, and this can only be obtained by systematic outdoor inspection extending down to the most minute details by the superior staff.

In addition to this, it is most essential that there should be thoroughly qualified energetic Inspectors of the class one invariably finds in England, who are so great a help to the Superior Traffic Officers and so valuable to the railways. The Inspectors should travel regularly over their respective districts and exercise the closest scrutiny over all details of working and should report shortcomings wherever and whenever they occur. They should further be able to show their men the way out of difficulties or to tender practical suggestions to their superiors for overcoming them. These qualifications are not always to be found in the present men and greater care should be taken in the selection and training of men for this important duty.

CHAPTER IV.

GENERAL.

280. The last subject of my Reference is—

"Generally to make such suggestions as you may think useful for any or all of these purposes, including the extension of Branches and Light railways as feeders of the main lines."

281. In the earlier part of my Report I have dealt with the administration and working of railways and their financial arrangements as affecting the management of railways individually. In the present Chapter I propose to consider the more general questions which are involved in my Reference, and which affect Indian Railway Administration as a whole.

BRANCHES OR FEEDER LINES.

282. One of the most important of these is the question of Branches or Feeder lines.

In Appendix H I have given a list of the several projects which have been submitted to the Government and which now await construction. As I remarked before, all these projects are regarded by their proposers as immediately necessary for the development of the various Provinces through which they pass. It is difficult, therefore, to prepare a statement to show the order in which the construction of all these railways should be undertaken.

283. But speaking generally, the efforts of the Government should, in my opinion, be directed—

(i) to the connecting up of detached and isolated lines, so as to bring them into direct communication with the rest of the railways in India.

This is very desirable not only for the proper development of the railways themselves, but for the development of the Provinces through which they run.

(ii) to the connecting up of existing lines on opposite sides of large tracts of country now devoid of suitable transport facilities; and

(iii) to the extension of the main lines or the construction of branches, in those parts of the country which are now cut off from railway communication, but which are known to be fertile, and in which the latent possibilities of an increasing trade are good.

284. To attain the end which I consider the Government should strive for, the construction of the following projects appears to me to be necessary:—

(*a*) the linking up of the two sections of the Eastern Bengal State railway by a bridge across the Ganges;

Branches or Feeder Lines.

(*b*) the linking up of Bengal and Assam *viâ* Dhubri and Gauhati;

(*c*) the linking up of India with Burma *viâ* Assam;

(*d*) the linking up of the Northern and Southern Sections of the Burma railways by the construction of the Sagaing Bridge over the Irrawaddy;

(*e*) the extension of the Assam Bengal railway from Chandpur to Shatnol, with a wagon ferry between the latter and Naraingunj and of the Eastern Bengal State railway from Naraingunj to Aircha, with a wagon ferry between Aircha and Goalundo;

(*f*) the linking up of the Bombay, Baroda and Central India railway with the North Western State railway *viâ* Kathiawar and Sindh;

(*g*) the extension of the Godhra-Rutlam branch of the Bombay, Baroda and Central India railway to connect with Muttra and Aligarh;

(*h*) the linking up of the two arms of the Great Indian Peninsula railway and of His Highness the Nizam's railway by a connection from Itarsi through Nagpur to Warangal or Secunderabad;

(*i*) the linking up of the two arms of the Bengal Nagpur railway by a connection from Raipur to Vizianagram with a harbour at Vizagapatam; and lastly,

(*j*) the linking up of the metre-gauge railways on the north, centre and south of India, which are at present entirely cut off from each other, by a line from Khandwa on the Rajputana-Malwa to Kurnool on the Southern Mahratta railway *viâ* Nander and Secunderabad, or from Khandwa to Hotgi on the Southern Mahratta railway *viâ* Nander.

285. Most of these projects are essentially lines of development, intended to join up systems or open out new country. A *direct* return on the Capital expenditure on works of this character cannot and ought not to be immediately expected. They will all help materially to increase the income of the railways they join up, in all of which the State is interested, and in the course of time they will themselves have a high commercial value and will add considerably to the general revenues of the country. This is the class of work in which, in my opinion, the Government should unhesitatingly and ungrudgingly embark, as it is only the Government, because of the indirect benefits they are reaping of equal if not greater value, who can afford to wait for the *direct* returns. In late years, unless the estimate of traffic could show that a line would earn $3\frac{1}{2}$ per cent. on the outlay from its own earnings, sanction to its construction has been given with hesitation. Had this principle been followed always, no railways would ever have been made in India. As suggested elsewhere, the Government should look to the indirect as well as to the direct benefits when consider-

ing railway projects, and should not be guided by the estimated direct earnings of the line alone.

Turning now to the projects themselves, the only ones which appear to call for special remarks are (*c*), (*i*) and (*j*).

286. *Linking up of Burma with India.*—Several routes have been examined for a line of railway between India and Burma, but they were all found difficult on account of the mountain barriers which separate the two countries, and the consideration of the question was deferred because of the very great cost which any route would involve. While in Burma I took every opportunity of enquiring into the question, and, looking at it entirely from a railway point of view, I think it would be desirable to connect up the two countries, but the project is not so urgent as many others before the Government. When the time comes for undertaking the work, a further and very exhaustive survey should, I think, be made to ascertain the best alignment for a *commercial* railway. I have heard many express the opinion that a better route could be found than any of those hitherto examined, and this would seem to be not unlikely.

287. *Raipur-Vizianagram connection with Harbour at Vizagapatam.*—There is no question as to the desirability of constructing the Raipur-Vizianagram line, and the Government have for some time been in negotiation with a syndicate about the project. But the question of the Harbour at Vizagapatam is more difficult to decide. There is at present not a single harbour in which ships can lie on the long sea-board of about 800 miles between Calcutta and Madras. The residents and business men of the district are very much in favour of the project, but the cost of constructing a Harbour would be great, and the only suggestion I can offer in connection with the question is that the Government should have a complete survey made and estimates prepared to see whether the trade which would seek this port would justify the outlay which the construction of a harbour would necessitate.

288. *Linking up of the Metre-Gauge railways.*—Until lately the metre-gauge railways in India were to a very large extent isolated from one another. The group north of the Ganges was a few years ago linked up with the group in Rajputana and still more recently the latter was linked up with the group in Kathiawar. But (1) the Burma, (2) the Assam, (3) The Hyderabad-Godavery line in the centre and (4) the group in Southern India consisting of the Southern Mahratta and the South Indian railways still remain cut off from each other.

289. (1) and (2) have already been referred to separately. In regard to (3) and (4), it does not appear to me that there can be any doubt as to the wisdom of connecting them up as soon as possible. To do so would give an

Branches or Feeder Lines.

impetus to the working of the railways in India generally by the creation of healthy competition between the two gauges and would very materially facilitate and expedite the transit of traffic. It would permit of the interchange of vehicles for through traffic, thus saving transhipment with its accompanying delay *en route* at junctions and the consequent damage to goods, thereby considerably reducing the quantity of rolling stock required for the carriage of the same volume of traffic not only by the metre but also by the broad-gauge lines, since the avoidance of transhipment would save the delay of at least 24 hours to every wagon load, broad and metre-gauge, which is now subjected to transhipment. It would further allow of the north and south railways borrowing stock from each other during pressures of traffic, since the busy seasons of the two districts fall at different periods, that of Northern India being between April and June while that of Southern India is between December and April.

290. The best route for the connection of these metre-gauge lines, having regard to all the circumstances, would, in my opinion, be by a line either (1) from Khandwa, *viâ* Akola, and Basim, on to Purna, there connecting with the Hyderabad-Godavery railway with a continuation from Hyderabad to Kurnool Road, there joining the Southern Mahratta railway; or (2) from Khandwa to Basim, then on to Hotgi, joining the Southern Mahratta railway at the latter point.

The line common to both routes from Khandwa to Basim, a distance of 172 miles, has already been surveyed. The remainder of both routes has not yet been examined.

291. The linking up of the metre-gauge railways of India would be followed by such far-reaching and beneficial results to the country that I consider it to be a matter of first importance.

292. Another point connected with the question of linking up the metre-gauge railways is that of giving them direct access to ports. The question is not one of extreme urgency, but is a matter which should be kept in view, unless it is decided to try and combine the gauges, a subject to which I shall refer presently.

293. Three other subjects connected with the question of Branches or Feeder lines which have been specially brought to my notice are—

(*a*) the railway terminal arrangements at Calcutta;

(*b*) the Port of Calcutta; and

(*c*) the extension of the warehouse and jetty accommodation at Chittagong Port to properly meet the requirements of the traffic.

294. *Railway terminal arrangements at Calcutta.*—In regard to the first, the East Indian and the Bengal Nagpur railways are separated from the town of Calcutta by the river Hooghly, which is connected by a floating bridge which

has periodically to be opened to allow ships to pass; and the Eastern Bengal State railway has its terminus on the outskirts of the city.

An enquiry was recently held as to the desirability of having a central station in the heart of Calcutta to serve all these railways, and the question has been deferred on account of the expense of the scheme.

In London the great inconvenience resulting from the absence of proper connections between the several railway termini has recently led to the appointment of a Royal Commission to consider how the difficulty can be overcome. In Chicago, too, an enquiry has recently been made with the same object.

The expense of any such scheme must necessarily be great, but that its adoption will some day be forced on the Government I think there can be little doubt. In the meantime the price of land will go up and the difficulties of acquiring a site, which will not seriously interfere with vested interests and other projects for the improvement of the city, must grow greater.

It seems to me, therefore, that it would be a wise policy to anticipate the future and make provision now for a demand which must sooner or later, probably sooner, grow irresistible.

295. *The Port of Calcutta.*—The greater portion of the traffic served through the Port of Calcutta is carried by the East Indian and the Bengal Nagpur railways, which have their termini on the right bank of the river. The Docks, however, have been built on the left bank. To get to the Docks, the East Indian railway cross the river 24 miles above Calcutta and run in on the metals of the Eastern Bengal State railway. The Bengal Nagpur railway have only a very round-about access to this bridge and consequently work a wagon-ferry across the river, which is costly, slow, and ill-adapted for dealing with a large traffic.

One of the commodities dealt with at the Docks is coal. This traffic did not exist in any large quantity when the site for the Docks was selected, but it has now grown enormously and constitutes a very large proportion of the business done at the Docks. It all comes from across the river, and the question arises whether provision should not be made for it to be dealt with on the right bank, that is, without bringing it across the river.

Proposals have been made by the Bengal Nagpur railway for the work to be done near a place called Luff Point, which is some miles down the river on its right bank, but these are not approved of at present by the Commissioners of the Port of Calcutta and by other interested parties.

Objections, even where self-interest is involved, are entitled to due consideration; but too much weight cannot be attached to them when considering an important matter of this nature. The question, which is one of great interest to the coal trade, must be considered from a broader point of view, and, in my opinion, the Bengal Nagpur railway should not only be permitted but should

be encouraged to provide these and other terminal facilities and conveniences which may be required for the quick handling and despatch of a business of the magnitude of the coal trade.

296. *Warehouse and Jetty accommodation at Chittagong.*—The Port is in its infancy and the arrangements for dealing with the traffic are at present inadequate, but steps are being taken to have these improved and all that is necessary is to see that facilities keep pace with requirements.

Clearing House.

297. The next question of importance is the establishment of a Railway Clearing House for all India.

Over sixty years ago, the complications arising out of, and the expense attending, the apportionment of freight on through traffic, that is, traffic originating on one railway and terminating on another, became so great in England that the English railways decided to adopt the system followed by the Banks, and introduced a Railway Clearing House. Experience has fully justified the step, and the Railway Clearing House in England is now regarded as one of the most valuable adjuncts of the great railway industry in England. Work has been expedited, a large saving of establishment has been rendered possible on railways, the work previously done by railways is now performed by the Clearing House at far less cost to the railways (the saving to the railways is usually estimated at from 40 per cent. to 50 per cent.), and generally the system has led to greater efficiency and economy.

298. The Railway Clearing House may briefly be described as an Association of Railway Companies which have voluntarily combined together for the joint regulation of matters of common interest. It is open to any railway to join or to leave the Association at pleasure, though few abstain from membership. A Committee manages the affairs of the Clearing House. Each Company appoints one delegate, who is generally the Chairman of the Board of Directors, and these delegates form the Committee of management. Though governed by delegates from each railway, the Clearing House is an absolutely independent body; and its decision is final and conclusive in respect to any sum declared by it to be due to the Clearing House; and its resolutions are binding even on the Companies whose delegates abstained from voting on a measure. As, by its very constitution, it cannot be interested in one railway more than in another, it has got to be recognised as a perfectly neutral and impartial body and has consequently been able to render very valuable service to the railways of England ever since it was established.

299. The business of the Clearing House is primarily to "clear" the

more than two railways (traffic passing over less than three railways is dealt with in the railway's own Audit Offices) ; and the work is paid for in proportion to the work done for each railway.

In India, there is not a large amount of traffic which passes over more than two lines, but there is much more than there was in England when the Clearing House was first started there ; it is daily growing larger ; and it must increase as new routes are opened up.

300. One thing which particularly struck me in India was, literally, the perfect army of clerks maintained in every Railway Audit Office, the number being infinitely greater than is found necessary in England where the traffic is much heavier. Of course, some allowance must be made for the difference in the classes of the men, but it seemed to me that, notwithstanding this, the staff was much greater than it should be.

The reason for this large establishment is to be found in the system. All through invoices show in detail the classification for each railway and the share of the freight attributable to each. All these items have to be checked by the railway which collects the freight, and every other railway has to check over its own charges, if it does not check those of the other railways also (*Mutatis mutandis*, the same arrangement is followed in regard to all other kinds of traffic besides goods)

In Chapter III, I referred to the enormous labour this entailed on the station staff and in the Audit Office it is just as great. I there suggested that a uniform classification should be introduced for through traffic for all India, and that all rates should be calculated on the through distance and shown in one entry in the invoice. The adoption of these suggestions will relieve the station staff, and will facilitate the work in the Audit Offices, but it will not dispense with the necessity for the recurring check, so long as each Audit Office has to check over, and bill for, its own charges. This can only be avoided by the establishment of a Central Railway Clearing House.

301. The railways in India are practically unanimously in favour of its introduction, and the Government of India have for some time past been endeavouring to bring it about, but so far, for one reason or another, the accomplishment of the object has been delayed. I am of opinion that in view of the great savings, both in time, labour and money, which the Clearing House effects, no further time should be lost in its establishment in India.

302. Major C. A. R. Browne, R.E., of the Indian Public Works Department, in a very exhaustive and able report written in 1896 explains the working of the Engl'sh Clearing House, but I think it would be advisable that the Secretary of the English Clearing House should be consulted as to the details of the system to be established in India. It would probably require a special Act to constitute it, and for simplicity of reference I attach a copy of the English Clearing House Act as Appendix T.

Traffic Conference.

303. The Clearing House should be situated in some central place, so as to admit of business being transacted expeditiously. Allahabad has been suggested as a suitable centre, but this is a question that must necessarily be left to the Committee of the Clearing House to determine.

304. In addition to the clearing of traffic, the Clearing House in its corporate capacity deals with the question of mileage and demurrage on vehicles passing from one railway on to another, and in many other ways relieves railways of a great deal of work and performs it at a very reduced cost.

305. Of course, the establishment of a Clearing House would not altogether do away with the clerical work in connection with station accounts, but it would greatly minimise it and entirely stop the same work being done over and over again by different people.

Returns and Statistics.

306. Arising out of the question of the Clearing House are two subjects namely:—

(*a*) Returns.

(*b*) Statistics.

307. *Returns.*—In regard to the former, at present all accounts are required to be kept up at stations and the returns in connection therewith submitted weekly. Efforts have been made by some of the railways to extend the period to cover the whole month, but the proposal has not met with general acceptance (a large number of the railways are in favour of it, but unless all agree to it, its adoption is not possible). In England all accounts are prepared for periods of a month; and as a considerable saving could be effected by the change, I am of opinion that the Railway Administrations which decline to join with the majority in giving the system a trial are not alive to their own interests in the matter.

308. *Statistics.*—The present cost of compiling statistics required by Government seems to me high. As estimated by railways, it varies between Rs. 50 and Rs. 48,300 per annum, the total for all railways, *vide* Appendix U, being Rs. 3,28,788 per annum. The total mileage on which this sum was spent was 25,857, so that the cost of the returns works out to Rs. 12·72 per mile per annum. Much of the information furnished, I have found to be of great value to me in my enquiry, but I think a substantial saving could be effected by a modification of some of the returns. The submission of them annually instead of half-yearly should also be sufficient. This question, however, had already attracted the attention of the Government and is now under their consideration.

Traffic Conference.

309. Connected with the Clearing House, but not forming part of it, are

the several Committees of General Managers and others, which frame rules for the general governance of the railways and which consider and, if possible, settle all questions affecting the interests of railways in general and of particular railways, arbitrate on disputes, and deal with any other business which may be laid before them. If a Clearing House is established in India, these Committees will form a natural part of it. But in the event of the proposal for the Clearing House not meeting with acceptance, I am of opinion that a permanent Conference to deal with matters affecting the working of railways should be established without delay. (It should meet at least every half-year, the same as in America—they meet quarterly in England—and there should be a sub-committee to temporarily deal with pressing matters as might be required.) Such a Conference, if properly and efficiently managed, should develop into a very valuable institution, not only to the railways themselves, but to the Government and the public also.

Locomotive and Carriage and Wagon Superintendents' Conference.

310. I think it is also very desirable that there should be a regular Conference of Locomotive and Carriage and Wagon Superintendents, to discuss and report on all matters affecting the improvement, economical construction, and maintenance of the rolling stock, and that it should be held every six months if practicable, but not less than once a year.

Indents.

311. There has been some complaint about the delay in obtaining stores from England, and it was represented that these delays and the inconvenience and loss arising therefrom are largely due to the manner in which the indents are dealt with in London, and to the method of inspection of articles manufactured in England as compared with the mode of inspection adopted with respect to similar articles supplied from other countries. I enquired into the subject at the India Office and subsequently received from the Director General of Stores a letter (printed as Appendix V) which explains very fully the difficulties which have had to be contended with in England in recent years. Other questions arising out of my enquiries were referred by the India Office to the Government Consulting Engineer in London, but the information which I required had not reached me at the time of going to Press.

312. It was further represented that specifications are so drawn up both in India and in England and are so hedged with conditions that the contractor's tenders are much higher than they would be if the specifications were of a simpler nature. In my own experience, I have found that much economy can be effected by the simplification of the specification; and I would suggest that the question

should be gone into with the contractors with a view to the omission in future, as far as practicable, of conditions which they may regard as unnecessarily onerous or likely to lead to expense and delay in the execution of the work.

Much money might also be saved by anticipating future requirements and by placing orders for a succession of years and taking advantage of favourable markets. If contractors knew that they could rely upon having steady work of a particular kind for a succession of years, and could spread this work over the whole of such period and supply the stores at stated intervals and in such quantities as would meet the immediate wants of the railways, instead of being required, as at present, to deliver the whole indent within a few months, they could undertake its construction at much less cost. Such an arrangement should suit the railways all right, as the articles cannot possibly all be used up the moment they arrive in India. All that railways require to be able to count on is that they shall get what they need in regular quantities at definite intervals; and if this was arranged for, they too could avoid having to rush through their work in short periods. Work hurriedly done may be good, but it never is economical.

Another great advantage which would result from the arrangement would be that it would be unnecessary to keep up the very large reserves of Stores now maintained on all railways; and that there would, as a consequence, be so much less Capital laid out, which must be unproductive and unremunerative so long as the Stores remain locked up and out of use.

Broad *versus* Metre Gauge.

313. This question is not included in my Reference, but I have been specially asked to state my views on the subject.

I suppose few persons would now be found to deny that the adoption of the 5′ 6″ gauge was a great mistake. The introduction of the narrower metre gauge at a later period was the inevitable consequence, because of the great cost of constructing the wider gauge. The objection to the wider gauge from a financial point of view has, in the case of a large number of projects, continued ever since, and at the end of 1902, there were no less than 10,896 miles of metre-gauge railway in India, as compared with 14,312 miles on the 5′ 6″ gauge; and every day more railways are being constructed on these two different gauges. The 5′ 6″ gauge cannot, therefore, any longer be spoken of as the "standard gauge" of India. The metre gauge has become as much the standard gauge as the 5′ 6″ gauge.

314. Now I do not think it will be disputed that two standards of gauge, each crossing and re-crossing the other, cannot, under any circumstances, be

regarded as an unmixed blessing; but before any remedy can be suggested, the relative advantages of the two gauges require to be considered.

315. In England, the width of a vehicle for the 4′ 8½″ gauge is 8′ 6″; in America it is 10′ 0″; and on the Continent of Europe 10′ 6″.

In India, the width for the 5′ 6″ gauge is only 9′ 6″, or a foot less than on the Continental railways and only a foot more than on the English railways. The metre gauge is 7′ 9″, or only 9″ less than the 4′ 8½″ gauge railways in England. The Indian 5′ 6″ gauge stock, therefore, is obviously insufficiently wide for the gauge.

To be relatively equal in width to the stock on the Continent, the Indian vehicle would need to be 12′ 3″ wide, so that the railways in India have never obtained the full benefits of their wider gauge and are working about 22½ per cent. under power.

On the other hand, the width of the metre-gauge vehicle relatively should be 7′ 4″, so that the metre-gauge lines with vehicles actually 7′ 9″ wide are really doing better proportionately than even the Continental railways so far as the utilisation of power goes.

316. So far, therefore, as the merits of the two gauges are concerned, from an economic point of view, I think there can be little doubt that the 5′ 6″ gauge railway is not so good a servant to the country as the metre gauge.

317. But a comparison of the gauges goes deeper than the mere merits of the two gauges and the question seems to be—

(*a*) Is uniformity of gauge desirable? and if it is,

(*b*) Which is the best gauge to adopt for the standard?

318. As to the first point, I think the answer must be in the affirmative, as it will generally be admitted that a break of gauge is a drawback always, and that in certain eventualities it might prove extremely inconvenient. It necessitates, too, a great deal of expense in the transhipment of the traffic when all junctions in India between differing gauges are reckoned, and a very much larger supply of rolling stock than would be necessary if there was no break of gauge, since the unavoidable delays during the process of transhipment absorb a large quantity of rolling stock of both gauges. But these are points which would be governed by the financial consideration of which is cheaper—uniformity of gauge with larger outlay or break of gauge with larger working charges.

319. In regard to the second question, namely "which is the best gauge to adopt for the standard," it is necessary to consider what the effect would be of adopting one or other of the existing gauges as the standard.

320. If the 5′ 6″ gauge were adopted, the effect would be—

(*i*) that the metre-gauge railways would require to be widened both in their rolling stock and in their tunnels, bridges, permanent-way

fixed structures and possibly station buildings; and, what must be considered a much more serious matter,

(*ii*) the 5′ 6″ gauge railways would also need to be widened, *if they are to be worked up to their full power*, not only in their rolling stock, but in their tunnels, bridges, and fixed structures and possibly also in their permanent-way and station buildings.

In other words, if uniformity is to be arrived at, and if the 5′ 6″ gauge is to be the standard, and if the loss of power which has been going on since the 5′ 6″ gauge was introduced is to cease, both the 5′ 6″ gauge and the metre-gauge railways of India will practically require to be re-built and very large expenditure must be expected.

321. On the other hand, the adoption of the metre gauge as the standard would probably necessitate the whole of the 5′ 6″ gauge rolling stock being scrapped, but would otherwise involve comparatively no expense in the alteration of the roadway.

The metre gauge has rendered excellent service in the past, and it is, in my opinion, capable of meeting all the requirements of India. But it seems to me that the replacement of the 5′ 6″ by the metre gauge would be fraught with so much difficulty as to make it practically impossible to make the change. I am further disposed to consider that it would not be suitable for the standard gauge of India, in view especially of the possibility in the not too remote future of there being direct railway communication between India and Europe.

322. The whole question is so full of difficulty, and the evil is so far advanced, that it is not easy to advise upon it, but the remedy would seem to lie in a middle course, namely, in the adoption of the European and American 4′ 8½″ gauge. This would require no change in the roadway of the 5′ 6″ gauge railways, and no reduction in the size of their rolling stock. It would also cost far less to convert the metre gauge to the 4′ 8½″ gauge than to convert it to the 5′ 6″ gauge. The introduction of the change, however, would not be easy of accomplishment, though it would, in my opinion, be quite practicable, if it was slowly worked up to and prepared for.

323. What would be necessary to bring about uniformity would be—

(i) subject to the exceptions to which I shall hereafter refer, to discontinue constructing any more 5′ 6″ gauge lines;

(ii) to build all 5′ 6″ vehicles in the future with central couplings and suitable for running on a 4′ 8½″ gauge;

The side buffers should of course continue to be provided until all stock is fitted with the central couplings.

(iii) to build all *through* metre-gauge lines in future, so as to permit of their conversion to the 4′ 8½″ gauge when the time comes;

(iv) when metre-gauge bridges have to be re-built, to construct them suitable for the 4′ 8½″ gauge;

(v) to gradually widen the roadway of the metre-gauge railways, so as to take the wider gauge vehicle;

(vi) to build all metre-gauge vehicles in future so that they shall be capable of running on trains drawing vehicles of the wider gauge. At present, there are many metre-gauge vehicles in India which are so constructed, and which are run on 5′ 6″ gauge trains, the wheels being changed every time this is required to be done.

324. What would then happen would be this. When all the vehicles were of a construction to permit of the 5′ 6″ gauge and metre-gauge vehicles running on the same train, the question would have to be considered whether, until the metre-gauge roadway had been made suitable for the wider gauge vehicles, interchangeability of stock was to be arranged for or transhipment was to be allowed to continue. If the former was regarded as the more important, metre-gauge rails could be laid between the wider gauge, and metre-gauge vehicles could then run without hindrance on the wider gauge trains. (The converse would, of course, not be possible.)

This would, no doubt, be a costly arrangement, but uniformity of gauge will in any case be impossible without large expense, and the process of conversion must be a very slow one. Uniformity, however, is bound to be demanded some day, and the longer a settlement of the policy to be pursued is deferred, the greater will be the difficulty and expense of introducing it.

325. The evil effect of break of gauge could be considerably minimised by allowing the metre-gauge railways access to all the important centres of trade and business. But this will not wholly overcome it, and its inconvenience must continue so long as there is a difference of gauge without interchangeability of rolling stock.

326. My remarks may appear to be inconsistent with the suggestions made in an earlier part of this chapter in connection with—

(1) the construction of the Itarsi-Warangal, the Bombay-Sindh connection and the extension of the Godhra-Rutlam railway to Muttra and Aligarh; and

(2) the linking up and extension of the metre-gauge railways;

and with the remarks in an earlier part of this Report in connection with—

(3) the construction of Branches on gauges narrower than that of the main line.

327. In regard to 1 and 2, while uniformity is being worked up to, the development of the railway systems cannot stand still. To make all new railways on the 4′ 8½″ gauge would, I fear, add to the evils arising from break of gauge. It seems to me, therefore, that the metre gauge must go on extending,

and that the missing links in the 5′ 6′ gauge must be filled up. Heroic remedies are not possible, and all that Government can do is to work towards uniformity of gauge, and this can be done by building all stock to be interchangeable.

328. In regard to (3), the construction of short branches or feeder lines is on an entirely different platform from the construction of through lines. Here cheapness of construction is generally the first consideration, as if the branch is built to a higher standard than the traffic requires, it cannot yield a reasonable return on the outlay.

329. But in the construction of branches, where a difference of gauge is found really to be necessary, it seems to me that the gauge should not exceed 2′ 6″ where the branch is off a 5′ 6″ gauge line.

Where it is off a metre-gauge line, if it is thought desirable to differentiate the gauge, a 2′ 0″ gauge should be ample, as anything between that and the metre gauge would not justify a departure from continuity, in view of what is entailed in a break of gauge, *viz.*, separate engines, wagons and carriages, with transhipment at the junction and consequent delay in transit, whereas the continuation of the metre gauge would admit of the rolling stock being used to the fullest extent, and the traffic being wrought by the parent line with very little if any, addition to its ordinary stock.

330. These narrow-gauge lines, however, should not be allowed to develope into through lines of communication, but should be confined to what they are intended to be, namely, feeders. It would be an economic mistake in my opinion, to encourage any development of the 2′ 6″ or the 2′ 0″ gauge into large systems. There seems to be a tendency in this direction at present, and, unless it is checked, the Government will have on their hands the difficulty of a third gauge ramifying through the country and raising all the complications created by the introduction of the metre gauge.

331. Whatever may be done, however, towards securing uniformity of gauge in India, there still remains for consideration the present question of the loss of power entailed in the employment of the 5′ 6″ gauge. As has already been shown, vehicles for this gauge of railway should be 12′ 3″ wide; but this width would be unattainable except at a prohibitive cost, as tunnels, bridges fixed structures, and possibly permanent-way and station buildings would all have to be altered to allow of its adoption. It seems to me, however, that the width might be increased to that obtaining on the Continent of Europe namely, 10′ 6″, without disturbing any of the fixed structures. The only difficulty I can see in the way. of this is the doors of the carriages, but this difficulty could be overcome by doing away with the side doors and the foot-boards, and by adopting the American type of end-opening carriage. I have said in another place that I consider this type of carriage best adapted to

Indian requirements, and in its general introduction will, I think, be found a solution of many of the difficulties at present operating against economical management in India.

The metre-gauge vehicle is proportionately wider than the continental vehicle, but even the metre-gauge vehicle could, I think, be made 9 inches wider or 8′ 6″ in all, the same width as the English vehicle.

332. The whole question is now under examination by the Government of India, and if it is found that the tunnels, bridges and fixed structures will permit of vehicles 9′ 6″ wide of the end-opening American type being run over a metre-gauge roadway, the adoption of a 4′ 8½″ gauge as the standard for India would be considerably simplified and the cost of making the change considerably reduced; and the attainment of uniformity of gauge would be brought within measureable distance.

CONCLUSION.

333. In conclusion, I desire to convey my appreciation of the willingness of everyone with whom I have been brought into contact, from the highest to the lowest, whether railway or Government official (and this has been particularly the case in regard to the Secretary and the other officers in the Public Works Department as well as the Government Director in London), to afford me all the information they could, and to help me to the utmost of their power. But for this it would have been much more difficult to have accomplished the task assigned to me within the limited time at my disposal.

To the officers of the American and Canadian railways I have to express my most sincere thanks for the very valuable information with which I was furnished, for the arrangements made to enable me to obtain an intimate knowledge of the working of their lines, and for the extremely cordial manner in which I was received by them in connection with my mission.

334. After the most careful investigation and study, in all its bearings, of the Reference submitted to me, I have embodied in the foregoing Report the policy which, in my opinion, the Government should in the future pursue in connection with the Administration and working of the railways in India. The enormous population, the industries and commerce of the country, the railways and the Government would all fully participate in the numerous benefits arising therefrom, including among them the systematic opening up of the vast tracts of territory at present isolated, cheaper fares, more comfortable, expeditious, and afer travelling, better train service, speedier transit for goods traffic, and lower rates for its conveyance.

If proper effect is given to the carrying out of the arrangements embraced in this policy, I have the fullest confidence that the railways in India will be a great success both commercially and financially, and that, instead of their being a possible cause of financial embarrassment or a burden, they will add greatly to the prosperity of the people and will prove one of the strongest supports of the Government in the development of the country.

THOS. ROBERTSON,
Special Commissioner for Indian Railways.

CALCUTTA ;
5th March 1903.

APPENDICES.

Appendix A.

Statement showing railways worked by each Railway Administration in India.

(1)	(2)	(3)	(4)				(5)				(6)	
No.	Name of railway by which each system worked.	Name of railways comprising system.	Length of line worked.				Total of each gauge worked by Administration.				Grand total mileage of railways worked by the Administrations.	Grand total mileage of each class.
			5′ 6″	3′ 3½″	2′ 6″	2′ 0″	5′ 6″	3′ 3½″	2′ 6″	2′ 0″		
		WORKED BY COMPANIES.										
1	Assam-Bengal	Assam-Bengal (*b*)	...	539·21	...	...	...	589·21	...	...	589·21	
2	Barsi Light	Barsi Light (*b*)	...	...	21·59	...	...	...	21 59	...	21·59	
3	Bengal and North-Western	Bengal and North-Western (*b*)	...	743 00	...	...	...	...	...	...	...	
		Tirhut (*a*)	...	517·64		...	...	...	...	...	...	
		Sagauli-Raxaul (*b*)	...	18 09	...	...	125·01	1,278 73	...	...	1,278·73	
4	Bengal Central	Bengal Central (*b*)	125·01	...	...	...	...	...	...	...	125·01	
5	Bengal Dooars	Bengal Dooars (*b*)	...	36·40	...		...	...	...	...	...	
		Bengal Dooars extensions (*b*)	...	77 76	...	...	...	114·16	...	...	114·16	
6	Bengal-Nagpur	Bengal-Nagpur (*b*)	1,553·58	..	56 24	...	...	...	...	...	...	
		Parlakimedi Light (*d*)	...	...	24·68	...	...	...	80 93	...	1,634·50	
7	Bombay, Baroda and Central India.	Bombay, Baroda and Central India (*b*)	460·90	...	...	...	1,553·58	...	...	...	..	
		Tapti Valley (*b*)	155·48	...	...	...	...	...	...	...	...	
		Nagda-Ujjain (*d*)	34·32	...	...	...	...	...	...	...	...	
		Petlad-Cambay (*d*)	32·42	...	...	...	...	...	...	...	...	
		Godhra-Rutlam-Nagda (*a*)	141·14	...	...	...	...	...	...	...	..	
		Rajputana-Malwa (*a*)	...	1,648·36	...	...	...	...	...	...	...	
		Gaekwar's Mehsana (*d*)	...	92·63	...	...	...	...	...	...	...	
		Ahmedabad-Parantij (*b*)	...	54·70	...	...	...	...	...	...	...	
		Palanpur-Deesa (*a*) and (*d*)	...	17·28	...	...	...	...	...	...	...	
		Carried over	824·26	1,812·97	...	...	...	...	...	...	3,763·20	

(*a*) State lines.
(*b*) Company promoted.
(*d*) Native States.

Appendix A—*contd.*

Statement showing railways worked by each Railway Administration in India—*contd.*

(1) No.	(2) Name of railway by which each system worked	(3) Name of railways comprising system	(4) Length of line worked 5' 6"	3' 3½"	2' 6"	2' 0"	(5) Total of each gauge worked by Administration. 5' 6"	3' 3½"	2' 6"	2' 0"	(6) Grand total mileage of railways worked by the Administrations.	(7) Grand total mileage of each class.
		Brought forward	824·26	1,812·97	...	...	...	...	...	...	3,763·20	
		WORKED BY COMPANIES—*contd.*										
7	Bombay, Baroda and Central India—*contd.*	Gaekwar's Dabhoi (*d*)	...	...	78·80	...	...	..	...	...	...	
		Rajpipla (*d*)	...	...	37·37	...	...	...	...	...	...	
		Vijapur-Kalol-Kadi (*d*)	...	29·41	...	...	824·26	1,842·41	116·17	...	2,782·84	
8	Burma	Burma (*b*)	...	1,259·95	...	...	...	1,259·95	...	...	1,259·95	
9	Calcutta Port Commissioners'	Calcutta Port Commissioners' (*b*)	7·65	...	...	...	7·65	...	...	...	7·65	
10	Darjeeling-Himalayan	Darjeeling-Himalayan (*b*)	...	...	...	51·00	...	...	...	51·00	51·00	
11	Deoghur	Deoghur (*b*)	...	4·79	...	...	...	4·79	...	...	4·79	
12	Dibru-Sadiya	Dibru-Sadiya (*b*)	...	88·50	...	...	...	88·50	...	...	88·50	
13	East Indian	East Indian (*c*)	1,923·17	...	...	...	...	...	...	...	...	
		Delhi-Umballa-Kalka (*b*)	162·24	...	...	...	...	...	...	...	...	
		South Behar (*b*)	78·76	...	...	...	...	...	...	...	...	
		Tarkessur (*b*)	22·23	...	...	...	2,186·40	...	...	...	2,186·40	
14	Great Indian Peninsula	Great Indian Peninsula (*c*)	1,547·63	...	...	...	...	...	...	...	...	
		Khamgaon (*a*)	7·89	...	...	...	..	...	...	...	...	
		Amraoti (*a*)	5·72	...	...	..	...	...	...	...	...	
		Indian Midland (*b*)	796·25		...	...	...	...	...	...	...	
		Bina-Goona-Baran (*d*)	145·59	..	...	...	...	...	...	...	...	
		Bhopal-Ujjain (*d*)	113·27	...	...	...	...	...	...	...	...	
		Bhopal-Itarsi (*a*) and (*d*)	57·39	...	...	...	...	...	...	...	...	

		Gwalior Light (*d*)	...	...	...	126·14	2,673·74	...	...	126·14	2,799·88	
15	Howrah-Amta	Howrah-Amta (*b*)	...	...	...	28·69	...	...	...	28·69	28·69	
16	Howrah-Sheakhala	Howrah-Sheakhala (*b*)	...	...	...	19·75	...	...	...	19·75	19·75	
17	Madras	Madras (*b*)	888·10	..	...	..	...	...	...	...	...	
		Madras (North-East line) (*a*)	497·19	...	...	..	...	...	...	...	...	
		Kolar Gold-fields (*d*)	9·88	...	...	..	...	...	...	...	...	
		Nilgiri (*b*)	...	16·90	...	...	...	...	...	...	...	
		Shoranur-Cochin (*d*)	...	64·83	...	..	1,395·17	81·73	...	...	1,476·90	
18	Ranaghat-Krishnagar	Ranaghat-Krishnagar (*b*)	...	...	20·25	...	...	...	20·25	...	20·25	
19	Rohilkund and Kumaon	Rohilkund and Kumaon (*b*)	...	53·92	...	...	...	...	...	...	...	
		Lucknow-Bareilly (*a*)	...	231·17	...	...	...	...	...	...	...	
		Powayan Light (*b*)	...	...	39·50	...	...	285·09	39·50	...	324·59	
20	Southern Mahratta	Southern Mahratta (*b*)	...	1,042·04	..	...	...	...	..	...	...	
		Mysore Section (Southern Mahratta) (*b*)	..	296·22	...	...	..	...	...	...	...	
		Guntakul-Mysore frontier (*a*)	...	119·50	...	...	...	...	...	...	...	
		Hindupur (Yesvantpur-Mysore frontier) (*d*)	...	51·35	...	...	...	...	...	..	...	
		Birur-Shimoga (*d*)	...	37·92	...	...	...	...	...	...	..	
		Kolhapur (*d*)	...	29·27	...	...	...	...	...	...	...	
		Mysore-Nanjangud (*d*)	...	15·80	...	...	...	...	...	...	...	
		West of India Portuguese (*e*)	...	51·11	...	...	...	1,643·21	...	...	1,643·21	
21	South Indian	South Indian (*c*)	...	1,143·66	...	...	...	...	...	..	...	
		Tanjore District Board (Mayavaram-Mutupet) (*f*)	...	71·11	...	...	...	...	...	...	...	
		Karaikkal-Peralam (*e*)	...	14·65	...	...	...	...	...	...	...	
		Pondicherry (*e*)	...	7·85	...	...	...	1,237·27	...	...	1,237·27	
22	Tarakeshwar-Magra	Tarakeshwar-Magra (*b*)	...	...	31·12	...	...	...	31·12	...	31·12	
		Carried over	...	...	...	...	...	...	...	...	...	17,725·99

(*a*) State lines.
(*b*) Company promoted.
(*c*) Company promoted purchased by the State.
(*d*) Native States
(*e*) Foreign Government
(*f*) Lines owned by Local Boards.

Appendix A—*concld.*

Statement showing railways worked by each Railway Administration in India—*concld.*

(1)	(2)	(3)	(4)				(5)				(6)	(7)
No.	Name of railway by which each system worked.	Name of railways comprising system.	Length of line worked.				Total of each gauge worked by Administration.				Grand total mileage of railways worked by the Administrations.	Grand total mileage of each class.
			5′ 6″	3′ 3½″	2′ 6″	2′ 0″	5′ 6″	3′ 3½″	2′ 6″	2′ 0″		
		Brought forward	...	...	...	...	...	...	...	...	17,725·99	
		WORKED BY COMPANIES—*concld.*										
23	Tezpur-Balipara	Tezpur-Balipara (*b*)	...	...	20·10	...	...	...	20·10	...	20·10	
24	Thaton-Duyinzaik	Thaton-Duyinzaik (*b*)	...	...	7·76	...	...	...	7·76	...	7·76	
		Total worked by Companies	...	...	...	...	...	...	...	...	———	17,753·85
		WORKED BY GOVERNMENT.										
25	Eastern Bengal State	Eastern Bengal State (*c*)	271·82	...	...	...	...	...	...	...	...	
		Eastern Bengal State (*a*)	...	577·65	41 84	...	...	...	...	...	...	
		Brahmaputra-Sultanpur (*b*)	...	59·37	...	...	...	...	...	...	...	
		Mymensingh-Jamalpur-Jagannathganj (*b*)	...	53·37	...	...	...	...	...	...	...	
		Cooch Behar (*d*)	...	...	33·60	...	271·82	690 39	75·44	...	1,037·65	
26	Jorhat	Jorhat (*a*)	..	...	...	30·25	...	...	...	30·25	30·25	
27	North-Western State	North-Western State (*c*)	3,077·50	...	69·95	6·18	...	...	..	...	...	
		Southern Punjab (*b*)	423·93	...	...	...	...	...	...	...	...	
		Rajpura-Bhatinda (*d*)	107·05	...	...	...	...	...	..	...	...	
		Jammu and Kashmir (Native State section) (*d*)	15·92	...	...	...	...	...	...	...	. .	
		Ludhiana-Dhuri-Jakhal (*d*)	78·66	...	...	...	3,703·06	...	69·95	6·18	3,779·19	
28	Oudh and Rohilkhand State	Oudh and Rohilkhand (*e*)	1,037·53		.	...	. .	...	...	...	...	
		Hardwar-Dehra (*b*)	32·04	...	...	...	...	...	...	...	...	
		Cawnpore-Burhwal (metre-gauge link) (*a*)	...	81·41	...	...	1,069·57	81·41	...	...	1,150·98	
		Total worked by Government	...	...	...	...	...	...	...	...	———	5,998·07

		WORKED BY NATIVE STATES.											
29	Bhavnagar-Gondal-Junagad-Porbandar. . . .	Bhavnagar-Gondal-Junagad-Porbandar (*d*) . .	...	334·19	...	...	...	...	...	...	...	
		Jamnagar (*d*)	...	54·22	...	...	...	...	...	...	...	
		Jetalsar-Rajkot (*d*)	...	46·21	.	...	...	...	...	...	...	
		Dhrangadra (*d*)	...	20·83	...	...	...	455·45	...	...	455 45	
30	Jodhpur-Bikaner . . .	Jodhpur-Bikaner (*d*)	...	700·29	...	...	...	...	...	...	...	
		Jodhpur-Hyderabad (British section) (*a*) . . .	...	123·98	...	...	...	824·27	...	...	824·27	
	Morvi	Morvi (*d*)	...	...	94·36	...	...	...	94 36	...	94·36	
32	Nizam's Guaranteed State .	Nizam's Guaranteed State (*b*)	330·13	...	...	...	...	...	...	...	...	
		Bezwada extension (*a*)	20·58	...	...	...	...	...	...	...	...	
		Hyderabad-Godavari Valley (*b*)	...	391·42	...	...	350·71	391·42	...	...	742 13	
38	Udaipur-Chitor . . .	Udaipur-Chitor (*d*)	...	67·30	...	...	...	67·30	...	...	67·30	
		Total worked by Native States . .	...	...	...	...	...	...	...	...		2,183·51
		GRAND TOTAL .	...	...	...	...	...	...	...	...	...	25,935·43

(*a*) State lines.
(*b*) Company promoted.
(*c*) Company promoted purchased by the State.
(*d*) Native States
(*e*) Foreign Governments.
(*f*) Lines owned by Local Boards.

Appendix B.

Statement showing railways in India for which the Government have no financial responsibility.

Name of railway	Length at end of 1902	Total of each class
(i) Railways financed by Companies without assistance from the Government of India.	Miles.	Miles.
Barsi Light	21·59	
Bengal and North-Western (Company's section)	743·00	
Bengal Dooars extension	77·76	
Calcutta Port Commissioners'	7·65	
Deoghur	4·79	
Karaikkal-Peralam	14·65	
Ledo and Tikak, Margherita Colliery	11·00	
Pondicherry	7·85	
Powayan Light	39·50	
Rohilkund and Kumaon (Company's section)	53·92	
Sagauli-Raksaul	18·09	
Tarkessur	22·23	
Tarakeshwar-Magra	31·12	
West of India Portuguese	51·11	
		1,104·26
(ii) Railways financed by Companies with assistance in form of a subsidy or guarantee from Local Bodies.		
Bengal Dooars	36·40	
Darjeeling-Himalayan	51·00	
Dibru-Sadiya	77·50	
Howrah-Amta	28 69	
Howrah-Sheakhala	19 75	
Nilgiri	16 90	
Ranaghat-Krishnagar	20 25	
Tanjore District Board (Mayavaram-Mutupet)	71·11	
Thaton-Duyinzaik	7 76	
Tezpur-Balipara	20 10	
		349·46
(iii) Railways financed by Companies with assistance in form of a rebate.		
Ahmedabad-Parantij	54·70	
Mymensingh-Jamalpur-Jagannathganj	53 37	
South Behar	78 76	
Southern Punjab	423 93	
Tapti Valley	155·48	
		766·24
Carried over	...	2,219·96

Appendix B.

Appendix B—*concld.*

Statement showing railways in India for which the Government have no financial responsibility—*concld.*

Name of railway	Length at end of 1902.	Total of each class
	Miles.	Miles.
Brought forward .	...	2,219·96
(iv) Railways financed by Native States.		
Bhavnagar-Gondal-Junagad-Porbandar	334·19	
Bhopal-Itarsi (Native State section)	44·28	
Bhopal-Ujjain	113·27	
Bina-Goona-Baran	145·59	
Birar-Shimoga	37·92	
Cooch Behar	33·60	
Dhrangadra	20·83	
Gaekwar's Dabhoi	78·80	
Gaekwar's Mehsana	92 63	
Gwalior Light	126·14	
Hindupur (Yesvantpur-Mysore Frontier)	51·35	
Hyderabad-Godavari Valley	391·42	
Jammu and Kashmir (Native State Section)	15·92	
Jamnagar	54·22	
Jetalsar-Rajkot	46·21	
Jodhpur-Bikaner	706·29	
Kolar Gold-Fields	9·88	
Kolhapur	29·27	
Ludhiana-Dhuri-Jakhal	78·66	
Morvi	94·36	
Mysore-Nanjangud	15·80	
Nagda-Ujjain	34·32	
Nizam's Guaranteed State	330·13	
Parlakimedi	24·68	
Petlad-Cambay	32 42	
Rajpipla	37·37	
Rajpura-Bhatinda	107·05	
Shoranur-Cochin	64·83	
Udaipur-Chitor	67·30	
Vijapur-Kalol-Kadi	29·44	
		3,242·17
TOTAL .	...	5,462·13

Appendix C.

Statement showing Railways in India for which the Government have full financial responsibility.

Name of railway.	Length at end of 1902.	Total of each class
	Miles.	Miles.
(i) Railways owned entirely by the Government.		
Amraoti	5·72	
Bezwada extension	20·58	
Bhopal-Itarsi (British section)	13·11	
Cawnpore-Burhwal (metre gauge link)	81·41	
Eastern Bengal State	891·31	
Godhra-Rutlam-Nagda	141·14	
Guntakal-Mysore Frontier	119·50	
Jodhpore-Hyderabad (British section)	123·98	
Jorhat	30·25	
Khamgaon	7·89	
Lucknow-Bareilly	231·17	
Madras (North East line)	497·19	
North Western	3,153·63	
Oudh and Rohilkhand State	1,037·53	
Rajputana Malwa	1,665·64	
Tirhut State	517·64	
		8,537·69
(ii) Railways purchased by Government from Companies but leased to the latter to work.		
East Indian	1,923·17	
Great Indian Peninsula	1,547 63	
South Indian	1,143·66	
		4,614·46
(iii) Railways promoted by Companies on the guarantee of Government.		
Assam Bengal	589·21	
Bengal Central	125·01	
Bengal Nagpur	1,553·58	
Bombay, Baroda and Central India	460·90	
Brahmaputra-Sultanpur	59·37	
Burma	1,259 95	
Delhi-Umballa-Kalka	162·24	
Hardwar-Dehra	32·04	
Indian Midland	796·25	
Madras	888·10	
Mysore section (Southern Mahratta)	296·22	
Raipur-Dhamtari	56·24	
Southern Mahratta	1,042·04	
		7,321·51
TOTAL	...	20,473·30

Appendix D.

Changes in Officers employed in the Consulting Engineer's Department during the years 1901 and 1902.

(As furnished by the Director of Railway Construction with the Government of India.)

Names of Officers employed in each Circle during the years 1901 and 1902	Date of first appointment to the Circle.	Capacity in which employed in the Circle.	Length of employment in the Circle during the years 1901 and 1902. From	To	Remarks as to cause of removal, etc	Number of months employed in the Circle during 1901 and 1902. Senior.	Junior.	Deputy.	Total.
CALCUTTA CIRCLE. *(Cadre—2 Consulting Engineers and 3 Deputies.)*									
Colonel W. H. White, R E.	18th June 1894	Senior Consg. Engr.	15th Nov. 1901	10th July 1902	Went home sick	8	...	...	8
Mr. G. V. Martyn	16th April 1899	Ditto	1st Jan. „	14th Nov. 1901	Acting for Colonel White till his return from leave.	10⅓	...	...	10⅓
„ J. L. P. Hogan	2nd „ 1901	Junior Consg. Engr.	2nd April „	14th Dec. „	Acting during Mr. Dallas's transfer to Lucknow.	...	8⅓	...	8⅓
„ J. S. Brown	15th March 1902	Depy. Consg Engr.	15th March 1902	12th April 1902	Brought from Rangoon to replace Mr. Dallas going on leave.	...	...	1	9⅓
		Junior Consg Engr.	13th April „	10th July „	Removed from Junior to Senior Consulting Engineer on Colonel White falling sick.	..	3	...	
		Senior Consg. Engr.	11th July „	31st Dec. „	Still acting for Colonel White	5½	...	...	
„ J. E. Dallas	3rd April 1900	Junior Consg Engr.	1st Jan. 1901	1st April 1901	Transferred to Lucknow to officiate for Mr. Hebbert going on leave.	...	3	...	7
		Ditto	14th Dec. „	13th „ 1902	Went home on leave	...	1	...	
„ G. P. Rose	7th Oct 1902	Ditto	7th Oct. 1902	31st Dec „	Still holding appointment	...	2½	...	2½
„ R. C. Dyson	Nov. 1897	Depy. Consg. Engr.	1st Jan. 1901	2nd April 1901	Transferred to North Western railway	...	...	3	3

Appendix D—*contd.*

Changes in Officers employed in the Consulting Engineer's Department during the years 1901 and 1902.

Names of Officers employed in each Circle during the years 1901 and 1902.	Date of first appointment to the Circle	Capacity in which employed in the Circle.	Length of employment in the Circle during the years 1901 and 1902		Remarks as to cause of removal, etc.	Number of months employed in the Circle during 1901 and 1902.			
			From	To		Senior.	Junior.	Deputy.	Total.
CALCUTTA CIRCLE—*concld.*									
Mr. J. E Gabbett	25th May 1900	Depy. Consg. Engr.	1st Jan. 1901	31st Dec. 1902	Still holding appointment	...	...	24	24
Captain B. H. Rooke, R.E.	27th March 1901	Ditto	27th March ,,	24th Oct. 1901	Transferred to North Western railway	...	...	7	7
Mr. W. J. Weightman	29th May ,,	Ditto	29th May ,,	24th Sept. ,,	Lent to Kashmir State for survey work	...	...	4	4
,, J. C. Mills	3rd Oct. ,,	Ditto	3rd Oct. ,,	10th June 1902	Transferred to Eastern Bengal State railway.	...	...	8	8
,, H. G. S. Savory	7th April 1902	Ditto	7th April 1902	10th July ,,	Posted on return from leave	...	...	3	
		Junior Consg. Engr.	11th July ,,	7th Oct. ,,	Acting temporarily for Mr. Brown till Mr. Rose's arrival.	...	3	...	$8\frac{1}{2}$
		Depy. Consg. Engr.	8th Oct. ,,	31st Dec. ,,	Still holding appointment	...	...	$2\frac{1}{2}$	
,, W. Nathan	1st July 1902	Ditto	1st July ,,	15th Sept. ,,	Attached temporarily—pending taking leave.	...	...	$2\frac{1}{2}$	$2\frac{1}{2}$
,, W. Chadwick	27th Oct. ,,	Ditto	27th Oct. ,,	31st Dec. ,,	Since transferred to Chittagong to relieve Mr. Arundel	...	...	2	2
BOMBAY CIRCLE. (*Cadre—1 Consulting Engineer and 5 Deputies.*)									
Mr. J. Willcocks	3rd July 1893	Senior Consg. Engr.	1st Jan. 1901	3rd Oct. 1901	Acted for Mr. Anderson from 10th March 1900 till 3rd October 1901 and then went on leave.	9	...	...	9

„ G. A. Anderson	19th March 1898	Ditto	3rd Oct. „	31st Dec. 1902	Permanent incumbent since March 1898, but had been on leave from 10th March 1900 to 3rd October 1901.	15	...	...	15
„ E. H. S. Napier	23rd June 1899	Depy. Consg Engr.	1st Jan. „	15th April 1901	Lent to Bhavnagar-Gondal-Junagad-Porbandar railway to act for Mr. Rowland.	.	...	3⅓	3⅓
„ C. T. R. Scovell	24th April „	Ditto	1st „ „	5th Aug. „	Went home on leave	...	...	7	7
„ W. H. K. Howard	24th Dec. 1898	Ditto	1st „ „	Feb. 1902	Transferred to Railway Branch, Public Works Department Secretariat.	...	...	13	13
„ C. Pratt	16th April 1900	Ditto	1st „ „	31st Dec. „	Still holding appointment	...	...	24	24
„ W. R. Shaw	26th „ 1896	Ditto	18th March „	3rd March „	Went on leave and will probably retire	..	...	11⅓	11⅓
Captain R. S. Muter, R.E.	31st May 1901	Ditto	31st May „	31st Dec. „	Still holding appointment	...	...	19	19
Mr. W. A. Johns	13th June 1902	Ditto	13th June 1902	31st „ „	„ „ „	...	...	6⅔	6⅔
„ W. J. Weightman	14th Aug. „	Ditto	14th Aug. „	31st „ „	„ „ „	...	...	4⅓	4⅓
„ J. Adam	26th April 1894	Ditto	28th Oct. 1901	31st „ „	„ „ „	...	...	14	14

NOTE.—This office is supposed to have a strength of 1 Consulting Engineer and 5 Deputies. It has, however, been impossible always to keep it up to full strength, and during 6¼ months of 1901 and 6⅔ months of 1902 it was short of one Deputy, and during 3⅓ months of 1902 a second Deputy was short also.

MADRAS CIRCLE.

(Cadre—1 Consulting Engineer and 2 Deputies.)

Mr. F. J. E. Spring	12th March 1897	Senior Consg Engr.	1st Jan. 1901	19th Sept. 1901	Went home on combined leave and on return posted to act for Mr. Hodson as Director of Railway Construction.	8⅓	...	...	8⅓
„ E. J. Shadbolt	14th Jan. 1902	Ditto	14th Jan. 1902	31st Dec. 1902	Acting for Mr. Spring	11⅓	...	...	11⅓

Appendix D—*concld.*

Changes in Officers employed in the Consulting Engineer's Department during the years 1901 and 1902.

Names of Officers employed in each Circle during the years 1901 and 1902.	Date of first appointment to the Circle.	Capacity in which employed in the Circle	Length of employment in the Circle during the years 1901 and 1902. From	To	Remarks as to cause of removal, etc.	Number of months employed in the Circle during 1901 and 1902 Senior.	Junior.	Deputy.	Total
MADRAS CIRCLE—*concld.*									
Mr. R. W. Egerton	16th Nov. 1899	Depy. Consg. Engr.	1st Jan. 1901	19th Sept. 1901	Relieved Mr. Spring	...	...	8½	21
		Senior Consg. Engr.	20th Sept. „	14th Jan 1902	Acted for Mr. Spring till Mr. Shadbolt arrived.	4	...	...	
		Depy. Consg. Engr.	14th Jan. 1902	5th Oct. „	Went home on combined leave	...	...	8½	
Lieutenant L. E. Hopkins, R.E.	17th June 1900	Ditto	1st „ 1901	23rd „ 1901	Transferred to Quetta-Nushki railway	...	...	10	10
Mr. C. D. D. Wilson	28th Nov. „	Ditto	„ „ „	30th April „	Went home on long leave	...	...	4	5½
		Ditto	11th Nov. 1902	31st Dec. 1902	Resumed appointment on return from leave.	...	...	1½	
Captain G. R. Hearn, R.E.	30th Oct. 1901	Ditto	30th Oct. 1901	12th Nov. „	Transferred to Agra-Delhi Chord railway.	...	..	12	12
„ W. C. Smyth, R.E.	15th Dec. 1902	Ditto	15th Dec. 1902	31st Dec. „	Still holding appointment	...		½	½
LUCKNOW CIRCLE.									
(*Cadre—1 Consulting Engineer and 3 Deputies.*)									
Mr. F. B. Hebbert	15th July 1898	Senior Consg. Engr.	1st Jan. 1901	2nd May 1901	Went home on combined leave	4	...	...	18
			2nd Nov. „	31st Dec. 1902	Resumed charge on return from leave and still holding appointment.	14	...	...	
„ J. E. Dallas	2nd May 1901	Ditto	2nd May „	2nd Nov. 1901	Brought from Calcutta to act during Mr. Hebbert's absence (see Calcutta Circle)	6	...	...	6

„ C. H. C. Bickerton	17th June 1897	Depy. Consg. Engr.	1st Jan. „	11th Jan. 1902	Went home on long leave	...	...	12	12
„ H. G. S. Savory	24th April 1898	Ditto	„ „ „	5th June 1901	„ „ „ „	...	...	5	5
„ J. H. M. Smyth	Nov. „	Ditto	„ „ „	4th Nov. „	Transferred to North Western railway	...	...	10	10
„ W. A. Johns	6th May 1901	Ditto	6th May „	20th Sept. „	Appointed Engineer-in-Chief, Quetta-Nushki Railway Survey.	...	...	4½	4½
„ F. W. Allum	2nd Aug. „	Ditto	2nd Aug. „	31st Dec. 1902	Still holding appointment	...	...	17	17
„ E. H. S. Napier	4th Nov. „	Ditto	4th Nov. „	„ „ „	Joined on return from Bhavnagar-Gondal-Junagad-Porbandar railway (*vide* Bombay Circle).	...	...	14	14
Major C. S. Rose, R.E.	6th March 1902	Ditto	6th March 1902	„ „ „	Still holding appointment	...	...	10	10
ASSAM CIRCLE.									
(Cadre—1 Consulting Engineer and 1 Deputy.)									
Mr. E. W. Arundel	1st Aug. 1900	Senior Consg. Engr.	1st Jan. 1901	31st Dec. 1902	Has just gone home on long leave	24	...	...	24
„ W. D. Barrow	6th June „	Depy. Consg. Engr.	„ „ „	15th April „	Went home on long leave	...	...	15½	15½
„ H. R. Walton	27th Aug. 1902	Ditto	27th Aug. 1902	31st Dec. „	Still holding appointment	...	...	4	4
BURMA CIRCLE.									
(Cadre—1 Consulting Engineer and 1 Deputy.)									
Mr. G. V. Martyn	12th Mar. 1897	Senior Consg. Engr.	24th Nov. 1901	31st Dec. 1902	Still holding appointment	13	...		13
„ J. Brown	7th Apl. 1899	Ditto	1st Jan. „	24th Nov. 1901	Became Deputy on return of Mr. Martyn	11	...	...	11
		Depy. Consg. Engr.	24th Nov. „	7th March 1902	Transferred to Calcutta Circle	...	...	3	3
„ W. Nathan	5th Dec. 1900	Ditto	1st Jan. „	5th Nov. 1901	Transferred to Bankura-Calcutta Chord Survey.	...	...	10	10
„ B. Stapleton	July 1899	Ditto	8th March 1902	17th Nov. 1902	Transferred to Moorshedabad branch, Eastern Bengal State railway.	...	...	8	8
„ C. F. Sykes	24th Nov 1902	Ditto	24th Nov. „	31st Dec. „	Posted on return from leave	...	...	1	1

Appendix E.

Statement showing the cost of Government control over railways under the present, and the estimated cost under the proposed, system.

PRESENT SYSTEM

Particulars	Controlling staff			Auditing staff			Grand total per mensem
	Superior	Clerical	Total per mensem	Superior	Clerical	Total per mensem	
1	2	3	4	5	6	7	4+7
	Rs.	Rs.	Rs.	Rs.	Rs	Rs	Rs.
Government of India . . .	18,377	15,395	33 772	3,952	4 619	8,571	42,343
Madras—Consulting Engineer .	3,531	1,551	5 085	2 000	2,603	4,603	9,688
Bombay „ „ . .	6,483	3,110	9,893	3,850	5,413	9,263	19,156
Calcutta „ „ . .	4500	1,694	6,194	800	2,147	2,947	9,141
Calcutta—Junior Consulting Engineer	1,250	491	1,741	900	1,294	2,194	3,935
Lucknow—Consulting Engineer .	5,633	1,461	7.094	1,100	1,861	2 961	10.055
Burma „ „ .	3,500	1,140	4,640	900	1 286	2.186	6,826
Assam „ „ .	2,100	678	2,778	800	1,266	2,066	4 844
Cost of establishment per mensem .	45,377	27,520	71,197	14,302	20,489	34,791	1,05,988
Add—Exchange compensation allowance at 6¼ per cent. . . .	2,836	...	2,836	891	..	891	3,730
Total cost of establishment per mensem	48,213	25,820	74,033	15,196	20,489	35,685	1,09,718
Cost of establishment per annum .	5,78,556	3,09,840	8,88.396	1,82,352	2,45,868	4,28,220	13,16,616

PROPOSED SYSTEM.

Particulars	Superior per annum	Clerical per annum	Total per annum
	Rs.	Rs	Rs.
President of Board at £6,000 a year	90,000	...	90,000
Two Commissioners at £4 000 a year each	1 20,000	...	1 20,000
Secretary at £2,000—£2,400 a year	33.000	1,00,800*	1,33,800
Chief Inspector at £2.400 a year .	36,000	...	36 000
Six Inspectors at £1,200—£2,000 a year each	1,44,000	14,400†	1.58,4[illegible]
Five Relieving Inspectors at £800 a year ea h	60,000	...	6[illegible]
Four Auditors at £800—£1,200 a year each	60,000	72,000‡	1,32,000
Proposed cost of establishment per annum	5,43,000	1,87,200	7.30.2[illegible]
Present cost of establishment per annum	7,60,908	5,55,708	13.16.616
Saving per annum . . .	2,17,908	3,68,508	5,86.416

Remarks	Rs.
*Arrived at as follows :—	
Assistant Secretaries . .	2,000
Office Superintendents . .	2,000
Superior clerks . . .	3,200
Inferior clerks and menials	1,200
Total per mensem .	8,400

	Rs.
†Arrived at as follows —	
Clerks	150
Menials	50
Total for each Inspector per mensem	200

	Rs.
‡Arrived at as follows —	
Accountants . . .	1,200
Inferior clerks and menials .	300
Total for each Auditor per mensem	1,500

Appendix F.

LWA

Railway and Traffic Act.

[51 & 52 Vict., Ch. 25.]

A. D. 1888.

ARRANGEMENT OF SECTIONS.

Section.
1. Short title and construction.

PART I.—COURT AND PROCEDURE OF RAILWAY AND CANAL COMMISSIONERS.

ESTABLISHMENT OF RAILWAY AND CANAL COMMISSION.

2. Establishment of new Railway and Canal Commission.
3. Appointment and tenure of office of appointed Commissioners.
4. Appointment and attendance of *ex-officio* Commissioners.
5. Sittings of Commissioners.
6. Appointment of additional Judge.
7. Provision for complaints by public authority in certain cases.

JURISDICTION.

8. Jurisdiction of Railway Commissioners transferred to the Commission.
9. Jurisdiction of Commissioners under special Acts.
10. Jurisdiction over tolls and rates.
11. Jurisdiction to order traffic facilities, notwithstanding agreements.
12. Power to award damages.
13. No damages where rates published under certain conditions.
14. Orders on two or more companies.
15. Amendment of 36 & 37 Vict., c. 48, s. 8, as to references to arbitration under special Act.
16. Power to apportion expenses between railway company and applicants for works.

APPEALS.

17. Appeals on certain questions to superior court of appeal.

SUPPLEMENTAL.

18. General powers and enforcement of orders.
19. Costs.
20. Power to make rules.
21. Appointment of officers, clerks, etc.
22. Salaries, expenses, etc.
23. Company to which this part of this Act applies.

PART II.—TRAFFIC.

24. Revised classification of traffic and schedule of rates.
25. Provisions as to through traffic.
26. Powers of Commissioners as to through rates.
27. Undue preference in case of unequal tolls, rates and charges, and unequal services performed.
28. Extension of enactments as to undue preference to goods carried by sea.
29. Group rates to be chargeable by railway companies.
30. Power to dock companies and harbour boards to complain of undue preference.
31. Complaints to Board of Trade of unreasonable charges by railway companies.
32. Annual returns by railway companies to contain such statistics as the Board of Trade shall require.

Section.

33. Classification table to be open for inspection. Copies to be sold.
34. Place of publication of rates in respect of traffic at places other than stations.
35. Power to make rules for purposes of this part of this Act.

PART III.—CANALS

36. Part II to extend to canal companies.
37. Application of 36 & 37 Vict., c. 48, to canals.
38. Powers of Commissioners over canal tolls, rates and charges where a railway company or its officers own or control the traffic of a canal.
39. Returns by canal companies.
40. Bye-laws of canal companies.
41. Inspection of canals.
42. Misapplication of a railway company's funds for acquisition of unauthorised interest in canal.
43. Canal companies may agree for through tolls, etc.
44. Canal companies may abolish clearing system.
45. Abandonment of canal.
46. Definition of "canal company."

PART IV.—MISCELLANEOUS.

47. Perpetuation of 36 & 37 Vict., c. 48.
48. Evidence on rating appeals.
49. Recovery and application of penalties.
50. Parties may appear in person or by counsel, etc.
51. Parliamentary agents entitled to practise before Commissioners.
52. Saving of powers conferred on Commissioners and Board of Trade.
53. Proceedings of Board of Trade.
54. Expenses of local authorities.
55. Definitions.
56. Commencement of Act.
57. Pending business.
58. Transfer of pending business from superior courts.
59. Repeal and savings.

SCHEDULE.

CHAPTER 25.

An Act for the better regulation of Railway and Canal Traffic, and for other purposes.

[10th August 1888.]

Be it enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

Short title and construction. 36 & 37 Vict., c. 48

1. This Act may be cited as the Railway and Canal Traffic Act, 1888.

This Act shall be construed as one with the Regulation of Railways Act, 1873, and the Acts amending it; and those Acts and this Act may be cited together as the Railway and Canal Traffic Acts, 1873 and 1888.

Appendix F—*contd.*

PART I.—COURT AND PROCEDURE OF RAILWAY AND CANAL COMMISSIONERS.

Establishment of Railway and Canal Commission.

2. On the expiration of the provisions of the Regulation of Railways respect to the Commissioners therein mentioned, there shal[illegible] d a styled the Railway and Canal Commission (in this Act refer consisting of two appointed and three *ex-officio* Commissioner court of record, and have an official seal, which shall be jud[illegible] may act notwithstanding any vacancy in their body.

3.—(1.) The two appointed Commissioners may be app[illegible] after the passing of this Act, and from time to time as vacancies o[illegible]

(2.) They shall be appointed on the recommendation of the Presi[illegible] and one of them shall be of experience in railway business.

(3.) Section five of the Regulation of Railways Act, 1873, shall apply to each app[illegible] Commissioner.

(4.) There shall be paid to each appointed Commissioner such salary not exceeding three thousand pounds a year as the President of the Board of Trade may, with the concurrence of the Treasury, determine.

(5.) It shall be lawful for the Lord Chancellor, if he think fit, to remove for inability or misbehaviour any appointed Commissioner.

Appointment and attendance of *ex-officio* Commissioners

4.—(1.) Of the three *ex-officio* Commissioners of the Railway and Canal Commission one shall be nominated for England, one for Scotland, and one for Ireland; and an *ex-officio* Commissioner shall not be required to attend out of the part of the United Kingdom for which he is nominated.

(2.) The *ex-officio* Commissioner in each case shall be such judge of a superior court as—

(*a*) in England the Lord Chancellor, and

(*b*) in Scotland the Lord President of the Court of Session; and

(*c*) in Ireland the Lord Chancellor of Ireland;

may from time to time by writing under his hand assign, and such assignment shall be made for a period of not less than five years.

(3.) For the purpose of the attendance of the *ex-officio* Commissioners, regulations shall be made from time to time by the Lord Chancellor, the Lord President of the Court of Session and the Lord Chancellor of Ireland respectively, in communication with the *ex-officio* Commissioners for England, Scotland, or Ireland, as the case may be, as to the arrangements for securing their attendance, as to the times and place of sitting in each case, and otherwise for the convenient and speedy hearing thereof.

Sittings of Commissioners.

5.—(1.) Subject to the provisions of this Act, and to general rules under this Act, the Commissioners may hold sittings in any part of the United Kingdom, in such place or places as may be most convenient for the determination of proceedings before them.

(2.) The Central office of the Commissioners shall be in London, and the Commissioners when holding a public sitting in London shall hold the same at the Royal Courts of Justice, or at such other place as the Lord Chancellor may from time to time appoint.

(3.) Not less than three Commissioners shall attend at the hearing of any case, and the *ex-officio* Commissioner shall preside, and his opinion upon any question which in the opinion of the Commissioners is a question of law shall prevail.

(4.) Save as aforesaid, section twenty-seven of the Regulation of Railways Act, 1873, 36 & 37 Vict., c. 48. shall apply, and any act may be done by any two Commissioners.

(5.) Every judge who may with his consent be assigned to hold the office of *ex-officio* Commissioner shall attend to hear any cases before the Commission, which as *ex-officio* Commissioner he is required to hear, when and as soon as the cases are ready to be heard, or as soon thereafter as reasonably may be; and any such judge shall be required to perform any of the other duties of a judge of a superior court only when his attendance on the Commission is not required.

Appendix F—*contd.*

(6.) If and when any judge who may be assigned to hold the office of *ex-officio* Commissioner is temporarily unable to attend, the Lord Chancellor in England, the Lord President of Court of Session in Scotland, and the Lord Chancellor in Ireland, may respectively nomi- f a superior court to sit as *ex-officio* Commissioner in place of the judge who is nable d as aforesaid, and the judge so nominated shall for the purpose ex-officio Commissioner.

rd of Trade is satisfied either of the inability of an appointed g of any case, or of there being a vacancy in the office, and eedy hearing of the case, he may appoint a temporary Com- h Commissioner, for all purposes connected with such case, ion thereof, have the same jurisdiction and powers as if he were A temporary Commissioner shall be paid such sum by the Com- e to sit, or, if the office is vacant, out of the salary of the office, as the Presi- Board of Trade may assign

On an address from both Houses of Parliament representing that, regard being had to the duties imposed by this Act on the *ex-officio* Commissioners, the state of business of the High Court in England requires the appointment of an additional judge of that court, it shall be lawful for Her Majesty to appoint an additional judge of such court, and from time to time on a like address but not otherwise, to fill any vacancy in such judgeship, and the law relating to the appointment and qualification of the judges of such superior court, to their duties and tenure of office, to their precedence, salary and pension, and otherwise, shall apply to any judge so appointed under this section, and a judge so appointed under this section shall be attached to such division or branch of the court as Her Majesty may direct, subject to such power of transfer as may exist in the case of any other judge of such division or branch.

Provision for complaints by public authority in certain cases.

7. (1.) Any of the following authorities, that is to say—

(*a*) any of the following local authorities, namely, any harbour board, or conservancy authority, the Common Council of the City of London, any council of a city or borough, any representative county body which may be created by an Act passed in the present or any future session of Parliament, any justices in quarter session assembled, the Commissioners of Supply of any county in Scotland, the Metropolitan Board of Works, or any urban sanitary authority not being a council as aforesaid, or any rural sanitary authority; or

(*b*) any such association of traders or freighters, or chamber of commerce or agriculture as may obtain a certificate from the Board of Trade that it is, in the opinion of the Board of Trade, a proper body to make such complaint,

may make to the Commissioners any complaint which the Commissioners have jurisdiction to determine, and may do so without proof that such authority is aggrieved by the matter complained of, and any of such authorities may appear in opposition to any complaint which the Commissioners have jurisdiction to determine in any case where such authority, or the persons represented by them, appear to the Commissioners to be likely to be affected by any determination of the Commissioners upon such complaint.

(2.) The Board of Trade may, if they think fit, require, as a condition of giving a certificate under this section, that security be given in such manner and to such amount as they think necessary, for any costs which the complainants may be ordered to pay or bear.

(3.) Any certificate granted under this section shall, unless withdrawn, be in force for twelve months from the date on which it was given.

Jurisdiction.

Jurisdiction of Railway Commissioners transferred to the Commission.

8. There shall be transferred to and vested in the Commissioners all the jurisdiction and powers which at the commencement of this Act were vested in, or capable of being exercised by the Railway Commissioners, whether under the Regulation of Railways Act, 1873, or any other Act, or otherwise, and any reference to the Railway Commissioners in the Regulation of Railways Act, 1873, or in any other Act, or in any document, shall, from and after the

Appendix F—*contd.*

commencement of this Act, be construed to refer to the Railway and Canal Commission established by this Act.

9. Where any enactment in a special Act—

(*a*) contains provisions relating to traffic facilities, undue preference, or other mat mentioned in section two of the Railway and Canal Traffic Act, 1854, or

(*b*) requires a company to which this part of this Act applies to provide any sta road, or other similar work for public accommoda

(*c*) otherwise imposes on a company to which this part applies any obli tion in favour of the public or any individual,

or where any Act contains provisions relating to private branch ra rivate sidi the Commissioners shall have the like jurisdiction to hear and determi of a travention of the enactment as the Commissioners have to hear and determine a a contravention of section two of the Railway and Canal Traffic Act, 1854, as ame subsequent Acts.

10. Where any question or dispute arises, involving the legality of any toll, rate, or charge, or portion of a toll, rate, or charge, charged or sought to be charged for merchandize traffic by a company to which this part of this Act applies, the Commissioners shall have jurisdiction to hear and determine the same, and to enforce payment of such toll, rate, or charge, or so much thereof as the Commissioners decide to be legal. Jurisdiction over rates.

11. Nothing in any agreement, whether made before or after the passing of this Act, which has not been confirmed by Act or by the Board of Trade, or by the Commissioners under the Regulation of Railways Act, 1873, or this Act, shall render a company to which this part of this Act applies unable to afford, or shall authorise such company to refuse, such reasonable facilities for traffic as may in the opinion of the Commissioners be required in the interests of the public, or shall prevent the Commissioners from making or enforcing any order with respect to such facilities. Jurisdiction to order traffic facilities notwithstanding agreements

12. Where the Commissioners have jurisdiction to hear and determine any matter, they may, in addition to or in substitution for any other relief, award to any complaining party who is aggrieved such damages as they find him to have sustained; and such award of damages shall be in complete satisfaction of any claim for damages, including repayment of overcharges which but for this Act, such party would have had by reasonof the matter of complaint. Power to award damages.

Provided that such damages shall not be awarded unless complaint has been made to the Commissioners within one year from the discovery by the party aggrieved of the matter complained of.

The Commissioners may ascertain the amount of such damages either by trial before themselves, or by directing an inquiry to be taken before one or more of themselves or before some officer of their court.

13. In cases of complaint of undue preference no damages shall be awarded if the Commissioners shall find that the rates complained of have, for the period during which such rates have been in operation, been duly published in the rate books of the railway company kept at their stations in accordance with section fourteen of the Regulation of Railways Act, 1873, as amended by this Act, unless and until the party complaining shall have given written notice to the railway company requiring them to abstain from or remedy the matter of complaint, and the railway company shall have failed, within a reasonable time, to comply with such requirements in such a manner as the Commissioners shall think reasonable. No damages where rates published under certain conditions.

14. The Commissioners may order two or more companies to which this part of this Act applies to carry into effect an order of the Commissioners, and to make mutual arrangements for that purpose, and may further order the companies or in case of difference, any of them, to submit to the Commissioners for approval a scheme for carrying into effect the order, and when the Commissioners have finally approved the scheme, they may order each of the companies to do all that is necessary on the part and within the power of such company to carry into effect the scheme, and may determine the proportions in which the respective companies are to defray the expense of so doing, and may for the above purposes make, if they think fit, separate orders on any one or more of such companies. Orders on two or more companies.

Appendix F—*contd.*

Provided that nothing in this section shall authorise the Commissioners to require two companies to do anything which they would not have jurisdiction to require to be done if such two companies were a single company.

15. For the purposes of section eight of the Regulation of Railways Act, 1873, and any ier enactment relating to the reference to the Railway Commission of any difference between npanies which under the provisions of any general or special Act is required or authorised to referred to arbitratio e provisions of any agreement confirmed or authorised by any ch Act shall be e provisions of such Act.

16.—(1.) W Board of Trade or the Commissioners, in the exercise of any power en by any g special Act, on application order a company to which this part of this ' appl ovide a bridge, subway, or approach, or any work of a similar character, the te or the Commissioners, as the case may be, may require as a condition of making er that an agreement to pay the whole or a portion of the expenses of complying with rder shall be entered into by the applicants or some of them, or such other persons as the Board of Trade or Commissioners think fit, and any of the following local authorities, namely, any sanitary authority, highway board, surveyor of highways acting with the consent of the vestry of his parish, or any other authority having power to levy rates, shall have power if such authority think fit, to enter into any such agreement as is sanctioned by the Board of Trade or Commissioners for the purpose of the order.

(2.) In such case any question respecting the persons by whom or the proportions in which the expenses of complying with the order are to be defrayed may, on the application of any party to the application, or on a certificate of the Board of Trade, be determined by the Commissioners.

(3.) In this section the expression "parish" shall have the same meaning as the same expression has in the Acts relating to highways; and the expression "the consent of the vestry of his parish" shall, in any place where there is no vestry meeting, mean the consent of a meeting of inhabitants contributing to the highway rates, provided that the same notice shall have been given of such a meeting as would be required by law for the assembling of a meeting in vestry.

Appeals.

Appeals on certain questions to superior court of appeal.

17.—(1.) No appeal shall lie from the Commissioners upon a question of fact, or upon any question regarding the locus standi of a complainant.

(2.) Save as otherwise provided by this Act, an appeal shall lie from the Commissioners to a superior court of appeal

(3.) An appeal shall not be brought except in conformity with such rules of court as may from time to time be made in relation to such appeals by the authority having power to make rules of court for the superior court of appeal.

(4.) On the hearing of an appeal the court of appeal may draw all such inferences as are not inconsistent with the facts expressly found, and are necessary for determining the question of law, and shall have all such powers for that purpose as if the appeal were an appeal from a judgment of a superior court, and may make any order which the Commissioners could have made, and also any such further or other order as may be just, and the costs of and incidental to an appeal shall be in the discretion of the court of appeal, but no Commissioner shall be liable to any costs by reason or in respect of any appeal.

(5.) The decision of the superior court of appeal shall be final: Provided that where there has been a difference of opinion between any two of such superior courts of appeal, any superior court of appeal in which a matter affected by such difference of opinion is pending may give leave to appeal to the House of Lords, on such terms as to costs as such court shall determine

(6.) Save as provided by this Act, an order or proceeding of the Commissioners shall not be questioned or reviewed, and shall not be restrained or removed by prohibition, injunction, certiorari, or otherwise, either at the instance of the Crown or otherwise.

Appendix F—*contd.*

Supplemental. A.

18.—(1.) For the purposes of this Act the Commissioners shall have full jurisdiction to hear and determine all matters whether of law or of fact, and shall as respects the attendance and examination of witnesses, the production and inspection of documents, the enforcement of their orders, the entry on and inspection of property, and other matters necessary or proper for the due exercise of their jurisdiction under this Act, or otherwise for carrying this Act into effect, have all such powers, rights, and privileges as are vested in a superior court: Provided that no person shall be punished for contempt of court, except with the consent of an *ex-officio* Commissioner. General power for enforcement of orders.

(2.) The Commissioners may review and rescind or vary any order made by them; but save as is by this Act provided, every decision or order of the Commissioners shall be final.

19. The costs of and incidental to every proceeding before the Commissioners shall be in the discretion of the Commissioners, who may order by whom and to whom the same are to be paid, and by whom the same are to be taxed and allowed. Costs.

20.—(1.) The Commissioner may from time to time, with the approval of the Lord Chancellor and the President of the Board of Trade, make, rescind, and vary general rules for their procedure and practice under this Act, and generally for carrying into effect this part of this Act. Power to make rules.

(2.) All rules made under this section shall be laid before Parliament within three weeks after they are made, if Parliament is then sitting, and if Parliament is not then sitting, within three weeks after the beginning of the then next session of Parliament, and shall be judicially noticed, and shall have effect as if they were enacted by this Act.

21.—(1.) There shall be attached to the Railway and Canal Commission such officers, clerks, and messengers as the Lord Chancellor, with the consent of the Treasury as to number, from time to time appoints. Appointment of officers, clerks, etc.

(2.) There shall be paid to each of such officers, clerks, and messengers, such salaries as the Treasury from time to time determine.

22. The salaries of the appointed Commissioners, and of all officers, clerks, and messengers attached to the Railway and Canal Commission, and all the expenses of the said Commission of and incidental to the carrying out of this Act, shall be paid out of moneys to be provided by Parliament. Salaries, expenses, etc.

23. This part of this Act shall apply to any railway company, and to any canal company and to any railway and canal company. Company to which Part I applies.

PART II.—TRAFFIC.

24.—(1.) Notwithstanding any provision in any general or special Act, every railway company shall submit to the Board of Trade a revised classification of merchandise traffic, and a revised schedule of maximum rates and charges applicable thereto, proposed to be charged by such railway company, and shall fully state in such classification and schedule the nature and amounts of all terminal charges proposed to be authorised in respect of each class of traffic, and the circumstances under which such terminal charges are proposed to be made. In the determination of the terminal charges of any railway company, regard shall be had only to the expenditure reasonably necessary to provide the accommodation in respect of which such charges are made, irrespective of the outlay which may have been actually incurred by the railway company in providing that accommodation. Revised classification of traffic and schedule of rates.

(2.) The classification and schedule shall be submitted within six months from the passing of this Act, or such further time as the Board of Trade may, in any particular case, permit, and shall be published in such manner as the Board of Trade may direct.

(3.) The Board of Trade shall consider the classification and schedule, and any objections thereto, which may be lodged with them on or before the prescribed time and in the prescribed manner, and shall communicate with the railway company and the persons (if any) who have lodged objections, for the purpose of arranging the differences which may have arisen.

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Appendix F—*contd.*

88. (4.) If, after hearing all parties whom the Board of Trade consider to be entitled to be heard before them respecting the classification and schedule, the Board of Trade come to an agreement with the railway company as to the classification and schedule, they shall embody the agreed classification and schedule in a Provisional Order, and shall make a report thereon, to be submitted to Parliament, containing such observations as they think fit in relation to the agreed classification and schedule.

(5.) When any agreed classification and schedule have been embodied in a Provisional Order, the Board of Trade, as soon as they conveniently can after the making of the Provisional Order (of which the railway company shall be deemed to be the promoters), shall procure a Bill to be introduced into either House of Parliament for an Act to confirm the Provisional Order, which shall be set out at length in the schedule to the Bill.

(6.) In any case in which a railway company fails within the time mentioned in this section to submit a classification and schedule to the Board of Trade, and also in every case in which a railway company has submitted to the Board of Trade a classification and schedule, and after hearing all parties whom the Board of Trade consider to be entitled to be heard before them the Board of Trade are unable to come to an agreement with the railway company as to the railway company's classification and schedule, the Board of Trade shall determine the classification of traffic which, in the opinion of the Board of Trade, ought to be adopted by the railway company, and the schedule of maximum rates and charges, including all terminal charges proposed to be authorised applicable to such classification which would, in the opinion of the Board of Trade, be just and reasonable, and shall make a report, to be submitted to Parliament, containing such observations as they may think fit in relation to the said classification and schedule, and calling attention to the points therein on which differences which have arisen have not been arranged.

(7.) After the commencement of the session of Parliament next after that in which the said report of the Board of Trade has been submitted to Parliament, the railway company may apply to the Board of Trade to submit to Parliament the question of the classification and schedule which ought to be adopted by the railway company, and the Board of Trade shall on such application, and in any case, may embody in a Provisional Order such classification and schedule as in the opinion of the Board of Trade ought to be adopted by the railway company, and procure a Bill to be introduced into either House of Parliament for an Act to confirm the Provisional Order, which shall be set out at length in the schedule to the Bill.

(8.) If while any Bill to confirm a Provisional Order made by the Board of Trade under this section is pending in either House of Parliment, a petition is presented against the Bill or any classification and schedule comprised therein, the Bill, so far as it relates to the matter petitioned against, shall be referred to a Select Committee, or, if the two Houses of Parliament think fit so to order, to a joint Committee of such Houses, and the petitioner shall be allowed to appear and oppose as in the case of a private Bill.

(9.) In preparing, revising, and settling the classifications and schedules of rates and charges, the Board of Trade may consult and employ such skilled persons as they may deem necessary or desirable; and they may pay to such persons such remuneration as they may think fit and as the Treasury may approve.

(10.) The Act of Parliament confirming any Provisional Order made under this section shall be a public general Act, and the rates and charges mentioned in a Provisional Order as confirmed by such Act shall, from and after the Act coming into operation, be the rates and charges which the railway company shall be entitled to charge and make.

(11.) At any time after the confirmation of any Provisional Order under this section any railway company may, and any person, upon giving not less than twenty-one days' notice to the railway company may, apply in the prescribed manner to the Board of Trade to amend any classification and schedule by adding thereto any articles, matters, or things, and the Board of Trade may hear and determine such application, and classify and deal with the articles, matters or things referred to therein in such manner as the Board of Trade shall think right. Every

Appendix F—*contd.*

determination of the Board of Trade under this sub-section shall forthwith be published in the "London Gazette," and shall take effect as from the date of the publication thereof. A. D. 1888.

(12.) Nothing in this section shall apply to any remuneration payable by the Postmaster-General to any railway company for the conveyance of mails, letter bags, or parcels under any general or special Act relating to the conveyance of mails, or under the Post Office (Parcels) Act, 1882. 45 & 46 Vict., c. 74.

(13.) Nothing in this section shall apply to any remuneration payable by the Secretary of State for War to any railway company for the conveyance of War Office stores under the powers conferred by the Cheap Trains Act, 1883.

25. Whereas by section two of the Railway and Canal Traffic Act, 1854 it is enacted that every railway company and canal company, and railway and canal company shall, according to their respective powers, afford all reasonable facilities for the receiving and forwarding and delivering of traffic upon and from the several railways and canals belonging to or worked by such companies respectively, and for the return of carriages, trucks, boats, and other vehicles; and that no such company shall make or give any undue or unreasonable preference or advantage to or in favour of any particular person or company, or any particular description of traffic, in any respect whatsoever, or shall subject any particular person or company, or any particular description of traffic, to any undue or unreasonable prejudice or disadvantage in any respect whatsoever; and that every railway company and canal company and railway and canal company having or working railways or canals which form part of a continuous line of railway or canal or railway and canal communication, or which have the terminus station or wharf of the one near the terminus station or wharf of the other, shall afford all due and reasonable facilities for receiving and forwarding by one of such railways or canals all the traffic arriving by the other, without any unreasonable delay, and without any such preference or advantage or prejudice or disadvantage as aforesaid, and so that no obstruction may be offered to the public desirous of using such railways or canals or railways and canals as a continuous line of communication, and so that all reasonable accommodation may by means of the railways and canals of the several companies be at all times afforded to the public in that behalf: 46 & 47 Vict., c. 34. Provisions as to through traffic.

And whereas it is expedient to explain and amend the said enactment:

Be it therefore enacted, that—

Subject as hereinafter mentioned, the said facilities to be so afforded are hereby declared to and shall include the due and reasonable receiving, forwarding, and delivering by every railway company and canal company and railway and canal company, at the request of any other such company, of through traffic to and from the railway or canal of any other such company at through rates, tolls, or fares (in this Act referred to as through rates); and also the due and reasonable receiving, forwarding, and delivering by every railway company and canal company and railway and canal company, at the request of any person interested in through traffic, of such traffic at through rates: Provided that no application shall be made to the Commissioners by such person until he has made a complaint to the Board of Trade under the provisions of this Act as to complaints to the Board of Trade of unreasonable charges, and the Board of Trade have heard the complaint in the manner herein provided.

Provided as follows:

(1.) The company or person requiring the traffic to be forwarded shall give written notice of the proposed through rate to each forwarding company, stating both its amount and the route by which the traffic is proposed to be forwarded; and when a company gives such notice it shall also state the apportionment of the through rate. The proposed through rate may be per truck or per ton.

(2.) Each forwarding company shall, within ten days, or such longer period as the Commissioners may from time to time by general order prescribe, after the receipt of such notice, by written notice inform the company or persons requiring the traffic to be forwarded, whether they agree to the rate and route; and if they object to either, the grounds of the objection:

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(3.) If at the expiration of the prescribed period no such objection has been sent by any forwarding company, the rate shall come into operation at such expiration:

(4.) If an objection to the rate or route has been sent within the prescribed period, the matter shall be referred to the Commissioners for their decision:

(5.) If an objection be made to the granting of the rate or to the route, the Commissioners shall consider whether the granting of a rate is a due and reasonable facility in the interest of the public, and whether, having regard to the circumstances, the route proposed is a reasonable route, and shall allow or refuse the rate accordingly, or fix such other rate as may seem to the Commissioner just and reasonable:

(6.) Where, upon the application of a person requiring traffic to be forwarded, a through rate is agreed to by the forwarding companies, or is made by order of the Commissioners, the apportionment of such through rate, if not agreed upon between the forwarding companies, shall be determined by the Commissioners

(7.) If the objection be only to the apportionment of the rate, the rate shall come into operation at the expiration of the prescribed period, but the decision of the Commissioners, as to its apportionment, shall be retrospective; in any other case the operation of the rate shall be suspended until the decision is given:

(8.) The Commissioners, in apportioning the through rate, shall take into consideration all the circumstances of the case, including any special expense incurred in respect of the construction, maintenance, or working of the route, or any part of the route, as well as any special charges which any company may have been entitled to make in respect thereof:

(9.) It shall not be lawful for the Commissioners in any case to compel any company to accept lower mileage rates than the mileage rates which such company may for the time being legally be charging for like traffic carried by a like mode of transit on any other line of communication between the same points, being the points of departure and arrival of the through route

Where a railway company or canal company use, maintain, or work, or are party to an arrangement for using, maintaining, or working steam vessels for the purpose of carrying on a communication between any towns or ports, the provisions of this section shall extend to such steam vessels, and to the traffic carried thereby.

When any company, upon written notice being given as aforesaid, refuses or neglects without reasons to agree to the proposed through rates, or to the route, or to the apportionment, the Commissioners, if an order is made by them upon an application for through rates, may order the respondent company or companies to pay such costs to the applicants as they think fit.

Powers of Commissioners as to through rates.

26 Subject to the provisions in the last preceding section contained, the Commissioners shall have full power to decide that any proposed through rate is just and reasonable, notwithstanding that a less amount may be allotted to any forwarding company out of such through rate than the maximum rate such company is entitled to charge, and to allow and apportion such through rate accordingly.

Undue preference in case of unequal tolls, rates, and charges, and unequal services performed

27.—(1.) Whenever it is shown that any railway company charge one trader or class of traders, or the traders in any district, lower tolls, rates, or charges for the same or similar merchandise, or lower tolls, rates, or charges for the same or similar services, than they charge to other traders, or classes of traders, or to the traders in another district, or make any difference in treatment in respect of any such trader or traders, the burden of proving that such lower charge or difference in treatment does not amount to an undue preference shall lie on the railway company

(2.) In deciding whether a lower charge or difference in treatment does or does not amount to an undue preference, the court having jurisdiction in the matter, or the Commissioners, as the case may be, may, so far as they think reasonable, in addition to any other considerations affecting the case, take into consideration whether such lower charge or difference in treatment is necessary for the purpose of securing in the interests of the public the traffic in respect of

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which it is made, and whether the inequality cannot be removed without unduly reducing the rates charged to the complainant: Provided that no railway company shall make, nor shall the court, or the Commissioners, sanction any difference in the tolls, rates, or charges made for, or any difference in the treatment of, home and foreign merchandise, in respect of the same or similar services.

(3.) The court or the Commissioners shall have power to direct that no higher charge shall be made to any person for services in respect of merchandise carried over a less distance than is made to any other person for similar services in respect of the like description and quantity of merchandise carried over a greater distance on the same line of railway.

Extension of enactments as to undue preference to goods carried by sea.

28. The provisions of section two of the Railway and Canal Traffic Act, 1854, and of section fourteen of the Regulation of Railways Act, 1873, and of any enactments amending and extending those enactments, shall apply to traffic by sea in any vessels belonging to or chartered or worked by any railway company, or in which any railway company procures merchandise to be carried, in the same manner and to the like extent as they apply to the land traffic of a railway company.

Group rates to be chargeable by railway companies.

29.—(1.) Notwithstanding any provision in any general or special Act, it shall be lawful for any railway company, for the purpose of fixing the rates to be charged for the carriage of merchandise to and from any place on their railway, to group together any number of places in the same district, situated at various distances from any point of destination or departure of merchandise, and to charge a uniform rate or uniform rates of carriage for merchandise to and from all places comprised in the group from and to any point of destination or departure.

(2.) Provided that the distances shall not be unreasonable, and that the group rates charge and the places grouped together shall not be such as to create an undue preference.

(3.) Where any group rate exists or is proposed, and in any case where there is a doubt whether any rates charged or proposed to be charged by a railway company may not be a contravention of section two of the Railway and Canal Traffic Act, 1854, and any Acts amending the same, the railway company may, upon giving notice in the prescribed manner, apply to the Commissioners, and the Commissioners may, after hearing the parties interested and any of the authorities mentioned in section seven of this Act, determine whether such group rate or any rate charged or proposed to be charged as aforesaid does or does not create an undue preference. Any persons aggrieved, and any of the authorities mentioned in section seven of this Act, may, at any time after the making of any order under this section, apply to the Commissioners to vary or rescind the order, and the Commissioners, after hearing all parties who are interested, may make an order accordingly.

Power to dock companies and harbour boards to complain of undue preference.

30. Any port or harbour authority or dock company which shall have reason to believe that any railway company is by its rates or otherwise placing their port, harbour, or dock, at an undue disadvantage as compared with any other port, harbour, or dock to or from which traffic is or may be carried by means of the lines of the said railway company, either alone or in conjunction with those of other railway companies, may make complaint thereof to the Commissioners, who shall have the like jurisdiction to hear and determine the subject-matter of such complaint as they have to hear and determine a complaint of a contravention of section two of the Railway and Canal Traffic Act, 1854, as amended by subsequent Acts.

Complaints to Board of Trade of unreasonable charges by railway companies.

31.—(1.) Whenever any person receiving or sending or desiring to send goods by any railway is of opinion that the railway company is charging him an unfair or an unreasonable rate of charge, or is in any other respect treating him in an oppressive or unreasonable manner such person may complain to the Board of Trade.

(2.) The Board of Trade, if they think that there is reasonable ground for the complaint, may thereupon call upon the railway company for an explanation, and endeavour to settle amicably the differences between the complainant and the railway company.

(3.) For the purpose aforesaid, the Board of Trade may appoint either one of their own officers or any other competent person to communicate with the complainant and the railway company, and to receive and consider such explanations and communications as may be made in reference to the complaint; and the Board of Trade may pay to such last-mentioned person such remuneration as they may think fit, and as may be approved by the Treasury.

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(4.) The Board of Trade shall from time to time submit to Parliament reports of the complaints made to them under the provisions of this section, and the results of the proceedings taken in relation to such complaints, together with such observations thereon as the Board of Trade shall think fit.

(5.) A complaint under this section may be made to the Board of Trade by any of the authorities mentioned in section seven of this Act, in any case in which, in the opinion of any of such authorities, they or any traders or persons in their district are being charged unfair or unreasonable rates by a railway company; and all the provisions of this section shall apply to a complaint so made as if the same had been made by a person entitled to make a complaint under this section.

Annual returns by railway companies to contain such statistics as the Board of Trade shall require.

34 and 35 Vict., c. 78., s. 9.

36 and 37 Vict., c. 76.

32.—(1.) The returns required of a railway company under section nine of the Railways Regulation Act, 1871, shall include such statements as the Board of Trade may from time to time prescribe, and the forms referred to in that section may from time to time be altered by the Board of Trade in such manner as they think expedient for giving effect to this section, and the said section nine of the Railways Regulation Act, 1871, shall apply accordingly.

(2.) The Board of Trade may from time to time alter the times fixed by the said Act or by the Railways Regulation Act (Returns of Signal Arrangements, Workings, etc.), 1873, for the forwarding of any of the returns required by the said Act or this Act.

Classification table to be open for inspection. Copies to be sold.

33.—(1.) The book, tables, or other document in use for the time being containing the general classification of merchandise carried on the railway of any company, shall, during all reasonable hours, be open to the inspection of any person without the payment of any fee at every station at which merchandise is received for conveyance, or where merchandise is received at some other place than a station then at the station nearest such place, and the said book, tables, or other document as revised from time to time shall be kept on sale at the principal office of the company at a price not exceeding one shilling.

(2.) Printed copies of the classification of merchandise traffic, and schedule of maximum tolls, rates, and charges of every railway company authorised, as provided by this Act, shall be kept for sale by the railway company at such places and at such reasonable price as the Board of Trade may by any general or special order prescribe.

(3.) The company shall within one week after application in writing made to the secretary of any railway company by any person interested in the carriage of any merchandise which has been or is intended to be carried over the railway of such company, render an account to the person so applying in which the charge made or claimed by the company for the carriage of such merchandise shall be divided, and the charge for conveyance over the railway shall be distinguished from the terminal charges (if any), and from the dock charges (if any), and if any terminal charge or dock charge is included in such account the nature and detail of the terminal expenses or dock charges in respect of which it is made shall be specified.

(4.) Every railway company shall publish at every station at which merchandise is received for conveyance, or where merchandise is received at some other place than a station then at the station nearest to such place, a notice, in such form as may be from time to time prescribed by the Board of Trade, to the effect that such book, tables, and document touching the classification of merchandise and the rates as they are required by this section and section fourteen of the Regulation of Railways Act, 1873, to keep at that station, are open to public inspection, and that information as to any charge can be obtained by application to the secretary or other officer at the address stated in such notice.

36 and 37 Vict., c. 48.

(5.) Where a railway company carries merchandise partly by land and partly by sea, all the books, tables, and documents, touching the rates of charge of the railway company, which are kept by the railway company at any port in the United Kingdom used by the vessels which carry the sea traffic of the railway company, shall, besides containing all the rates charged for the sea traffic, state what proportion of any through rate is appropriated to conveyance by sea, distinguishing such proportion from that which is appropriated to the conveyance by land on either side of the sea.

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(6.) Where a railway company intend to make any increase in the tolls, rates, or charges published in the books required to be kept by the company for public inspection, under section fourteen of the Regulation of Railways Act, 1873, or this Act, they shall give by publication in such manner as the Board of Trade may prescribe at least fourteen days' notice of such intended increase, stating in such notice the date on which the altered rate or charge is to take effect: and no such increase in the published tolls, rates, or charges of the railway company shall have effect unless and until the fourteen days' notice required under this section has been given.

(7.) Any company failing to comply with the provisions of this section shall, for each offence, and in the case of a continuing offence for every day during which the offence continues, be liable, on summary conviction, to a penalty not exceeding five pounds.

Place of publication of rates in respect of traffic at places other than stations.

34. When traffic is received or delivered at any place on any railway other than a station within the meaning of section fourteen of the Regulation of Railways Act, 1873, the railway company on whose line such place is, shall keep at the station nearest such place a book or books showing every rate for the time being charged for the carriage of traffic other than passengers and their luggage, from such place to any place to which they book, including any rates charged under any special contract, and stating the distance from that place of every station, wharf, siding, or place to which such rate is charged.

Every such book shall, during all reasonable hours, be open to the inspection of any person without the payment of a fee.

Power to make rules for purposes of Part II of Act.

35.—(1.) The Board of Trade may from time to time make, rescind, and vary rules with respect to the following matters:—

(*a*.) The form and manner in which classifications and schedules under this part of this Act are to be prepared and submitted to the Board of Trade and to Parliament, and the publication, advertisement, and settlement (by the Board of Trade) of such classifications and schedules, and of Provisional Orders;

(*b*.) All proceedings before the Board of Trade under this part of this Act;

(*c*.) The fees to be paid in respect of such proceedings; and

(*d*.) Any matter authorised by this Act to be prescribed.

(2.) Any rules made by the Board of Trade in pursuance of this section shall be laid before Parliament within three weeks after they are made, if Parliament be then sitting, and if Parliament be not then sitting, within three weeks after the beginning of the then next session of Parliament, and shall be judicially noticed, and shall have effect as if they were enacted by this Act.

PART III.—CANALS.

Part II to extend to canal companies.

36. All the provisions of Part II of this Act relating to any railway company shall, so far as applicable, apply to every canal company, and to every railway and canal company; and in Part II of this Act, unless the context otherwise requires, the expression "railway company" shall include a canal company and railway and canal company, and the expression "railway" shall include a canal, and the expression "rate" shall include tolls and dues of every description chargeable for the use of any canal or by any canal company.

Application of 36 and 37 Vict., c 48, to canals.

37.—(1.) Section fifteen of the Regulation of Railways Act, 1873, shall apply to the terminal charges of a canal company.

(2.) The Railway and Canal Traffic Act, 1854, as amended by the Regulation of Railways Act, 1873, shall extend to any person whose consent is required to any variation of the rates, tolls, or dues charged for the use of any canal, or by any canal company, in like manner as if such person were a canal company, and the expressions "canal company" and "railway and canal company" in the said Acts, and this Act shall be construed accordingly to include such person.

(3.) The provisions of the Railway and Canal Traffic Act, 1854, and the Regulation of Railways Act, 1873, with respect to rates, shall apply to tolls and dues of every description chargeable for the use of any canal or by any canal company. And nothing in any agreement,

whether made before or after the passing of this Act, and whether confirmed by Act of Parliament or not, and nothing in this Act shall prevent the Commissioners from making or enforcing any order for a through rate or toll which may in their opinion be required in the interest of the public.

(4.) Any company allowing traffic to pass from a canal on to any other canal or any railway, or from a railway on to a canal, shall be deemed to be a forwarding company, and the allowing of traffic so to pass shall be deemed to be the forwarding of traffic within the meaning of the above-mentioned Acts.

(5.) The provisions of the Railway and Canal Traffic Act, 1854, and of the Regulation of Railways Act, 1873, and of this Act, with respect to through rates, shall extend to any canals which, in connection with any river or other waterway, form part of a continuous line of water communication, notwithstanding that tolls may not be leviable by authority of Parliament upon such river or other waterway.

Powers of Commissioners over canal tolls, rates, and charges where a railway company or its officers own or control the traffic of a canal.

38. Where a railway company, or the directors or officers of a railway company, or any of them or any persons on their behalf, have the control over, or the right to interfere in or concerning the traffic conveyed, or the tolls, rates, or charges levied on the traffic of or for the conveyance of merchandise on a canal, or any part of a canal, and it is proved to the satisfaction of the Commissioners that the tolls, rates, or charges levied on the traffic of or for the conveyance of merchandise on the canal are such as are calculated to divert the traffic from the canal to the railway, to the detriment of the canal or persons sending traffic over the canal or other canals adjacent to it—

(1) The Commissioners may, on the application of any person interested in the traffic of the canal, make an order requiring the tolls, rates, and charges levied on the traffic of or for the conveyance of merchandise on the canal, to be altered and adjusted in such a manner that the same shall be reasonable as compared with the rates and charges for the conveyance of merchandise on the railway:

(2) If within such time as may be prescribed by the order of the Commissioners, the tolls, rates, and charges levied on the traffic of or for the conveyance of merchandise on the canal are not altered and adjusted as required by such order, the Commissioners may themselves by an order make such alterations in and adjustment of the tolls, rates, and charges levied on the traffic of or for the conveyance of merchandise on the canal as they shall think just and reasonable, and the tolls, rates, and charges as altered and adjusted by the order of the Commissioners shall be binding on the company or persons owning or having the control over the traffic of, or the tolls, rates, and charges levied on the traffic of, or for the conveyance of merchandise on the canal:

(3) No application shall be made to the Commissioners under this section until the Board of Trade have certified that the applicant is a fit person to make the application, and that the application is a proper one to be submitted for the adjudication of the Commissioners; and no order shall be made by the Commissioners under this section unless notice of the application has been served upon such company and persons, and in such manner as the Board of Trade may direct:

(4) The Commissioners may at any time, upon the application of any company or person affected by any order made under this section, and after notice to and hearing such companies and persons as the Commissioners may by any general rules or special order prescribe, rescind or vary any order made under this section.

Returns by canal companies.

39.—(1.) Every canal company shall, on or before the first day of January in every year, beginning on the first day of January next after the passing of this Act, send to the registrar of joint stock companies a return stating the name of the company, a short description of their canal, the name of the principal officer, and the place of their office, or, if they have more than one office, of their principal office.

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(2.) Every canal company shall within such time as may be prescribed by the Board of Trade, and afterwards from time to time whenever required by the Board of Trade, not being oftener than once in every year, forward to the Board of Trade, in such form and manner as the Board may from time to time prescribe, such returns as the Board of Trade may require for the purpose of showing the capacity of such canal for traffic, and the capital, revenue, expenditure, and profits of the canal company.

(3.) When the canal of a canal company, or any part thereof, is intended to be stopped for more than two days, the company shall report to the Board of Trade, stating the time during which such stoppage is intended to last, and when the same is re-opened the company shall so report to the Board of Trade.

(4.) A company failing to comply with this section, shall be liable, on summary conviction, to a fine not exceeding five pounds for every day during which their default continues, and any director, manager, and officer of the company who knowingly and wilfully authorises or permits the default shall be liable, on summary conviction, to the like fine.

Byelaws of canal companies.

40.—(1.) Every canal company shall, before such date as the Board of Trade may prescribe, forward to the Board of Trade true copies, certified in such manner as the Board of Trade direct, of any byelaws or regulations of such company which are in force at the commencement of this Act; and the byelaws of any canal company, copies of which are not forwarded to the Board of Trade as provided by the section, shall from and after the said date cease to have any operation, save in so far as any penalty may have been already incurred under the same.

(2.) A byelaw or regulation of any canal company hereafter to be made under any power which has before or at the time of the passing of this Act been, or which may hereafter be conferred on any canal company, shall not have any force or effect until two months after a true copy of such byelaw or regulation, certified in such manner as the Board of trade direct, has been forwarded to the Board of Trade, unless the Board of Trade before the expiration of such period have signified their approbation thereof.

(3.) The Board of Trade may, at any time after any existing or future byelaws or regulations of a canal company have been forwarded to them, notify to the company their disallowance thereof, or of any of them, and in case such byelaws or regulations are in force at the time of the disallowance, the time at which the said byelaws or regulations shall cease to be in force. A byelaw or regulation disallowed by the Board of Trade shall not after such disallowance have any force or effect whatever, save (as regards any byelaw or regulation which may be in force at the time of the disallowance thereof) in so far as any penalty may have been then already incurred under the same.

(4.) The Board of Trade may from time to time make, rescind, and vary such regulations as they think fit with respect to the publication by canal companies of their byelaws and regulations, and with respect to the publication by canal companies of their intention to apply to the Board of Trade for the allowance of any intended byelaws and regulations. Any regulations so made which are for the time being in force, shall have effect as if they had been enacted in this Act.

Inspection of canals.

41. Whenever the Board of Trade are, through their officers or otherwise, informed that the works of any canal are in such a condition as to be dangerous to the public, or to cause serious inconvenience or hindrance to traffic, the Board of Trade may direct such officer or other person as they appoint for the purpose to inspect the said canal and report thereon to the Board of Trade, and for the purpose of making any inspection under this section the officer or person appointed for the purpose shall, in relation to the canal or works to be inspected, have all the powers of an inspector appointed under the Regulation of Railways Act, 1871. 34 & 35 Vict., c. 78

Misapplication of a railway company's funds for acquisition of unauthorised interest in canal.

42.—(1.) No railway company or director, or officer of a railway company shall, without express statutory authority, apply or use or authorise or permit the application or use of any part of the company's funds for the purpose of acquiring either in the name of the railway company, or of any director or officers of the railway company, or other person, any canal interest, or of enabling any director or officer of the railway company or other person, to purchase or acquire any canal interest, or of guaranteeing or repaying to any director or officer of the railway company

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or other person who has purchased or acquired any canal interest the sums of money expended or ability incurred by such director, officer, or person, in the purchase or acquisition of such canal interest, or any part of such money or liability.

(2.) In the event of any contravention of the provisions of this section, the canal interest purchased in such contravention shall be forfeited to the Crown, and the directors or officer of the company who so applied or used, or authorised or permitted such application or use of the company's funds, shall be liable to repay to the company the sums so applied or used and the value of the canal interest so forfeited; and proceedings to compel such repayment may be taken by any shareholder in the company.

(3.) In this section the expression "company's funds" means the corporate funds of any railway company, and includes any funds which are under the control of or administered by a railway company; the expression "officer" includes any person having any control over a company's funds or any part thereof: and the expression "canal interest" means shares in the capital of a canal company, and includes any interest of any kind in a canal company or canal.

Canal companies may agree for through tolls, etc.

43.—(1.) Any canal company may make and enter into contracts and arrangements with any other canal company or canal companies for the passage over and along their respective canals, or any of them, of boats, barges, vessels, and other through traffic, and for the use, by such traffic, of the wharves, landing places, and other works of any such canal, upon payment of such through tolls, rates, and charges, and subject to such conditions and restrictions as may be agreed upon between such companies; and for the collection and recovery by any one of the companies on behalf of themselves and the other companies interested of the tolls, rates, and charges payable in respect of such through traffic; and for the division and apportionment of the tolls, rates, and charges; and any such contract may contain provisions for the erection and maintenance of or otherwise for providing warehouses, offices, and other buildings and conveniences, and any other provisions for the purpose of carrying into effect any such arrangement and any company may apply their funds or moneys for the same purpose.

(2.) Notwithstanding any enactments providing for the charge of equal tolls, rates, and charges, such through tolls, rates, and charges as above mentioned may respectively be computed at a lower toll or rate per mile than the tolls, rates, or charges charged for the passage over and along the same canals of like traffic, not being through traffic, without necessitating or occasioning any reduction of the last-mentioned tolls, rates, or charges.

Canal companies may establish clearing system.

(3.) Any like contracts and arrangements existing at the passing of this Act shall be, and from the respective dates of the making thereof shall be deemed to have been, as valid as if the same had been made after the commencement of this Act.

44. For the purpose of facilitating through traffic upon canals, any canal companies upon whose canals through tolls, rates, or charges may be in operation, may establish a canal clearing system, on such principles, in such manner, and subject to such regulations as to the admission of other companies to such system, the retirement of members, the appointment of a committee to conduct the business of the system, and of a secretary or other necessary officers, the mode of conducting business, and such other regulations for carrying into effect such system as may from time to time be approved by the Board of Trade in writing under the hand of the secretary or one of the assistant secretaries of that Board; and any company may apply any funds or money belonging to them, for the purpose of establishing or carrying into effect any such system, and the provisions of sections eleven to twenty-six inclusive of the Railway Clearing Act, 1850, shall, mutatis mutandis, apply to any canal clearing system when so established.

13 and 14 Vict., c. xxxiii.

Abandonment of canal.

45.—(1.) Where, on the application of a canal company, it appears to the Board of Trade that any canal or part of a canal belonging to the applicants (hereinafter referred to as an unnecessary canal) is at the time of making the application unnecessary for the purposes of public navigation, or where, on the application of any local authority, or of three or more owners of lands adjoining or near to any canal or part of a canal, it appears to the Board of Trade that that canal or part of a canal (hereinafter referred to as a derelict canal) has for at least three years previously to the making of the application been disused for navigation, or, by reason of the default of the proprietors thereof, has become unfit for navigation, or that the lands adjoining or near thereto have suffered injury by water that has escaped from the derelict canal, and that

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the proprietors of the derelict canal decline or are unable to effect the repairs necessary to prevent further injury, the Board of Trade may by warrant signed by their secretary authorise the abandonment by the existing proprietors of such unnecessary canal or such derelict canal, and after the granting of the warrant, and the due publication as required by the Board of Trade of a notice of the granting thereof, the Board of Trade may make an order releasing the canal company or the other proprietors of the unnecessary or derelict canal from all liability to maintain the same canal, and from all statutory and other obligations in respect thereof, or of or consequent on the abandonment thereof.

(2.) In the case of an unnecessary canal no warrant of abandonment shall be granted unless the Board of Trade are satisfied —

(*a*) That it is unnecessary for the purposes of public navigation.

(*b*) That the application has been expressly authorised by a resolution of a majority of the shareholders of the canal company owning the canal present and voting at an extraordinary or special general meeting of that company.

(*c*) That such public and other notices of the application have been given as the Board of Trade may require.

(*d*) That compensation (the amount thereof to be determined in case of difference as the Board of Trade may prescribe) has been made to all persons entitled to compensation by reason of the proposed abandonment of the canal.

(3.) In the case of a derelict canal the warrant may be granted on the condition that the canal or any part thereof, with all or any of the powers relating thereto, be transferred to any person, body of persons, or local authority, and where any such condition is imposed, the Board of Trade may, if they think fit, frame and embody in a Provisional Order a scheme for the management of the canal or any part thereof.

(4.) The Provisional Order may provide for the constitution of a body to manage the canal or any part thereof, for the transfer to that body or any local authority of the canal or any part thereof, and of all or any of the powers relating thereto, for the limitation or discharge of any liabilities affecting the canal or the owners thereof for the time being, and for any other matter which may appear to the Board of Trade to be necessary or proper for carrying this section into effect.

(5.) The Board of Trade may submit to Parliament for confirmation any Provisional Order made by it in pursuance of this section, but any such order shall be of no force unless and until it is confirmed by Act of Parliament.

(6.) If while the Bill confirming any such order is pending in either House of Parliament, a petition is presented against any order comprised therein, the Bill, so far as it relates to the order, may be referred to a select committee, and the petitioner shall be allowed to appear and oppose as in the case of private Bills.

(7.) In this section the expression "local authority" means anyone of the local authorities mentioned in section seven of this Act.

(8.) For the purpose of giving effect to the provisions of this section, the Board of Trade may require the applicants to furnish any evidence in their possession or under their control relative to the application, and may at the expense of the applicants appoint and send an officer to inspect the canal referred to in the application, and to obtain information and evidence in the neighbourhood thereof relative to the proposed abandonment, and may from time to time make regulations as to the mode of making applications, and the nature and mode of publication of notices, and generally as to the conduct of proceedings.

Definition of "canal company."

46. In this part of this Act the expression "canal company" shall include a "railway and canal company" so far as relating to any canal of any such last-mentioned company.

PART IV.—MISCELLANEOUS.

Perpetuation of 36 & 37 Vict., c. 48.

47. So much of the Regulation of Railways Act, 1873, as limits the time during which that Act shall continue in force shall, save so far as it relates to the appointment of the Commission, be repealed, and the said Act, save as aforesaid, shall be perpetual.

Appendix F—*contd.*

Evidence on rating appeals.

48. On any rating appeal, and before any court, where it may be material to show the receipts or profits of a railway company or canal company, or railway and canal company, it shall be lawful for the company to prove the same by written statements or returns verified by the affidavit or statutory declaration of the manager or other responsible officer, and any such statements or returns shall be *primâ facie* evidence of the facts therein stated with respect to such receipts or profits: Provided that the person by whom any such affidavit or statutory declaration is made shall in every case, if required, attend to be cross-examined thereon.

Recovery and application of penalties.

49. Every penalty recoverable on summary conviction under this Act may be prosecuted and recovered in the manner directed by the Summary Jurisdiction Acts before a court of summary jurisdiction.

Parties may appear in person or by counsel, etc.

50. In any proceedings under this Act any party may appear before the Commissioners either by himself in person or by counsel or solicitor.

Parliamentary agents entitled to practise before Commissioners.

51. Any person who shall be certified by the Chairman of Committees of the House of Lords or the Speaker of the House of Commons to have practised for two years before the passing of this Act in promoting or opposing Bills in Parliament shall be entitled to practise in any proceedings under this Act as an attorney or agent before the Commissioners: Provided that every such person so practising as aforesaid shall, in respect of such practice and everything relating thereto, be subject to the jurisdiction and orders of the Commissioners, and further provided that no such person shall practise as aforesaid until his name shall have been entered in a roll to be made and kept, and which is hereby authorised to be made and kept, by the Commissioners.

Saving of powers conferred on Commissioners and Board of Trade.

52. The powers and jurisdiction conferred by this Act on the Commissioners or Board of Trade shall be in addition to and not in substitution for any powers and jurisdiction vested in the Commissioners or Board of Trade by any statute.

Proceedings of Board of Trade.

53.—(1.) All documents purporting to be rules, orders, or certificates made or issued by the Board of Trade, and to be sealed with the seal of the Board, or to be signed by a secretary or assistant secretary of the Board, or any person authorised in that behalf by the President of the Board, shall be received in evidence, and deemed to be such orders, rules, or certificates without further proof, unless the contrary is shown.

(2.) A certificate signed by the President of the Board of Trade that any order made, certificate issued, or act done, is the order, certificate, or act of the Board of Trade, shall be conclusive evidence of the fact so certified.

Expenses of local authorities.

54.—(1.) Where any local authority having power under this Act to make or oppose any complaint to the Commissioners, or the Board of Trade, or to enter into any agreement to pay the whole or a portion of the expenses of complying with an order of the Commissioners or the Board of Trade, or to make any application for the abandonment or acquisition of a canal under this Act, incur any expenses in or incidental to such complaint, opposition, agreement, or application, such expenses may be defrayed out of the rates or funds out of which the expenses incurred by such authority in the execution of their ordinary duties are defrayed, and if such authority is a rural sanitary authority in England, shall be defrayed as general expenses, unless the Local Government Board direct that they shall be defrayed as special expenses.

(2.) A local authority may enter into any contract involving the payment by themselves and their successors of any expenses authorised by this section to be defrayed.

(3.) Where any such local authority have no power to borrow money for the purpose of defraying any expenses authorised by this section, such authority, if other than a surveyor of highways, may, with the consent of the Board of Trade in the case of any harbour board or conservancy authority, and with the consent of the Local Government Board in the case of any other authority, borrow money in manner provided by the Local Loans Act, 1875, on the security of the rates or funds out of which the expenses are authorised to be defrayed and the prescribed period for the loan shall be such period as the Board giving such consent may approve.

38 & 39 Vict., c. 83.

(4.) On the request of any board whose consent is required for such loan, the Board of Trade or Commissioners shall certify such particulars respecting the amount of the said ex-

Appendix F—*contd.*

penses and the propriety of incurring the same and of borrowing for the payment thereof as may be requested by such board.

(5.) In Ireland, any authority borrowing in pursuance of this section may borrow in manner provided by the Public Health (Ireland) Act, 1878, in like manner as if the provisions of that Act with respect to borrowing were re-enacted in this section, and in terms made applicable thereto. 41 & 42 Vict., c. 52

55. In this Act, unless the context otherwise requires,— Definitions.

Terms defined by the Regulation of Railways Act, 1873, have the meanings thereby assigned to them :

The term "conservancy authority" means any persons who are otherwise than for private profit intrusted with the duty or invested with the power of conserving, maintaining, or improving the navigation of any tidal or inland water or navigation :

The term "harbour board" means any persons who are otherwise than for private profit intrusted with the duty or invested with the power of constructing, improving, managing, regulating, and maintaining a harbour, whether natural or artificial, or any dock :

The term "Lord Chancellor" means the Lord High Chancellor of Great Britain :

The term "undue preference" includes an undue preference, or an undue or unreasonable prejudice or disadvantage, in any respect, in favour of or against any person or particular class of persons or any particular description of traffic :

The term "terminal charges" includes charges in respect of stations, sidings, wharves, depôts, warehouses, cranes and other similar matters, and of any services rendered thereat :

The term "merchandise" includes goods, cattle, live stock, and animals of all descriptions :

The term "trader" includes any person sending, receiving, or desiring to send merchandise by railway or canal :

The term "home," in relation to merchandise, includes the United Kingdom, the Channel Islands, and the Isle of Man :

The term "rating appeal" means an appeal against any valuation list or against any poor rate or any other local rate :

The term "Summary Jurisdiction Acts" in Scotland means the Summary Procedure Act, 1864, the Summary Jurisdiction (Process) Act, 1881, and any Act or Acts amending the same; and in Ireland, within the police district of Dublin metropolis, the Acts regulating the powers and duties of justices of the peace for such district, or of the police of such district, and elsewhere, the Petty Sessions (Ireland) Act, 1851, and any Act amending the same : 27 & 28 Vict., c. 53; 44 & 45 Vict., c. 24; 14 & 15 Vict., c. 93

The term "superior court" means, as regards England, the High Court of Justice; as regards Scotland, the Court of Session; and as regards Ireland, the High Court of Justice :

The term "superior court of appeal" means, as regards England, Her Majesty's Court of Appeal; as regards Scotland, the Court of Session in either division of the Inner House; and as regards Ireland, Her Majesty's Court of Appeal :

The term "rules of court" means, as regards Scotland, acts of sederunt.

In the application of this Act to Ireland, the expression "council of a borough" includes town or township commissioners, and any reference to justices in quarter sessions shall be construed to refer to a grand jury; and any reference to the Local Government Board or to an urban or rural sanitary authority, shall be construed to refer to the Local Government Board for Ireland, and to an urban or rural sanitary authority in Ireland.

56. This Act shall come into operation on the first day of January one thousand eight hundred and eighty-nine, which day is in this Act referred to as the commencement of this Act: Provided that at any time after the passing of this Act any appointment and rules may be made, and other things done for the purpose of bringing this Act into operation at such commencement. Commencement of Act.

Appendix F—*concld.*

A. D. 1888.

Pending business. 36 & 37 Vict., c. 48.

57. Subject to general rules to be made under this Act, all proceedings which, at the commencement of this Act, under the Regulation of Railways Act, 1873, and Acts amending it, or under any other Acts, are pending before the Railway Commissioners, shall be transferred to the Railway and Canal Commission under this Act, and may thereupon be continued and concluded in all respects as if such proceedings had been originally instituted before that Commission.

Transfer of pending business from superior courts.

58. Every action or proceedings which might have been brought before the Railway Commissioners if this Act had been in force at the time when such action or proceeding was begun, and is at the commencement of this Act pending before any superior court, may, upon the application of either party, be transferred by any judge of such superior court, to the Railway and Canal Commissioners under this Act, and may thereupon be continued and concluded in all respects as if such action or proceeding had been originally instituted before that Commission: Provided that no such transfer, nor anything herein contained, shall vary or affect the rights or liabilities of any party to such action or proceeding.

Repeal

59.—(1) The enactments mentioned in the schedule to this Act are hereby repealed to the extent therein specified.

(2) The repeal effected by this Act shall not affect—

(*a*) Anything done or suffered before the commencement of this Act under any enactment repealed by this Act, or the expiration of any office which would otherwise have expired by virtue of any enactment repealed by this Act; nor

(*b*) Any right or privilege acquired, or duty imposed, or liability or disqualification incurred, under any enactment so repealed; nor

(*c*) Any fine, forfeiture, or other punishment incurred or to be incurred in respect of any offence committed or to be committed against any enactment so repealed; nor

(*d*) The institution or continuance of any proceeding or other remedy, whether under any enactment so repealed, or otherwise, for ascertaining or enforcing any such liability or disqualification, or enforcing or recovering any such fine, forfeiture or punishment as aforesaid.

SCHEDULE.

Acts Repealed.

Section 59

Note.—A description or citation in this schedule of a portion of an Act is inclusive of the words, section, or other part first and last mentioned, or otherwise referred to as forming the beginning or as forming the end of the portion described in the description or citation.

Session and Chapter of Act.	Short Title.	Extent of Repeal.
17 & 18 Vict., c. 31	The Railway and Canal Traffic Act, 1854.	Section four and section five.
31 & 32 Vict., c. 119	The Regulation of Railways Act, 1868.	Section sixteen, paragraph two, from "The provisions of" to the end of the section.
36 & 37 Vict., c. 48	The Regulation of Railways Act, 1873.	Section three, from "The term "superior court," to the end of the section, section four, section eleven, section twelve, section thirteen, section twenty-one, section twenty-two, section twenty-three, section twenty-four, section twenty five, section twenty-six from the words "The Commissioners may review" to the end of the section, section twenty-eight, section twenty-nine, section thirty-four, and section thirty-seven.
37 & 38 Vict., c. 40	The Board of Trade Arbitrations, etc., Act, 1874.	Section eight, from "and shall continue in force" to "expiration"

Appendix G.

The railroads of the world.

The following table is compiled, reduced and converted to English units, from the tables published in the May-June issue of the Archiv für Eisenbahnwesen :—

The railroads of the world at the end of 1900.

Country.	Miles in 1900.	Per cent. of increase, 1896—1900	Per mile of railroad.	
			Inhabitants.	Square miles.
Europe.				
German Empire	31,933	8·5	1,701	6·52
Austria-Hungary (including Bosnia and Herzogovinia).	22,917	14·6	2,051	11·39
Great Britain and Ireland	21,864	2·8	1,889	5·53
France	26,611	4·6	1,451	7·78
Russia (including Finland)	29,892	24·6	3,556	68·32
Italy	9,810	2·2	3,307	11·28
Belgium	3,943	9·8	1,711	2·89
Netherlands (with Luxemburg)	1,994	2·5	2,678	6·89
Switzerland	2,351	6 2	1,415	6·79
Spain	8,300	3·8	2,138	23·11
Portugal	1,476	0·8	3,581	24·22
Denmark	1,865	30·0	1,312	7·95
Norway	1,286	5·9	1,735	96·96
Sweden	7,034	14·4	725	24·73
Servia	359	1·4	6,947	51·54
Roumania	1,925	7·5	3,072	26·27
Greece	605	2·1	4,023	41·02
Turkey in Europe (with Bulgaria and Roumelia).	1,952	29·3	5,030	52·80
Malta, Jersey, Isle of Man	68	0·0	5,353	6·25
Total Europe	176,174	10·1	2,215	21·18
North America.				
United States	193,304	5·8	383	15·48
British North America	17,831	9·6	294	189·85
Newfoundland	641	37·4	324	66·74
Mexico	9,055	19·9	1,394	84 73
Central America (Guatemala, Honduras, Nicaragua and Costa Rica).	718	13·9	3,31-	230·32
Total North America	221,549	6·6	427	33·19

Appendix G—*contd.*

The railroads of the world at the end of 1900—contd.

Country.	Miles in 1900.	Per cent of increase, 1896—1900.	Per mile of railroad.	
			Inhabitants.	Square miles.
South America.				
Colombia	400	13·9	11,250	1,284·55
Cuba	1,134	2·6	1,439	40·44
Venezuela	634	0·0	3,856	635·74
San Domingo	117	0·0	4,308	160·39
Brazil	9,195	13·6	1,845	351·09
Argentine Republic	10,175	13·2	471	109·53
Paraguay	157	0·0	3,197	621·89
Uruguay	1,144	14·7	723	60·31
Chili	2,850	13·7	1,053	105 13
Peru	1,036	0·0	2,876	420 05
Bolivia	621	0·0	3,934	829 73
Ecuador	186	0·0	6,473	621·58
British Guiana	55	151·4	5,055	1,616·90
Jamaica, Barbadoes, Trinidad, Martinique, Puerto Rico, Salvador.	657	25·7	...	...
Total South America and West Indies	28,357	11·9	...	...
Asia.				
British India	23,758	17·8	12,231	82·36
Ceylon	297	0·0	11,232	95·51
Asia Minor and Syria	1,715	41·6	9,025	400·31
Russia (Trans-Caspia)	1,658	76·4	422	129·22
Siberia and Manchuria	3,852	104·1	1,499	1,242·28
Persia	34	0·0	264,706	18,693·18
Dutch India (Java and Sumatra)	1,301	0·6	20,885	177·74
Japan	3,661	59·8	12,713	33·58
Portuguese India	51	0·0	10,800	24·34
Malay States (Borneo, Celebes, etc.)	273	69·5	2,633	121·92
China	401	48·8	890,900	10,665·06
Korea	26	...	400,000	8,400·00
Siam	203	127·1	44,335	1,203·42
French India (Cochin China, Pondicherry, Malacca and Tonquin).	238	3·0	...	...
Total Asia	37,469	29·5	...	...

Appendix G—*concld.*

The railroads of the world at the end of 1900—concld.

Country.	Miles in 1900.	Per cent of increase, 1896—1900.	Per mile of railroad.	
			Inhabitants.	Square miles
Africa.				
Egypt	2,087	44·3	4,671	183·96
Algeria and Tunis	2,612	3·1	2,413	131 14
British South and Central Africa	2,937	...	601	103·13
Natal	737	...	1,056	3,714 00
South African Republic	1,203	...	721	99·03
Orange Free State	597	...	348	84·80
Mauritius, Réunion, Gold Coast, Lagos, Congo, Angola, German S.-W. Africa, Mozambique, German E. Africa, Somali, Erithrea.	2,298	...	...	...
Total Africa	12,501	35·7	...	...
Australasia				
New Zealand	2,280	4·0	326	45 89
Victoria	3,217	3·1	366	27·48
New South Wales	2,810	7·4	480	109·66
South Australia	1,882	0·7	192	604 14
Queensland	2,800	17·4	173	238·74
Tasmania	479	0 9	371	51·71
West Australia	1,363	18·3	123	715·95
Hawaiian Islands	88	21·6	1,238	77·63
Total Australasia	14,922	7·5	306	206·60
Recapitulation.				
Europe	176,174	10·1	2,215	21·18
North America	221,549	6·6	127	33·19
South America	28,357	11·9	...	...
Asia	37,496	29·5	...	...
Africa	12,501	35·7	...	...
Australasia	14,922	7·5	306	206 60
Total the World	490,960	10·3	...	...

Appendix H.

Statement showing railways which have from time to time been suggested by Local Governments and others and which at the present time require to be constructed.

[*N.B.*—Lines sanctioned or under construction have been excluded.]

Province in which the railway lies.	Name of railway.	Approximate length.	Total for Province.	Order of importance in which line is placed by Local Government	Remarks
		Miles.	Miles.		
ASSAM	Silchar tramways projected by Jardine, Skinner and Company †:—				
	Sialteek-Lala Bazar Silchar-Duarband Silchar-Tikalpur (2′ 6″ gauge, cost Rs. 14,75,405)	60	...	1	
	Lungai and Chargola tramway projected by Octavius, Steel and Company †:—				
	Karimganj-Chandi Khira Patharkandi-Maguracherra (2′ 6″ gauge, cost Rs. 12,00,000.)	43	...	2	The Chief Commissioner has little to add to previous reports submitted on the subject of these tramways, but is disposed to consider that the extension of tramways or light railways is calculated to be of greater value to the peculiar requirements of the Province than the construction of any further main lines of railway
	Sylhet tramways projected by Shaw, Wallace and Company †:—				
	Sutang-Madua Srimangal-Manumukh Kalaura-Chhatak (2′ 6″ gauge, cost Rs. 40,40,350.)	106	...	3	
	Mangaldai tramway projected by McLeod and Company †:—				
	Rangamatighat-Ghagrapara (2′ 6″ gauge, cost Rs. 7,00,000.)	35	...	4	
	Assam-Burma connection (see under "Burma.")				
	Tilagaon-Sylhet (3′ 3⅜″ gauge, cost Rs. 36,16,907).	39	283	...	Consulting Engineer merely states that he advocates construction of this branch
BENGAL	Bishenpur-(Bankura)-Calcutta Chord * (5′ 6″ gauge, cost Rs. 1,00,71,837 for a single line to Howrah)	81	...	1	The Government of Bengal is in complete agreement with the views expressed by the representatives of the Mercantile Community, as to the importance of this link.
	Ranaghat-Godagiri-Maldah-Raiganj or Katihar with branches *.—				Both as a through connection between the metre gauge systems north of the Ganges, and as a local line giving railway communication to the district of Maldah and the town of Rampore-Boalia, the proposal is one that the Local Government is desirous to see carried out at an early date.
	5′ 6″ gauge, excluding Ranaghat-Moorshedabad section 3′ 3⅜″ gauge (cost Rs. 4,01,74,850, excluding the cost of the section under construction.)	59 155	...	2	Ranaghat-Moorshedabad section, about 75 miles in length, estimated to cost approximately Rs. 68,25,150, is under construction.
	Bairagnia-Bagaha, with Bettiah connection *. (3′ 3⅜″ gauge, cost Rs. 66,49,559.)	107	...	3	This branch of the Tirhut State railway would eventually develop into a through line by connection with Gorakhpur in the United Provinces. It will serve a rich rice tract, and be of the first importance in time of famine. The line is likely to be remunerative Secretary of State has sanctioned funds for construction being raised by Bengal and North-Western Railway Company.

* These lines have been surveyed.
† A reconnaissance survey has only been made of these lines.

Appendix II.

Appendix II—*contd.*

Statement showing railways which have from time to time been suggested by Local Governments and others and which at the present time require to be constructed—*contd.*

[*N.B.*—Lines sanctioned or under construction have been excluded.]

Province in which the railway lies.	Name of railway.	Approximate length.	Total for Province.	Order of importance in which line is placed by Local Government	Remarks.
		Miles.	Miles.		
BENGAL—*contd.*	Mansi-Baptiahi and branch * (3′ 3$_8$ gauge, cost Rs. 52,40,662.)	79	.	4	This line (formerly known as the Ganges-Nepal frontier line) is of importance, both as a famine protective line, and also as a connection with an important sub-division at present unserved by any railway It is expected to carry a large export rice traffic, and to be remunerative.
	Akhaura-Bhairab Bazar * (3′ 3$\frac{1}{8}$″ gauge, cost Rs. 19,42,000.)	19	...	5	This branch of the Assam-Bengal railway is one which is likely to be remunerative It will serve a highly populated district
	Netrokona Mymensingh * (3′ 3$\frac{1}{8}$′ gauge, cost, including a bridge over the Brahmaputra and the Gauripur branch, 8 miles, Rs. 24,76,217)	23	...	6	The branch will traverse a highly fertile and thickly populated tract, the cost is not likely to be high, and it will form a valuable feeder to the Dacca-Mymensingh section of the Eastern Bengal railway.
	Shibnibash-(Kissengunge)-Kotchandpur-Magura *. (5′ 6″ gauge, cost Rs. 49,94,000.)	64	...	7	
	Hooghly-Cutwa * (5′ 6″ gauge, cost Rs. 63,11,980.)	65	...	8	
	Sambalpur-Sonepur-Khurda * (5′ 6″ gauge, cost Rs. 2,37,00,000.)	190	...	9	
	Chandbali branch (Not surveyed)	25	...	No order	Advocated for consideration, but not classed in any order of urgency.
	Jajpur branch (Not surveyed.)	10	...	,,	Ditto.
	Ranchi Plateau (under examination) (2′ 6″ gauge, cost approximately Rs. 59,70,000)	163	...	,,	Ditto.
	Saidpur-Titalia branch * (3′ 3$\frac{3}{8}$″ gauge, cost Rs. 21,55,000.)	66	.	,,	Ditto.
	Sripur or Mymensingh to Tangail (Not surveyed)	35	..	,,	Ditto.
	Barasat-Basirhat (Not surveyed)	25	...	,,	Ditto.
	Paura-Matabhanga extension (under survey) (3′ 3 ′ gauge, cost approximately Rs. 20,00,000.)	20	...	,,	Ditto
	Hajiganj-Shatnol branch* (3′ 3$\frac{3}{8}$″ gauge, cost Rs. 32,81,500.)	24	...	.	Merely recommended by Consulting Engineer
	Sakri-Jamagar * (3′ 3$_8$″ gauge, cost Rs 15,99,516)	30	...	...	Secretary of State has sanctioned the funds for construction of this line being raised by the Bengal and North-Western railway
	Nattore-Rampore-Boalia * (3′ 3$\frac{3}{8}$″ gauge, cost Rs 11,15,000.)	24	...	...	This is an important trade centre.
	Bonarpara-Kaunia * (3′ 3$\frac{1}{8}$′ gauge, cost Rs 22,97,437)	44	..	...	

* These lines have been surveyed.

Appendix II—*contd.*

Statement showing railways which have from time to time been suggested by Local Governments and others and which at the present time require to be constructed—*contd.*

[*N.B.*—Lines sanctioned or under construction have been excluded.]

Province in which the railway lies	Name of railway.	Approximate length.	Total for Province.	Order of importance in which line is placed by Local Government.	Remarks.
		Miles.	Miles.		
BENGAL—*concld.*	Daltongunge-Boojoodih (Not surveyed)	80	...	..	
	Bhagalpur *viâ* Bausi, Hasdia and Deoghur to Pandyanath * (5′ 6″ gauge, cost Rs. 55,39,203.)	75	...	...	
	Nawada-Madhupur-Nalhati and Bausi-Suri	210	...	...	
	Burdwan-Cutwa * (5′ 6″ gauge, cost Rs 26,49,418.)	34	.	...	
	Cutwa-Ahmadpur-Ondal	74	...	..	The Cutwa-Ahmadpur section, 32 miles, has been surveyed and is estimated to cost, on the 5′ 6′ gauge, Rs 32,00,000
	Puri-Astrang (Not surveyed. Assumed cost, on 5′ 6″ gauge, Rs. 27,20,000.)	31	..	...	
	Dacca-Mymensingh railway extensions *:— Dacca to Ancha, with a bridge over the Dhallessary. (3′ 3⅜″ gauge, cost Rs 76,71,060.)	45	..	..	
	Extension of the Mymensingh-Netrokona railway to Para Ari (3′ 3⅜″ gauge, cost Rs 2,50,595)	5	.	...	
	Shambhuganj-Gauripur branch (3′ 3⅜″ gauge.)	8	...	...	
	Singhjani *viâ* Sherpur to Nalitabari (3′ 3⅜ gauge, cost Rs. 10,62,250.)	25	...		
	Goalando-Naraingunge extension† (3′ 3⅜″ gauge, cost Rs 58,46,738.)	40	..	..	
	Phulbari-Sumjhia * (3′ 3⅜ gauge, cost Rs 4,41,745.)	13	...	.	
	Sara-Palma light railway (3′ 3⅜″ gauge, cost about Rs. 5,40,000.)	18	...		
	Singia-Lohagara section, Singia-Madaripur-Chandpur railway * (5′ 6″ gauge, cost Rs. 29,56,000.)	23	..	..	
	Begum Sarai-Rowsara (Not surveyed. Assumed cost, on 3′ 3⅜″ gauge, Rs. 5,50,000.)	14	...	.	
	Sewan-Mirganj and Daronda-Maharajganj tramway. (2′ 6′ gauge, cost, as estimated by the promoters, Rs. 4 32,000)	16	...	...	
	Shikarpur-Bikna-Thori branch, Bairagna-Lahaga extension.* (3′ 3⅜″ gauge, cost Rs. 4,90,385.)	22	.	..	
	Nowapara-Gourmadi Thana (Palerdi) * (5′ 6 gauge, cost, as estimated by the promoter, Rs 50,56,318)	55	2,099	...	
BERAR	Khandwa-Akola-Basim* (See under "Central Provinces.")	...	..		
	Nagpur-Amraoti (See under "Central Provinces.")	...		...	

* These lines have been surveyed.
† A reconnaissance survey has only been made of this line

Appendix H.

Appendix H—*contd.*

Statement showing railways which have from time to time been suggested by Local Governments and others and which at the present time require to be constructed—*contd.*

[*N.B.*—Lines sanctioned or under construction have been excluded.]

Province in which the railway lies	Name of railway.	Approximate length.	Total for Province.	Order of importance in which line is placed by Local Government.	Remarks.
			Miles.	Miles.	
BERAR—*concld.*	Itarsi-Betul-Wardha . . . . . (See under "Central Provinces.")	...	...	...	
	Khamgaon-Jalna * . . . . . (2′ 6″ gauge, cost Rs. 30,76,203.)	90	...	...	
	Amraoti-Ellichpur * . . . . . (2′ 6″ gauge, cost Rs. 7,92,953.)	31	121	...	
BOMBAY	Agra-Delhi Chord * . . . . . (See under "United Provinces.")	...	...	1	
	Bombay Port Trust * . . . . (5′ 6″ gauge, cost Rs. 31,00,000.)	9	...	2	
	Nagda-Paran-Muttra * . . . . (See under "Rajputana.")	...	...	3	
	Hyderabad-Karachi metre gauge extension (Not surveyed)	115	...	4	To be taken in hand as soon as the traffic justifies it.
	Bombay-Sind connection * . . . (5′ 6″ gauge, cost Rs. 3,24,00,000.)	360	...	5	
	Baran-Ajmer-Marwar * . . . . . (See under "Rajputana.")	...	...	6	
	Rewari-Kuchaman Road * . . . . . (See under "Rajputana.")	...	...	7	
	Deesa Tharad with Diodar Radhanpur branch* (3′ 3⅜″ gauge, cost Rs 22,71,957.)	85	...	8	
	Larkhana-Kambar-Shahdadpur . . . (Preliminary survey made.) (5′ 6″ gauge, cost Rs. 13,07,200.)	32	...	...	
	Kosamba-Velachha-Zankavao branch* . (2′ 6″ gauge.)	26	...	...	
	Miyagam-Sinor branch* . . . . . (2′ 6″ gauge, cost Rs. 5,76,032.)	20	...	...	
	Bahadarpur-Songhir extension* . . . (2′ 6″ gauge, cost Rs. 5,84,143.)	8	...	...	
	Broach-Jambusar branch . . . . (2′ 6″ gauge)	31	.	...	
	Baroda-Savli . . . . . (Under survey, gauge 2′ 6″)	32	..	...	
	Nar-Nadiad loop . . . . . (5′ 6″ gauge, under survey.)	22	...	. .	
	Nadiad-Kapadvanj branch . . . (Under survey Cost on 5′ 6″ gauge is assumed at Rs. 8,73,360.)	28	.	...	
	Mahuud road-Chansama-Bechraji * . . (3′ 3½″ gauge, cost Rs. 10,19,601.)	25		...	
	Visnagar-Vijapur extension* . . . (3′ 3½″ gauge, cost Rs. 5,34,280.)	16	...	...	
	Dabhora extension, Mehsana-Kheralu railway† (3 3½″ gauge.)	8	...	...	

* These lines have been surveyed

† A reconnaissance survey has only been made of this line.

Appendix II—*contd.*

Statement showing railways which have from time to time been suggested by Local Governments and others and which at the present time require to be constructed—*contd.*

[*N.B.*—Lines sanctioned or under construction have been excluded.]

Province in which the railway lies.	Name of railway.	Approximate length.	Total for Province	Order of importance in which line is placed by Local Government.	Remarks.
		Miles.	Miles.		
BOMBAY—*concld.*	Songadh-Palitana branch * (3′ 3⅜″ gauge, cost Rs. 5,20,791.)	17	..	...	
	Jamnagar-Salaya extension (3′ 3⅜″ gauge.)	35	..	...	
	Mandvi-Bhuj-Tuna (Not surveyed.)	70	...	...	
	Belapur (or Lakh)-Sangamner † (5′ 6″ gauge.)	32	...	...	
	Dhulia-Amalner (5′ 6″ gauge, cost Rs. 20,00,000.)	20	..	...	
	Barsi Road-Pandharpur (2′ 6″ gauge, approximate cost Rs. 13,39,250.)	33	..	...	
	Bombay-Southern Mahratta direct connection (3 3⅜″ gauge, assumed cost Rs. 1,58,09,000.)	202	...	...	
	Bagalkot-Hungund * (3′ 3⅜″ gauge, cost Rs. 24,41,757.)	31	1,257	...	
BURMA	Sagaing bridge	...	...	1	
	Pegu-Moulmein † (3′ 3⅜″ gauge, cost Rs. 92,04,000.)	114	...	2	
	Henzada-Kyangin (3′ 3⅜″ gauge, cost Rs. 54,58,677.)	66	...	3	
	Bhamo-Momein (Not surveyed.)	120	...	...	Alternative to Myitkyina-Momein railway.
	Hsipaw (Thibaw)-Mone extension, Hsipaw (Thibaw)-Manpan section. * (3′ 3⅜″ gauge, cost Rs. 35,61,178.)	50	...	...	
	Manpan-Mone (Not surveyed.)	150	...	...	
	Shwebo (or Kinu)-Letkobin-Thabeitkyin branch.* (3′ 3⅜″ gauge, cost Rs. 13,41,285.)	29	..	...	
	Prome-Magwe-Meiktila extension (Not surveyed.) (3′ 3⅜″ gauge, cost about Rs. 1,13,00,000.)	176	...	...	
	Pegu-Syrian (Reconnaissance survey sanctioned.)	50	...	...	
	Dalla-Dedaye (Reconnaissance survey sanctioned.)	30	...	...	
	Thazi-Taungyi (Survey sanctioned.)	120	...	...	
	Assam-Burma connection (Hukong valley route.) (3′ 3⅜″ gauge, cost Rs. 3·83 crores.)	284	1,189	...	Of the three routes reconnoitred, the Hukong valley route was reported to be the most feasible; but the Military authorities preferred the Manipur route, 385 miles in length, estimated to cost about Rs. 6½ crores. The third, called Aeng pass route, was estimated to cost about 7 crores for a distance of about 450 miles.

* These lines have been surveyed.
† A reconnaissance survey has only been made of these lines.

Appendix H.

Appendix H—*contd.*

Statement showing railways which have from time to time been suggested by Local Governments and others and which at the present time require to be constructed—*contd.*

[*N.B.*—Lines sanctioned or under construction have been excluded.]

Province in which the railway lies.	Name of railway	Approximate length.	Total for Province	Order of importance in which line is placed by Local Government.	Remarks.
		Miles.	Miles.		
CENTRAL INDIA.	Nagda-Baran-Muttra (See under "Rajputana")	...	...	1	
	Baran-Marwar (See under "Rajputana".)	...	...	2	
	Harpalpur-Nowgong (2′ 0″ gauge, cost Rs. 2,98,000 Not surveyed for 5′ 6″ or 2′ 6″ gauge.)	19	...	3	A 2′ 6″ gauge line might be taken along the present road all the way from Harpalpur through Nowgong to Chhaterpur with little, if any, addition to the present road bank or bridges and in the same way carried to the Ken river.
	Damoh-Attara † (2′ 6″ gauge, cost Rs. 27,18,000.)	151	...	...	No special remarks by Chief Commissioner. The Lieutenant-Governor, United Provinces, considers the line essential in the interests of the United Provinces.
	Katni-Cawnpore extension (See under "United Provinces")	...	...	...	
	Mirzapur-Maihar Chord† (5′ 6″ gauge, cost Rs. 1,55,00,000.)	140	...	...	
	Rewa-Sutna* (2′ 6″ gauge, cost Rs. 5,24,950)	31	...	...	
	Gwalior-Sabalgarh * (2′ 0″ gauge, cost Rs. 15,68,388.)	56	397	...	
CENTRAL PROVINCES.	Gondia-Chanda extension with Brahmapuri-Nagpur branch. (Under survey by Bengal-Nagpur railway.)	200	...	1	
	Nagpur-Amraoti (Not surveyed).	120	...	2	
	Bilaspur-Mungeli (5′ 6″ gauge, under survey.)	32	...	3	
	Vizianagram-Raipur with branch (See under "Madras")	...	...	4	
	Itarsi-Betul-Wardha and Warora-Chanda-Kazipet.	340	...	5	
	Dhamtari-Markhasra-Basla-Antagarh-Khondegaon-Kotpad-Ryagurra. (Not surveyed.)	230	...	6	
	Harda-Hindia (Not surveyed)	10	...	7	
	Khandwa-Akola-Basim * (3′ 3½″ gauge, cost Rs. 1,13,04,300.)	172	...	8	
	Sambalpur-Sonepur-Khurda * (See under "Bengal.")	...	...	9	
	Chhindwara-Amla (Not surveyed.)	60	...	10	
	Damoh-Attara † (See under "Central India.")	...	...	11	

* These lines have been surveyed.

† A reconnaissance survey has only been made of these lines.

Appendix H—*contd.*

Statement showing railways which have from time to time been suggested by Local Governments and others and which at the present time require to be constructed—*contd.*

[*N.B.*—Lines sanctioned or under construction have been excluded.]

Province in which the railway lies.	Name of railway	Approximate length.	Total for Province	Order of importance in which line is placed by Local Government.	Remarks
		Miles.	Miles.		
CENTRAL PROVINCES—*concld.*	Mungeli-Pandaria-Dongargarh (Not surveyed.)	140	.	12	Recommended in connection with Bilaspur-Mungeli, with possible branch to Dongargarh.
	Mandla-Bilaspur extension (Not surveyed.)	120	...	.	Suggested by Bengal-Nagpur Railway Board as passing through a good agricultural district.
	Katni-Cawnpore extension (See under "United Provinces")		...	.	
	Itarsi-Ellichpur (Not surveyed.)	90	1,514	..	
HYDERABAD (NIZAM'S)	Khandwa-Akola-Basim* (See under "Central Provinces.")	..	...	..	
	Sirpoocha-Kazipet (See "Warora-Chanda-Kazipet" under "Central Provinces.")		..	...	
	Raichur-Wondalli (Preliminary survey made) (2′ 6″ gauge, cost Rs. 12,53,336.)	43	...	...	
	Parsi Town-Tadwala (2′ 6″ gauge, approximate cost Rs. 11,09,350.)	28	...	...	
	Khamgaon-Jalna* (See under "Berar.")	...	...	...	
	Hyderabad-Kistna river (Not surveyed Approximate cost on 3′ 3⅜″ gauge, Rs. 1,40,00,000.)	168	...	...	
	Basim-Hotgi	200	439	...	
KASHMIR	Jammu-Srinagar* (2′ 6″ / 3′ 3⅜″ gauge, cost Rs. 1,71,53,000 / 1,93,36,000)	180	...	..	
	Kalaki-Sarai-Abbotabad-Srinagar* (3′ 3⅜″ / 5′ 6″ gauge, cost Rs. 2,44,93,474 / 2,98,85,284) The length of the standard gauge line is 200 miles.	203	383	...	
MADRAS	Guntur-Repalle* (3′ 3⅜″ gauge, cost Rs. 17,34,000.)	38	...	...	
	Trichinopoly-Tirukoilur* (3′ 3⅜″ gauge, cost Rs. 81,00,000.)	97	...	1	
	Famine branch to Southern Mahratta railway—				The completion of this line will relieve much anxiety now periodically experienced in regard to the tracts which it is intended to serve.
	Phirangipuram-Gurzala* (3′ 3⅜″ gauge, cost Rs. 12,59,641.)	51	...	2	
	Famine branch to the South Indian railway—				
	Kalikiri-Rayachoti* (3′ 3⅜″ gauge, cost Rs. 10,75,736.)	34	...	2	Ditto Ditto.
	Podanur-Dharapuram (Not surveyed.)	60	...	3	The district is a rich one, and need opening out.
	Rameswaram extension* (3′ 3⅜″ gauge, cost Rs. 84,09,455.)	7	...	4	Demanded in interests of a growing traffic.

* These lines have been surveyed.

Appendix H.

Appendix H—*contd.*

Statement showing railways which have from time to time been suggested by Local Governments and others and which at the present time require to be constructed—*contd.*

[*N.B.*—Lines sanctioned or under construction have been excluded.]

Province in which the railway lies.	Name of railway.	Approximate length.	Total for Province.	Order of importance in which line is placed by Local Government.	Remarks.
		Miles.	Miles		
MADRAS—*concld.*	Salem-Atur* (2′ 6″ gauge, cost Rs. 12,72,810.)	36	...	5	
	Yerragudipad-Jammalamudagu*	24	...	5	
	(2′ 6″ gauge, cost Rs. 10,45,904 / 5′ 6″ gauge, cost Rs. 12,46,831)				
	Vizianagram-Raipur with branch* (5′ 6″ gauge, cost Rs. 2,81,04,780.)	359	...	6	
	Nanjangud-Erode* (5′ 3¼ gauge, cost Rs. 1,23,03,700.)	121	...	7	
	Arsikere-Mangalore* (2′ 6″ gauge, cost Rs. 85,43,784.)	136	...	8	
	Mysore-Tellicherry* (2′ 6″ gauge, cost Rs. 81,00,000.)	145	...	9	
	Bezwada-Masulipatam* (3′ 3¾ gauge, cost Rs. 27,89,000.)	50	...	...	
	Dhamtari-Markhasia-Basla-Antagarh-Khondegaon-Kotpad-Rayguna (See under "Central Provinces.")	..	..	...	
	Ganjam District Light railways—				
	Chicacole-Gumpur	65	...	...	
	Chicacole Calingapatam	24	...	...	
	Chicacole-Parvatipur	42	...	...	
	Parlakimedi-Baruva	35	.	...	
	Berhampore-Gopalpur (2′ 6 gauge, cost, as estimated by the promoters, Rs. 45,10,000.)	8	...	...	
	Dusi bridge-Bobbili—Salur with Peddapenki-Parbatipur branch (2′ 6″ gauge.)	60	...	..	
	Berhampore-Russelkonda* (2′ 6″ gauge, cost Rs. 14,90,711.)	49	...	...	
	Vizianagram-Pimlipatam (Not surveyed. Assumed cost on 5′ 6″ gauge Rs. 9,39,000.)	15	...	...	
	Kumbakonam-Mannargudi	21	...	...	
	(Examined but not surveyed.) (3′ 3¾″ gauge, assumed cost Rs. 12,60,000.)				
	Trichinopoly-Thondi (Not surveyed.) (3′ 3¾″ gauge, assumed cost Rs. 37,50,000.)	86	...	...	
	Satyamangalam Mettupalaiyam	25	...	...	
	Dhoni-Anaikod	32	...	.	
	(5′ 3¾″ gauge, cost Rs. 7,11,000.)				
	Bezwada Jaggayapett (Not surveyed.)	54	...	...	
	(5′ 6″ gauge, approximate cost Rs. 43,50,000.)				
	Coonoor-Ootacamund	12	1,686	...	

* These lines have been surveyed.

Appendix H—*contd.*

Statement showing railways which have from time to time been suggested by Local Governments and others and which at the present time require to be constructed—*contd.*

[*N.B.*—Lines sanctioned or under construction have been excluded.]

Province in which the railway lies.	Name of railway	Approximate length.	Total for Province.	Order of importance in which line is placed by Local Government.	Remarks
		Miles.	Miles.		
PUNJAB	Amritsar-Tarn Taran-Patti* (5′ 6″ gauge, cost Rs 13,39,177.)	27	...	1	
	Shahdara (Lahore)-Sangla (Not surveyed.)	60	...	2	These three lines are urgently required for the new Chenab colony.
	Sangla-Chiniot (Not surveyed.)	20		3	
	Gojra-Samundri (Not surveyed.)	16	...	4	
	Ludhiana-Ferozepore* (See "McLeodganj road-Fazilka-Ferozepore-Ludhiana")	...	...	5	
	Jullundur-Hoshiarpur* (5′ 6″ gauge, cost Rs 14,10,000.)	24	...	6	
	Phillour-Nurmehal-Nikodar (Not surveyed.)	30	...	7	
	Ludhiana-Jagraon-Bassein or Raekot (Not surveyed.)	10	...	8	
	Changa-Manga-Chunian-Pakpatan (2′ 6″ gauge, not surveyed.)	70	...	9	
	Abdullapur-Nahan (Not surveyed.)	30	...	10	
	Sialkot-Duska-Pasrur-Narowal (2′ 6″ gauge, not surveyed.)	54	...	11	
	Khana-Samrala (Not surveyed.)	10	...	12	
	Ludhiana-Bhatinda (Not surveyed.)	70	..	13	
	Jech Doab (Southern section) (Reconnoitred.)	53	...	.	The Northern section, 52 miles in length, is under construction.
	Jhang-Lyallpore-Gogeera-Toba Tek Singh (5′ 6″ gauge, cost as estimated by promoters Rs 63,75,000.) (Not surveyed.)	104	...	...	
	Shahdara (Lahore)-Lyallpur (Not surveyed.)	72	...	...	
	Jullundur-Kapurthala-Sultanpur (Jullundur-Kapurthala section, 13 miles, has been surveyed and is estimated to cost on 5′ 6″ gauge Rs. 6,03,000.)	29	...	...	
	Lodhran-Kahror-Mailsi (2′ 6″ gauge, not surveyed.)	38	..	..	
	Batala-Aliwal-Dera Baba Nanak (2′ 6″ gauge, not surveyed.)	20	.	...	
	Bhera-Shahpur (2′ 6″ gauge, not surveyed.)	31	...	...	

* These lines have been surveyed.

Appendix H—*contd.*

Statement showing railways which have from time to time been suggested by Local Governments and others and which at the present time require to be constructed—*contd.*

[*N.B.*—Lines sanctioned or under construction have been excluded.]

Province in which the railway lies.	Name of railway.	Approximate length.	Total for Province.	Order of importance in which line is placed by Local Government	Remarks.
		Miles.	Miles.		
PUNJAB—*concld*	Pathankot-Baijnath with branches (Kangra Valley). (2′ 6″ gauge, cost Rs. 50,84,000.)	90	...	...	
	Agra-Delhi Chord (See under "United Provinces.")	...	...	...	
	Kuchaman-Sirsa Chord (See under "Rajputana.")	...	...	...	
	Rewari-Kuchaman road (See under "Rajputana.")		...	...	
	Karnal-Kaithal-Nabha (Not surveyed Assumed cost on the 5′ 6″ gauge, Rs. 56,00,000)	70	...		
	Sonepat-Saharanpur. (See under "United Provinces.")				
	McLeodganj road-Fazilka-Ferozepore-Ludhiana (5′ 6″ gauge)	150	...	...	The Ferozepore-Ludhiana section, 77 miles, was surveyed and estimated to cost Rs. 44,66,000 on the 5′ 6″ gauge.
	Mandra-Chakwal (Not surveyed.)	40	...	...	
	Dehra Ghazi Khan-Sakki Sarwar (Not surveyed. Assumed cost on 5′ 6″ gauge, Rs. 35,00,000)	35	...	...	
	Rawal Pindi-Murree with extension to Kuldana and Gharial (2′ 6″ gauge. Under survey.)	50	1,233	...	
RAJPUTANA.	Baran-Ajmer-Merwar* ($3' 3\frac{3}{8}''$ gauge, cost Rs. 1,36,66,806.)	213	...	1	
	Nagda-Baran-Muttra* (5′ 6″ gauge, cost Rs. 3,50,69,244.)	355	...	2	The Hon'ble the Agent to the Governor General for Central India considers this line of primary importance to Central India and places it first in order of urgency for construction Bombay places it 3rd in order of importance without any remarks.
	Rewari-Kuchaman road* ($3' 3\frac{3}{8}''$ gauge, cost Rs. 53,10,944.)	134	..	3	
	Madhopur-Sikar branch* ($3' 3\frac{3}{8}''$ gauge, cost Rs. 8,69,413.)	31	...	4	
	Jehazpur-Nasirabad and Jehazpur-Paondero extensions* ($3' 3\frac{3}{8}''$ gauge, cost for the Jehazpur-Nasirabad section, 71 miles, Rs. 31,62,877.)	131	...	5	
	Kuchaman-Sirsa Chord (Not surveyed.) ($3' 3\frac{3}{8}''$ gauge, cost approximately Rs. 58,..1,000.)	170	...	6	
	Mauli-Nathdwara branch* ($3' 3\frac{3}{8}''$ gauge, cost Rs. 4,00,000.)	15	..	...	

* These lines have been surveyed.

Appendix H—*contd.*

Statement showing railways which have from time to time been suggested by Local Governments and others and which at the present time require to be constructed—*contd.*

[*N.B.*—Lines sanctioned or under construction have been excluded.]

Province in which the railway lies	Name of railway.	Approximate length	Total for Province	Order of importance in which line is placed by Local Government.	Remarks
		Miles.	Miles.		
RAJPUTANA—*concld.*	Dholpur-Bari . . . . . (Under survey.)	21	1,070	.	
UNITED PROVINCES.	Fatehpur-Markundi† . . . (5′ 6″ gauge, cost Rs 98,46,166.)	72	...	1	
	Moradabad-Ramnagar* . . . . (5′ 6″ gauge, cost Rs. 16,50,000)	47	...	2	
	Bareilly-Soron* . . . . . (3′ 3⅜″ gauge, cost Rs 53,50,000)	63	...	3	
	Pilibhit-Barnadeo . . . . . (3′ 3⅜″ gauge, cost Rs. 12,00,000.) (Not surveyed)	40	...	4	
	Lalkua-Kaladhungi-Kashipur . . . (Not surveyed.)	40	...	5	
	Harpalpur-Rath-Hamirpur . . . (See "Harpalpur-Kalpi.")	.	...	6	
	Damoh-Attara† . . . . . (See under "Central India.")	..	...	7	
	Pokhráyán-Auraiya† . . . . (2′ 0″ gauge, cost Rs. 7,28,000.)	28	...	8	
	Kutcha-Kashipur-Ramnagar† . . . (3′ 3⅜″ gauge, cost Rs. 10,00,000.)	40	..	.	
	Katni-Cawnpore extension . . . (Not surveyed.)	180	...	...	
	Gogaghat-Sitapur† . . . . (3′ 3⅜″ gauge, cost Rs. 25,00,000.)	58	...	...	
	Harpalpur-Nowgong . . . . . (See under "Central India.")	...	...	...	
	Nagda-Baran-Muttra . . . . (See under "Rajputana.")	...	..	...	
	Mirzapur-Maihar chord† . . . . ("See under Central India")	...	...	...	
	Cawnpore-Hamirpur . . . . (Not surveyed. Assumed cost on 2′ 6″, Rs 6,00,000.)	40	...	...	
	Sonepat-Saharanpur . . . . . (Not surveyed. Assumed cost on the 5′ 6″ gauge, Rs. 48,00,000).	60	...	...	
	Allahabad-Jaunpur with Badshahpur-Shahganj branch. (Not surveyed, gauge 3′ 3⅜″.)	113	...	..	
	Gorakhpur *viâ* Captainganj to Bagaha with Padranna branch.* . . . . . (3′ 3⅜″ gauge, cost Rs. 24,82,669.)	61	...		
	Kopaganj to Dohri (Barhalganj)* . . (3′ 3⅜″ gauge, cost Rs. 7,89,402.)	22	...	...	

* These lines have been surveyed.
† A reconnaissance survey has only been made of these lines.

Appendix H.

Appendix H—*concld.*

Statement showing railways which have from time to time been suggested by Local Governments and others and which at the present time require to be constructed.—*concld.*

[*N.B.*—Lines sanctioned or under construction have been excluded.]

Province in which the railway lies.	Name of railway.	Approximate length.	Total for Province.	Order of importance in which line is placed by Local Government.	Remarks.
		Miles.	Miles		
UNITED PROVINCES—*concld.*	Bhatni-Bettiah* (3′ 3⅜″ gauge The results of survey not yet received)	50	...	...	
	Uskabazar-Tulsipur with Jarwa Branch* (3′ 3⅜″ gauge, cost Rs. 26,90,495.)	66	...	...	
	Dudwa-Ramnagar ghat (Not surveyed. Estimated cost on 3′ 3⅜″ gauge, Rs. 10,00,000.)	25	...	...	Dudwa to Mohan river, 6 miles, has been sanctioned for construction at a cost of Rs. 94,085.
	Naini Tal-Kathgodam (Not surveyed but examined by promoter. Assumed cost on 2′ 6″ gauge Rs. 12,00,000)	13	...	...	
	Gajraula-Chandpur (Results of survey awaited.)	21	...	..	
	Hardoi-Sandi* (5′ 6″ gauge, cost Rs. 3,62,004.)	14	...	...	
	Saharanpur-Shahdara (Delhi) with Baraut-Meerut branch. (2′ 6″ gauge, cost Rs. 70,00,000)	125	...	...	
	Meerut-Gurhmukhtesar*† (5′ 6″ gauge, cost Rs. 17,61,637.)	29	..	...	†This is alternative to Meerut-Hapur branch, which would be 19·51 miles in length, and is estimated to cost Rs. 10,97,415 on the 5′ 6″ gauge
	Gurhmukhtesar-Khurja (5′ 6″ gauge)	40	...	...	
	Dehra-Mussoorie-Landour (Preliminary survey for 2′ 0″ gauge carried out, cost Rs. 32,52,895.)	27	...	...	
	Harpalpur-Kalpi (2′ 6″ gauge, probable cost Rs. 15,90,924.)	102	...	...	
	Cawnpore-Rae Bareli-Fyzabad (5′ 6″ gauge, assumed cost Rs 1,12,00,000)	140	1,516	...	

* These lines have been surveyed.

SUMMARY OF APPENDIX No. H.

Province.	Total mileage at present required.
Assam	283
Bengal	2,099
Berar	121
Bombay	1,257
Burma	1,189
Central India	397
Central Provinces	1,514
Hyderabad	439
Kashmir	383
Madras	1,686
Punjab	1,233
Rajputana	1,070
United Provinces	1,516
GRAND TOTAL FOR ALL INDIA	13,187

Appendix I.

Statement showing income obtained by the construction of certain Branches from the Branch's own earnings and from the main line's earnings from interchanged traffic.

[*N.B.*—All interchanged traffic (column 8) is not attributable to opening of Branch. For effect of the Junction's traffic on these results, see Appendix J.]

Name of Branch.	Administration by which worked.	Capital outlay on Branch from commencement to end of year (Omitting 000) Rs.	Date from which interest on Capital became payable out of Revenue.	Years.	Actual net earnings of Branch.		Net earnings of main line from interchanged traffic		Percentage of sum of columns 6 & 8 on Capital outlay (6+8 on 3).
					Amount. (Omitting 000.) Rs.	Percentage on Capital outlay of 6 on 3.	Amount. (Omitting 000) Rs.	Percentage on Capital outlay of 8 on 3.	
1	2	3	4	5	6	7	8	9	10
Tarkessur*	E. I. Ry.	17,25 17,28 17,28 17,28 17,29	1st January 1885.	1886 1887 1888 1889 1890	1,19 1,32 1,37 1,37 1,44	6·91 7·65 7·88 7·90 8·35	79 89 87 88 90	4·57 5·15 5·03 5·10 5·20	11·48 12·80 12·96 13·00 13·55
Cooch Behar	E. B. S. Ry.	7,31 7,67 9,01 10,33 12,09	15th September 1893.	1895 1896 1897 1898 1899	19 39 35 7 43	2·63 5·03 3·92 0·65 3·32	75 1,05 1,01 1,15 1,17	10·26 13·70 11·17 11·12 9·02	12·89 18·73 15·09 11·77 12·34
Wazirabad-Sialkot	N. W. Ry.	9,71 9,83 9,86 9,97	1st January 1884.	1886 1887 1888 1889	49 28 34 41	5·00 2·87 3·41 4·14	2,24 1·21 1·55 2,14	23·07 12·31 15·72 21·46	28·07 15·18 19·13 25·57
Sialkot-Tawi	N. W. Ry.	9,31 9,45 9,56 9,60 9,60	15th March 1890.	1891 1892 1893 1894 1895	39 37 33 43 46	4·19 3·91 3·45 4·48 4·79	77 68 62 74 84	8·27 7·20 6·18 7·71 8·75	12·46 11·11 9·63 12·19 13·54
Amritsar-Pathankot*	N. W. Ry	55,84 55·99 55,93 55.89 56,04	8th June 1884	1885 1886 1887 1888 1889	66 56 70 84 98	1·18 1·00 1·25 1·50 1·75	1,99 2.09 1,15 1·57 1.55	3·02 3·73 2·06 2·81 2·76	4·20 4·73 3·31 4·31 4·51
Bina-Goona-Baran	G. I. P. Ry (Main line, I. M. Ry.)	54,16 87,74 97,66 99,32 1,00.22 1,00,43	23rd September 1895.	1896 1897 1898 1899 1900 1901	37 43 58 1,26 2.20 1,23	0·68 0·50 0·59 1·27 2·20 1·22	49 77 75 1,31 2·90 1·56	0·90 0·87 0·77 1·31 2·89 1·55	1·58 1·37 1·36 2·58 5·09 2·77
Gaekwar's Mehsana*	R. M. Ry	29,72 30.27 30,95 32 55 32,61	20th July 1891.	1892 1893 1894 1895 1896	1,53 1,98 2,36 2,02 2,71	5·15 6·55 7·61 6·22 8·32	5·88 8.24 10.24 4.89 3,71	19·78 27·22 33·08 15·02 11·38	24·93 33·77 40·72 21·24 19·70
Palanpur-Deesa*	R. M. Ry.	4,00 4,00 4,18 4.18 4,18	8th November 1893.	1894 1895 1896 1897 1898	23 23 29 23 22	5·79 5·71 6·98 5·53 5·25	78 67 60 87 74	19·50 16·75 14·35 20·77 17·70	25·29 22·46 21·33 26·30 22·95
Udaipur Chitor*	Meywar Darbar (Main line, R. M. Ry)	15,64 15.99 17,89 19,90 19.80	1st August 1895.	1896 1897 1898 1899 1900	54 43 61 1,05 1,86	3·44 2·68 3·43 5·27 9·38	1,38 1·07 1,28 2,31 4.20	8·82 6·70 7·17 11·61 21·22	12·26 9·38 10·60 16·88 30·60
Kolhapur*	S. M. Ry.	23,22 23,06 23,09 23,06	21st April 1891.	1893 1894 1895 1896	50 44 51 54	2·15 1·89 2·15 2·35	94 71 83 94	4·06 3·06 3·51 4·08	6·21 4·95 5·66 6·43
Mysore-Nanjangud*	S. M. Ry.	6,19 6,03 6,09 6,10	1st December 1891.	1893 1894 1895 1896	14 13 16 17	2·26 2·13 2·69 2·81	7 10 13 18	1·21 1·67 2·18 2·99	3·47 3·80 4·87 5·80
Darjeeling-Himalayan*	D. H. Ry. Co. (Main line, E. B. S. Ry.)	23,56 26,04 27,23 27,28 27,32	4th July 1881	1882 1883 1884 1885 1886	89 1,56 1.47 1,63 2,42	3·78 5·98 5·39 5·99 8·86	1,03 1.12 1,00 86 99	4·36 4·29 3·68 3·14 3·63	8·14 10·27 9·07 9·13 12·49
Ahmedabad-Parantij	B., B. & C. I. Ry. system.	19,43 19.50 19,56 19,49	1st January 1898.	1898 1899 1900 1901	86 1,22 1,56 99	4·42 6·24 7·98 5·10	63 1,18 1,52 67	3·23 6·02 7·79 3·43	7·65 12·26 15·77 8·53
Barsi Light	Barsi Light Ry. Co. (Main line, G. I. P. Ry.)	13.43 13,57 13.57 13,00	1st January 1897.	1898 1899 1900 1901	25 64 42 80	1·83 4·75 3·13 6·13	2,30 2.98 1.87 3,43	17·15 21·94 13·78 26·37	18·98 26·69 16·91 32·50
Rajpipla*	B., B. & C. I. Ry.	13.08 13,10 13,07	20th July 1899.	1899 1900 1901	8 12 10	0·65 0·93 0·80	15 33 19	1·16 2·54 1·43	1·81 3·47 2·23
Gwalior Light*	G. I. P. Ry. (Main line, I. M. Ry.)	27,11 31,07	21st December 1899.	1900 1901	(†)-137 (†)-520	... ...	14 19	0·53 0·62	0·53 0·62
Birur-Shimoga	S. M. Ry.	22.94 24,01	1st December 1899.	1900 1901	24 17	1·06 0·71	38 34	1·67 1·42	2·73 2·13
Saganli-Raxaul	E. & N. W. Ry*	10,67	1st January 1901	1901	14	1·27	83	7·78	9·05

* The figures for the gross earnings from interchanged traffic were furnished by the railways working or connected with the Branch. The net earnings as shown in column 8 have been deduced from the gross earnings by deducting working expenses calculated at the same proportion as the working expenses of the main line bear to its gross earnings. In the case of the Wazirabad-Sialkot and the Amritsar-Pathankot Branches, the proportion of the North Western railway system, and not of the ecommercial section only, has been taken, as the figures for the latter cannot be separated.

† The line was actually worked at a loss of Rs. 137 and Rs. 520.

Appendix J.

Statement showing results to Main line and to Branch by opening of a Branch.

Name of Main line	Branch. Name.	Year in which fully opened	Length in miles	Name of Junction.	(a) Net earnings from traffic booked to and from Junction itself. In the year prior to Branch being commenced	(a) In the first year after the branch was fully opened	(a) Increase (+) or decrease (—) since opening of Branch (6—7).	(a) Net earnings of Main line from inter-changed traffic in the first year after the branch was fully opened	Total net earnings of Main line by opening of Branch (8+9)	Cost of working Branch. Hire paid to the Main line for supply of rolling-stock in the first year after opening at 5 per cent. of gross earnings	Working expenses as charged to Branch in the first year after opening less hire for rolling-stock	Total (11+12)	Net gain to Main line by working Branch. If rolling-stock supplied free (10—11).	If Branch stocked and worked for nothing by Main line (10—13)	(b) Net earnings of Branch line in the first year after the Branch was fully opened. Amount.	Return on Capital outlay	Gross earnings of Branch in the first year after the Branch was fully opened	Interest at 4 per cent. on outlay on Branch to end of the first year after the Branch was fully opened.	Increase (+) or decrease (—) between columns 18 and 19. (18—19).
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1. Eastern Bengal*	Cooch Behar	1898	22·60	Mozalhat	(k)59 693	26,973	— 32 720	1,17,163	84 443	(c) 7,035	32,665	39.700	**77.408**	**44,743**	43,073	3 32	82,773	51,961	+ **30,812**
2. North Western*	Wazirabad-Sialkot	(l)1884	26 50	Wazirabad	1,42,838	(m) 93,597	— 49 331	(p)2.24.307	1,74 976	5.140	48 736	53.876	**1,69,836**	**1,21,100**	48.551	5 00	1,02,818	38,835	+ **63,983**
3. North Western*	Sialkot-Tawi	1890	25 00	Sialkot	2,76 964	2,26,585 (e)	— 50,379	77 214	26,835	4 394	44.465	48,859	**22,441**	**—20,024**	39,017	4 19	87,876	37,254	+ **50,622**
						2,82,759 (g)	*+ 5,786*	*84,073*	*89,859*	*4.311*	*36 036*	*40.347*	*85,548*	*49,512*	*45,884*	*4 79*	*86,231*	...	...
4. Rajputana-Malwa*	Gaekwar's Mehsana	1891	92 63	Mehsana	1,18,213	(j) 46,187	— 72,026	(n)5 88 113	5,16,087	12.948	93,010	1,05,958	**5,03,139**	**4,10.129**	1 53,005	5 15	2,58,963	1,18,864	+ **1,40,099**
5. Rajputana-Malwa*	Palanpur-Deesa	1893	17 28	Palanpu	(j) 67.647	(j) 64,011	— 3 636	78,300	74,664	1,877	12,522	14.399	**72,787**	**60,235**	23.145	5 79	37,544	15,984	+ **21,560**
6. Rajputana-Malwa*	Udaipur-Chitor	1895	63 25	Chitorgarh	(j) 73 476	(j) 51,570	— 21,906	1,37,987	1,16,081	(c) 9 000	72.169	81,169	**1,07,081**	**34,612**	53.750	3 44	1,35,219	62,548	+ **72,671**
7. Great Indian Peninsula	Barsi Light	1897	21 59	Barsi Jn	5,90,773	1,24,758 (g)	—4,66,015	2,30,262	—2,35,753	(c) 18,157	87,605	1,05,762	**—2,53,910**	**—3,41,515**	24,559	1·83	1,30,321	53,704	+ **76,617**
						4,12,436	*—1,78,337*	*5,42.615*	*1.61 278*	*18,162*	*70,188*	*88,650*	*1.46,116*	*75.628*	*79.588*	*6·13*	*1,68,238*	...	...
8. Southern Mahratta	Birur-Shimoga	1899 (h)	37·90	Birur	40,432	31,320	— 9 112	38,055	28,943	3,311	38 697	42 008	**25,632**	**13,065**	24,219	1 06	66,227	91,778	— **25,551**
9. Bengal and North-Western	Sagauli-Raxaul	1899	18 09	Sagauli	60,507	19.059	— 41,448	83,057	11 619	1,859	21.730	23.589	**39,760**	**18,030**	13,593	1·27	37,182	42,680	— **5,498**
10. Bombay, Baroda and Central India.*	Rajpipla	1899	37 37	Ankleswar	(j) 66,772	(j) 47,793	— 18,979	33,280	14.301	(c) 5,396	31,927	37,324	**8,905**	**—23,022**	12,139	0 93	49,463	52,406	— **2,943**
11. East Indian*	Tarkessur	1885	22 23	Scoraphuli	36,105	(l)1,59.518	+1 23.413	78,821	2 02.234	12 150	1,17.417	1 29.867	**1,89,784**	**72,367**	1 19.136	6 91	2 49.003	68,988	+ **1,80,015**
12. Indian Midland	Bina-Guna-Baran	1899	95 80	Bina	98 992	1,09 207	+ 10 215	2 89,091	3 0 116	21 742	1 92,615	2 14 357	**2,78.374**	**85,759**	2,20.490	2 20	4 34.847	4,00 864	+ **33,983**
13. Southern Mahratta*	Kolhapur	1891	29 07	Miraj	63 336	(j)93.577	+ 30 241	94.137	1 24,373	6 082	61,238	67.356	**1,18,296**	**57,028**	54 305	2 35	1,21.655	92,236	+ **29,419**
14. Southern Mahratta*	Nanjangud	1891	15 80	Mysore	67.123	(l)1,93,229	+1,26,106	18,232	1,11,338	1 956	20 231	22.197	**1,42,372**	**1.22,141**	17,125	2 81	39 322	24,387	+ **14,935**
15. North Western*	Amritsar-Pathankot	1884	66 70	Amritsar	6,91,774	7,27,823 (e)	+ 33 049	(p)1,68,581	2 01,030	14 493	2,00.522	2 24,015	**1,87,157**	**—22,385**	65.862	1 18	2,89,877	2,23,346	+ **66,531**
						9 11,754	*+ 2 17 010*	*2,09,238*	*4 96 248*	*15 226*	*2.33 246*	*2.48,372*	*4 11,022*	*1,77,776*	*56,052*	*1·00*	*3.04,521*	..	...
16. Eastern Bengal*	Darjeeling-Himalayan.	1881	51 00	Siliguri	1,08,102	1,71,266 (f)	+ 63,164	1,02,785	1,05,949	(c) 13,629	2.63,800	2 77,429	**1,52,320**	**—1,11,480**	89,045	3 78	3,66 474	94,244	+ **2,72,230**
						1,16,532	*+ 8,430*	*99,051*	*1,07,481*	*14,037*	*2,40 330*	*2,54,367*	*93 444*	*—1,46,886*	*2,42 109*	*8 86*	*4 96,476*	...	...
17. Bombay, Baroda and Central India and Rajputana-Malwa*	Ahmedabad Parantij	1897	51 59	Ahmedabad	18 27,337	18,29,651	+ 2.514	62.704	65 078	7,489	56,465	63,954	**57.589**	**1,124**	85,836	4 42	1,49,790	77,719	+ **72,071**
18. Indian Midland*	Gwalior Light	1899	126 14	Gwalior	2,20,718	2,59,361	+ 38,613	14,418	53,031	(c) 7,715	77,039	84,754	**45,316**	**—31,723**	—137	...	84,617	1,08,422	— **23,805**

(a) * The gross earnings under the heads shown in column 6 have been furnished by the main lines marked * and in some of the cases the gross earnings under the heads 7 and 9 also were furnished. The net earnings have been arrived at by charging as working expenses the same proportion of gross earning as the whole line's working expenses bear to the gross earnings except in the case of the Sialkot-Tawi line where the proportion of the commercial section of the North Western railway has been taken.

(b) Net earnings have been arrived at in accordance with the terms of the respective contracts

(c) These railways provided their own rolling-stock, and the amount shown represents 4 per cent. on the Capital outlay on rolling-stock at the close of the year after the line was fully opened

(d) The increase is due to bookings of coal traffic to Seoraphuli Junction after the opening of the branch which traffic prior to opening was dealt with at Baidyabati.

(e) This and all italicised figures in the succeeding columns are for 1886, the second year after the branch was fully opened

(f) This and all italicised figures in the succeeding columns are for 1886, the fifth year after the branch was fully opened

(g) This and all italicised figures in the succeeding columns are for 1901, the fifth year after the branch was fully opened. The decrease in the years immediately after the opening of the branch was due to plague and failure of crops as explained by the railway authorities, *vide* the letter printed overleaf.

(h) Though the line was opened in 1899, interest was not charged to revenue till 1901. The figures in column 7 and the succeeding columns are therefore for 1901.

(i) The figures for 1891 to 1895 are not available as the branch traffic cannot be separated from main line traffic; the figures for 1896 have therefore been shown in this and all succeeding columns.

(j) Excluding figures for inwards goods which the line has been unable to furnish.

(k) These figures do not include the earnings from inwards passenger traffic which the railway has been unable to furnish.

(l) The branch was fully opened in 1884, but as the line has been unable to furnish figures for 1885, figures for 1886 have been shown in column 7 and all succeeding columns.

(m) The figures have been estimated for the 2nd-half of the year, as the actual figures for the period are not available.

(n) Includes earnings of both Rajputana-Malwa and Bombay, Baroda and Central India railways as the line has been unable to separate earnings of the Rajputana-Malwa railway.

(o) This and all italicised figures in the succeeding columns are for 1895, the fifth year after the branch was fully opened.

(p) The net earnings have been calculated by taking the percentage of gross earnings of the system, as the figures for the Commercial section are not separately shewn.

Appendix K.

Statement of Gross Earnings of Railways affected, in year before and year after through opening of Railways which were calculated to cause the diversion of traffic from them.

Railway.	Date opened through.	Railway affected	Gross earnings of railway affected in year before and year after through opening of railway entered in column (1).				Increase in mileage 7—4.	Loss (—) or gain (+) to railway affected by opening of railway entered in column (1), 5—6. Omitting 000.	Remarks
			Year before.		Year after.				
			Mileage open at close of year.	Gross earnings omitting 000.	Gross earnings omitting 000.	Mileage open at close of year.			
1	2	3	4	5	6	7	8	9	10
Rajputana-Malwa Railway.	1st January 1881	E. I. Ry. .	1,600	4,35,04	4,71,17	1,603	3	+36,12	
Indian Midland Railway.	1st March 1889	E. I Ry. . .	1,610	4,54,36	4,40,57	1,610	..	—13,79	
					*4,91,41	*1,610	...	+37,04	
		R. M. Ry. .	1,664	1,86,14	1,74,28	1,672	8	—11,86	
					*2,24,00	*1,674	10	+37,85	
		B., B. and C. I. Ry.	461	1,27,38	1,29,40	461	...	+2,01	
Bengal-Nagpur Railway.	1st February 1891.	E. I. Ry. . .	1,610	4,40,57	4,91,41	1,610	...	+50,83	
		G. I. P. Ry.	1,288	3,81,45	4,06,65	1,288	...	+25,20	
Southern Punjab Railway.	10th November 1897.	P. B Ry. . .	108	9,97	7,02	108	...	—2,95	†† In 1895 the gross earnings were Rs. 13,18,902. In 1896, that is, before the Southern Punjab Railway was opened, they dropped to Rs 9,97,823, and in 1897, still before the Southern Punjab Railway was opened, to Rs. 6,96,727. Since then till 1901 the income remained constant. In 1901 it rose to Rs. 8,60,642. The drop in the earnings is not attributed either by the North Western Railway or by the Political Agent at Patiala to the opening of the Southern Punjab Railway, and the latter officer does not consider that the Southern Punjab Railway is responsible for the loss of revenue of the P. B. Ry.
					*6,93	*108	...	—3,04	
		N. W. Ry. .	2,714	2,94,41	3,76,01	2,818	104	+81,60	
Southern Mahratta Railway—									
Poona to Bangalore	12th August 1889.	M. Ry. . .	839	85,31	95,06	839	...	+9,75	
		G. I. P. Ry. .	1,288	4,10,59	3,81,45	1,288	...	—29,13	‡ In 1889, that is, before the Southern Mahratta Railway had been opened for more than four months, the Great Indian Peninsula earnings had dropped to Rs. 3,70,68,814. By 1891 they had risen to Rs. 4,52,55,333, but from that year they kept steadily falling till 1897 when they were as low as Rs. 2,84,32,402 and only recovered themselves in 1901 when they were Rs. 4,16,57,453. The fall in the earnings was not due to the opening of the Southern Mahratta Railway, but to other causes.
					*4,06,65	*1,288	...	—3,93	
Southern Mahratta Railway—									
Guntakal to Bangalore.	7th September 1893.	M. Ry. . .	839	96,24	1,03,21	839	...	+6,96	
East Coast Railway—									
Bezwada to Madras.	23rd February 1899.	M. Ry. . .	839	1,07,20	1,13,39	844	5	+6,18	
		N G S. Ry. .	330	39,07	49,12	330	...	+10,04	
		S. M. Ry. . .	1,042	50,61	64,66	042	...	+14,04	
Rajputana-Malwa Railway—									
Mehsana to Viramgam.	1st February 1891.	R. M. Ry. . .	1,672	1,74,28	2,24,00	1,674	2	+49,72	
		B., B. and C. I. Ry.	461	1,20,40	1,42,44	461	...	+13,04	
Dhond-Manmad Railway.	17th April 1878.	G. I. P. Ry. .	1,276	§2,45,35	2,52,48	1,276	...	+7,12	§ These figures represent the gross earnings of the Great Indian Peninsula Railway in 1876. The figures for 1877, the year immediately before the Dhond and Manmad Railway was opened, were Rs. 3,27,74,151, but 1877 was the year of the great famine, and the earnings of that year were abnormal.

* Shows figures for third year after that shown in column 2 so as to permit of an estimate being formed of the period during which loss was suffered.

Appendix L.

Statement showing the outlay on railways in India during the past 20 years and the earnings therefrom and the revenues of India during the same period.

Year.	Railway mileage open.		Gross Capital outlay on railways including lines wholly under construction at close of year opposite which entry appears.	Interest charges calculated at 4 per cent on gross Capital outlay at close of year opposite which entry appears.	Gross Revenues of India for the year. (a)	Value of Imports and Exports (Total) for the year. (a)	Net earnings derived from Duties on Exports and Imports for the year. (a)	Railway earnings (in lakhs).	
	At close of year opposite which entry appears.	Increase over the year shown in line immediately above.						Gross.	Net.
	Miles.	Miles.	Lakhs of Rs.	Lakhs of Rs.	Lakhs of Rs.	Lakhs of Rs.	Lakhs of Rs.	For the year.	For the year.
1	2	3	4	5	6	7	8	9	10
1881 . .	9,894	...	1,45,68	5,83	75,68	1,43,50	2,09	13,41	7,25
1891 . .	17,314	7,420	2,34,51	9,38	89,14	1,95,62	1,51	23,67	12,74
1892 . .	17,894	580	2,43,10	9,72	90,17	1,96,83	1,42	23,32	12,33
1893 . .	18,510	616	2,48,54	9,94	90,57	2,06,08	1,50	24,34	12,73
1894 . .	18,906	396	2,53,89	10,16	95,19	2,00,25	3,60	25,57	13,52
1895 . .	19,555	649	2,61,33	10,45	98,37	2,04,89	4,71	26,27	14,12
1896 . .	20,262	707	2,71,41	10,86	94,13	1,98,12	4,17	24,41	13,17
1897 . .	21,123	861	2,84,03	11,36	96,44	98,96	4,35	25,60	13,12
1898 . .	22,048	925	2,95,88	11,84	1,01,39	2,10,21	4,50	27,46	14,44
1899 . .	23,528	1,480	3,09,57	12,38	1,02,96	2,13,32	4,38	29,41	15,45
1900 . .	24,760	1,232	3,30,92	3,24	1,12,91	2,27,41	4,69	31,60	16,47
1901 . .	25,373	613	3,41,67	13,67	1,14,82	2,45,71	..	3,66	17,90

(a) Financial years.

Note.—The Statement has been compiled from the following sources :—

Column 2 from Appendix 6 to the Administration Report on the Railways in India (1901).

„ 4 from Appendix 7 ditto ditto ditto (1901).

Columns 6 and 7 were compiled from the Trade and Navigation Reports from 1881-1882; Financial and Commercial Statistics of British India from 1881-1882 and the Financial Statement for 1902-1903 published in the "Gazette of India" Extraordinary of 9th March 1902.

Column 8 from the Finance and Revenue Accounts of the Government of India. The figures are given in £ for 1881-1882 and Rx from 1891-1892 to 1898-1899, and have been converted to rupees at par. They exclude customs revenue from salt throughout and charges for collection of salt revenue up to 1893-1894 but include the latter from 1894-1895.

„ 9—Figures for 1861 and 1871 from Appendix FF to the Administration Report on the Railways in India (1881-1882).

Ditto 1881 and 1891-96 from Appendix 7 ditto ditto ditto (1901).

Ditto 1897 and 1901 ditto 12 ditto ditto ditto (1901).

„ 01— Ditto 1861 and 1871 ditto FF ditto ditto ditto (1881-1882).

Ditto 1881 and 1896 ditto ditto ditto ditto (1882-1886 to 1897-98, Part I).

Ditto 1897 and 1901 ditto 12 ditto ditto ditto (1901).

Appendix M.

Railways (Ireland) Act, 1896.

[59 & 60 Vict., Ch. 34.] A. D. 1896.

ARRANGEMENT OF SECTIONS.

Section.
1. Advance by Treasury.
2. Order in Council confirming agreement.
3. Certain provisions of Tramways (Ireland) Acts not to apply to projected railway.
4. Limitation on amount of advance and provision of money by National Debt Commissioners.
5. Power of owner to grant land or advance money for a light railway.
6. Entry on lands.
7. Provision in case of default in working of undertakings.
8. Application of general Railway Acts.
9. Provision for the establishment of lines of steam-boats, coaches, etc.
10. Presentment in aid by grand jury.
11. Power to make rules.
12. Definition.
13. Short title and construction.
SCHEDULE.

CHAPTER 34.

An Act to facilitate the construction of Railways and the Establishment of other means of Communication in Ireland, and for other purposes incidental thereto.

[14th August 1896.]

Be it enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows; that is to say :—

Advance by Treasury.

1.—(1.) Where it is certified to the Treasury by the Lord Lieutenant that the making of a railway under this Act is necessary for the development of the resources of any district, but that owing to the exceptional circumstances of the district the railway could not be constructed without special assistance from the State, and the Treasury are satisfied that a railway company existing at the time will, if an advance is made by the Treasury under this section, construct, work, and maintain the railway, or work and maintain the railway when constructed, the Treasury may make such agreement with the railway company as is authorised by sub-section one of section four of the Light Railways (Ireland) Act, 1889, and may, subject to the limitation of this Act as to the amount to be expended for the purposes of advances, agree that the railway be aided out of public money by an advance under this section. 52 & 53 Vict., c. 66.

Provided that—

(a) the Treasury shall not make any such advance unless they are satisfied that landowners, local authorities, and other persons locally interested have, by the free grant of land or otherwise, given all reasonable assistance and facilities in their power for the construction of the railway; and

(b) save in the case of a railway which will be situated wholly or mainly within a congested districts county, as defined by the Purchase of Land (Ireland) Act, 1891, an advance shall not exceed one-half of the total amount required for the construction of the railway. 54 & 55 Vict., c. 48

(2.) An advance under this section may be a free grant or a loan, or partly a free grant and partly a loan.

(3.) Any loan for an advance under this section shall be made on such conditions and at such rate of interest as the Treasury direct.

(4.) The Board of Works may examine any surveys, maps, plans, and estimates for the construction of the railway submitted to them, and if they consider that those submitted cannot be made satisfactory, or if any alterations which they may suggest therein are not accepted, the Board of Works, if authorised by the Treasury, may themselves make or procure the same.

(5.) In the case of a railway which will be situated wholly or mainly within such congested districts county as aforesaid, if the railway company do not agree to construct the railway, the Board of Works may, with the sanction of the Treasury, construct or contract for the construction of the railway.

Appendix M—*contd.*

A. D. 1896.

(6.) For the purposes of this section the Board of Works shall have all the powers conferred by the Lands Clauses Acts on the promoters of an undertaking.

(7.) All costs and expenses necessarily incurred by any Government department or officer under this Act shall be paid out of the money provided by this Act.

Order in Council confirming agreement. 52 & 53 Vict., c. 66.

2. Where such agreement as aforesaid has been made by the Treasury with a railway company, section five of the Light Railways (Ireland) Act, 1889, shall apply with the following modifications: —

(*a*) The Order in Council mentioned in the said section five may authorise the construction or reconstruction and maintenance as part of the railway of any pier, quay, or jetty, and may empower the railway company or the Board of Works to enter into all contracts and agreements necessary for carrying the order into effect:

(*b*) The Order shall set forth the tolls and charges for passengers, animals and things conveyed on the railway:

(*c*) When the Treasury have agreed to make an advance as a free grant, the Order may make provision as regards any district that during a period not exceeding ten years, to be fixed by the Order, so much of the railway as is in that district shall not be assessed to any local rate at a higher value than that at which the land occupied by the railway would have been assessed if it had remained in the condition in which it was immediately before it was acquired for the purposes of the railway. The Order may authorise the Lord Lieutenant to extend any such period:

(*d*) The Order may upon the application of the Treasury be altered or added to by an amending Order made in like manner and subject to the like provisions as the original Order.

Certain provisions of Tramways (Ireland) Acts not to apply to projected railway.

3.—(1.) Where an agreement under this Act has been entered into, the following provisions of the principal Acts shall not apply to the projected railway: (that is to say,)—

The provisions relating to the procedure for obtaining the approval of the undertaking by any grand jury, municipal corporation, town, or other commissioners, and for obtaining a guarantee, and relating to all proceedings preliminary thereto:

The provisions relating to tolls and rates of charge:

The provisions relating to deposits or other security for the completion of the undertaking:

The provisions conferring powers and imposing duties on the county surveyor.

(2.) For the purposes of this Act there shall be substituted for the provisions aforesaid such regulations as may be made by the Lord Lieutenant in Council under this Act.

Limitation on amount of advance and provision of money by National Debt Commissioners.

4.—(1.) The total amount advanced by the Treasury under this Act shall not at any one time exceed five hundred thousand pounds.

(2.) The National Debt Commissioners may, out of any money for the time being in their hands on account of savings banks, lend to the Treasury, and the Treasury may borrow from the National Debt Commissioners, such money as may be required for the purpose of advances by the Treasury under this Act, on such terms as to interest, sinking fund, and period of repayment (not exceeding thirty years from the date of the loan) as may be agreed on between the National Debt Commissioners and the Treasury.

(3.) The sums so lent by the National Debt Commissioners shall be repaid out of money provided by Parliament for the purpose, and if and so far as that money is insufficient shall be charged on, and payable out of, the Consolidated Fund, or the growing produce thereof.

Power of owner to grant land or advance money for a light railway.

5.—(1.) Where any person has power, either by statute or otherwise, to sell and convey any land for the purpose of any works of a railway under this Act, he may, with the sanction of the Board of Works given under this section, convey the land for that purpose either without payment of any purchase money or compensation, or at a price less than the real value, and may so convey it free from all encumbrances thereon.

(2.) Whenever any person who is a landowner within the meaning of the Improvement of Land Act, 1864, contributes any money for the purpose of any works of a railway under this Act, the amount so contributed may, with the sanction of the Board of Works given under this section, be charged on the land of the landowner improved by the works in the same manner, and with the like effect, as in the case of a charge under that Act. 27 & 28 Vict., c. 114.

(3.) The Board of Works shall not give their sanction under this section unless they are satisfied that the works for which the land is conveyed or the money is contributed will effect a permanent increase in the value of the land held by the same title or of other land of the

Appendix M—*contd.*

A. D. 1896.

same landowner exceeding, in the case of a conveyance of land, that which is, in the opinion of the Board of Works, the real value of the land conveyed, or the difference between that value and the price, as the case may be, and in the case of a contribution of money the amount contributed: Provided also, that if the land proposed to be conveyed is subject to incumbrances, the Board of Works, before giving their sanction under this section, shall cause notice to be given to the incumbrancers, and shall consider the objections, if any, raised by them.

Entry on lands.

6.—(1.) The Board of Works or any company authorised to construct a railway under this Act, with the consent of that Board, may, before the arbitrator has framed his draft award, enter upon any land, which they are by any Order in Council made under this Act authorised to take, without making any deposit in the bank.

(2.) Where any such entry is made the Board of Works shall pay to the persons entitled hereto the purchase money or compensation agreed upon or awarded to such persons pursuant to the Lands Clauses Acts in respect of the lands so entered upon, and those Acts as amended by this section shall apply accordingly.

(3.) Where any Order in Council under this Act incorporates the Lands Clauses Acts the award of the arbitrator under those Acts shall be final, and the provisions of those Acts with respect to traverses shall not apply.

Provision in case of default in working of undertakings.

7.—(1.) Where any railway constructed under the principal Acts or this Act has been aided out of moneys provided by Parliament, the Board of Works may at any time (whether the undertaking has become the property of a grand jury or not) appoint an engineer or other fit person to inspect and report upon the condition of the undertaking, and the working, maintenance, and development of the same.

(2.) If such engineer or person reports that the undertaking is not efficiently worked maintained, and developed, the Board of Works shall make a report to the Lord Lieutenant, and the Lord Lieutenant in Council, after giving all persons interested an opportunity of being heard, may, if satisfied that the undertaking has not been efficiently worked, maintained, or developed, make an order appointing a manager or receiver of the undertaking for such time and with such powers as may be specified in the order.

Application of general Railway Acts.

8. The enactments mentioned in the schedule to this Act shall not apply to a railway authorised under this Act, except so far as they are required by the Board of Trade to be incorporated, or applied by the Order in Council confirming an agreement under this Act.

Provision for the establishment of lines of steam-boats, coaches, etc.

9. Where it is certified to the Treasury by the Lord Lieutenant that the establishment of any of the means of communication mentioned in this section is necessary for the development of the resources of any district, but that owing to the exceptional circumstances of the district such means of communication could not be established without special assistance from the State, the Treasury may authorise the Board of Works to enter into an agreement with any person for the establishment and maintenance of any line of steam-boats, coaches, cars, carts, or other vehicles moved by mechanical power, or otherwise, and to construct or reconstruct and maintain or contract for the construction or reconstruction and maintenance of any pier, quay, or jetty, or the immediate approaches thereto, or any structure necessary for the proper use thereof; and the Treasury may, out of the money provided by this Act, make free grants in aid of any of the above purposes.

Presentment in aid by grand jury.

10. Any grand jury may, subject to rules and regulations under this Act, present any sum of money in aid of any railway or other means of communication, or any accommodation work constructed or established under this Act; and section twenty-three of the Public Works (Ireland) Act, 1831, and section one of the Grand Jury (Ireland) Act, 1853, shall apply to such presentment, with this modification that the half-yearly instalments for repayment of any sum to be expended may be at a rate of not less than four pounds per cent. per annum on such sum.

1 & 2 Will. 4. c. 33.
16 & 17 Vict., c. 136.

Power to make rules.

11.—(1.) The Lord Lieutenant in Council may make rules and regulations for the purpose of carrying this Act into effect and for regulating the procedure thereunder: Provided that the assent of the Treasury shall be necessary in the case of any rule or regulation affecting the expenditure of money provided by this Act.

(2.) All rules and regulations under this section shall be laid before Parliament.

Definition.

12. In this Act, unless the context otherwise requires, the expression "railway" includes light railway or tramway, and where provided by an Order in Council any pier, quay, or jetty used in connexion therewith.

Appendix M—*concld.*

A. D. 1896.

Short title and construction.

54 & 55 Vict., c. 2
58 & 59 Vict., c. 20

13. This Act may be cited as the Railways (Ireland) Act, 1896, and save where the context otherwise requires, shall be construed as one with the principal Acts, that is to say, the Transfer of Railways (Ireland) Act, 1890, and the Tramways (Ireland) Acts as therein defined, and the Tramways (Ireland) Act, 1895, and those Acts and this Act may be cited collectively as the Tramways (Ireland) Acts, 1860 to 1896.

Note by Mr. Thomas Robertson.

The money provided for in this Act was hypothecated for a period of years and by arrangement with the Treasury placed at the disposal of the Board of Public Works for the purposes named in this Act, they drawing on the National Debt Commissioners for instalments from time to time as they required them in connection with the preparation of the works.

Section 8.

SCHEDULE.

ENACTMENTS RELATING TO SAFETY, ETC.

Section and Chapter.	Title or Short Title.	Enactments referred to.
31 & 32 Vict., c. 119.	The Regulation of Railways Act, 1868.	Sections nineteen, twenty, twenty-two, twenty-seven, twenty-eight, and twenty-nine.
41 & 42 Vict., c. 20.	The Railway Returns (Continuous Brakes) Act, 1878.	The whole Act.
52 & 53 Vict., c. 57.	The Regulation of Railways Act, 1889.	The whole Act.

Appendix N.

Statement showing rolling-stock lighted by gas on Indian railways on 31st December 1902.

Railway.	Number fitted.	Number which should be fitted.	Percentage of column 2 on 3	Remarks
1	2	3	4	5
Assam Bengal	171	178	96·07	
Bengal Nagpur	(*a*) 485	665	72·93	(*a*) 1 lighted by electricity.
Bombay, Baroda and Central India	404	418	96·65	
Burma	(*b*) 13	863	1·51	(*b*) Lighted by electricity.
Eastern Bengal (5′ 6″)	407	453	89 85	
Eastern Bengal (3′ 3¾″) (*c*)	402	413	97·34	(*c*) Excluding Dacca section and Kanna-Dharlla branch.
East Indian	(*d*) 1,198	1,665	71·95	(*d*) 3 lighted by electricity.
Great Indian Peninsula	1,339	1,543	84·84	
Hyderabad-Godavari Valley	81	131	61·83	
Madras	751	1,068	70·32	
Nizam's Guaranteed State	121	182	66·48	
North Western	1,108	2,090	53·01	
Oudh and Rohilkhand	598	802	74·56	
Rajputana Malwa	(*b*) 76	1,678	4 53	
South Indian	(*b*) 91	899	10·12	
Southern Mahratta	934	966	96·68	
Barsi Light	*Nil*	...	...	
Bengal and North-Western	,,	...	...	
Bengal Central	,,	...	...	
Bengal Dooars	,,	...	...	
Bengal Dooars Extensions	,,	...	...	
Bhavnagar-Gondal-Junagad-Porbandar	,,	...	...	
Cooch Behar	,,	...	...	
Darjeeling-Himalayan	,,	...	...	
Deoghur	,,	...	...	
Dibru-Sadiya	,,	...	...	
Gaekwar's Dabhoi	,,	...	...	
Gwalior Light	,,	...	...	
Howrah-Amta	,,	...	...	
Howrah-Sheakhala	,,	...	...	
Jodhpur-Bikaner	,,	...	...	
Jorhat	,,	...	...	
Morvi	,,	...	...	
Nilgiri	,,	...	...	
Nowshera-Durgai	,,	...	...	
Parlakimedi Light	,,	...	...	
Powayan Light	,,	...	...	
Raipur-Dhamtari	,,	...	...	
Rajpipla	,,	...	...	
Ranaghat-Krishnagar	,,	...	...	
Rohilkund and Kumaon	,,	...	...	
Tarakeshwar-Magra	,,	...	...	
Tezpur-Balipara	,,	...	...	
Thatôn-Duyiuzaik Light	,,	...	...	
Udaipur-Chitor	,,	...	...	
West of India Portuguese	,,	...	...	

Appendix O.

Forms of Risk Note in use in England and India.

INDIAN FORM.

Approved by the Governor General in Council under section 72 (2) (*b*) of the Indian Railways Act, IX of 1890.)

(To be used when the sender elects to despatch at a "Special reduced" or "Owner's risk" rate, articles or animals for which an alternative "Ordinary" or "Risk acceptance" rate is quoted in the Tariff.)

WHEREAS the consignment of _____ tendered by $\frac{me}{us}$ as per Forwarding Order No. _____ of this date, for despatch by the _____ railway administration or their transport agents or carriers to _____ station, and for which $\frac{I}{we}$ have received Railway Receipt No. _____ of same date, is charged at a Special reduced rate instead of at the ordinary tariff rate chargeable for such consignment; $\frac{I}{we}$, the undersigned, do, in consideration of such lower charge, agree and undertake to hold the said railway administration and all other railway administrations working in connection therewith, and also all other transport agents or carriers employed by them respectively, over whose railways or by or through whose transport agency or agencies the said goods or animals may be carried in transit from _____ station to _____ station harmless and free from all responsibility for any loss, destruction or deterioration of, or damage to, the said consignment, from any cause whatever, before, during, and after transit over the said railway or other railway lines working in connection therewith or by any other transport agency or agencies employed by them respectively for the carriage of the whole or any part of the said consignment.

Signature of sender _____

WITNESS.

(Signature) _____

Residence) _____

Rank or { Father's name _____

Caste _____ Age _____

WITNESS.

(Signature) _____

(Residence) _____

Profession _____

Residence _____

ENGLISH FORM.

FOR _____ (*Owner's Risk Consignment Note*).

..... Railway.

Consignment Note.

For Perishable and other Merchandise carried by Passenger train or by other similar service to be carried at Reduced Rates at Owner's Risk.

The..... .....Railway Company hereby give notice that they have two rates for the carriage of the undermentioned merchandise, at either of which rates the said merchandise may be consigned at the Sender's option; one, the ordinary rate, when the Company take the ordinary liability of a Railway Company; the other, a Reduced Rate, adopted when the sender agrees to relieve the Company and all other Companies or persons over whose lines the merchandise may pass, or in whose possession the same may be during any portion of the transit, from all liability for loss, damage, misdelivery, delay, or detention, *except upon proof that such loss, damage, misdelivery, delay, or detention arose from wilful misconduct on the part of the Company's servants.**

To the ..... Railway Company,

..... Station,

.....189

Receive and forward the undermentioned Merchandise, to be carried at the Reduced Rate, below the Company's ordinary rate. in consideration whereof I agree to relieve the ..... Railway Company and all other Companies or persons over whose lines the Merchandise may pass, or in whose possession the same may be during any portion of the transit, from all liability for loss, damage, misdelivery, delay, or detention, *except upon proof that such loss, damage, misdelivery, delay, or detention arose from wilful misconduct on the part of the Company's servants.**

And I also agree to the conditions on the back of this Note. (See at back.)

This Agreement shall be deemed to be separately made with all Companies or persons parties to any through-rate under which the Merchandise is carried.

Signature of Sender or his Representative .....

Address .....

.....

Each Company to introduce at the foot of this Form whatever columns may be necessary to meet its own requirements.

* The italicised portion marks the difference between the English and the Indian conditions.

Appendix O—*contd.*

GENERAL CONDITIONS ON ENGLISH FORM.

NOTE.—The Great Central Company adopt the words *"from whatever cause arising"* in lieu of *"except upon proof that such loss, damage, misdelivery, delay or detention arose from wilful misconduct on the part of the Company's servants."*—(*Joint, Sept.*, 1894.)

GENERAL CONDITIONS.

1.—The Company will not be liable for loss of or injury done to any merchandise, matters or things described in the *Carriers Act*, 1830, unless the particular articles and the value thereof be declared, and an increased charge over and above the charge for carriage be paid as compensation for the risk incurred.

2.—In respect of any animals, luggage or merchandise booked through by them or their Agents for conveyance, partly by railway and partly by sea, or partly by canal and partly by sea, the Company shall be exempted from liability for any loss, damage or delay which may arise during the carriage of any such animals, luggage, or merchandise by sea, from the act of God, the Queen's enemies, fire, accidents from machinery, boilers, and steam and all and every other dangers and accidents of the sea, rivers, and navigation of whatever nature and kind soever, in the same manner as if the Company has signed and delivered to the Consignor a bill of lading containing such condition.

3.—No claim in respect of merchandise, for loss or damage, during the transit, for which the Company may be liable, will be allowed unless the same be made in writing within three days after delivery of the merchandise in respect of which the claim is made, such delivery to be considered complete at the termination of the transit as specified in the next Condition.

4.—The transit shall in no case extend beyond (*a*) the time when merchandise carted by the Company is unloaded or tendered at the address to which it is consigned; or (*b*) the expiration of 24 hours after notice of arrival of the merchandise, posted by the Company, is due for delivery to the Consignee in the ordinary course of post, or notice of arrival is given to him personally or delivered at his address.

5.—After the termination of the transit as defined in Condition 4, the Company will thenceforth and subject to these conditions hold the merchandise as warehousemen, subject to the usual charges.

6.—After the termination of the transit, merchandise carried or conveyed by the Company will be subject in addition to the charge for carriage to further charges for demurrage of 3*s.* per truck per day, and 1*s.* per sheet per day, or in the case of such merchandise as is unloaded from the truck, to reasonable charges for rent or services performed, until it is removed from the Company's premises; and similar charges will be made with respect to merchandise the delivery of which cannot be effected by the Company, in consequence of incorrect or insufficient address. Provided that no such charges shall be made if the Company have not given proper opportunity for the removal of the merchandise or the discharge of the truck.

When specially constructed trucks are used 6*s.* per truck per day demurrage will be charged on trucks constructed to carry 15 tons and under 20 tons, 12*s.* per truck per day on trucks capable of carrying 20 tons and under 30 tons, and 20*s.* per truck per day on trucks capable of carrying 30 tons and above.

7.—Consignors ordering trucks and failing to load and order them away within 24 hours after such trucks shall be ready for loading at the station or siding to which they were ordered, will be subject to charges of 3*s.* per truck per day and 1*s.* per sheet per day for demurrage, for every day or fraction of a day they shall be detained after the expiration of such 24 hours.

When specially constructed trucks are ordered 6*s.* per truck per day demurrage will be charged on trucks constructed to carry 15 tons and under 20 tons, 12*s.* per truck per day on trucks capable of carrying 20 tons and under 30 tons, and 20*s.* per truck per day on trucks capable of carrying 30 tons and above.

8.—All merchandise delivered to the Company will be received and held by them subject to a lien for money due to them for the carriage of and other charges upon such merchandise, and also to a general lien for any other moneys due to them from the owners of such merchandise upon any account, and in case any such lien is not satisfied within a reasonable time from the date upon which the Company first gave notice to the owners of the merchandise of the exercise of the same, the merchandise may be sold by the Company by auction or otherwise and the proceeds of sale applied to the satisfaction of every such lien and expenses.

9.—All perishable articles refused by the Consignee, for at the place to which they are consigned; or consigned to a place not known by the Company's agents or servants, or insufficiently addressed, or not paid for and taken away within a reasonable time after arrival, if addressed to be kept till called for, may be forthwith sold by auction or otherwise, without any notice to Sender or Consignee, and payment or tender of the net proceeds of any such sale after deduction of freight charges and expenses shall be accepted as equivalent to delivery.

10.—The Company will not be liable for any loss of market.

11.—The Company will not be liable for any indirect or consequential damages in respect of merchandise lost, injured or delayed.

12.—The Company will not be liable for any loss of or damage to, or delay of merchandise resulting from its being not properly protected by packing.

13.—The Company will not be liable for any loss of or damage to, or delay of merchandise resulting from its being not properly or not sufficiently addressed.

14.—The Company will not be liable if merchandise is lost, injured, or delayed owing to a defect in a wagon not belonging to or provided by the Company, unless such defect arose from the neglect or default of the Company or their servants, or unless the Company or their servants were guilty of negligence in not discovering such defect.

15.—In respect of merchandise consigned to places beyond the limits of the Company's free delivery, the responsibility of the Company will cease when such merchandise has been delivered over to another Carrier in the usual course for delivery.

16.—In all cases where the Company's charges are not prepaid, the merchandise is accepted for carriage only upon the condition that the sender remains liable for the payment of the amount due to the Company, or the carriage of such merchandise without prejudice to the Company's rights, if any, against the Consignee or any other person.

17.—In respect of traffic of every description which loses weight in transit through drainage, evaporation, or any cause beyond the Company's control, carriage shall be paid upon the weight ascertained at the sending station.

Appendix P.

Statement showing the average number of engines, coaching and goods vehicles under repairs on each railway in India during the year 1901.

Railways.	Engines.			Coaching stock.			Goods stock.			Remarks
	Total stock.	Average under repairs.	Percentage under repairs on total.	Total stock.	Average under repairs.	Percentage under repairs on total.	Total stock.	Average under repairs.	Percentage under repairs on total.	
Assam Bengal	53	4·65	8·77	172	19·16	11·14	1,256	75·96	6·05	
Barsi Light	5	1·00	20·00	7	1·00	14·29	62	1·50	2·42	
Bengal and North-Western	175	17·31	9·89	667	59·09	8·86	5,997	131·59	2·19	
Bengal Central	27	5·00	18·52	111	4·50	4·05	500	32·00	6·40	
Bengal Dooars	4	1·00	25·00	21	...	...	110	4·00	3·64	
Bengal Dooars Extensions	6	1·00	16·67	34	...	...	222	4·50	2·03	
Bengal Nagpur (*a*)	177	33·77	19·08	651	70·19	10·78	5,092	139·10	2·73	(*a*) Excluding Dhamtari Branch.
Bhavnagar-Gondal-Junagad-Porbandar	33	6·78	20·55	196	13·23	6·75	940	31·18	3·32	
Bombay, Baroda and Central India	188	33·50	17·82	491	54·50	11·10	4,934	201·50	4·08	
Burma	206	24·90	12·09	837	122·18	14·63	3,809	339·53	8·91	
Cooch Behar	3	0·74	21·67	16	1·77	11·06	67	2·29	3·42	
Darjeeling-Himalayan	14	1·00	7·14	76	4·00	5·26	212	6·00	2·83	
Dibru-Sadiya	22	4·25	19·32	60	11·44	19·07	919	36·39	3·96	
Eastern Bengal (5′ 6″)	118	19·70	16·70	459	55·71	12·14	2,460	168·23	6·84	
Eastern Bengal (3′ 3½″)	111	18·64	16·79	511	80·16	15·69	2,864	154·49	5·39	
Eastern Bengal (2′ 6″)	10	1·39	13·90	34	1·86	5·47	206	10·19	4·95	
East Indian	829	99·00	11·94	1,535	199·59	13·00	16,441	740·97	4·51	
Gackwar's Dabhoi	8	2·00	25·00	38	0·50	1·32	191	7·00	3·61	
Great Indian Peninsula Indian Midland	752	172·00	22·87	2,247	250·00	11·13	10,242	578·00	5·64	
Hyderabad-Godavari Valley	35	2·94	8·40	88	4·26	4·84	598	13·17	2·20	
Jamnagar	4	...	...	26	2·70	10·38	104	3·37	3·24	
Jodhpur-Bikaner	40	7·17	17·92	138	8·77	6·35	582	7·46	1·28	
Madras (*b*)	174	38·50	22·13	702	62·00	8·83	3,365	176·00	5·23	(*b*) Excluding Nilgiri railway for which information is not available.
Madras (North-East line)	58	7·50	12·93	216	37·50	17·36	1,152	57·50	4·99	
Morvi	8	2·00	25·00	52	10·50	20·19	119	8·80	7·39	
Mysore	42	7·90	18·81	212	32·02	15·10	706	43·97	6·23	
Nizam's Guaranteed State	54	14·17	26·24	133	19·59	14·73	987	48·20	4·88	
North Western	676	106·38	15·74	1,867	251·01	13·44	11,818	1,967·75	16·65	
Oudh and Rohilkhand	175	19·81	11·32	649	47·97	7·39	4,571	95·13	2·08	
Rajputana-Malwa	428	105·66	24·69	1,657	139·02	8·39	7,102	287·81	4·05	
Rohilkund and Kumaon (*c*)	31	3·30	10·65	152	19·93	13·11	866	54·83	6·33	(*c*) Excluding Powayan Light railway for which information is not available.
Southern Mahratta	177	34·76	19·64	749	126·26	16·86	4,053	307·85	7·60	
South Indian	208	49·77	23·93	931	103·05	11·07	3,352	223·06	6·65	
Udaipur-Chitor	3	0·15	5·00	26	3·54	13·62	35	2·60	7·43	

N.B.—Information for Dooghur-Jorhat, Howrah-Amta, Howrah-Sheakhala, Tespur-Balipara, Ranaghat-Krishnagar and Tarakeshwar-Mogra railways is not available.

Appendix Q.

Statement showing number of Stations on the several Railways in India which are supplied with special Block Instruments for working trains.

Name of railway.	Number of Stations fitted with Block Instruments at close of year.												Name of system employed in 1902.
	1899.			1900.			1901			1902.			
	Number of stations on line	Number supplied with Block Instruments.	Percentage of stations supplied with Block Instruments.	Number of stations on line	Number supplied with Block Instruments.	Percentage of stations supplied with Block Instruments.	Number of stations on line	Number supplied with Block Instruments	Percentage of stations supplied with Block Instruments.	Number of stations on line.	Number supplied with Block Instruments	Percentage of stations supplied with Block Instruments	
Bengal-Nagpur	136	12	8 82	140	8	5 71	204	12	5·88	218	12	5 50	Tyre's Tablet, Dalton's Tablet, Webb and Thompson's staff, Winter's block.
Bombay, Baroda and Central India	124	77	62·10	146	76	52 05	151	77	50 99	154	76	49·35	Preece's block, Syke's block
Ditto, Rajputana-Malwa Section										256	3	1 17	Syke's lock and block instruments.
Eastern Bengal State										205	2	0 98	Tyre's Tablet.
East Indian	281	2	0 71	331	2	0 60	340	15	4 41	380	76	20 00	Pryce and Ferreira's Double line with automatic lock and block.
													Ditto without ditto.
													Tyre's No 6 pattern-tablet instruments.
													Ditto new automatic ditto.
Great Indian Peninsula	218	218	100 00	231	231	100 00	231	231	100 00	232	232	100 00	Preece's single wire semaphores.
													Neal's voucher block.
Ditto, Indian Midland Section.										145	14	9·66	Preece's single wire semaphores.
Madras	194	127	77·44	159	130	81 76	272	140	51 47	284	148	52 11	Winter's Block Instruments with electrically interlocked starting semaphores.
													Ditto without ditto.
													Theobald's train key.
South Indian	166	10	6·02	178	21	11 80	180	21	11·67	209	21	10 05	Winter's automatic ticket issuing instruments.
Southern Mahratta	215	100	47 39	211	105	49 76	211	105	49 76	225	104	46 22	Winter's block, Webb and Thompson's staff, Theobald's train key.
Assam-Bengal										85			
Barsi Light										4			
Bengal Central										27			
Bengal Doars										21			
Bengal and North-Western										208			
Bhavnagar-Gondal-Junagad-Porbandar.										64			
Burma										186			
Calcutta Port Commissioners'.										4			
Darjeeling-Himalayan										11			
Deoghur										2			
Dibru-Sadiya										17			
Howrah-Amta										14			
Howrah-Sheakhala										12			
Jodhpur-Bikaner										82			
Jorhat										7			
Morvi										15			
Nizam's Guaranteed State										86			
North Western State										500			
Oudh and Rohilkhand State										156			
Ranaghat-Krishnagar										8			
Rohilkhand and Kumaon										58			
Tarakeshwar-Magra										16			
Tezpur-Balipara										8			
Thatón Duyinzaik										2			
Udaipur-Chitor										11			
Total										3,912	688	17 59	

Appendix R.

Statement showing the number of stations on the several railways in India at which the points and signals are interlocked.

Name of railway.	Number of stations at close of the year 1899 on line.	Number of stations at which points and signals are interlocked	Percentage of stations supplied with interlocking apparatus.	Number of stations on line.	Number of stations at which points and signals are interlocked	Percentage of stations supplied with interlocking apparatus.	Number of stations on line	Number of stations at which points and signals are interlocked	Percentage of stations supplied with interlocking apparatus	Number of stations on line.	Number of stations at which points and signals are interlocked	Percentage of stations supplied with interlocking apparatus	Name of system employed in 1902.
	1899.			1900.			1901			1902			
	NUMBER OF STATIONS AT WHICH POINTS AND SIGNALS ARE INTERLOCKED AT CLOSE OF THE YEAR												
Bengal-Nágpur	136	37	27 21	140	42	30 71	204	73	35 78	218	87	39 91	86 List and Morse's. 1 Dutton's.
Bhavnagar-Gondal-Junagad-Porbandur.	...	...	...	..	...	.	64	1	1 56	64	1	1 56	1 special system.
Bombay, Baroda and Central India.	124	20	16 13	146	21	14 38	151	22	14 57	154	26	16 88	16 Mackenzie and Holland's. 2 Dutton's. 2 Tyrrell and Cromwell's Controlling apparatus. 6 Country made
Ditto, Rajputana-Malwa section.	264	9	3 41	256	10	3 91	247	8	3 24	256	8	3 13	1 Mackenzie and Holland's 2 Dutton's 5 Local manufactured on Tappet system
Burma	164	2	1 22	175	2	1 14	186	2	1 08	186	3	1 61	2 Saxby and Farmer's. 1 Merely a point's indicator (Stoney's Patent).
Eastern Bengal	185	11	5 95	191	14	7 33	197	31	15 74	205	33	16 10	9 Mackenzie and Holland's. 3 Tappet interlocking. 2 Saxby and Farmer's. 1 J C Mill's 18 List and Morse's.
East Indian	281	31	11 03	231	58	17 52	340	75	22 06	380	94	24 74	55 English system. 7 Experimental 32 Detector system Saxby and Farmer's and East Indian Railway
Great Indian Peninsula	218	24	11 01	231	24	10 39	231	26	11 26	232	28	12 07	26 Saxby and Farmer's and Tappet locking. 2 Tappet locking.
Indian Midland	133	13	9 77	142	13	9 15	144	13	9 03	145	13	8 97	Wrench's Timmis and Saxby Farmer's make
Madras	164	42	25 61	159	47	29 56	272	48	17 65	284	51	17 96	37 List and Morse's. 11 Experimental. 2 Tappet locking. 1 Saxby and Farmer's.
Nizam's Guaranteed State	58	14	24 14	99	7	37 37	83	37	44 58	86	38	44 19	37 List and Morse's. 1 Dutton's.
North Western	454	155	34 14	461	165	35 79	482	203	42 12	500	224	44 80	22 Ordinary Tappet locking. 19 Key locking. 4 Detector locking. 180 List and Morse's.
Oudh and Rohilkhand	141	37	26 24	154	62	40 26	154	62	40 26	156	74	47 44	68 List and Morse's 4 Saxby and Farmer's 1 Dutton's Patent 1 Wrench's Patent
South Indian	166	6	3 61	178	6	3 37	180	7	3 89	209	7	3 35	5 Dutton's 1 Saxby and Farmer's. 1 Dutton's
Assam-Bengal	...	...	...	..	..	..	.	...	...	85	.	...	
Barsi Light	...	.	..	...	..		.			4			
Bengal Central	..	..	..	.	.	.	.	.	.	27	.		
Bengal Doors	.	...	...		..	..	...	...	.	21	.		
Bengal and North-Western	...	.	..	.	..	.	...		..	208	...	..	
Calcutta Port Commissioners'	..1		...	.	.	...	...	..	...	4	..	...	
Darjeeling-Himalayan	..	..	...	...	...	..	.	.	..	11	...	..	
Deoghur	...	...	.	..	.	...	..	.		2	...	..	
Dibru-Sadiya	...	...	..	...	...	...	..	...	.	17	...		
Howrah-Amta	...	...	...	..	..	...	..	...	...	1	..	..	
Howrah-Sheakhala	...	...	..	..	...	...	...	.		12	..	..	
Jodhpur-Bikaner	...	...	...		...	...	...	...	..	82	..	..	
Jorhat	..	...	...	...	.	...	...	...	...	7	..	...	
Morvi	...	...	..	...	...	...	.	.	...	15	...	...	
Southern Mahratta	...	...	...	...	..	...	...	...	...	225	...		
Ranaghat-Krishnagar	...	...	...	...	.	..	...	...	..	8	.	...	
Rohilkund and Kumaon	...	...	...	...	...	...	...	...	...	58	..		
Tarakeshwar-Magra	..	...	...	...	..	...	...	...	...	16	.	.	
Tezpur-Balipara	..	...	..	...	..	..	...	...	...	8	...	...	
Thatón-Duyinzáik	...	..	...	...	..	...	...	...	...	2	..	...	
Udaipur-Chitor	...	...	...	...	...	...	...	...	...	11		.	
TOTAL	...	...	...	...	...	...	...	...	...	3,912	687	17 56	

Appendix S.

Appendix S.

Statement showing the number of engines and coaching vehicles on railways fitted with automatic brakes at end of 1901.

Railways.	Locomotives.			Coaching Vehicles.				Remarks
	Fitted.	Not fitted.	Percentage of fitted on total	Braked.	Piped.	Not fitted.	Percentage of braked and piped on total	
Assam-Bengal	44	9	83·02	169	...	...	100·00	
engal Central	5	22	18·52	...	1	110	0·90	
Bengal-Nagpur	61	116	34·46	500	48	103	84·18	
Bombay, Baroda and Central India	131	57	69·68	466	25	...	100·00	
Burma	94	112	45·63	198	29	610	27·12	
Eastern Bengal (5 6″)	74	44	62·71	383	52	24	94·77	
Eastern Bengal (3′ 3½″ and 2′ 6″)	49	75	39·52	275	43	243	56·68	
East Indian	275	539	33·78	1,326	92	266	84·20	
Great Indian Peninsula	264	346	43·28	1,268	...	470	72·96	
Indian Midland	78	64	54·93	152	22	335	34·19	
Madras	90	142	38·79	601	41	276	69·93	
Nilgiri	4	...	100·00	8	...	...	100·00	
Nizam's Guaranteed State	...	54	...	41	4	88	33·83	
North Western	513	163	75·89	1,690	106	535	77·05	
Oudh and Rohilkhand	66	109	37·71	516	60	73	88·75	
South Indian	25	189	11·68	134	27	770	17·29	
Barsi Light	...	5	...	...	...	7	...	
Bengal and North-Western	...	175	...	...	...	795	...	
Bengal Dooars	...	10	...	...	...	71	...	
Bhavnagar-Gondal-Junagad-Porbandar	..	37	...	..	...	263	...	
Calcutta Port Commissioners'	...	24	...	...	...	...	...	
Darjeeling-Himalayan	...	14	...	...	...	76	...	
Deoghur	...	3	...	...	...	10	...	
Dibru-Sadiya	...	22	...	...	...	80	...	
Gaekwar's Dabhoi	...	8	...	...	...	38	...	
Gwalior Light	...	9	...	...	...	25	...	
Howrah-Amta	..	6	...	...	...	57	...	
Howrah-Sheakhala	...	3	...	...	...	18	...	
Hyderabad-Godavari Valley	...	35	...	...	...	128	...	
Jodhpur-Bikaner	...	40	...	...	...	145	...	
Morvi	...	8	...	...	...	54	...	
Nowshera-Durgai	...	10	...	...	...	16	...	
Raipur-Dhamtari	...	4	...	...	...	22	...	
Rajpipla	...	3	...	...	...	7	...	
Rajputana-Malwa	...	428	...	...	...	1,657	...	
Ranaghat-Krishnagar	...	2	...	...	...	19	...	
Rohilkund and Kumaon	...	31	...	...	...	158	...	
Southern Mahratta	...	219	...	...	...	1,006	...	
Tarakeshwar-Magra	...	4	...	...	...	25	...	
Tezpur-Balipara	...	3	...	...	...	12	...	
Udaipur-Chitor	...	3	...	...	...	26	...	
West of India Portuguese	...	12	...	...	...	37	...	
Total all Railways	1,773	3,159	35·94	7,727	550	8,655	48·88	

Appendix T.

English Railway Clearing House Act.

An Act for regulating Legal Proceedings by or against the Committee of Railway Companies associated under the Railway Clearing System, and for other purposes. 13 & 14 Vic., cap. xxxiii, 25th June 1850.

Whereas for some time past arrangements have subsisted between several Railway Companies for the transmission without interruption of the through traffic in passengers, animals, minerals, and goods passing over different lines of railway, for the purpose of affording, in respect to such passengers, animals, minerals, and goods, the same or the like facilities as if such lines had belonged to one Company, which arrangements are commonly known as and in this Act are designated as "the Clearing System," and which arrangements are conducted under the superintendence of a Committee appointed by the Boards of Directors of such several Railway Companies, which Committee is in this Act designated "The Committee," and the business of such Committee has therefore been and is now carried on at a building appropriated for the purpose in *Seymour Street*, adjoining the *Euston* station on the *London and North Western* Railway Company: And whereas the Clearing System has been productive of great convenience to the public, and of a considerable saving of expense in the transmission of passengers, animals, minerals, and goods over the lines of the several Railway Companies parties to such association; but considerable difficulty has been experienced in carrying into effect the objects of the association, in consequence of the Committee not possessing the power of prosecuting or defending actions or suits, or taking other legal proceedings: And whereas *George Carr Glyn*, Esquire, is the present Chairman, and *Kenneth Morison* is the present Secretary to the Committee: And whereas the purposes aforesaid cannot be effected without the authority of Parliament, may it therefore please your Majesty that it may be enacted, and be it enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons in this present Parliament assembled, and by the authority of the same, That the several Companies which at the time of the passing of this Act are parties to the Clearing System, and every other Company which shall in manner hereinafter mentioned become party to the same, shall be subject to the provisions of this Act.

II. And be it enacted, That if any Company which may not be a party to the Clearing System shall, by writing, sealed with the Common Seal of such Company, request the Committee to admit such Company to be a party to the Clearing System, and the Committee shall assent to such request, such Company shall from the time of such assent being given, or at such other time as may be specified in the said request, become a party to the Clearing System.

III. And be it enacted, That if any Company shall, by writing, sealed with the Common Seal of such Company, give notice to the Committee of the desire of such Company to cease to be a party to the Clearing System, such Company shall, at the expiration of one calendar month from the time when such notice shall be given, or if a more distant time shall be stated in such notice, then at the time so stated, cease to be a party to the Clearing System.

IV. And be it enacted, That if not less than two-thirds of the Committee present at a meeting specially summoned shall, by writing signed by their Secretary, or by two members of the Committee, give notice to any Company that such Company shall cease to be a party to the Clearing System at a time named in such notice not being less than one calendar month from the time of giving such notice, such Company shall, at the time so named, cease to be a party to the Clearing System.

V. And be it enacted, That each Company party to the Clearing System shall at all times be entitled to be represented on the Committee by one delegate appointed by the Board of Directors of such Company from time to time, such appointment to be certified in writing by the Secretary or any two Directors of such Company: Provided always, that, notwithstanding

Appendix T—*contd.*

any Company may happen to be unrepresented by a delegate at any meeting, the acts of the Committee shall be valid.

VI. And be it enacted, That the Committee shall meet at one of the clock in the afternoon of the second *Wednesday*, in the months of *March*, *June*, *September*, and *December*, in every year, or so soon thereafter as a quorum shall be assembled, and at any other times whereof the Secretary shall, at the written request of the Chairman for the time being, or any two members of the Committee, give at least ten days' notice in writing to every Company party to the Clearing System, or the Secretary of every such Company; and every such meeting may be adjourned from time to time, and from place to place, as the Committee shall think proper; and meetings and adjourned meetings of Committee shall be held at the said building in *Seymour Street* except when the Committee shall have appointed some other place, and then at such other place; and in order to constitute a meeting of the Committee there shall be present at least ten members; and, except where otherwise provided, all questions at every meeting shall be determined by the majority of votes of the Committee present, and in case of an equal division of votes the Chairman of the meeting shall have a casting vote, in addition to his vote as one of the committee; and notice of the business to be brought before any meeting shall at least six days before the day of such meeting, be given to every Company party to the Clearing System or the Secretary of every such Company.

VII. And be it enacted, That until the first meeting of the Committee, which shall be held after the passing of this Act, the said *George Carr Glyn*, or other, the Chairman of the Committee for the time being, shall continue in office; and at the first meeting of the Committee which shall be held after the passing of this Act, and in the month of *March*, in each succeeding year, the Committee present at the meeting shall, if they think fit, either continue in office the Chairman for the time being, or choose another Chairman; and a General meeting of the Committee specially summoned shall have power to remove any Chairman; and if any Chairman shall die, or resign, or be removed, the Committee shall have power, as soon as may be, to choose some other person to fill the vacancy thereby occasioned; but every Chairman elected to supply a vacancy other than at a General meeting in the month of *March* in any year shall continue in office so long only as the person in whose place he shall be so elected would have been entitled to continue if such death, resignation, or removal had not happened: Provided always, that it shall not be necessary that the person chosen as Chairman be a delegate of any of the Companies parties to the Clearing System; but in case he shall not be a delegate he shall not be entitled to vote on any question, unless in the case of an equality of votes, when he shall be entitled to give the casting vote.

VIII. And be it enacted, That if at any meeting of the Committee the Chairman shall not be present, the Committee present shall choose one of their members to be Chairman of such meeting.

IX. And be it enacted, That the said *Kenneth Morison* shall be the Secretary to the Committee until he die, or resign, or be removed; and that the Committee shall have the power to remove him and all future Secretaries; and that in the event of the resignation, or death, or such removal as aforesaid of any Secretary, the Committee shall appoint a Secretary to the Committee.

X. And be it enacted, That the Committee may from time to time appoint a Treasurer, and remove such Treasurer, from his appointment, and prescribe and alter the duties of the office of Treasurer, and take from the Treasurer such security as they shall think fit, which security may be taken in the name or names of such person or persons as the Committee approve of.

XI. And be it enacted, That any money which shall be received by the Committee shall be held by the Committee as trustees for the Company or Companies to whom the Committee shall decide such money to be payable; but no member of the said Committee shall be answerable for any such money as may be lost or withheld by reason of the misconduct, default, or insolvency of the Treasurer, or of any banker or agent in whose hands

Appendix T—*contd.*

the same may be, or by reason of any cause other than the personal misconduct of such member.

XII. And be it enacted, That the accounts of the Clearing System and the balances due to and from the several Companies parties thereto, shall be settled and adjusted by the Secretary of the Committee for the time being, which Secretary shall also settle and determine the Amount to be from Time to Time contributed to the Funds of the Clearing System by the Companies Parties thereto; and in case of any difference respecting such Accounts, the Decision of the Committee, to the effect that any Balance or Sum is payable by any Company then or theretofore Party to the Clearing System, shall be final and conclusive, and such Sum or Balance shall be a debt due to the said Committee.

XIII. And be it enacted, That the Committee shall, out of the funds of the Clearing System, pay all the expenses of the Clearing System, and all costs, charges, damages, and expenses which the members of the Committee, or any or either of them, shall as such members, or member, or which the Secretary as nominal plaintiff or defendant, or other party, on behalf of the Committee, bear, sustain, or be put to, and that the members of the Committee and Secretary shall be completely indemnified and saved harmless out of the funds of the Clearing System, and by the Companies parties to the Clearing System of, from, and against all action and actions, suit and suits, proceeding and proceedings, of any sort, cost, charges damages, and expenses to which they or any or either of them may in any way be subjected, as members or member of the Committee, by reason of anything which they or he may *bonâ fide* do or omit to do, whether such deeds or omission be within their powers or not.

XIV. And be it enacted, That the Committee may, by action of debt in the name of their Secretary, recover from and Company any balance or sum which such Committee shall decide to be payable by such Company, whether to any other Company or on account of the Clearing System, and whether such Company be still at the time of such decision, or has then ceased to be a party to the Clearing System, and whether such sum or balance shall or shall not have been previously ascertained by the Secretary to be payable.

XV. And be it enacted, That the declaration for the recovery of such sum or balance may be in the form or to the effect of the form given in the schedule (A) to this Act annexed, and that the Directions contained in the said schedule for the use of the same shall be taken as part of this Act.

XVI. And be it enacted, That if the defendants in such action shall plead that they never were indebted, then, on proof that the committee decided the sum in question to be payable by the defendants, and that the defendants were either at the time of such decision, or at some previous time a party to the Clearing System, and in the latter case upon further proof that such sum was decided to be payable in respect of some transactions, matters, or expenses which happened or were sustained whilst the defendants were parties to the Clearing System, the plaintiff shall be entitled to a verdict on that plea.

XVII. And be it enacted, That the defendants in such action may plead any matter showing that they have since the time of the decision, discharged the sum or balance so decided to be payable, and shall not plead any plea with a plea denying the plaintiff to be Secretary.

XVIII. And be it enacted, That the Committee shall cause notes, minutes, or copies as the case may require, of all appointments made or contracts entered into by them, and of the orders and proceedings of all their meetings, to be duly entered in books to be kept by them for that purpose; and every such entry shall be signed by the Chairman of the meeting at which such appointments, contracts, orders, or proceedings respectively took place, who shall add the word "Chairman" to his signature, and which entries may be made and signed either at or after the meetings to which they respectively relate; and every entry purporting to be so signed, shall be received as evidence in all Courts, and before all Judges, Justices, and others without proof of such respective meetings having been duly convened or held, or for the persons making or entering such orders or proceedings being members of the Committee, or of the signature of such Chairman, or of the fact of his having been Chairman, all of which last mentioned matters shall be presumed, till the contrary be proved.

Appendix T—*contd.*

XIX. And be it enacted, That on the trial of any such action, after it is proved to the satisfaction of the Court or Judge trying the cause that such Company is or had once been such a party, the books kept by the Committee shall be *primâ facie* evidence of the truth of the matter therein stated and contained; and the Secretary, although the nominal plaintiff, and the members of the Committee, shall be competent witnesses, either for the plaintiff, or for the defendants.

XX. And be it enacted, That the Committee may in all cases sue and be sued in the name of the Secretary to the Committee; and that in all proceedings at law and equity, and in bankruptcy, or of any other sort, whether civil or criminal, the name of the Secretary may be used instead of the names of the members of the Committee; and proofs, in cases of bankruptcy, insolvency, or in winding up affairs, may be made by the Secretary for the Committee.

XXI. And be it enacted, That in any indictment or information for any felony or misdemeanour, wherein it shall be necessary to state the ownership of any property whatsoever, whether real or personal, and the same shall either belong to the Committee or be in their custody, or in the custody or possession of any officer, clerk, or servant of the Committee, of of any person employed for the purpose, or in the capacity of clerk or servant by the Committee, or in or on any building or land used for the purposes of the Clearing System, or shall be used or intended to be used for the purposes of the Clearing System, it shall be sufficient to state such property to belong to the Secretary of the Committee.

XXII. And be it enacted, That in any indictment for embezzlement, wherein it shall be necessary to state the party charged with the embezzlement to have been the clerk or servant of some master or masters, or to have been employed for the purpose, or in the capacity of clerk or servant by some master or masters, and such masters shall have been the Committee it shall be sufficient in such indictment to name the Secretary of the Committee in every place in such indictment where the names of the members of the Committee would but for this enactment be required to be inserted.

XXIII. And be it enacted, That every notice or requisition on the business of the Clearing System, or given pursuant to this Act shall be sufficient if it be in writing signed by the Secretary of the Committee, or Secretary or other officer of the Company giving the same, and if it be sent by the general post addressed to the Secretary of the Company for whom the same is intended, in case such notice or requisition be intended for any Company, or to the Secretary at the principal office of the Clearing System, in case such notice or requisition be intended for the Committee; and proof of such notice or requisition being deposited in any public letter box or receiving house for letters, intended to be forwarded by the general post, shall be deemed proof of the due service of such notice or requisition; and notices or requisitions for each member of the Committee shall be sufficient if sent in manner aforesaid, addressed to him at the principal office of the Company whom he represents.

XXIV. And be it enacted, That in all pleadings or proceedings, civil or criminal when it shall be required to mention all the Companies parties to the Clearing System, or the Committee, it shall be sufficient to mention the Companies by the description of "The Companies parties to the Clearing System mentioned in the Railway Clearing Act, 1850," and to describe the Committee by the description of "The Clearing Committee mentioned in the Railway Clearing Act, 1850," without stating the names of the individual Companies and members.

XXV. And be it enacted, That in all cases where the names of the Secretary to the Committee shall be used under the authority of this Act, it shall be sufficient to name and describe him, and to state the authority for using his name, as in the form of declaration in schedule (A)

XXVI. And be it enacted, That upon the death or removal of any Secretary, no action or suit or other proceeding pending in his name as plaintiff or defendant, or otherwise, either on behalf of or against the Committee, shall abate or be stayed, but as soon as another Secretary shall be appointed the name of such new Secretary shall be thereinafter used; and in an action of law such name shall, whether it be before or after judgment, be introduced by suggestion

Appendix T—*concld.*

to which no plea or demurrer shall be allowed; and the omission to make such suggestion and an erroneous suggestion, shall be mere irregularities, and shall, on the application of the Committee, or of the party opposed to the Committee, be rectified, but shall not otherwise be taken advantage of.

XXVII. And be it enacted, That all the costs, charges, and expenses of obtaining and passing this Act or incident thereto shall be paid by the said Committee out of the first moneys which shall come to their hands after the passing of this Act.

XXVIII. And be it enacted, That this Act may be called "The Railway Clearing Act, 1850," and shall be deemed to be a public Act, and as such shall be judicially noticed.

SCHEDULE A.

To wit. { *A. B.*, Secretary to the Clearing Committee, and now named by virtue of the Railway Clearing Act, 1850; by *C. D.*, his Attorney, complains of *X. Y.*, who have been summoned to answer the said *A. B.*, in an action of debt, for that the Clearing Committee have decided that the sum of £100 is payable by the defendants, as parties to the Clearing System, by means whereof an action has accrued to the said Committee to demand in the name of their Secretary the said sum of £100, yet the defendants have not paid the same, to the damage of the said Committee of £10, and thereupon the plaintiff, by virtue of the said Act, brings suit.

Direction for using the above form.

Substitute for A. B., the name of the Secretary, and for C. D., the name of his Attorney, and for X. Y., the name of the Company defendant, and for the sums such sums as the case may require, and add the venue. Several counts may be inserted in the above model where several sums are sought to be recovered.

Appendix U.

Statement showing the annual expenditure incurred by railways in the preparation of statistics (excluding expenditure in the preparation of statistics of rail-borne trade for which the Civil Department pay separately).

Railway.	Length of line operated on 31st December 1902.	Annual expenditure incurred in the preparation of statistics.						Remarks.
		For the purposes of the Railway officers and the Board.		For the exclusive purposes of the Government of India.		Total.		
		Amount.	Per mile.	Amount.	Per mile.	Amount.	Per mile.	
	Miles.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
Assam-Bengal	589 21	3,200	5 43	5,300	9·00	8,500	14·48	
Bengal and North-Western	1,278·73	2,238	1·75	6,714	5·25	8,952	7·00	
Bengal Central	125·01	3,703	29·62	4,023	32 18	(a)10,174	(a)81·39	
Bengal-Nagpur	1,634·50	1,042	0·64	11,496	7·03	12,538	7·6	
Bhavnagar-Gondal-Junagad-Porbandar	455·45	893	1·96	3,211	7·05	4,104	9·01	
Bombay, Baroda and Central India	2,753·40	(b)	...	(b)	...	45,865	16·66	
Burma	1,259·95	(b)	...	(b)	...	17,880	14·19	
Darjeeling-Himalayan	51·00	876	17·18	876	17·18	1,752	34·36	
Dibru-Sadiya	88·50	600	6·78	1,280	14·46	1,880	21·24	
Eastern Bengal	1,151 81	(b)	.	(b)	...	13,740	11·93	
East Indian	2,186·40	25,000	11·43	7,680	3·51	(c)48,300	22·09	
Great Indian Peninsula	2,799·88	(b)	...	(b)	...	47,472	16·96	
Howrah-Amta	28·69	180	6·27	60	2·09	240	8·36	
Howrah-Sheakhala	19·75	180	9·11	60	3·04	240	15	
Jodhpur-Bikaner	824 27	(b)	...	(b)	...	1,838	2·23	
Madras	1,476·90	3,915	2·65	15,265	10·34	19,180	12·99	
Morvi	94 36	(b)	...	(b)	..	3,000	31 79	
Nizam's Guaranteed State	742·13	3,400	4·58	8,000	10·78	11,400	15·36	
North Western	3,773 01	13,576	3·60	15,108	4·00	28,684	7·60	
Oudh and Rohilkhand	1,150·98	(d)	...	12,000	10·43	12,000	10·43	
Ranaghat-Krishnagar	20·25	180	8·89	60	2·96	240	11·85	
Rohilkund and Kumaon	324·59	(b)	...	(b)	...	2,520	7·76	
South Indian	1,237·27	2,562	2·07	8,393	6·78	10,955	8·85	
Southern Mahratta	1,672·65	9,537	5·70	6,429	3·84	15,966	9·54	
Tarakeshwar-Magra	31·12	20	0·64	30	0·96	50	1 60	
Tezpur-Balipara	20·10	83	4·13	69	13·38	352	17·51	
Udaipur-Chitor	67·30	(b)	...	(b)	...	966	14·35	
Total	25,857·21	...	...	...	...	3,28,788	12·72	Average cost per Rs. 100 earned 1·56 annas.

(a) Including Rs. 2,448 cost of returns for Government and Board.
(b) States that it is not possible to divide the cost between Government and Railway as desired.
(c) Including Rs. 15,620 cost of returns for Government and Board.
(d) States that it is not necessary to prepare statistics for Railway officers in addition to those prepared for Government.

Appendix V.

No. S. 18498, dated 12th December 1902.

Demi-official from—E. G. BURLS, Esq., Director-General of Stores, India Office Whitehall, London,

To—T. ROBERTSON, Esq., C.V.O., Special Railway Commissioner for Indian railways

I enclose you a statement showing the time taken to execute orders for railway stores on indents received in this office between April 1900 and March 1902 inclusive.

I hope it will be sufficient for your purpose, and I must express my regret that it has not been sent earlier. The only excuse I can offer is that my Deputy has been away for the past three weeks, and I really have had no time to go into the matter thoroughly myself at an earlier date

You will see that the average time occupied between the receipt of indents and the shipment of the stores was in regard to—

"A" class, 7 months.	E" class 9 months (but locomotives, 18 months).
"B" „ 6 „	
"C" „ 7 „	"F" „ 6½ „
"D" „ 7 „	"G" „ 6 „

The period covered by these indents is certainly, as far as three-quarters of it is concerned, one of the worst that we have experienced for many years in getting prompt delivery of stores. As you are well aware, there has been a great boom in engineering work in this country. Every shop of importance was full of work, and materials were only procurable at the expense of considerable delay. As you will see from the list, the times required for the manufacture of locomotives specially were absolutely abnormal. Now we get far better delivery not only of locomotives but of all other stores, and the time required for provision will be proportionately reduced. You will find the delays in the supply of switches and crossings notable, and this will, I fear, be a standing difficulty. The makers of switches and crossings cannot get delivery of the small quantities of rails required because manufacturers will not put in rolls specially for the work, consequently the switch and crossing maker has often to wait for months before he can get the material on which to commence his work. There are two courses apparently open to obviate this delay, one is that, if practicable, switches and crossings should be made in India, where stores of rails would nearly always be available, or that we should keep a stock of rails for the purpose in this country; but if we are to do this, we should have to have some forecast for, say, two years of the quantities of switches and crossings likely to be required for each railway. Another item in which delay frequently occurs is in the supply of small quantities of iron and steel bars, and of sections. In my opinion, railways in India should keep a sufficient stock of these to meet all probable needs and should not indent constantly for very small quantities, because this gives a great deal of trouble, and is not economical. This, however, opens up a large general question which concerns other large Departments as well as the railways, and on this I propose at an early date to address the Government of India.

In several cases you will see that delays have been caused by break-down of machinery at works. Now it is very difficult to cancel a contract which has been broken through no fault of the contractor, and it is almost impossible to ascertain how long repairs will take in the case of failure of machinery. Of course manufacturers are sanguine, and give promise of an early re-start of the work. But they are not the masters of the position, and are dependent on the suppliers of the new machinery, or the repairers of the old, for the date on which they can recommence manufacture.

If large work has been done on a contract and the delay does not seem likely to be material, I never resort to cancellation, as I think it would be impolitic, but every case naturally depends on the attendant circumstances, whether of requirements or conditions of supply, and must naturally be determined on its own merits.

For myself, I can only act to the best of my judgment and on the best advice I can get, and I can assure you that the necessities of the Indian railways are not overlooked.

In one direction I would strongly urge you to use your influence, and that is in the restriction of the number of indents sent home. If a little more foresight were exercised, the supplies required by Indian railways would reach them well in anticipation of their needs, and the work of my department, in the constantly recurring purchase of the same description of stores, would be very much relieved.

Appendix V.

Appendix V—*contd.*

Statement showing the time taken to execute orders for railway stores on indents received between April 1900 and March 1902.

Indent received.	Stores.	Shipped.	Months from receipt.	Remarks.
April 10, 1900 (Home No. 232)	Class G, 244 items	4 per cent. by September 1900.	5	
		50 per cent. by November 1900.	7	
		Balance December 1900 to February 1901.	8 to 10	Some items delayed by reference to India.
Jan. 24, 1900	Class B, 3 items	July and October 1900	6	
March 7, 1900 (Home No. 297)	„ C	June to October 1900	6	
	„ D	August 1900	4	Sleeper keys.
	„ E	August to October 1900.	6	Locomotive duplicate parts
	„ E	January 1901	9	Delayed by reference to India.
		September 1900 to February 1901.	5 to 10	Coaching ironwork, etc.
	„ G	October 1900	6	
May 22, 1900	„ G, 997 items	75 per cent. by November 1900	6	
		Balance December 1900 to March 1901.	7 to 10	
	Class D, 10 miles rails and fastenings.	May 1901	12	No funds were available until 1st April 1901 and delivery was arranged accordingly.
May 28, 1900	Crossings, etc.	October 1900	5	
June 6, 1900	Rails, etc., for six miles	September 1900 to February 1901.	3 to 8	
June 19, 1900	Rails, etc., 14 items	September to April 1901.	3 to 10	Principal delay with switches and crossings for which contractors had difficulty in obtaining rails.
	Fencing, 3 items	January and February 1901.	8	
	Pig iron	September 1900	3	
June 19, 1900	Rails, etc., 8 items	September 1900 to February 1901.	3 to 8	
June 27, 1900	Class B	April 1901	10	Action suspended by India's request for four months.
	„ D, 13 items	February to June 1901	8 to 12	Ditto ditto
	„ E, 24 „	March to June 1901	9 to 12	Ditto ditto. Locomotive duplicates.
	„ E, „	March to June 1901	9 to 12	Ditto ditto. Carriage iron work, etc., small quantities of parts for renewals.
June 30 1900	„ F, 1 item	April to July 1901	9 to 13	No payment till after 1st April 1901 : reference to India
July 12, 1900	„ A, 1 „	January 1901	6	
	„ C, 1 „	October 1900	3	
	„ D, 4 items	January 1901	6	Switches and crossings.

Appendix V—*contd.*

Statement showing the time taken to execute orders for railway stores on indents received between April 1900 and March 1902—*contd.*

Indent received.	Stores.	Shipped.	Months from receipt.	Remarks.
July 12, 1900 .	Class F, 28 items .	November 1900 .	4	
	„ G, 21 „ .	October 1900 to February 1901.	3 to 7	
„ 17, 1900 .	„ B, 3 „ .	October 1900 to January 1901.	3 to 7	
	„ C, 8 „ .	October 1900 to March 1901.	3 to 8	
	„ E, 114 „ .	October 1900 to May 1901.	3 to 10	Spare parts for renewals.
	„ F, 13 „ .	November 1900 .	4	
„ 25, 1900 .	„ C, 8 „ .	February to November 1901.	7 to 16	Workshop machinery, which always takes a long time, and reference to India
	„ E, gasholder, travelling	September 1901 .	14	Reference to India.
„ 27, 1900	Pig iron . .	October 1900 . .	3	
Aug 28, 1900 .	8 locomotives broad gauge.	November 1901 .	15	
„ 28, 1900 .	5 locomotives, metre gauge.	July 1901 . .	11	
Sept. 11, 1900 .	Class G, 12 items .	February and March 1901.	5 to 6	
	2 „ .	April to June 1901 .	7 to 9	Small items of iron plates.
„ 18, 1900 .	„ D, 1 item .	January 1901 . .	4	
	„ E, boiler .	February 1902 .	17	Locomotive builders full of work, two months' delay in contract
	„ E, 9 items .	December 1900 to September 1901.	3 to 12	Small items
	„ G, 26 „ .	December 1900 to June 1901.	3 to 8	Ditto
„ 25, 1900 .	34 spans, 60 feet .	April to July 1901 .	7 to 10	Shipped in monthly instalments.
	1 „ 75 .			
Dec 12, 1900 .	Class A, 57 spans .	May 1901 . .	5	
„ 24, 1900 .	„ B, 6 items .	May to September 1901.	5 to 9	1901-02
	„ C, 2 „ .	June 1901 . .	6	
	„ D, 2 „ .	September 1901 .	9	Switches and crossings; difficulty in getting rails
	„ F, 30 „ .	May to October 1901	5 to 10	Small items, spare locomotives and carriage parts for renewals.
	„ F, 4 „ .	June 1901 . .	6	
„ 24, 1900 .	„ G, 17 „ .	April to June 1901 .	4 to 6	
„ 24, 1900 .	„ D, 6 „ .	April to July 1901 .	4to 7	Small items.

Appendix V.

Appendix V—*contd.*

Statement showing the time taken to execute orders for railway stores on indents received between April 1900 and March 1902—*contd.*

Indent received.	Stores.	Shipped.	Months from receipt.	Remarks.
Dec. 24, 1900 .	Class B, 1 item .	June 1901 . .	6	
	„ C, 7 items .	April 1901 . .	4	
	„ G, 3 „ .	June 1901 . .	6	
„ 24, 1900 .	„ E, 23 „ .	June to October 1901	6 to 10	Part locomotive duplicate builders all busy.
	„ G, 136 „ .	April to June 1901 .	4 to 6	
		November 1901 .	11	Two small items.
Jan. 7, 1901 .	Class F, fencing for 6 miles.	May 1901 . .	4	
„ 28, 1901 .	„ B, 1 item .	September 1901 .	8	
Feb. 11, 1901 .	„ E, 10 carriages, composite.	December 1901 .	10	
March 5, 1901 .	„ E, materials for 50 wagons.	June to September 1901.	3 to 6	
„ 5, 1901 .	„ G, 31 items .	May to July 1901 .	4	
	2 „ .	September 1901 .	9	Reference to India.
„ 18, 1901 .	„ E, 22 „ .	August 1901 . .	5	
	„ G, 400 „ .	About 80 per cent. by August 1901.	5	
		Balance by October 1901.	7	
„ 18, 1901 .	„ B, 3 „ .	September and October 1901.	7	
	„ C, 3 „ .	October 1901 . .	7	Reference to India.
	„ D, 6 „ .	June to August 1901.	3 to 5	
	„ E, 7 „ .	June to November 1901.	3 to 8	
	„ F, 2 „ .	July and August 1901	5	
	„ G, 36 „ .	June to September .	3 to 6	Some items referred to India.
„ 18, 1901 .	„ F, 6 locomotives, broad gauge.	March 1902 . .	12	Locomotives ordered from America · two months' delay in obtaining ship.
May 14, 1901 .	Class B, pump .	July 1902 . .	14	Worthington pumps which had to be obtained from America.
March 20, 1901 .	„ F, „ and boiler.	November to December 1901.	9	
April 13, 1901 .	„ D, 15 miles .	August and November 1901.	4 to 7	
		February and March 1902.	10 to 11	Switches and crossings. Difficulty in obtaining rails.
„ 22, 1901 .	„ E, 8 locomotives.	September 1902 .	17	Delayed by alterations asked for by India after contract let.
„ 26, 1901 .	„ A, 3, 150 feet spans.	October 1901 . .	6	
„ 29, 1901 .	„ E, 1 item .	September 1901 .	6	
	„ G, 7 items .	August and September 1901.	5	

Appendix V—*contd.*

Statement showing the time taken to execute orders for railway stores on indents received between April 1900 and March 1902—*contd.*

Indent received.	Stores.	Shipped.	Months from receipt.	Remarks.
May 6, 1901	Class G, 819 items .	About 50 per cent. by September 1901.	5	
		About 20 per cent. in October 1901.	6	
		Balance, November 1901 to January 1902.	6 to 8	
„ 20, 1901 .	Class D, 15 miles .	April 1902 . .	11	No funds available till 1st April 1902, and delivery was arranged accordingly.
„ 21, 1901 .	„ E, 3 locomotives, metre gauge.	October 1902 . .	17	
„ 21, 1901 .	Class A, 1 item .	February 1902 .	9	128 feet span.
	„ D, 4 items .	September 1901 and April 1902.	4 to 11	Delayed by reference to India.
	„ F, 4 „ .	September 1900 .	4	
June 3, 1901 .	„ G, 44 „ .	November 1901 .	6	
	„ „ 1 item .	January 1902 . .	8	Delayed by reference to India.
„ 4, 1901 .	„ „ 281 items .	90 per cent., September to November 1901.	3 to 6	
		Balance, December 1901 and January 1902.	7 and 8	
July 8, 1901 .	„ F, filters .	May 1902 . .	11	
„ 8, 1901 .	„ D, 10 items .	2 items, November 1901.	5	
		1 item, December 1901.	6	
		3 items, February 1902.	8	
		3 items, March 1902	9	Switches and crossings.
	Tons, 1,570, rails .	1 item, April 1902 .	10	Rails could not be obtained.
„ 8, 1901 .	Class F, 1 item .	April 1902 . .	10	Worthington pumps which had to be obtained from America.
„ 9, 1901 .	„ E, 1 „ . .	November 1901 .	5	
	„ F, 3 „ . .	October 1901 . .	4	
	„ G, 5 „ . .	October and November 1901.	4 and 5	
30, 1901 .	110 wagons . .	July to October 1902	12 to 15	Four months' delay i contract.
	Pairs, 220, wheels and axles.	April to July 1902 .	9 to 12	
August 19, 1901	Class F, fencing 5 mile	November and December 1901.	3 and 4	
„ 20, 1901	„ E, wheels and axles.	September 1902 .	13	Referred to India.
	Ditto .	October 1902 . .	14	Break-down at contractor's works.

Appendix V.

Appendix V—*contd.*

Statement showing the time taken to execute orders for railway stores on indents received between April 1900 and March 1902—*contd.*

Indent received.	Stores.	Shipped	Months from receipt.	Remarks.
Aug 20, 1901	Class E, 3 carriages .	July 1902 . .	11	
	Wheels and axles	September 1902 .	13	Difficulty in obtaining material.
	23 brake vans .	August 1902 . .	12	Two months' delay in contract.
	Wheels and axles	June to October 1902	10 to 14	Difficulty in obtaining material.
	Travelling crane	July 1902 . .	11	
Aug 27, 1901	„ E, 1 item .	January 1902 .	4	
Sept. 2, 1901 .	„ D, 2 „ . .	January and March 1902.	4 to 6	
Aug 30, 1901	„ E, 3 „ . .	May 1902 . .	9	Locomotive duplicate makers very busy.
Sept 6, 1901 .	„ A, 75 feet span	July 1902 . .	11	Six months' delay in contract.
„ 10, 1901 .	„ E, 400 wagons	July to October 1902	11 to 14	Broad gauge 1902 03.
	300 pairs, wheels and axles.	September to December 1902.	12 to 15	Break-down at works.
„ 16, 1901	„ E, fittings for 100 wagons.	February to April 1902	5 to 7	
„ 17, 1901 .	„ B, 19 items .	December 1901 to April 1902.	3 to 7	
„ 17, 1901 .	„ C, 28 „ .	21 items, January 1902	4	
		6 items, February and March 1902.	5 to 6	
		1 item, August 1902	11	
„ 17, 1901 .	„ D, 8 „ .	February 1902 .	5	
	„ E, 156 „ .	87 items, January to March 1902.	4 to 6	
		66 items, April to August 1902.	7 to 11	Mostly of small value. Some items referred to India.
		Balance, October 1902	13	
	„ F, 50 „ .	December 1901 to March 1902.	3 to 6	
„ 23, 1901 .	„ A, 1 item .	April 1902 .	7	No funds available until 1902-03, and delivery was arranged accordingly
	„ B, 1 „ .	December 1901 .	3	
	„ D, 1 „	March 1902 . .	6	
	„ E, 1 „ .	„ „ . .	6	
	„ G, 12 items .	March to May 1902 .	6 to 8	Some items referred to India.
„ 23, 1901 .	„ G, 17 „ .	7 items, November 1901 to January 1902	4	
		7 items, March 1902	6	
		Balance, April and May 1902.	8	Reference to India.

Appendix V—*contd.*

Statement showing the time taken to execute orders for railway stores on indents received between April 1900 and March 1902—*contd.*

Indent received.	Stores.	Shipped.	Months from receipt.	Remarks.
Oct. 7, 1901 .	Class E, 15 items .	January to May 1902	4 to 8	
	„ B, 8 „	December 1901 .	3	
	„ F, 1 „ .	February 1902 .	5	
	„ G, 5 „ .	January 1902 . .	4	
Nov. 11, 1901 .	„ C, 4 items .	March and May 1902	5 to 7	
	„ E, 16 „ .	12 items, March 1902	5	
		Balance, May and June 1902.	8	
	„ F, 2 „ .	March and April 1902	5 to 6	
	„ G, 2 „ .	„ „ .	5 to 6	
„ 25. 1901 .	„ A, 3 items .	June and July 1902 .	6 to 7	
	„ D, 105 miles P. W, 8 items.	3 items, May and June 1902.	7	
	Rails and fish-plates.	June to November 1902.	7 to 12	
	Switches and crossings.	August 1902 . .	9	
„ 25, 1901 .	„ F, 4 items .	April and July 1902.	8	
	„ G, 2 „ .	April 1902 . .	5	
„ 25, 1901 .	„ E, saloon carriage.	Delivery not due till 17th February 1903.		Delayed by reference to India.
Dec. 2, 1901 .	„ C, 2 items .	April and October 1902.	4 to 11	
	„ E, locomotive .	June to October 1902	6 to 11	
	„ F, 5 items .	April to June 1902 .	5 to 7	
„ 2, 1901 .	„ G, 23 „ .	February to May 1902	3 to 6	
„ 23, 1901 .	„ D, 2 „	April 1902 . .	4	
	„ E, 3 „ .	April and June 1902	6	
	„ G, 2 „ .	February 1902 .	2	
Feb. 3, 1902 .	„ B, 5 „ .	April to July 1902 .	3 to 6	
	„ C, 15 „ .	5 items, June and July 1902.	5 to 6	
	Forges . .	October 1902 . .	9	
	Wheel press .	„ „ . .	9	
	Tyre drilling .	September 1902 .	8	
	„ E, 166 items .	131, May to October 1902.	4 to 9	
		Balance due, December 1902.		Locomotive duplicates.
	„ F, 7 „ .	May 1902 . .	4	
„ 3, 1902 .	„ B, 1 „ .	September 1902 .	8	Air compressor ordered from America.

Appendix V—*contd.*

Statement showing the time taken to execute orders for railway stores on indents received between April 1900 and March 1902—*contd.*

Indent received.	Stores.	Shipped.	Months from receipt.	Remarks.
Jan 27, 1902 .	Class B, 1 item .	July 1902 . .	6	
	„ G, 257 items .	Most, May to October 1902.	4 to 9	
Feb 11, 1902 .	„ C, Gasholder .	Ready for shipment .		
„ 7, 1902 .	„ E, 12 locomotives.			Due 18th August 1903.
	3 locomotives .			No funds available until 1903-04. Due 4th August 1903.
	10 brake vans .			No funds available until 1903-04. Due 6th April 1903.
„ 24, 1902 .	„ F, 7 items .	May to August 1902 .	3 to 6	
„ 24, 1902 .	„ B, road roller .	August 1902 . .	6	Referred to India.
„ 26, 1902 .	„ B, boilers .	June 1902 . .	4	
„ 27, 1902 .	„ E, 200 wagons .	November and December 1902.	9 to 10	
	400 wheels and axles.	August to December 1902.	6 to 10	
March 3, 1902 .	„ A, 15 spans of 200 feet.			Budget grants, 1902-03 and 1903-04, all due for delivery by 23rd June 1903.
„ 26, 1902 .	„ E, materials for 250 wagons except buffers.	June to October 1902. Part in December 1902.	6	Contractors are behind-hand in delivery.
April 3, 1900 .	„ D, 23 miles .	August 1900 . .	5	
	Rails and fish-plates.	January 1901 . .	10	
	23 tons, rails and fish-plates.	May 1901 . .	14	
„ 10, 1900 .	„ G, 297 items .	55 per cent. by September 1900.	6	
		30 per cent. by December 1900.	9	
		Balance, January to June 1901.	9 to 15	Principally various sections of iron which contractors will not put the rolls in for specially unless quantities are large.
„ 10, 1900 .	„ E, 8 locomotives.	June 1901 . .	15	No funds till 1901-02. Ordered from America.
„ 19, 1900 .	„ C, 1 item .	October 1900 . .	6	
„ 24, 1900 .	„ G, 16 „ .	July to December 1900.	3 to 8	
„ 30, 1900 .	„ E, 2 „ .			
	Travelling gasholders.	July 1901 . .	15	
„ 30, 1900 .	„ F, 10 items .	August 1900 . .	4	
	„ G, 3 „ .	„ „ . .	4	

Appendix V—*contd.*

Statement showing the time taken to execute orders for railway stores on indents received between April 1900 and March 1902—*contd.*

Indent received.	Stores.	Shipped.	Months from receipt.	Remarks.
May 7, 1900	Class C, 1 item	October 1900	5	
	„ D, 3 „	September to December 1900.	4 to 7	
	„ E, 3 „	October 1900 to March 1901.	5 to 10	
	„ F, 3 „	January 1901	8	
	„ G, 12 „	August 1900 to March 1901.	3 to 10	Small items.
„ 7, 1900	„ A, 2 „	December 1900 and January 1901.	7 to 8	Reference to India.
	„ D, 2 „	January 1901	8	Switches and crossings. Difficulty in obtaining rails.
„ 15, 1900	„ F, 15 „	October and November 1900.	5 to 6	
	„ G, 23 „	September 1900 to January 1901.	4 to 8	Small items.
„ 15, 1900	„ G, 12,000,000 tickets.	1,000,000, October 1900.	5	Asked for by 31st March 1901.
		7,000,000, January 1901.	8	
		4,000,000, March 1901	10	
„ 28, 1900	„ G, 49 items	October 1900	5	
June 6, 1900	„ A, 9 spans, 30 feet.	January 1901	8	
„ 12, 1900	„ B, 9 items	September to November 1900.	3 to 5	
	„ C, 2 „	October and November 1900.	4 to 5	
	„ D, 3 „	December 1900 and March 1901.	6 to 9	Small items
	„ F, 10 „	October and November 1900.	4 to 5	
	„ G, 62 „	August 1900 to January 1901.	2 to 7	
	Iron	March and June 1901	9 to 12	Small items.
„ 22, 1900	„ G, 600 tons pitch	200 tons, July 1900	1	
		370 tons, October 1900	4	
		30 tons, January 1901	7	
July 6, 1900	„ G, 600 tons pitch	420 tons, October 1900	4	
		180 tons, January 1901	7	
June 27, 1900	„ G, 16 items	October to December 1900.	4 to 6	
July 10, 1900	„ B, 4 „	October 1900	4	
„ 10, 1900	„ E, 14 „	October and November 1900.	4 to 5	

Appendix V—*contd.*

Statement showing the time taken to execute orders for railway stores on indents received between April 1900 and March 1902—*contd.*

Indent received.	Stores.	Shipped.	Months from receipt.	Remarks.
July 10, 1900	Class F, 1 item	November 1900	5	
	„ G, 32 items	September 1900 to March 1901.	2 to 9	Small items Some referred to India.
„ 10, 1900	„ C, 18 „	January to May 1901	6 to 11	
	„ E, axles	May to October 1901	10 to 16	
	16 items, springs	January 1902	19	Referred to India.
	Carriage iron-work.	September and October 1901.	15 to 16	
	About 150 items	January to August 1901.	6 to 14	Some items referred to India
	„ G, 27 „	May to July 1901	10 to 12	
„ 25, 1900	„ C, 1 „	October 1900	3	
	„ E, buffers	November 1901	16	4 months' delay by contractor
	Horsehair cloth	January 1901	6	
	„ F, 3 items	November 1900	4	
	Pump	May 1901	10	
„ 25, 1900	„ G, 7 items	November 1900 to March 1901.	4 to 8	
	„ C, 3-wheel lathes	May 1901	10	
	3- „ „	August 1901	13	
	2- „ „	November 1901	16	
August 14, 1900	„ G, 2 items	January 1901	5	
„ 28, 1900 (B. G., 1902-03)	„ E, 10 locomotives	October and November 1902	26	Delivery deferred by the orders of the Secretary of State in order to facilitate deliveries of engines for South Africa.
	30 boilers	1 in October 1902	25	
	400 wagons, etc	February to June 1902	17 to 21	No funds till 1902-03.
	800 wheels and axles.	February to August 1902	17 to 23	Ditto.
Sept. 3, 1900	Class E, 10 locomotives	August and September 1902	24 to 25	Delivery deferred in order to expedite engines for South Africa.
	20 boilers	January to September 1902	17 to 26	
	400 wagons	November 1901 to January 1902.	15 to 17	No funds available until 1901-02. deliveries were, as far as possible, arranged accordingly The contractors were very late in some instances.
	800 wheels and axles.	June to October 1901	10 to 14	
„ 5, 1900	„ A, 1 item	January and March 1901.	7	
	„ B, 7 items	December 1900 to May 1901.	3 to 9	

Appendix V—*contd.*

Statement showing the time taken to execute orders for railway stores on indents received between April 1900 and March 1902—*contd.*

Indent received.	Stores.	Shipped.	Months from receipt.	Remarks
	Class E, 2 items .	February and March 1901.	6 to 7	
	„ F, 50 „ .	January to July 1901	5 to 11	
	„ G, 16 „ .	January to June 1901	5 to 10	Small items
Sept 18, 1900 .	„ E, 6 locomotives	September and October 1902.	24 to 25	Delivery deferred in order to expedite engines for South Africa.
Sept 18, 1900	„ E, 6 „ .	November 1902 .	26	
Sept. 18, 1900 .	„ E, 6 „ .			No funds were available from 1903-1904
Sept 18, 1900 .	„ E, 1 item .	January 1901 .	4	
	„ G, 13 items .	June 1901	9	Items referred to India
Sept. 25, 1900 .	„ E, Loco. Dept.	December 1900 and March 1901.	3 to 6	
	Coaching iron work.	March and April 1901	6 to 7	
	Wheels and axles.	June and July 1901 .	9 to 10	4 months' delay on contract
Oct. 22, 1900 .	Class D, 4 items .	July 1901 . .	9	Switches and crossings. Difficulty in obtaining rails.
	„ A, 29 „ .	May 1901 . .	7	
Nov. 12, 1900 .	„ B, 6 „ .	March and April 1901	4 to 5	
Nov 12, 1900 .	„ E, 5,000 boiler tubes.	March 1901 . .	4	
Nov 17, 1900	„ E, 32 items .	April to June 1901 .	5 to 7	
Nov. 17, 1900	„ F, 2 „ .	May to July 1901 .	6 to 8	
	„ G, 31 „ .	March to June 1901 .	4 to 7	
Nov 17, 1900 .	„ G, 36 „ .	June 1901 . .	7	
Nov. 26, 1900	„ G, 1 item .	May 1901 . .	5	
Dec 10, 1900 .	„ B, 3 items .	May to July 1901 .	6 to 8	
	„ C, 3 „ .	April and May 1901 .	5 to 6	
	„ D, 1 item .	March 1901 . .	4	
	„ F, 5 items	May to September 1901.	6 to 10	
	Pump . .	January 1902 . .	13	Reference to India.
	Class G, 12 items .	March to September 1901.	4 to 10	
Dec. 13, 1900 .	„ D, 173-ton spikes	March and May 1901	3 to 5	
Dec. 20, 1900 .	„ E, accident crane.	September 1901 .	9	3 months' delay in contract
	„ E, 7 items .	April and May 1901 .	4 to 5	
Nov. 18, 1900 .	Rails and fish-plates 33 miles.	March and May 1901	4 to 6	

Appendix V—*contd.*

Statement showing the time taken to execute orders for railway stores on indents received between April 1900 and March 1902—*contd.*

Indent received.	Stores.	Shipped.	Months from receipt.	Remarks.
	Spikes and fish-bolts, 3.3 miles.	February to May 1901	3 to 6	
	Switches and crossings	June 1901	7	Difficulty in obtaining rails.
Dec. 18, 1900	„ „ „	July 1901	7	Ditto ditto.
Dec. 18, 1900	Tanks, water	May 1901	5	
Dec. 28, 1900	Crank axles, 12	June 1901	6	Broad-gauge, 1901-02.
Jan. 28, 1901	Tyres, 216	July 1901	6	Ditto.
Feb. 4, 1901	Class C, 2 items	September 1901	8	Reference to India.
	„ G, 45 „	80 per cent by June 1901.	5	
		2 items, September, November and December 1901.	7 to 11	Small items.
		Remainder, September 1901.	8	
Feb. 11, 1901	„ G, 750 tons pitch	April, May and June 1901.	2 to 5	
Feb. 26, 1901	„ G, 2,000 casks cement.	June 1901	4	
March 11, 1901	„ G, 135 items	60 per cent. by September 1901.	7	
		30 per cent. by November 1901.	9	
		Balance, December 1901 to March 1902.	9 to 12	Small items.
March 11, 1901	„ B, 5 items	May 1901	3	
	„ E, 1 item	June 1901	4	
	„ G, 11 items	June and July 1901	4 to 5	
	3 „	September 1901	7	
March 12, 1901	„ E, copper firebox plates.	April 1901	2	
March 18, 1901	„ G, 33,000,000 tickets.	14,000,000, July to September 1901.	6	Asked for by end of 1901-1902.
		8,000,000, December 1901.	9	
		8,000,000, February 1902.	11	
		3,000,000, March 1902	12	
March 18, 1901	„ G, 32 items	November 1901	8	
March 25, 1901	„ G, 13,500 tons fuel.	June to July 1901	3 to 4	Asked for April to July 1901.
April 1, 1901	„ B, 24 items	November 1901	8	
	„ G, 43 „	November 1901	8	

Appendix V—*contd.*

Statement showing the time taken to execute orders for railway stores on indents received between April 1900 and March 1902—*contd.*

Indent received.	Stores.	Shipped.	Months from receipt.	Remarks
April 22, 1901 .	Class E, 7 items .	August and September 1901.	4 to 5	
	„ G, 402 „ .	70 per cent. by October 1901.	6	
		20 per cent. by December 1901.	8	
		Balance by March 1902.	11	
April 29, 1901 .	„ F, 10 „ .	8 items by December 1901.	8	
		2 items, July and August 1902.	15 to 16	Reference to India.
	„ G, 6 „ .	July 1901 .	3	
May 13, 1901 .	„ E, 40 sets brake rigging.	October 1901 . .	5	
May 29, 1901 .	„ A, 2 items .	October 1901 . .	5	
	„ D, 8 „ .	6 items, October and November 1901.	5 to 6	
	Rails and fish-plates .	October to March 1902	5 to 10	
May 29, 1901 .	Class F, 2 items .	September 1901 .	4	
June 3, 1901 .	„ B, 7 „ .	September to November 1901.	4 to 6	
	„ C, 7 „ .	August to December 1901.	2 to 7	
	„ E, 1 „ .	August 1901 . .	3	
	„ F, 8 „ .	October 1901 . .	5	
	„ G, 97 „ .	94 items, July to December 1901.	1 to 7	
		3 items, February 1902.	9	Very small items.
	„ A, 1 „ .	September 1901 .	4	
	„ B, 2 „ .	December 1901 .	7	
	„ C, 2 „ .	December 1901 and January 1902.	7 to 8	
	„ D, 1 „ .	January 1902 . .	8	
	„ F, 1 „ .	April 1902 . .	11	Reference to India (twice)
	„ G, 4 „ .	August to October 1901.	3 to 5	
June 3, 1901 .	„ E, 27 „ .	September 1901 to May 1902.	3 to 12	No funds available till 1902-1903 for part
		2 items, July 1902 .	14	
June 3, 1901 .	„ B, gas works .	May to September 1902.	12 to 16	Reference to India
	„ G, gas fittings for 1,300 coaches.	May to October 1902	12 to 17	

Appendix V—*contd.*

Statement showing the time taken to execute orders for railway stores on indents received between April 1900 and March 1902—*contd.*

Indent received	Stores.	Shipped.	Months from receipt.	Remarks
June 12, 1901 .	Class G, 307 items .	About 50 per cent. by November 1901.	6	
		About 10 per cent. by January 1902.	8	
		Remainder, February, April and June 1902.	8 to 12	Small balances of various items
June 12, 1901 .	Class E, accident crane.	May 1902 .	12	Break-down at contractors works. No funds available till 1902-1903
	30 underframes .	August 1902	15	
	110 wagons .	May 1902 . .	12	
	288 wheels and axles.	May to October 1902	11 to 17	
	34 sets, brake gear, vacuum.	March to June 1902 .	9 to 12	
	Roofing canvas	July 1902 .	14	
	Class G, 27 items .	May 1902 .	12	
June 18, 1901 .	„ G, 26 „	September to December 1901.	3 to 6	
June 18, 1901	„ E, 204 sets, brake gear	March to August 1902.	9 to 14	
July 2, 1901 .	Class C, 2 items .	October 1901 and February 1902.	3 to 8	
July 3, 1901	„ D, 5 „ .	January 1902 . .	7	
	Switches and crossings.	August 1902 . .	13	Difficulty in obtaining rails
July 8, 1901 .	Class G, 28 items	September 1901 to March 1902	2 to 8	
July 9, 1901 .	„ E 30 travelling tanks.	August 1902	13	Referred to India.
July 9, 1901 .	90 wheels and axles .	January and April 1902.	6 to 10	
July 9, 1901	10 000 tons coal .	August to September 1901.	1 to 2	
June 17, 1901 .	Class D, 70 miles, permanent-way	September 1901 to February 1902.	3 to 8	
July 22, 1901 .	Class C, 24 items	February to October 1902.	7 to 15	Locomotive duplicates.
July 22, 1901 .	„ C, 2 „ .	May and July 1902	10 to 12	
July 22, 1901 .	„ G, 2 „ .	September to December 1901.	2 to 5	
	Parts . .	February and May 1902.	7 to 10	
Aug 6, 1901	Class B, 5 items	October 1901 to January 1902.	2 to 6	
Aug. 6, 1901 .	700 tons pitch .	February to May 1902	6 to 10	No funds till 1902-1903.
Aug. 12, 1901 .	Class C, 11 items .	February to June 1902.	6 to 11	

Appendix V—*contd.*

Statement showing the time taken to execute orders for railway stores on indents received between April 1900 and March 1902—*contd.*

Indent received.	Stores.	Shipped.	Months from receipt.	Remarks.
	Class E, 252 items	February and March to October 1902.	6 to 15	No funds till 1902-1903.
	„ G, 32 „	January to June 1902	5 to 10	Ditto ditto. Some items referred to India.
Aug. 12, 1901	„ E, 3 „	November 1901 and April and September 1902.	3 to 13	No funds till 1902-1903.
	300 axles	October 1902	15	Ditto ditto Break-down at contractor's works.
	Class G, 9 items	November 1901 to September 1902.	3 to 13	No funds till 1902-1903.
Aug. 20, 1901	„ G, 90 „	86 items, November 1901.	8	
		4 items, March 1902	7	Reference to India.
Aug 27, 1901	Class E, 20 items	17 items, March to June 1902.	7 to 10	No funds available till 1902-1903.
		Axles, July and August 1902.	11 to 12	
		Tyres, June and July 1902.	10 to 11	
	„ E, 3 locomotives	June 1902	10	
	23 wagons	July 1902	11	
Aug. 27, 1901	Class A, 4 spans, 150 feet.	April and May 1902	8 to 9	
	7 spans, 40 feet.	January 1902	5	
Sept. 3, 1901	Class D, switches and crossings.	June and August 1902	9 to 11	Difficulty in obtaining rails.
	Tie bars, etc.	January 1902	5	
	500,000 spikes	December 1901 and January 1902.	4 to 5	
	Turn-table	June 1902	10	
Sept 3, 1901	Class C, 1 item	April 1902	8	Referred to India.
	„ D, switches and crossings.	August 1902	12	Difficulty in obtaining rails.
	3 steam pumps	June 1902	10	
	7 „ „	September 1902	13	
Sept. 9, 1901	Class F, 7 items	March to June 1902	7 to 10	
Sept. 9, 1901	„ E, 44 sets, brake gear.	March to May 1902	7 to 9	No funds till 1902-1903.
Sept, 16, 1901	Class E, Loco. Dept.	March to June 1902	7 to 9	Small orders.
	Carriage and wagon spare parts.	May 1902	8	„ „
Sept. 16, 1901	Class B, 1 item	April 1902	7	Reference to India.
	„ D, F and G, 8 items.	November 1901 to March 1902.	2 to 6	

Appendix V—*concld.*

Statement showing the time taken to execute orders for railway stores on indents received between April 1900 and March 1902—*concld.*

Indent received.	Stores.	Shipped.	Months from receipt.	Remarks.
Sept. 16, 1901 .	Class G, 1 item	May 1902 .	8	Waiting pattern from India.
	„ E, 16 „ .	March and June 1902	6 to 9	
Sept. 23, 1901 .	„ A, 1 „ .	February 1902 .	5	No funds till 1902-1903.
	„ B, 5 „ .	March to May 1902 .	6 to 8	
	„ C, 2 „ .	April and June 1902 .	7 to 9	
	„ F, 37 „ .	January to May 1902.	4 to 8	„ Reference to India.
	„ G, 8 „ .	May and June 1902 .	8 to 9	No funds till 1902-1903.
Nov. 4, 1901 .	Class G, 3 items .	2 items, January 1902	3	
		1 „ May 1902 .	7	Original contract cancelled.
Nov. 12, 1901 .	„ D, 4 „ .	March and April 1902	5 to 6	No funds till 1902-1903.
	„ E, 41 „ .	„ „ May 1902	5 to 7	
	„ G, 3 „ .	February and March 1992.	4 to 5	
Nov. 12, 1901 .	„ G, 6 „ .	April to May 1902 .	5 to 7	
Nov 12, 1901 .	„ D, 4 „ .	February to July 1902	3 to 9	
	„ E, 20 „ .	February to June 1902	3 to 8	
Nov. 18, 1901	„ B, 2 „ .	March and May 1902	4 to 6	
	„ F, 6 „ .	April 1902 . .	5	
Nov. 19, 1901 .	„ E, 60 wagons .	October 1902 . .	11	
	2 brake vans	Ditto . .	11	Reference to India.
	Wheels and axles.	Ditto . .	11	
Nov. 25, 1901 .	Class E, 15 cylinders for gasholders	June to August 1902	7 to 9	
Nov. 27, 1901 .	Bullet-proof plates .	May 1902 . .	5	
Dec. 4, 1901 .	Class A, 3 items .	July 1902 . .	8	
	„ B, 1 „ .	May 1902 . .	6	
	„ D, 10 „ .	May to October 1902	5 to 11	Reference to India as to section of rail.
	„ F, 7 „ .	March to August 1902	3 to 9	
Dec. 16, 1902 .	15,000 tons fuel .	March and April 1902	3 to 4	
Dec. 14, 1901 .	Carriage seats .	March 1902 . .	3	
Dec. 30, 1901 .	2,000 casks cement .	ditto . .	3	
Feb. 3, 1902 .	Class F, 3 items .	August 1902 . .	7	
	„ G, 12 „ .	May to July 1902 .	4 to 6	
Feb. 3, 1902 .	„ C, 3 „ .	May and June 1902 .	4 to 5	
Feb. 24, 1902 .	„ B, 27 „ .	September 1902 .	7	
	„ G, 42 „ .	„ „ .	7	
Feb. 24, 1902 .	550 tons pitch . .	May to September 1902.	3 to 7	
March 3, 1902 .	Class G, 124 items .	May to October 1902	3 to 8	Most shipped by August 1902.