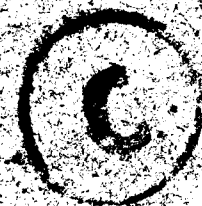


Report By The Railway Board on Indian Railways

for
1926-27.

vol-I



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1928

GOVERNMENT OF INDIA
RAILWAY DEPARTMENT
(RAILWAY BOARD)

REPORT
BY THE
RAILWAY BOARD
ON
INDIAN RAILWAYS
FOR

1926-27

Volume I

No 228498



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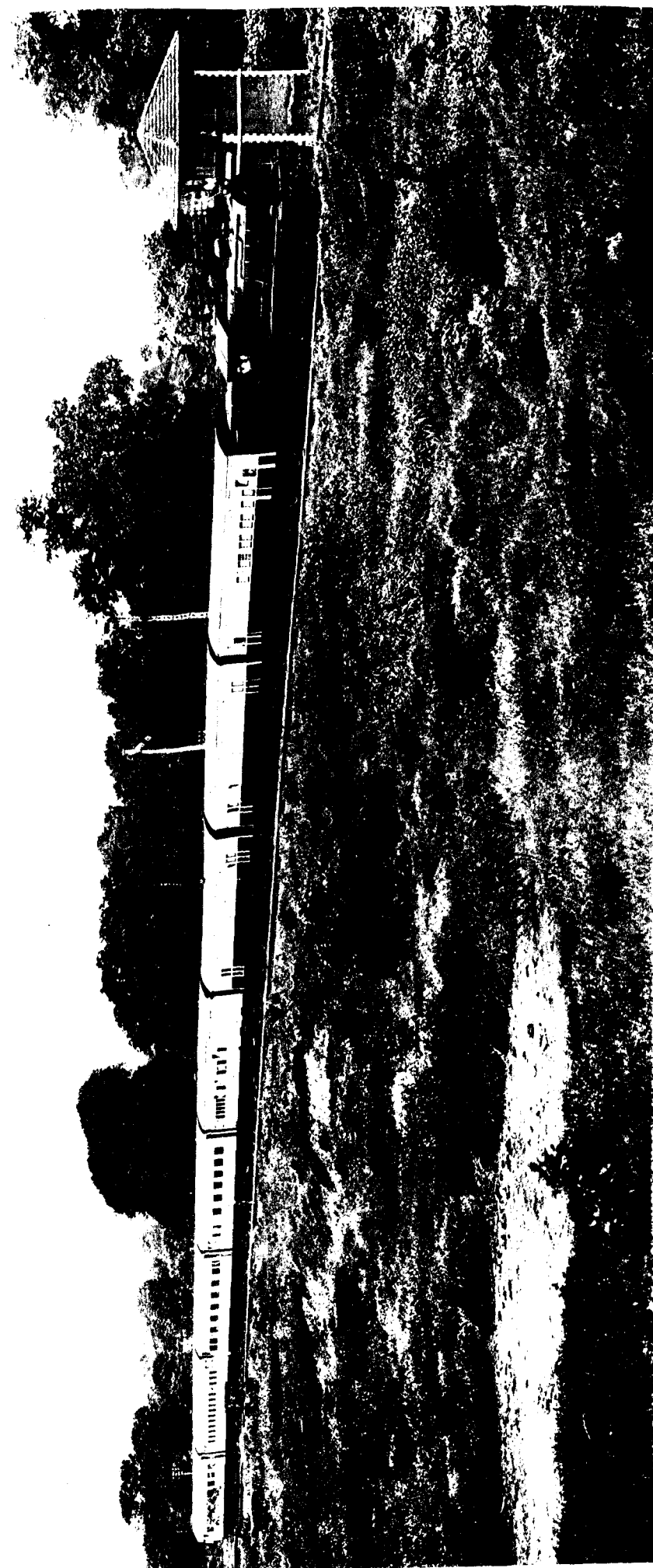
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VIEW OF TRAIN.

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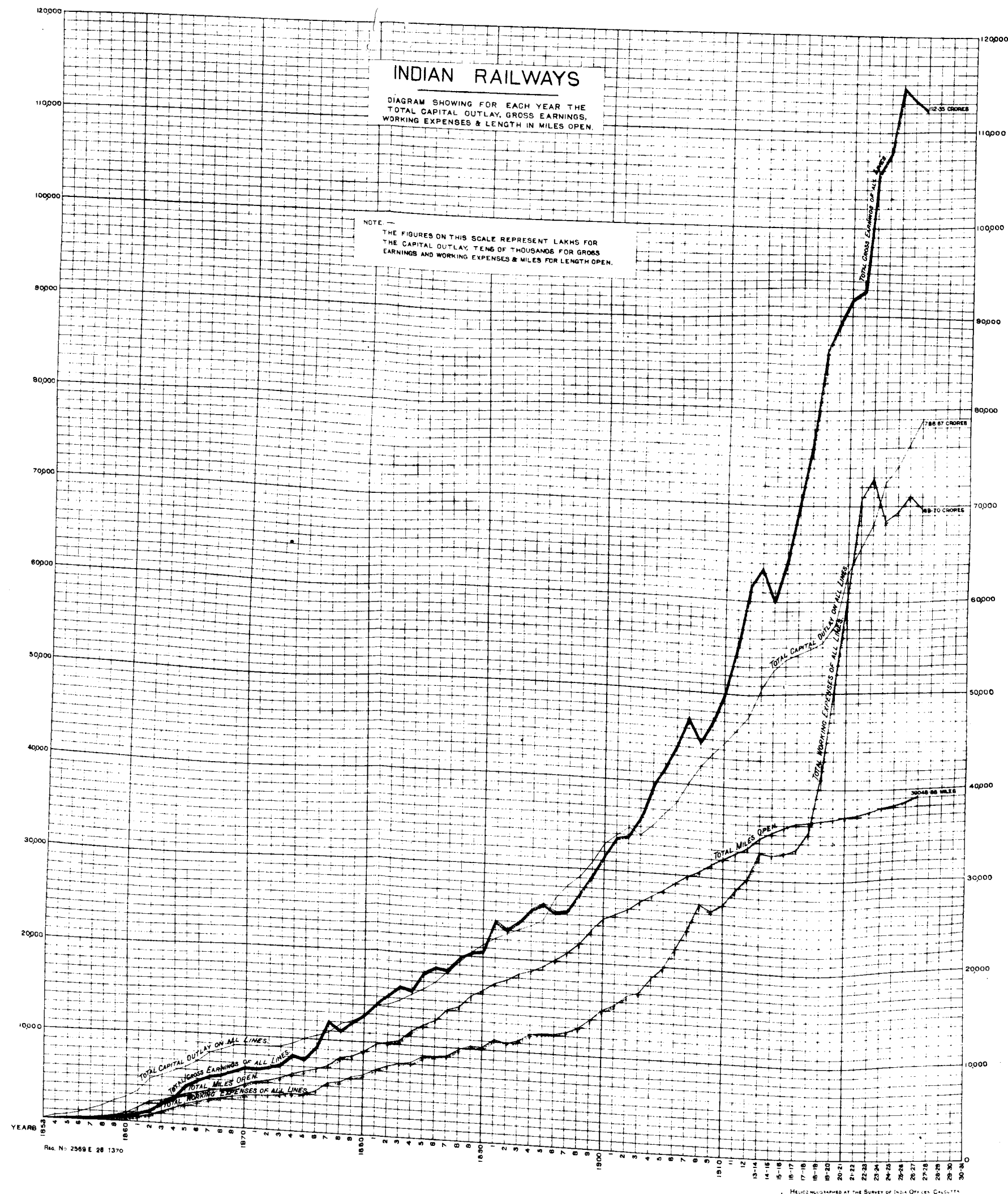
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CHAPTER I.

GENERAL ADMINISTRATION.

1. General Review.—This report deals with Indian Railways in the financial year 1926-27. After the somewhat defective monsoon of the previous year the prospects of traffic for this year did not justify the expectation of any large increase in earnings. During the early months receipts were such as to indicate that there would be occasion for drawing on the Reserve in order to fulfill the obligation to pay the annual contribution to Central Revenues under the convention governing the separation of railway finance from the general finances of the country. The monsoon of 1926, however, although late in becoming effective gave widely distributed rain, and better conditions prevailed than in the previous year. In some parts of the country, notably in Burma and on the East Coast of India, excessive rain was experienced, which caused serious interruptions to traffic. There was, however, a revival of movement in most commodities and in passenger traffic in the last months of the year, and this revival together with a reduction in working expenses enabled the railways to meet their obligations and also to add a substantial sum to the reserve.

2. Amongst the principal crops on which railway traffic largely depends there was a serious falling off in the cotton crop, a marked increase in the jute crop, and a further advance in tea production. The output of wheat and other crops remained much the same as in the previous year. There was, however, a definite increase in the traffic of the year as compared with the previous year of which as a rough measure may be instanced the facts that the total number of tons of goods moved on all railways increased from 79.8 millions to 85.8 millions and the number of passengers from 599 millions to 604 millions.

3. An important phase in the work of construction of additional mileage was reached during the year when for the first time it became possible to put before the Legislature the survey and construction proposals of the larger railway administrations as a connected programme for a period of five years. The programme as now formulated provides during the five years ending in March 1932 for the addition of over 7,000 miles to the railway system of India with about 4,000 miles under construction at the end of the period. The fulfilment of this programme is subject to the various projects as they are examined in detail showing on the estimates a probability of adequate financial return and subject also to the possibility of the provision of the necessary funds by the Legislature. The programme will come up for revision each year, and the procedure adopted provides for consultation with the Local Governments in this revision.

4. The formulation of this programme has been greatly facilitated by certain decisions of the Railway Board regarding the standard of construction to be adopted in varying circumstances, and the settlement of these standards has been made possible by the technical work done in the past few years by the Standing Committees for Standardisation of locomotives, rolling-stock, bridges and track under the direction of the Railway Board. The work of these committees has also been of great importance in deciding on improvements of equipment on existing lines in order to meet increasing traffic and to reduce working costs. Perhaps the outstanding event during the year in this connection has been the formulation and issue of new rules for the design of bridges with important changes in the method of calculations for moving loads.

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5. The total additions to mileage during the year were 421, and several important new lines were commenced including the Kangra Valley Railway,

a ceremony in connection with which was attended by His Excellency the Governor of the Punjab on 3rd May 1926. The opening by His Excellency the Governor of Bengal on 1st October 1926 of the broad gauge connection between Parbatipore and Siliguri after conversion from metre gauge effected a considerable improvement in the rail connection between Calcutta and Darjeeling, which has long been desired by the public.

6. Amongst other matters of interest connected with the administration of the railways during the year was the publication of the report of Sir Vincent Raven's Committee on the State Railway Workshops and the commencement of an investigation into the whole subject of Railway Accounts by Sir Arthur Dickinson. A Railway Clearing Accounts Office for the State-managed Railways was constituted in December, following the successful experiment referred to in last year's report. The Railway Rates Advisory Committee commenced its work under the Presidency of Sir Narsinha Sarma in April and dealt with several complaints during the year.

7. **Railways and the Legislature.**—The attention paid by members of the Council of State and Legislative Assembly to details of working of railways has continued and is shown by the high proportion of questions on railway subjects. Out of 2,805 questions asked during the year 825 or 29 per cent. dealt with railway matters. Among matters in which members took the greatest interest may be mentioned Indianisation, the recruitment and training of staff, amenities for 3rd class passengers, reduction of rates and fares, grievances of railway employees, stores indents and purchases. In addition the following resolutions or adjournment motions were moved in connection with railway subjects:—

On 24th August 1926 a resolution was moved in the Legislative Assembly regarding the retention in its present site of Rameswaram Station on the South Indian Railway. This resolution was negatived by one vote, but as a result of further investigation the South Indian Railway have been able to put forward an alternative plan which will go a long way towards removing the inconvenience complained of in connection with the change of site.

On 9th February 1927 a resolution was moved in the Council of State recommending that 3rd class fares should be reduced by at least 33 per cent. This resolution was negatived.

On 14th February 1927 a resolution was moved in the Council of State recommending that intermediate class accommodation should be provided in all passenger and mail trains of the South Indian Railway and that the same inter class fare as that charged by the Madras and Southern Mahratta Railway, namely, 5 pies per mile should be charged by the South Indian Railway. The resolution was negatived.

On 18th February 1927 the adjournment of the Legislative Assembly was moved to consider the serious situation that had arisen in Kharagpur and other places on the Bengal-Nagpur Railway on account of the railway strike. Leave was granted and the motion was talked out.

On 3rd March 1927 a resolution was moved in the Council of State recommending that between Madras and Arkonam on the Madras and Southern Mahratta Railway there should be a railway station every two miles and that new stations should be opened in places where this distance was exceeded. The resolution was negatived.

On 7th March 1927 a resolution was moved in the Council of State recommending the early construction of a new line between Mangalore and the nearest point in British Indian Territory to Marmagoa and that necessary provision be made in the budget for conducting the preliminary investigations for this project. This resolution was withdrawn.

8. **Railway Budget.**—As in the two preceding years the railway budget was introduced separately, and preceded the general budget. It was presented to both houses of the legislature on the 18th February 1927 after having been discussed previously in detail with the Standing Finance Committee for Railways in meetings held at the end of January and beginning of February. The budget was discussed generally in the Council of State on the 21st February and in the Legislative Assembly on the day following. Demands for grants were discussed and passed by the Assembly during the four days February 23rd to 26th.

During the general discussion of the budget it appeared that it was considered on the whole satisfactory though open to criticism in many points. Part of the criticism was directed against the anticipations of the Financial Commissioner of the results of adopting the 16d. ratio for the rupee instead of the 18d. Among other points taken up were the report of the State Railways Workshop Committee, the inadequacy of the salaries of lower officials and the desirability of reviewing the convention by which railway finances were separated from general finances.

Over 20 motions for reduction were actually made during the motions for demands for grants, but only three were carried. Three more were pressed to a division, but lost. Of the motions for reduction which were carried the most important was that which reduced the demand for the Railway Board to Rs. 100. This motion was in substitution of an original motion for omitting the whole grant about which there was some doubt as to whether it was in order. Among the reasons given for what was practically a vote of censure on the Railway Board were their alleged negligence of the tax-payers' interests in the purchase of wagons, the low wages given to railway employees, and the failure of Government to appoint Indians on the Railway Board. This reduction was later restored by the Governor-General in Council. The two other reductions made by the Assembly were for a nominal amount of Re. 1 each, and were intended to criticise the policy of the Government with regard to purchase of stores and the non-acceptance of the resolution of the Assembly recommending an enquiry into the grievances of railway employees.

9. **Standing Finance Committee for Railways.**—The Standing Finance Committee for Railways elected by the last Legislative Assembly in September 1924, continued to function during the year till the Assembly was dissolved in September 1926 when the Committee automatically went out of existence. On the constitution of the new Legislative Assembly in January 1927, a new Standing Finance Committee for Railways was elected on January 25th, 1927.

The first Committee held meetings on the 14th and 15th June and 13th August 1926. At these meetings they examined and approved proposals for the creation of additional posts in the Superior Establishment of railways, the construction of several new lines, the estimate for the provision of improved railway facilities at Cawnpore, the establishment of a separate audit and accounts office for the railway collieries, the permanent retention of the appointment of Director of Finance, Railway Board, and the policy to be adopted in the provision of quarters for railway staff. They also discussed the railways' programmes for the purchase of rolling-stock. The Committee elected by the new Legislative Assembly met on the 27th and 28th January, 2nd and 4th February and 9th and 26th March 1927. At these meetings the Committee examined the estimates of receipts and expenditure and the demands for grants for railways for 1927-28 and the supplementary demands for 1926-27 before these were placed before the Legislative Assembly, and considered and approved of proposals for the construction of a broad gauge bridge over the Indus at Kalabagh and of the Khushab Chak Jumra Broad Gauge Chord Railway and the formation of a training school at Lyallpur for the subordinate staff of the North Western Railway.

10. **Central Advisory Council for Railways.**—The Central Advisory Council for Railways held a meeting on 17th August 1926 during the Simla

session of the Legislative Assembly. At the meeting the formation of a Railway Staff College was unanimously approved and by a majority the Council further approved of Dehra Dun as its location. A proposal to associate Assessors with District Magistrates in accident enquiries was discussed and in view of the legal and other difficulties it was decided by a majority of votes not to pursue the matter further. The third subject discussed was a suggestion for the drafting of a Bill to make travelling without tickets a cognisable offence. In view of the special efforts being made on the East Indian Railway the Council considered it advisable to defer consideration of legislation till the results achieved by the adoption of a new system known as the crew system of ticket checking were known.

11. Local Advisory Committees.—With the formation of a Committee on the Bengal-Nagpur Railway all State-owned Railways now possess Local Advisory Committees. A Committee has also been formed on His Exalted Highness the Nizam's Guaranteed State Railway.

The following statement shows the number of meetings held during 1926-27 :—

Railway.	No. of meetings held during 1926-27.
Assam-Bengal	3
Bengal and North Western	{ 2 Gorakhpur. 3 Muzaffarpur.
Bengal-Nagpur	5
Bombay, Baroda and Central India	11
Burma	4
Eastern Bengal	7
East Indian	{ 10 Calcutta. 3 Cawnpore. 3 Lucknow.
Great Indian Peninsula	{ 11 Bombay. 4 Nagpur.
Madras and Southern Mahratta	6
North Western	{ 11 Lahore. 4 Karachi.
Rohilkund and Kumaon	1
South Indian	4

The subjects discussed at meetings of these Committees were many and varied indicating the increasing value attached by the public to this scheme for bringing Railway Administrations into closer touch with their clients. Of the many subjects discussed the following may be mentioned as typical :—

- Overcrowding in trains.
- Alterations in time tables.
- Arrangement for the provision of refreshment and drinking water for passengers.
- Remodelling and improvements to stations.
- Facilities for 3rd class passengers.
- Reduction in fares.
- Concessions in fares.
- Rates for goods traffic.
- Opening of new stations.
- Construction of branch and feeder lines.
- Electrification schemes.
- Design of railway carriages.
- Sanitary arrangements in lavatories of 3rd class carriages.
- Settlement of claims.
- Passengers travelling without tickets.

12. Rates Advisory Committee.—In their terms of reference the Acworth Committee were directed to report *inter alia* "whether the present system of control by Government of rates and fares and the machinery for deciding disputes between railways and traders are desirable." The Committee recommended the establishment of a Rates Tribunal to adjudicate upon disputes between railways and the public in the matter of rates and fares levied by the former. After careful consideration it was decided, with the sanction of the Secretary of State, to set up a Rates Advisory Committee consisting of a President, one Member representative of Commercial interests and one Member representative of Railway interests. The Committee were accordingly appointed with effect from the 1st April 1926 to investigate and make recommendations to Government on the following subjects :—

- (1) Complaints of undue preference (Section 42 (2) of the Indian Railways Act, 1890).
- (2) Complaints that rates are unreasonable in themselves.
- (3) Complaints or disputes in respect of terminals (Section 46 of the Railways Act).
- (4) The reasonableness or otherwise of any conditions as to the packing of articles specially liable to damage in transit or liable to cause damage to other merchandise.
- (5) Complaints in respect of conditions as to packing attached to a rate.
- (6) Complaints that Railway Companies do not fulfil their obligations to provide reasonable facilities under Section 42 (3) of the Indian Railways Act.

Sir Narsinha Sarma, lately Law Member of the Executive Council of the Governor General, agreed to serve on the Committee as President and Mr. S. D. Manson, Director of Traffic with the Railway Board, was appointed as a Member to represent railway interests. As regards the Commercial representative it was decided to select one for individual investigations from a panel consisting of members nominated by the various Chambers of Commerce and Trades Associations.

It was first laid down that applications for a reference to the Committee should be addressed to the Agent of the Railway concerned with a deposit of Rs. 100 and that within 3 months of the receipt of such application the Agent of the Railway should prepare a statement of the case and submit it with his observations thereon to the Secretary to the Railway Board. In the light of the experience gained and upon the recommendation of the Rates Advisory Committee the Government of India reviewed the above procedure and decided that in future applications should be submitted direct to the Government of India, Railway Department, copies being forwarded to the Agent of the Railway concerned, that the deposit of Rs. 100 be reduced to Rs. 10 and that the period of 3 months allowed to the Agents of Railways for the submission of the statement of their case be curtailed to 2 months. The revised procedure was introduced with effect from the 24th January 1927.

Complaints made for submission to the Committee were slow in coming in, but by the end of March 1927, 15 cases had been submitted, out of which six had been referred to the Committee. On one of them their recommendations were received by the Government of India before the close of the year.

13. Meetings with Agents and visits to Local Governments and Railways.—General meetings with the Agents of the principal railways were held by the Railway Board in October 1926 at Simla and in March 1927 at Delhi for the purpose of discussing important subjects. Individual visits were also paid to the Board during the year by several Agents. In addition 42 visits were paid by the Chief Commissioner, Financial Commissioner or a Member of the Board to headquarters of railway administrations and 9 to Local Governments. The tours of the Chief Commissioner, Financial Commissioner and Members are notified beforehand in the public press as well as to Local Governments, Chambers of Commerce and other public

bodies. In this way opportunities are given for formal and informal discussions of railway matters and the Railway Board are able to keep in close touch with Local Governments and the public.

14. Medical and Sanitary Arrangements on Indian Railways.—It was mentioned in last year's report that Colonel Needham's report on the medical and sanitary arrangements on the North-Western Railway had been received and was under consideration of the Railway Board. The sanction of the Secretary of State to the scheme has been obtained and it will shortly be put into operation. The question of introducing similar arrangements on the Eastern Bengal Railway and Oudh and Rohilkhand Section of the East Indian Railway is under consideration.

The Standing Advisory Committee of Medical Officers have submitted reports on the following subjects which were referred to them:—

- (1) The adoption of uniform procedure in connection with Standards of Vision, Eye sight testing, etc., for different classes of staff,
- (2) The standards of Physical fitness required in officers and subordinates,
- (3) Procedure for giving sick and fit certificates,
- (4) Standardisation of accident equipment of all kinds,
- (5) Organisation for "First Aid" Ambulance Training and certification,

(6) Organised medical inspection for big melas and the reports are under the consideration of the Railway Board.

It may also be mentioned that the Railway Board have now introduced regular monthly statistics showing the incidence of sickness among subordinate staff on Class I Railways as compared with the corresponding month of the previous year. These statistics are printed and circulated to Railway Administrations.

15. Clearing Accounts Office.—On the results of an experiment carried out in 1925 on the North-Western Railway with the object of demonstrating that grouped divisions of traffic could be effected on the basis of ton mileage carried on each railway under particular commodities at particular rates the Railway Board decided that a thorough investigation should be made of the possibilities of establishing a Central Office for the apportionment of through traffic between railways on grouped divisions of such traffic. And for this purpose an officer was placed on special duty early in December 1925, who in the course of his investigations, discovered a new method of much greater simplicity for apportioning the traffic.

The new method utilises the Hollerith or Powers Machines to apportion the earnings among railways. The detailed procedure is too technical and complicated to be described here.

The working of the new method has been fully examined and Government are convinced that the establishment of a Central Office for the check and apportionment of traffic under the revised method will make for increased efficiency and economy.

A demonstration of the working of the machines was witnessed by Members of the Standing Finance Committee for Railways in June 1926 who expressed themselves satisfied with the working of the machines.

The Clearing Accounts Office will undertake the internal check of the returns from stations of State-worked railways in respect of all through traffic of such railways. It will, in addition, undertake the apportionment of all traffic interchanged between State-worked Railways. This apportionment will be done under the revised method. It will also be responsible for the apportionment of all traffic interchanged with the Company-worked Railways, which, under the existing procedure, the State-worked Railways are responsible to clear. All such work will, for the present, be performed under existing methods in order that the Company-worked Railways may

Burma Railways.



SAGAING FERRY.

receive the same returns as they do at present. From enquiries that have been made it is hoped, however, that some at least of the Companies will desire to receive returns in the modified forms with the traffic apportioned under the new method.

As a matter of convenience the Clearing Accounts Office has been entrusted with all work relating to the check and apportionment of traffic on State-worked Railways which is paid for by Government Departments and the recovery of all dues from such Departments.

The question of extending the functions of the Clearing Accounts Office to include the preparation of certain classes of statistics and the adjustments of certain classes of expenditure is also under consideration.

The present cost of the work transferred to the Clearing Accounts Office compared with the cost of performing the same work in the latter office shows that a substantial saving in expenditure will be secured immediately. As Company-worked railways agree to accept the application of the new method of apportionment of traffic, the saving will increase.

In view of the probability that the Clearing Accounts Office will eventually undertake work not entirely of an accounts nature, the new office has been placed under the administrative control of the Financial Commissioner, Railways. In this respect its constitution will be similar to that of the Accounts Department of the East Indian Railway. These arrangements are in the nature of an experiment subject to a final decision on the general question of the desirability of separating Accounts from Audit on Indian Railways. A temporary audit office has been constituted in order to conduct, on behalf of the Auditor-General, an audit of the work performed in the Clearing Accounts Office.

The new offices, viz., the Clearing Office and the Statutory Audit Office attached thereto were opened on the 18th December 1926.

16. Investigation into the present form of Railway Accounts.—In paragraph 131 of their report the Acworth Committee proposed that the present form of railway accounts should be examined and reported on by experienced railway accountants conversant with modern practice in England and America, and this recommendation was supported on more than one occasion by the Standing Finance Committee for Railways. The Government of India, after consultation with the Auditor-General, accepted this recommendation and arrangements were accordingly made, with Messrs. Price Waterhouse and Company for the engagement of Sir Arthur Lowes Dickinson, lately a senior partner of the firm, with two assistants of the firm, experienced in English and American methods of railway accounting to help him to investigate the whole system of railway accounting and to make proposals for its revision. Sir Arthur Dickinson and his assistants arrived in India in November 1926 and commenced their examination of the procedure on Indian Railways, in accordance with the following terms of reference :—

1. To examine and report fully on the system of accounting and audit, in respect to all classes of both Capital and Revenue receipts and expenditure, in force on the State-worked Railways and to make recommendations for revised and improved methods (a) with the aim of a better presentation of the commercial results, (b) for earlier preparation of the accounts and (c) for their compilation in their various details in forms that will best assist the executive and administration to secure efficiency and economy in working.
2. To examine and report particularly on the system in force on State-worked Railways in the following matters and to make recommendations thereon :—
 - (a) the system of accounting in the Workshops and the preparation of cost accounts;
 - (b) the system of accounting for the expenditure and out-turn of railway collieries;

- (c) the system of stores accounts;
 - (i) the recommendations should contain proposals for a system of cost accounts for Workshops with special reference—
 - (1) to assisting the administration to exercise proper control over unit and aggregate costs and effecting economies in all operations of the shops;
 - (2) to devising a method for determining the proper cost of articles manufactured in the shops;
 - (ii) the recommendations in regard to colliery accounts should contain detailed proposals for the pricing of the output of the collieries.
 - (iii) the recommendations in relation to stores accounts should deal *inter alia* with (a) the pricing of the balances held in stock, (b) the issue price of stores.
- 3. (a) To consider and report on the feasibility of the preparation of a proper Annual Balance Sheet and Profit and Loss Accounts for individual railways; for separate organisations, such as collieries; and for the whole of the receipts and expenditure of the Government of India relating to Railways;
- (b) to advise as to the forms to be adopted for the Balance Sheets and Profit and Loss Accounts if the preparation of such is recommended.
- 4. To consider and report on the form of the various accounts rendered by Railway Administrations to the Accountant-General, Railways, and to make recommendations thereon.
- 5. To consider and report on the experimental system in force on the East Indian Railway of the separation of accounts from audit and to make recommendations thereon.
- 6. To examine and report on the methods now in process of adoption for the establishment of a Railway Clearing House, and to make recommendations thereon.
- 7. To examine and report on the methods in force for the preparation of statistics; to suggest improvements therein, where possible; to examine the statistics now prepared with a view to eliminating any that may be superfluous, or to suggesting additions of value; having regard to the purposes for which alone statistics are required, *viz.*—
 - (i) to assist the administrative and executive officers in the efficient management and operation of the railways;
 - (ii) to enable the Railway Board to watch and control the management and operation of the railways in the direction of efficiency and economy;
 - (iii) to furnish the Government of India and the Auditor-General, with such information and returns as are required by them.
- 8. To examine and report on the advisability of the more extended employment of machines in the Accounts, Audit and Statistical offices of railways and to make recommendations thereon.
- 9. To report upon any other matters arising out of the investigations and pertinent to the above specific terms of reference.

Sir Arthur Dickinson completed his investigations in India and returned to England to compile his report in March 1927.

17. Abolition of the Standing Committee of Chief Engineers.—Mention was made in last year's report of the constitution of a Standing Committee of Chief Engineers of Class I Railways, and of Sub-Committees,

functioning under it, to deal in detail with subjects in connection with (1) permanent-way, (2) bridge-work and (3) signalling and interlocking, respectively. Early in 1926, however, the Indian Railway Conference Association decided to carry out a scheme of reorganisation which included the formation of Engineering and Mechanical Engineering Sections, with an Advisory Committee in each Section to assist the Association in dealing with technical matters. This scheme the Railway Board heartily endorsed, as foreshadowing a more intensive and useful study of the technical problems of Indian Railways, and in June 1926 the Board dissolved the Standing Committee of Chief Engineers, as they considered that most of the functions entrusted to that Committee could be usefully and effectively carried on by the Engineering Section of the Indian Railway Conference Association.

18. Standardization Committees.—The Railway Board decided, however, to retain under their direct control the Sub-Committees previously functioning under the Standing Committee of Chief Engineers. These Committees are now designated the Track Standards Committee, the Bridge Standards Committee and the Signal and Interlocking Standards Committee, respectively, the last named having been constituted early in July 1926. A brief record of their activities, during the year under review, is given below.

19. Railway Board's Policy of Standardisation.—The Railway Board's declared policy aims at establishing and maintaining standard designs and specifications for all technical equipment on Indian Railways. These standards are adopted on the State-managed Railways, and in certain cases are prescribed for the Company-managed Railways also. In cases where they are not made obligatory, it is expected that Company-managed Railways will find it commercially advisable to use them, in view of the facility and economy in manufacture which result from the adoption of standard designs. The policy, which has been adopted, is that of progressive standardization as a continuous process; and the dangers of stereotyping and stagnation are guarded against by the constitution of the above-mentioned permanent Standing Committees for each branch of railway equipment. These Committees, as already stated, work under the direct control of the Railway Board, who arrange for the continuity of their work and for the necessary measure of co-ordination between the work of the various Committees. The personnel of the Committees is selected by the Railway Board from time to time, and meetings are convened at headquarters for varying periods whenever any subject connected with standardization has to be investigated. Standard designs and specifications are submitted to the Railway Board and, if approved by them, are issued with their authority; suggestions for modifications and improvements in standards, arising out of experience in their use, are dealt with by the appropriate Committee in each case and subsequently embodied in the Standards, if accepted by the Railway Board on the advice of the Committee.

20. Track Standards Committee.—As mentioned in last year's report, the Track Standards Committee entered on its second session in February 1926, and continued to sit till the middle of May 1926. The most important questions dealt with at this session were the preparation of standard designs of (1) points and crossings and (2) cast iron and steel sleepers, for 5' 6" gauge railways. The Committee's recommendations as regards points and crossings have been accepted provisionally, but before the designs are adopted as standard, it is considered necessary to try them under actual traffic conditions. Arrangements have accordingly been made for the manufacture of a certain number of trial sets for this purpose.

The Committee's designs for cast iron and steel sleepers are still under consideration.

At their third session, which lasted from the 14th February to the 12th March 1927, the Committee dealt with the standardization of metre gauge points and crossings, and the preparation of standard specifications for cast iron plates, tie-bars, gibs and cottars for sleepers, as well as with other track questions. The Committee's recommendations are under consideration.

21. Bridge Standards Committee.—Reference was made in last year's report to the recommendations made by the Bridge Standards Committee, as the result of their 1925 session, regarding the revision of the general formula for "impact" in the case of girder bridges on 5' 6" gauge railways, and regarding the revision of the old Bridge Rules. After considering the Committee's recommendations and the opinions and criticisms of Railway Administrations, Senior Government Inspectors, the Consulting Engineers to the Secretary of State and the High Commissioner for India, the Railway Board have issued the Revised Bridge Rules of 1926 governing the design of, and the loads permissible on broad gauge railway bridges. The most important alteration, which it has been found possible to make in the old rules, is that as the result of prolonged experiments and careful analysis of results the allowance to be made for the impact effect of a moving load running over a girder at high speed has been appreciably reduced in the case of 5' 6" gauge railways. The effect of this has been that many existing girders, which would have required renewal under the old rules, can be kept in use; that some existing girders, over which the speed of trains has been restricted in the past, will be permitted to take the same train-loads without restriction of speed in future; and that in other cases greater loads, than were permissible under the old rules, will be permitted to run at unrestricted speed over the existing girders. Moreover, all new girders will be lighter, and therefore cheaper, than would have been necessary if this change had not been found possible.

It is not possible to assess the value of this advance in the study of the subject of bridge stresses and bridge design but it is certain that while safety is amply provided for under the new formula, there will be great economies both in new construction and also in the renewal programme on existing lines.

The Bridge Standards Committee carried out experiments during the year on metre gauge railways in India, and considered the results of these experiments at their session in March 1927. They have submitted their recommendations on the impact formula to be adopted for metre gauge girders, but have suggested that further tests should be carried out for the purpose of confirming the conclusions arrived at from the results of the preliminary tests. This suggestion has been accepted and certain metre gauge railways have been asked to carry out the necessary tests.

Another important work of the Bridge Standards Committee deserves mention. In February 1927 this Committee, with the assistance of the Indian Stores Department, made a tour of inspection of the workshops of the more important bridge girder building firms in Bombay and Calcutta, and submitted a detailed report on the manufacturing capabilities of each of the workshops visited. This report has been circulated to all Railway Administrations, who thus have valuable information as regards bridge building facilities in India. It is of value to record that great improvements have been made in the last few years in the standard of workmanship in Bridge building workshops in India.

22. Signalling and Interlocking Standards Committee.—The Signalling and Interlocking Standards Committee was constituted in July 1926, and held its first session in September of the same year. The most important subjects dealt with were the revision of the existing rules for the design and inspection of signalling and interlocking, the framing of rules for electrically-operated and power-operated points, and the framing of rules and regulations for the installation, maintenance and working of single line and double line block instruments. The Committee's recommendations, with regard to rules for block instruments, have been accepted and suitable rules have been drafted for issue to Railway Administrations. Their recommendations, regarding the revised rules for signalling and interlocking and the proposed new rules for power-operated points, are under consideration and it is hoped to issue these rules also in the near future. In addition to these matters, the Committee have taken in hand the standardization of signal equipment and fittings on Indian Railways, and are continuing in this connection the work that has been done in the past by a similar Committee of the Indian

Railway Conference Association. The Committee held a second session in February 1927, and the most important subjects then dealt with were the framing of suitable rules for the isolation of through running lines at stations, and the standardization of systems of signalling and interlocking for stations of all classes. As a result of the Committee's recommendations, the Railway Board have arranged to issue, in the near future, definite rules governing the isolation of running lines at stations. The Committee's recommendations regarding standardization of systems of signalling and interlocking are still under consideration.

CHAPTER II.

FINANCIAL RESULTS OF THE YEAR'S WORKING.

23. The principal results of the working of railways are summarised in the table below :—

		Class I Railways.	Other Railways.	Total of all Railways.
(i) Total route mileage open for traffic.	1925-26	34,696	3,883	38,579
	1926-27	35,132	3,917	39,049
(ii) Number of passengers originating.	1925-26	564,708,000	*34,436,800	*599,144,800
	1926-27	570,726,100	33,645,700	604,371,800
(iii) Number of passenger miles.	1925-26	19,512,534,000	*819,218,000	*20,331,752,000
	1926-27	19,603,413,000	762,837,000	20,366,250,000
(iv) Tons originating.	1925-26	76,416,000	*3,443,000	*79,859,000
	1926-27	82,080,000	3,753,000	85,833,000
(v) Number of ton miles.	1925-26	19,661,723,000	238,295,000	19,900,018,000
	1926-27	20,103,214,000	271,465,000	20,374,679,000

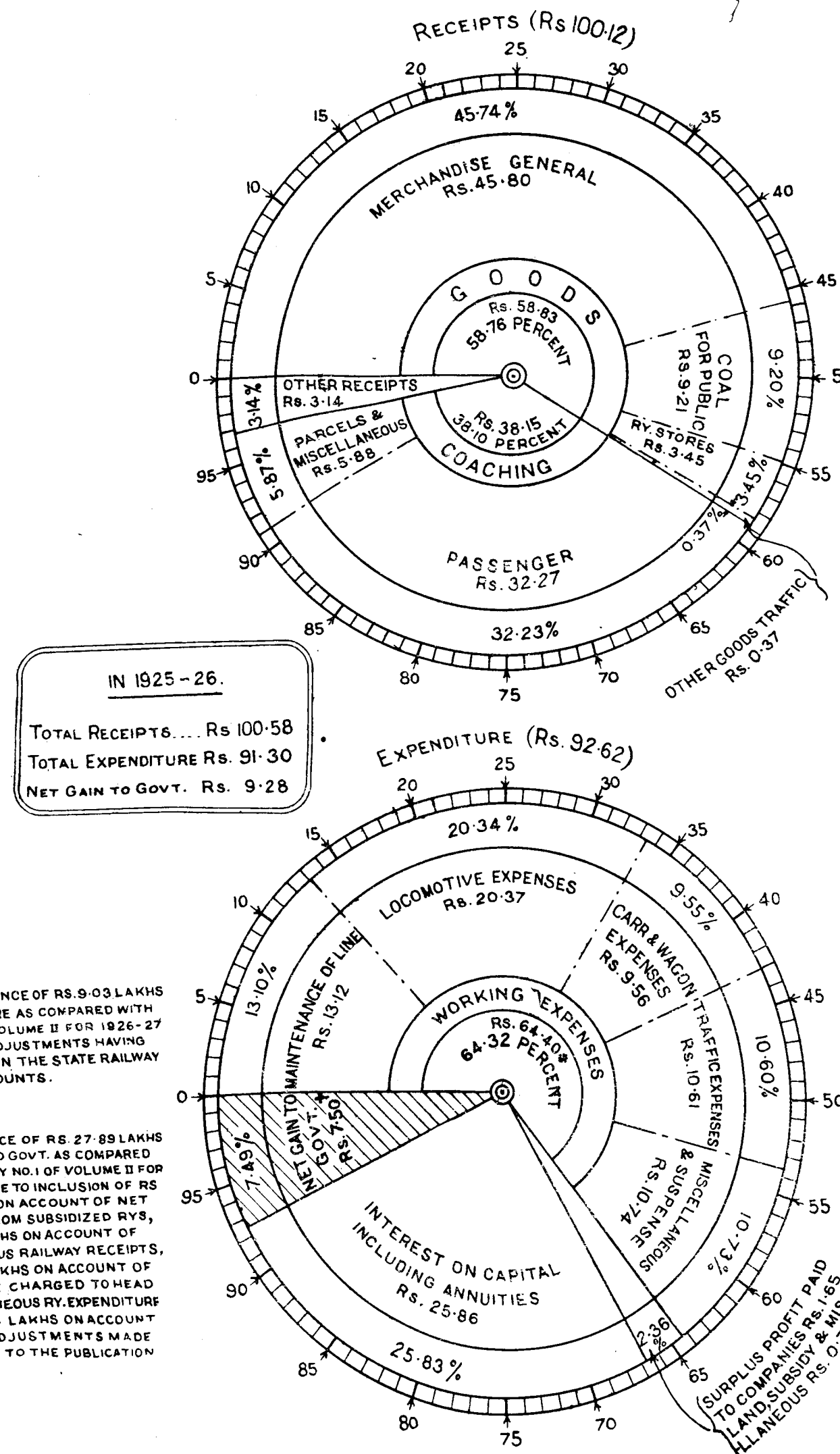
* Revised figures.

24. Trade Review.—The monsoon of 1926 was marked by weakness in the month of June but it showed a greater activity than usual in the succeeding 3 months. Averaged over the plains of India, the monsoon rain was in excess by 7 per cent. During the retreating period, the rainfall was generally in large defect except in Burma and in the Eastern part of Central India where it was excessive. Thus the season did not, on the whole, turn out to be as favourable as seemed likely at the earlier stage.

Exports.—Exports of Indian merchandise showed a decrease of Rs. 74 crores or 19 per cent., the value falling from Rs. 375 crores in 1925-26 to Rs. 301 crores in 1926-27. The cotton crop of the year was short and abnormally late, and the character of the crop was reflected in the exports of raw cotton which fell from 745,000 tons valued at Rs. 95 crores in the preceding year to 569,000 tons valued at Rs. 59 crores. But the value of cotton manufactures exported showed an increase of Rs. 110 lakhs due chiefly to increased shipments of cotton yarn and piece goods. The outturn of the jute crop was 21 per cent. higher than that of 1925 and the exports of raw jute during 1926-27 consequently increased by 60,000 tons to 708,000 tons, though lower prices brought about a decrease of Rs. 11 crores in value. The yield of wheat crop of 1925-26 which was mostly moved during 1926-27 was less than that of the preceding year by 2 per cent. and the exports fell from 212,000 tons in 1925-26 to 176,000 tons in 1926-27. The production of rice was also less than that of 1925-26 by 4 per cent. and the exports fell by 514,000 tons to 2,034,000 tons. The yield of winter oilseeds

RAILWAY RECEIPTS AND EXPENDITURE ON STATE OWNED LINES IN INDIA IN 1926-27.

FIGURES IN CRORES.



(rape, mustard and linseed) was much less than that of the preceding year and the exports registered a considerable decrease. The tea industry had another good year and the exports increased from 326 to 349 million tons. The exports of lac rose by 52,000 cwts. in quantity but decreased in value by Rs. 42 lakhs.

Imports.—Imports of private merchandise increased by Rs. 5 crores to Rs. 231 crores, the larger increases being in sugar (+ Rs. 3½ crores), artificial silk (+ Rs. 2 crores) and raw cotton (+ Rs. 1½ crores). Bombay mills used to a greater extent foreign cotton, the imports of which amounted to 45,000 tons valued at Rs. 5 crores in 1926-27 as compared with 17,500 tons valued at Rs. 3½ crores in 1925-26. There were, however, decreases in the imports of railway plant and rolling stock (Rs. -1.73 crores), Iron and Steel (Rs. -1.33 crores), Machinery (Rs. -1.27 crores) and mineral oils (Rs. -1.16 crores). The visible balance of trade in merchandise and treasure in 1926-27 was Rs. 40 crores in favour of India as compared with Rs. 109 crores in 1925-26.

25. Financial results of working.—The following table exhibits the financial results of working the railways in 1926-27 as compared with the year 1925-26. It relates only to the transactions of those railways with which the Central Government is directly concerned :—

		(Figures in thousands.)	
		1925-26.	1926-27
		Rs.	Rs.
(i) (a) Gross Earnings		99,70,00	99,03,98
(b) Surplus profits from subsidised companies		35,07	39,72
(c) Interest on Depreciation and Reserve Funds		53,77	63,92
(d) Other Miscellaneous Railway Receipts		66	4,75
TOTAL RECEIPTS		1,00,59,50	1,00,12,37
(ii) (a) Working expenses (excluding Depreciation)		53,75,08	53,51,14
(b) Depreciation		10,66,88	10,88,58
(c) Surplus profits paid to Companies		1,77,42	1,65,56
(d) Land and Subsidy to Companies		4,38	5,21
(e) Interest		24,81,12	25,86,70
(f) Miscellaneous Railway Expenditure		26,28	65,52
TOTAL EXPENDITURE		91,31,16	92,62,71
(iii) Net Gain		9,28,34	7,49,66
(iv) (a) Contribution from railway to general revenues		5,49,04	6,01,13
(b) Surplus railway revenue transferred to Railway Reserve Fund		3,79,30	1,48,53
TOTAL		9,28,34	7,49,66

26. It will be observed from the foregoing table that the net gain to the Central Government from its railways in 1926-27 amounted to 7.50 crores, of which a little over 6 crores were appropriated to General Revenues and the balance was transferred to the Railway Reserve Fund.

27. The net gain from the working of the State-owned railways in 1926-27 fell short of the net gain in 1925-26 by 179 lakhs. This was due principally to enhanced interest charges amounting to 106 lakhs, to a decline in earnings of 66 lakhs and an increase in working expenses and other

charges amounting to 26 lakhs. The falling off in earnings was partly counterbalanced by an increase in miscellaneous receipts amounting to 19 lakhs.

28. The decrease of 66 lakhs in gross earnings in 1926-27 is chiefly due to a falling off in earnings from the Bombay, Baroda and Central India Railway (90.60 lakhs), Burma Railways (31.13 lakhs), Bengal Nagpur Railway (17.70 lakhs), and East Indian Railway (14.60 lakhs), set off partly by increases in earnings on the Eastern Bengal Railway (43.25 lakhs), North Western Railway (28.31 lakhs) and Assam Bengal Railway (11.77 lakhs). The decrease on the Bombay, Baroda and Central India Railway is due mainly to the decline in passenger earnings (17.43 lakhs) and earnings from general merchandise (55.43 lakhs) on the Broad Gauge. The decrease on the Burma Railways is accounted for by serious interruptions to traffic caused by floods during the year and a fall in the total imports and exports of the province as compared with 1925-26. On the Bengal Nagpur Railway the decrease is attributable to the labour strike which occurred during the last two months of the year, lasting for about four weeks. The decrease on the East Indian Railway is not entirely real, as the figures of 1925-26 include the Allahabad-Jubbulpore Section (42 lakhs) for the first six months of the year. Eliminating this figure, there is an actual increase in 1926-27, in the gross earnings of the East Indian Railway. The increase in earnings on the Assam Bengal and Eastern Bengal Railways is principally due to the bumper jute crop and on the North Western Railway to the carriage of more wheat traffic.

29. The working expenses for all State owned railways were less by 2.24 lakhs or .03 per cent. than the previous year. General administration expenses increased by 29.93 lakhs due to additional staff employed on new lines opened during the year and to annual increments to the staff with the consequent higher payments for Provident Fund bonuses. The expenditure under Repairs and Maintenance and Operation shows a saving of 82.23 lakhs made up as follows:—

	Increase + Decrease—	Lakhs.
Repairs and Maintenance		+ 98.62
Fuel		- 168.76
Other operating expenses		- 12.09

The increase in repairs and maintenance is mainly due to more extensive repairs to way and works and rolling stock and the saving in fuel charges is due partly to a fall in the price of coal (75.95 lakhs) and to economy in fuel consumption (92.81 lakhs). The reduction in other operating expenses is partly due to the lower gross earnings of the year and partly to the economies effected in operating charges, principally payments of compensation for goods lost or damaged.

On some of the larger railways there were appreciable increases in the working expenses. The reasons for these are explained below.

On the North Western Railway there was an increase of 74 lakhs but about 50 lakhs of this is due to the lower workshop charges of the previous year due to the labour unrest that occurred in that year. The remainder of the increase is due to a higher standard of track maintenance, and to larger payments on customs duty charges and gratuities to retiring employés.

The increase on the Madras and Southern Mahratta Railway (11 lakhs) is due chiefly to heavy expenditure on the regirdering of certain bridges, more extensive repairs to engines and boilers and to passage allowances for 1924-25 and 1925-26 being paid in 1926-27.

The increase of about Rs. 9 lakhs on the Burma Railways is the result of the extensive damages caused to the railway by floods.

A word of explanation is necessary in regard to the increase of 39.26 in Miscellaneous Railway Expenditure. This increase is largely due to the inclusion under this Head (27 lakhs) of the purchase price of the Arakan Light Railway, *vide* Chapter III, paragraph 61 of this report.

30. The following table compares the working expenses of 1925-26 with 1926-27 under the Major Heads for which grants are voted by the Assembly:—

	(Figures in thousands.)		
	1925-26. Rs.	1926-27. Rs.	Difference. Rs.
1. General Administration	12,77,08	13,07,01	+ 29,93
2. Repairs and Maintenance and Operation	44,64,54	43,82,31	- 82,23
3. Appropriation to Depreciation Fund	10,66,88	10,88,58	+ 21,70
TOTAL	68,08,50	67,77,90	- 30,60
Deduct worked lines and Suspense	3,66,54	3,38,18	- 28,36
TOTAL WORKING EXPENSES	64,41,96	64,39,72	- 2,24

The increased expenditure under General Administration is due to extra staff employed on new lines opened during the year and to annual increments to the staff, with the consequent larger payments on account of provident fund bonus. The saving under the head "Repairs and Maintenance and Operation" is mainly due to a fall in the price of coal and to a reduction in the quantity of coal consumed. The increase under Depreciation Fund is due to increased Capital Expenditure on which the contribution to the Depreciation Fund had to be calculated.

31. The contribution of Rs. 6,01,13,000 to General Revenues is arrived at as below:—

(Based on actuals of penultimate year 1924-25.)

	(Figures in thousands of rupees.)	
	Rs.	Rs.
1. 1 per cent. on Capital of 5,80,75,63 at charge—Commercial lines	...	5,80,76
2. (i) Receipts—		
Gross traffic receipts—Commercial lines	99,44,69	
Subsidised Companies—Share of surplus profits	30,16	
Interest on Depreciation and Reserve Fund balances	20,96	
		99,95,81
(ii) Charges—		
Working expenses—Commercial lines	60,95,02	
Indian States and Railway Companies' share of surplus profits	1,42,28	
Land and Subsidy	3,09	
Interest—		
On Capital at charge—Commercial lines	20,00,21	
On Capital contributed by Indian States and Companies	2,67,16	
Miscellaneous Railway Expenditure	13,10	
Contribution at 1 per cent. on Capital at charge—Commercial lines	5,80,76	
		91,01,62
(iii) Surplus	...	8,94,19
(iv) Contribution of one-fifth of surplus	...	1,78,83
3. (i) Total contribution from railway revenues 1 plus 2 (iv)	...	7,59,59
Deduct—Loss on strategic lines—		
(i) Interest on Capital of 26,86,77	1,22,77	
(ii) Loss in working	35,69	
		1,58,46
(iii) Net payment due from railway to General Revenues in 1926-27	...	6,01,13

(Figures in thousands of rupees.)

Rs. Rs.

4. Add $\frac{1}{3}$ of excess over 3 crores of surplus in 1926-27 arrived at as follows:—

(i) Total receipts (including Government share of surplus profits from subsidized companies and interest on Depreciation and Reserve Fund balances and other miscellaneous receipts) . . . 1,00,12,37

(ii) Total charges (including surplus profits paid to companies, interests and other miscellaneous charges) . . . 92,62,71

(iii) Total gain from Railways during 1926-27 . . . 7,49,66

(iv) Excess of gain over contribution 4 (iii)—3 (iii) . . . 1,48,53

(v) Contribution equal to $\frac{1}{3}$ of excess over 3 crores . . . Nil

5. Total contribution to General Revenues during 1926-27, 3 (iii) plus 4 (v) . . . 6,01,13

32. The return during 1926-27 on the capital at charge of the State-owned lines was 5.05 per cent., or .26 per cent. less than that of 1925-26. This was due, as has been explained in the foregoing paragraphs, to a falling off in earnings and to enhanced interest charges. The return during 1926-27 presents, however, a fair comparison with the returns of previous years, which are respectively 2.64, 4.38, 5.24, 5.85 and 5.31 per cent. during the last five years ending with 1925-26. As explained in paragraph 27 of the last year's report, the percentages are those calculated on the Capital at charge of both Commercial and Strategic Railways and if the Capital at charge of the latter, which are unremunerative, is eliminated, the return on the Capital at charge of Commercial lines alone will show better results.

33. The table below gives the comparison of the amounts charged to working expenses on account of depreciation and the amounts actually expended on Replacements and Renewals during 1925-26 and 1926-27, on the various State-owned railways:—

(Figures in thousands of rupees.)

Railways.	Credit to Depreciation Fund by debit to Revenue on account of depreciation in 1925-26.	Amount spent on Replacements and Renewals and charged to Depreciation Fund in 1925-26.	Credit to Depreciation Fund by debit to Revenue on account of depreciation in 1926-27.	Amount spent on Replacements and Renewals and charged to Depreciation Fund in 1926-27.
<i>State Lines worked by State.</i>				
North Western	2,23,09	1,62,90	2,10,48	1,93,37
Eastern Bengal	75,73	36,05	77,28	52,25
East Indian	1,92,43	1,81,28	1,99,27	1,66,42
Great Indian Peninsula	1,45,96	1,08,19	1,51,56	1,92,09
<i>State Lines worked by Companies.</i>				
Bengal Nagpur	1,09,54	42,02	1,14,43	28,08
Bombay, Baroda and Central India	1,09,85	1,16,86	1,16,12	99,59
Burma	42,95	41,52	43,25	40,67
Madras and Southern Mahratta	74,02	85,35	82,06	59,53
South Indian	47,26	48,22	49,71	38,83
Other Railways	46,05	26,71	44,42	23,82
TOTAL	10,66,88	7,98,40	10,88,58	8,04,65

34. An analysis of the financial results of the working of the railways owned by the State for the last three years is given in the statement below, by each railway.

(Figures in thousands of Rupees.)

Railways.	Year.	Capital at charge.	Deduct amount of capital contributed by Companies and Indian States.	Net Government Capital at charge.	Receipts.	Working Expenses including Depreciation.	Net Receipts.	Percentage of Net Receipts on Capital at charge.	CHARGE AGAINST NET REVENUE RECEIPTS.			Gain.	Loss.
									Payment on account of share of Surplus Profits.	Interest Annuity and Sinking Fund charges.			
	2	3	4	5	6	7	8	9	10	11	12	13	
<i>State Lines worked by State.</i>													
North Western	1924-25	1,12,64,69	...	1,12,64,69	16,99,22	11,48,21	5,51,01	4.9	...	4,22,74	1,28,27	...	...
	1925-26	1,15,92,75	...	1,15,92,75	15,43,39	10,76,32	4,66,17	4.0	...	4,37,08	29,09	...	...
	1926-27	1,25,50,02	...	1,25,50,02	15,70,70	11,50,40	4,20,30	3.3	...	4,63,97	...	43,67	...
	1924-25	32,39,70	...	32,39,70	3,65,30	2,72,30	96,00	2.0	...	1,07,25	...	11,25	...
<i>Oudh and Rohilkhand.</i>													
	1925-26*	...	...	...	...	...	...	...	...	...	...	...	...
	1926-27*	...	...	...	...	...	...	...	...	...	...	...	...
<i>Eastern Bengal.</i>													
	1924-25	43,64,68	...	43,64,68	5,90,16	4,26,71	1,72,45	3.9	...	1,56,07	16,38	...	...
	1925-26	44,69,27	...	44,69,27	6,33,87	4,64,18	1,69,69	3.8	...	1,59,60	10,09	...	...
	1926-27	45,06,73	...	45,06,73	6,77,12	4,45,39	2,31,73	5.1	...	1,61,52	70,21	...	...
<i>East Indian.</i>													
	1924-25	98,97,78	...	98,97,78	17,22,27	10,30,54	6,91,73	7.0	10,05	3,80,75	3,00,83	...	...
	1925-26	1,29,62,73	...	1,29,62,73	19,92,11	12,22,71	7,69,40	5.9	...	4,85,26	2,84,14	...	...
	1926-27	1,34,73,85	...	1,34,73,85	19,77,51	12,02,37	7,75,14	5.7	...	5,08,17	2,66,97	...	...
<i>Great Indian Peninsula.</i>													
	1924-25	1,01,40,79	4,87,97	96,52,82	15,29,68	9,55,00	5,74,68	5.6	4,46	3,28,08	2,42,14	...	...
	1925-26	1,07,97,56	...	1,07,97,56	14,79,90	10,68,03	4,11,87	3.8	12,54	3,51,96	47,37	...	...
	1926-27	1,09,69,26	...	1,09,69,26	14,80,21	10,42,40	4,37,81	4.0	...	3,65,41	71,40	...	...

* Included with East Indian Railway.

(Figures in thousands of rupees)													
Railways.	Year.	Capital at charge.	Deduct amount of capital contributed by Companies and Indian States.	Net Government Capital at charge.	Receipts.	Working Expenses including Depreciation.	Net Receipts.	Per-centage of Net Receipts on Capital at charge.	CHARGE AGAINST NET REVENUE RECEIPTS.			Gain.	Loss.
									Payment on account of share of Surplus Profits.	Interest Amunity and Sinking Fund charges.			
1	2	3	4	5	6	7	8	9	10	11	12	13	
State Lines Worked by Companies.													
Bengal Nagpur	1924-25	63,88,54	13,16,87	50,66,67	8,39,15	5,77,16	2,61,99	41	4,76	2,69,00	...	11,77	
	1925-26	66,68,90	13,16,87	53,42,03	8,39,99	5,92,88	2,47,11	37	6,80	2,86,91	...	46,60	
	1926-27	68,47,92	11,19,91	57,28,01	8,22,29	5,60,55	2,61,71	38	6,92	2,95,28	...	40,46	
Bombay, Baroda and Central India	1924-25	65,29,72	2,49,00	62,80,72	12,39,54	7,07,61	5,31,93	80	14,65	2,25,17	2,92,11	...	
	1925-26	67,06,79	2,51,50	64,55,29	12,25,95	7,44,89	4,81,00	72	26,41	2,34,34	2,20,31	...	
	1926-27	68,82,57	2,52,10	66,30,47	11,35,35	7,30,62	4,04,73	59	20,90	2,41,47	1,42,36	...	
Burma	1924-25	27,09,14	6,69,67	20,39,77	4,29,89	2,62,30	1,67,59	62	32,97	92,41	42,21	...	
	1925-26	28,23,15	6,09,67	21,63,48	4,93,82	2,76,30	2,17,62	77	37,66	98,67	81,29	...	
	1926-27	29,44,23	6,69,67	22,74,56	4,62,69	2,85,09	1,77,60	60	49,48	1,03,81	24,31	...	
Madras and Southern Mahratta	1924-25	49,99,18	11,23,43	38,75,75	7,92,89	4,36,58	3,56,31	70	60,86	1,86,84	1,08,61	...	
	1925-26	51,26,96	10,73,86	40,63,10	8,19,24	4,65,76	3,53,48	69	77,67	1,90,96	84,85	...	
	1926-27	52,81,15	10,07,08	42,74,07	8,12,55	4,77,13	3,35,42	63	76,10	1,95,90	63,42	...	
South Indian	1924-25	25,86,59	4,48,39	21,38,20	5,14,78	3,12,00	2,02,78	77	9,60	96,54	96,64	...	
	1925-26	28,00,12	4,15,34	23,85,08	5,44,12	3,15,66	2,28,66	82	10,68	1,04,76	1,13,12	...	
	1926-27	30,71,61	4,15,33	26,56,27	5,43,91	3,04,69	2,44,22	79	8,67	1,15,90	1,19,65	...	

[illegible]

* Includes Aden Railway.

35. With the exception of the Eastern Bengal, Great Indian Peninsula and South Indian Railways, the financial results of working the State-owned railways in 1926-27 are less favourable than those of 1925-26.

The gain on the Eastern Bengal Railway constitutes a record in the history of that railway. The gain to the State from the working of that railway during 1926-27 amounted to Rs. 70.21 lakhs against Rs. 10.09 lakhs in 1925-26, and has exceeded the most successful year prior thereto, viz., 1913-14, when the gain to the State amounted to Rs. 40.75 lakhs. This satisfactory result is mainly due to the increase in earnings (43.25 lakhs) owing to the bumper jute crop and to economies effected in working expenses. The Great Indian Peninsula and the South Indian Railways show a net gain of 24.03 and 6.53 lakhs respectively. On the former railway the result was due chiefly to the large reduction in fuel charges.

The working of the Bengal Nagpur Railway resulted again in a loss to the State of 40.46 lakhs during 1926-27, which however is less than that of 1925-26 by Rs. 6.14 lakhs. The Railway Board are fully alive to the necessity for taking all possible means for the development of the net earnings of this railway.

The loss to the State on the North Western Railway during 1926-27 taking Commercial and Strategic sections together is Rs. 43.67 lakhs. On the Commercial Sections alone, there is a net gain of Rs. 120.93 lakhs.

36. **Analysis of earnings.**—Of the total earnings on all Railways of Rs. 112.36 crores, Rs. 65.36 crores or 58.2 per cent. were from goods traffic, Rs. 38.13 crores or 33.9 per cent. from passenger traffic and Rs. 8.87 crores or 7.9 per cent. from parcels, luggage and miscellaneous earnings.

Passenger earnings.—Passenger earnings showed a decrease of 3.44 per cent. from Rs. 39.49 to Rs. 38.13 crores. The following table shows the numbers of and earnings from passengers separately for each class for the 4 years previous to the War and for the 6 latest years. Figures for season and vendors tickets are shown separately for the last 4 years and are also included in their respective classes. Graphs are also inserted showing the progressive increases in the number of passengers carried and passenger miles by classes from the beginning of the century.

Year.	NUMBER OF PASSENGERS CARRIED (IN THOUSANDS).					EARNINGS FROM PASSENGERS (IN THOUSANDS OF RUPEES).				
	1st Class.	2nd Class.	Inter. Class.	3rd Class.	Season and Vendor's tickets.	1st Class.	2nd Class.	Inter. Class.	3rd Class.	Season and Vendor's tickets.
1910	685	2,781	10,702	315,839	21,341	58.82	77.23	94.99	14,65.16	15.85
1911	703	2,947	11,449	331,055	25,687	66.38	83.83	1,08.88	15,73.15	16.85
1912	700	3,030	10,508	356,789	26,810	62.90	83.81	91.37	17,01.35	17.55
1913-14	715	3,253	12,000	390,412	30,114	68.94	88.70	1,03.48	18,37.03	19.36
1921-22	990	6,020	9,086	475,489	52,376	1,38.47	2,28.87	1,45.11	28,75.29	41.58
1922-23*	807	4,825	7,985	477,637	55,665	1,39.72	2,11.77	1,58.30	32,20.85	48.58
1923-24*	647	3,986	7,425	485,412	58,084	1,29.80	1,95.99	1,37.88	32,91.78	51.70
1924-25	611	3,860	7,425	485,412	58,084	1,21.62	1,85.51	1,44.48	33,73.71	50.07
1925-26	603	3,909	7,992	495,644	54,592	1,19.24	1,82.74	1,55.88	31,36.47	51.66
1926-27	611	4,167	10,476	515,821	56,297	1,16.69	1,81.99	1,58.20	33,62.12	53.51
1923-24†	1,199	10,128	11,374	544,622	58,638	1,31.17	2,02.73	1,41.10	33,32.82	...
1924-25†	1,101	9,778	12,201	553,266	...	1,22.93	1,92.03	1,48.01	34,12.45	...
1925-26†	1,033	9,901	13,602	574,608	...	1,20.42	1,89.42	1,59.61	34,76.54	...
1926-27†	1,012	10,006	14,945	578,409	...	1,17.78	1,88.31	1,61.79	33,44.63	...

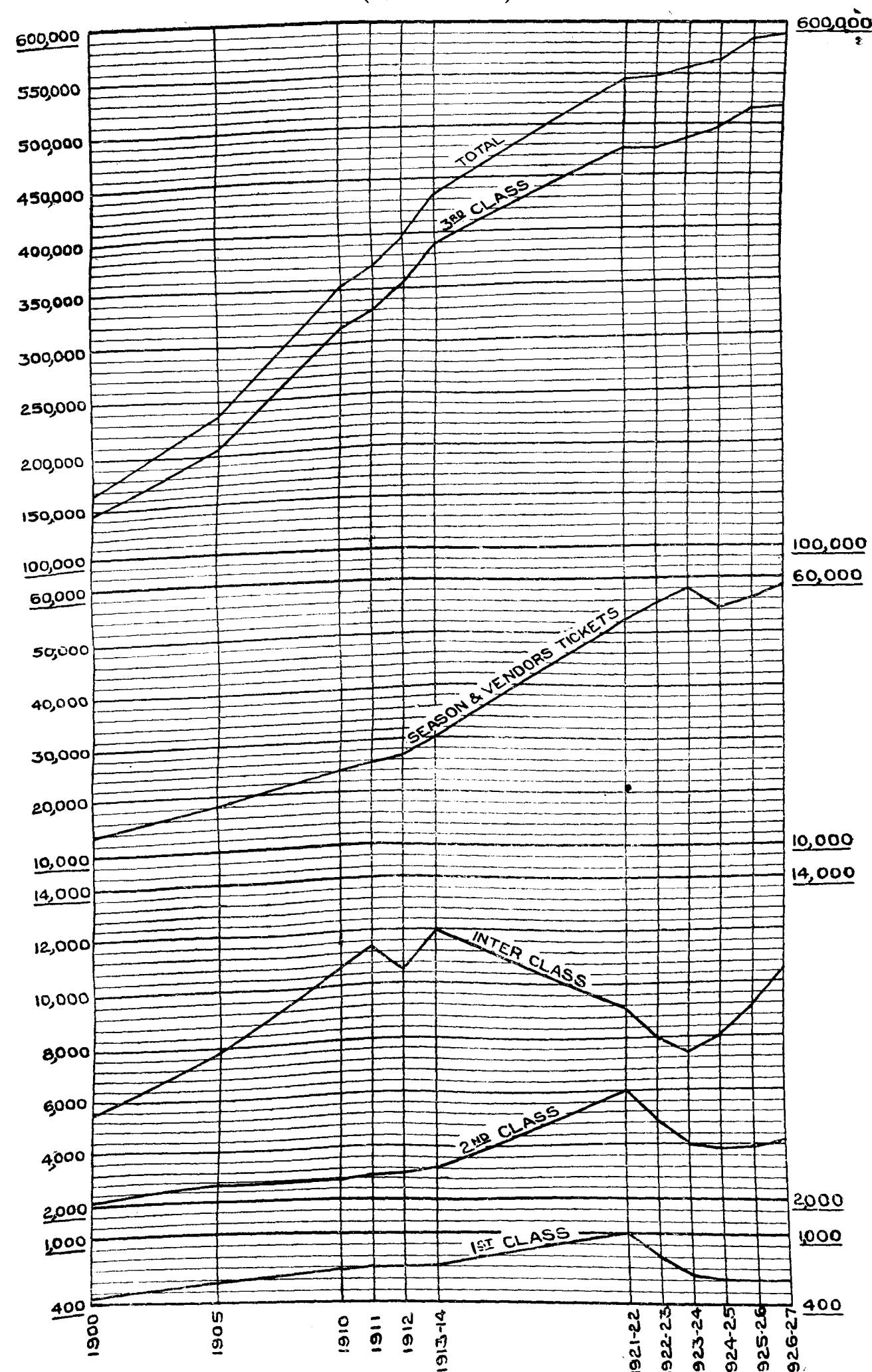
* Excludes the Mayurbhanj and Parlakimedi Light Railways for which detailed information is not available.

† The number of season and vendor's tickets and their earnings included under the respective classes; the former at the rate of 50 single journeys per month.

NOTE.—In previous reports the sum of the number of passengers carried on each separate railway has been shown as the total number of passengers carried on all railways. Passengers travelling over two or more railways have thus been counted as two or more passengers. The actual number of passengers carried on all railways is the same as the total number of passengers originating and this figure has been adopted for 'number of passengers carried' in the present report. As the number of passengers originating is not available prior to 1923-24 the figures of previous years have been adjusted.

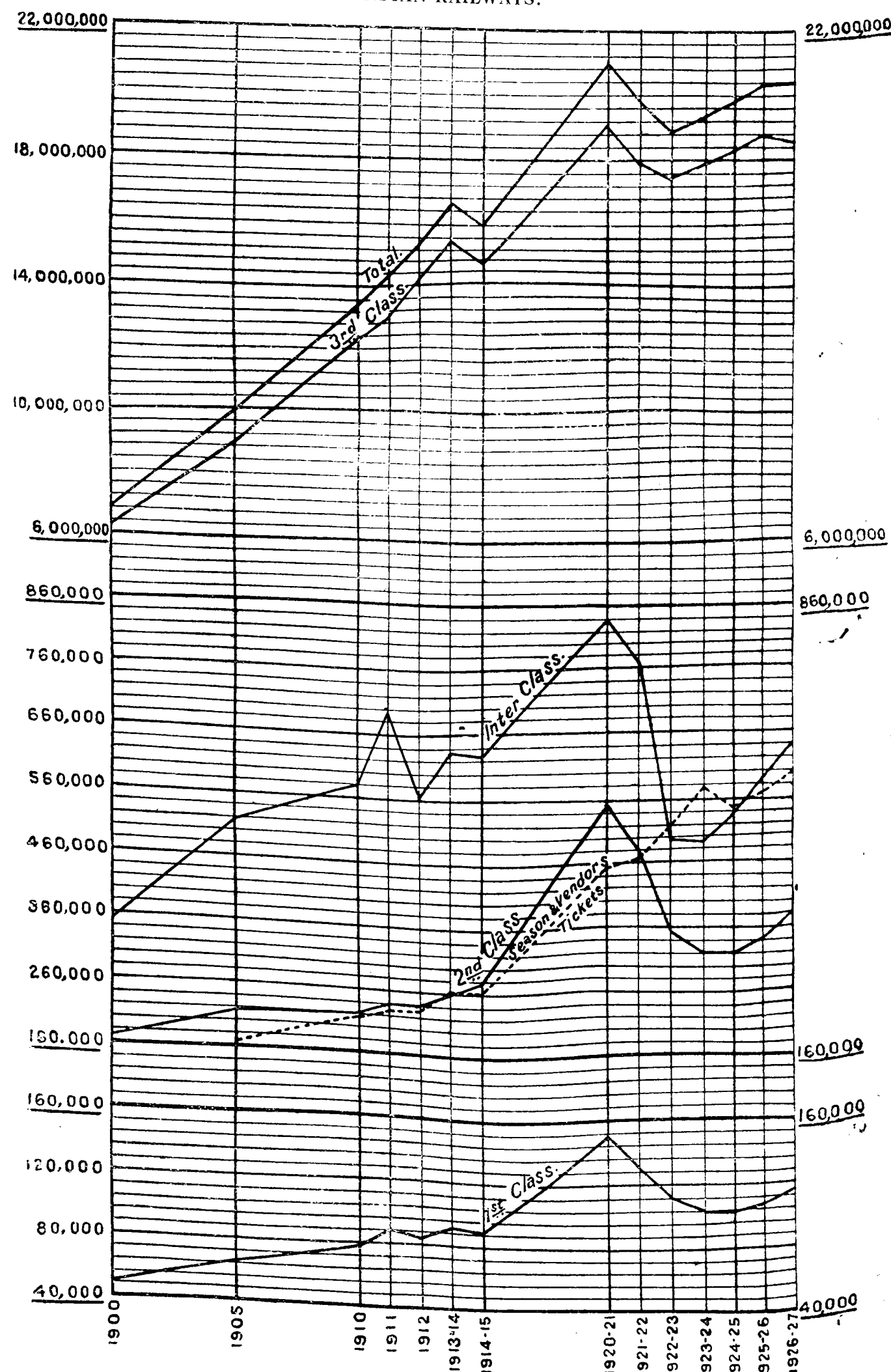
37. **Reduction in Passenger Fares.**—In last year's report it was stated that the strengthening of the financial position resulting from the separa-

NUMBER OF PASSENGERS CARRIED * ON
INDIAN RAILWAYS.
(IN THOUSANDS)



* See note under para. 36 on page 20.

PASSENGER MILES
(IN THOUSANDS)
INDIAN RAILWAYS.



tion of Railway from General Finances and the good years in 1923-24 and 1924-25 enabled the majority of the railways to consider reductions in passenger fares. Consequently with effect from 1st January 1926 three railways (the Bengal Nagpur, East Indian and South Indian Railways) made certain reductions and the South Indian Railway made some further reductions from 1st February 1926. In the year under review the following further reductions took place:—

Bombay, Baroda and Central India Railway.—With effect from the 1st April 1926 this railway reduced its 1st and 2nd class fares over 150 and upto 300 miles and inter class fares by mail or express trains for distances over 150 miles from 24 to 18, 12 to 9 and 6 to 5 pies per mile respectively (for inter class by ordinary trains the reduction was from 5 to 4 pies). 3rd class fares for distances over 300 miles were reduced from $3\frac{1}{2}$ to 3 pies per mile for mail trains and from 3 to $2\frac{3}{4}$ pies for ordinary trains.

Great Indian Peninsula Railway.—With effect from the 1st April 1926 this railway reduced its 1st and 2nd class fares for the first 300 miles from 24 to 18 and 12 to 9 pies per mile respectively. From the same date 3rd class fares by ordinary trains were reduced as under:—

Previous.

Revised.

1-300 miles	4 pies	1-150 miles	4 pies.
301 and over	$3\frac{1}{2}$ pies	151-300 miles	$3\frac{1}{2}$ pies.
		301 and over	3 pies.

North Western Railway.—With effect from the 1st April 1926 this railway reduced its 1st and 2nd class fares for the first 300 miles from 24 to 18 and 12 to 9 pies per mile respectively. From the same date inter and 3rd class fares were reduced for distances over 50 miles from 5 to $4\frac{1}{2}$ and $3\frac{1}{2}$ to 3 pies respectively. This railway from the 1st February 1927 further reduced its 1st and 2nd class fares for distances over 300 miles from 18 to 12 and 9 to 6 pies per mile respectively and its 3rd class fares for distances over 300 miles from 3 to 2 pies per mile.

Burma Railways.—With effect from the 15th June 1926 this Railway reduced its 1st and 2nd class fares for distances under 300 miles from 24 to 18 and 12 to 9 pies per mile respectively. From the same date its 3rd class fares by mail trains were reduced for first 300 miles from 4 to $3\frac{1}{2}$ pies per mile and for distances over 300 miles from $3\frac{1}{2}$ to 3 pies per mile. Similarly by ordinary trains the reductions were from 4 to $3\frac{1}{2}$ pies per mile for the first 300 miles and from $3\frac{1}{2}$ to 3 pies per mile for distances over 300 miles.

Madras and Southern Mahratta Railway.—With effect from the 1st October 1926 this railway reduced its first and 2nd class fares for distances over 150 miles and up to 300 miles from 24 to 18 and 12 to 9 pies per mile respectively. From the same date 3rd class ordinary fares for distances over 50 miles and up to 100 miles were reduced from $3\frac{1}{2}$ to $3\frac{1}{4}$ pies per mile.

South Indian Railway.—With effect from the 1st January 1927 this railway reduced its 1st and 2nd class fares for distances over 150 and up to 300 miles from 24 to 18 and 12 to 9 pies per mile and 3rd class fares for distances over 50 miles from $3\frac{1}{2}$ to 3 pies per mile.

East Indian Railway.—With effect from the 1st February 1927 this railway reduced its 1st and 2nd class fares for distances over 100 miles and up to 300 miles from 24 to 18 and 12 to 9 pies per mile respectively and for distances over 300 miles from 18 to 12 and 9 to 6 pies per mile. At the same time return tickets for 1st, 2nd and Inter class passengers were introduced at $1\frac{1}{2}$ fares and the following reductions were made in 3rd class fares:—

	3rd class Mail		3rd class Ordinary	
	Previous. pies.	Revised. pies.	Previous. pies.	Revised. pies.
1 to 50	5	5	$3\frac{1}{2}$	$3\frac{1}{2}$
51 to 300	5	4	$3\frac{1}{2}$	3
301 to 600	$3\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	2
601 and over.	3	$2\frac{1}{2}$	$2\frac{1}{2}$	2

38. As a variety of causes leads to a rise or fall in the number of passenger miles and in the earnings from passenger traffic, it is difficult to appraise accurately the results of the reduction made in the fares. It is reasonably certain, however, that the greater part of the increase of 90,879,000 passenger miles, and the decline of 121 lakhs in the earnings, is due to this cause.

In the opinion of the Railway Board, the reduced fares have not been in force long enough to enable them to judge the full extent to which traffic has been stimulated by the cheaper fares. They propose, therefore, to watch the results of subsequent periods before arriving at a conclusion as to the suitability or otherwise of the reductions already made.

The following statement shows the distribution of the falling off of 121 lakhs in passenger earnings over the various railway administrations.

Railways.	Increase+	Decrease-
1. Assam Bengal		+ 6,73,000
2. Bengal and North Western		+ 6,38,000
3. Bengal Nagpur		- 11,55,000
4. Bombay, Baroda and Central India		- 36,59,000
5. Burma		- 13,59,000
6. Eastern Bengal		+ 9,69,000
7. East Indian		- 23,94,000
8. Great Indian Peninsula		- 23,78,000
9. Jodhpur		- 3,21,000
10. Madras and Southern Mahratta		+ 4,32,000
11. Nizam's Guaranteed State		+ 1,29,000
12. North Western		- 31,72,000
13. Rohilkund and Kumaon		- 61,000
14. South Indian		- 4,36,000
TOTAL		- 1,20,94,000

39. **Passengers travelling without tickets.**—It was mentioned in last year's Report that the following measures had been adopted by Railway Administrations to endeavour to cope with the serious problem of passengers travelling without tickets:—

- (1) Stricter supervision and discipline,
- (2) Reorganisation of the Travelling Ticket inspection system, etc., and
- (3) Introduction of the system of checking trains by Flying Squads of Travelling Ticket Examiners.

By the adoption of these methods travelling without tickets was checked to a certain extent: but they did not overcome the difficulty of recovering fares from beggars and persons who refused to pay what was due. Statistics collected for a certain number of years clearly showed that this unsatisfactory position still continued.

The Sub-Committee of the Indian Railway Conference Association of 1925 suggested various measures for the elimination of the evil which were communicated to Railway Administrations for consideration and action; but their replies showed that the measures so far adopted by Railways had merely led to larger recoveries from persons travelling without tickets and this result had been obtained by the employment of additional ticket checkers.

A system which might possibly lead to the prevention of the evil was introduced from 1st August 1926 as an experimental measure on the Howrah—Asansol Section of the East Indian Railway. Under this system a crew of ticket checkers under a responsible supervisor accompanies each passenger train throughout its run. One ticket checker is posted to each coach and it is his duty to prevent any passenger entering the carriage unless he holds a proper ticket. The ticket checkers are further responsible for the collection of tickets from passengers before they alight at their destination stations. This arrangement is designed to prevent misappropriation of recoveries and to protect illiterate passengers against excess recoveries.

The experimental working of the Crew System on the Howrah—Asansol Section for a period of six months having proved successful it has been decided to continue its working on that section for another year from 1st April 1927 and to extend it to the whole of the Lucknow Division for one year with effect from 1st May 1927.

A proposal to amend the Indian Railways Act to make travelling without tickets a cognisable offence has been discussed at meetings of the Central Advisory Council for Railways but it is considered that this step should be regarded as a last resource and that in the meantime it is advisable to ascertain the effect of the crew system of ticket checking.

40. **Goods Earnings.**—Earnings from goods traffic on all Railways show an increase of 63 lakhs from Rs. 64·47 crores to Rs. 65·10 crores, chiefly due to improved earnings from jute, coal and grain.

The tonnage of, and earnings from, the principal commodities on Class I Railways during the last two years are shown in the table below. Apart from the increases mentioned above the principal fluctuations were larger bookings of Jagree, Kerosine oil and Salt and less bookings under cotton, rice, oilseeds, wood unwrought and other commodities.

Commodity.	1925-26.		1926-27.		Increase + Decrease — in Earnings (lakhs.)
	No. of tons originating (in millions.)	Rs. (in crores.)	No. of tons originating (in millions.)	Rs. (in crores.)	
(1) Fuel for public and Foreign Railways.	16·11	9·11	18·95	9·65	+ 54
(2) Fuel and other stores on Revenue account.	16·43	2·91	16·13	2·89	—2
(3) Wheat	1·62	2·12	1·76	2·53	+ 41
(4) Rice in the husk and rice not in the husk.	4·66	4·42	4·11	3·85	—56
(5) Gram and Pulse, Jower and Bajra and other grains.	2·99	4·19	3·05	4·35	+ 16
(6) Marble and stone	3·31	0·94	2·99	0·88	—6
(7) Metallic ores	2·34	1·07	2·45	1·04	—3
(8) Salt	1·33	1·74	1·42	1·89	+ 15
(9) Wood, unwrought	1·73	1·06	1·32	0·89	—17
(10) Sugar, refined and unrefined.	0·76	1·85	0·77	1·88	+ 3
(11) Oilseeds	2·49	3·69	2·35	3·43	—26
(12) Cotton raw and manufactured.	1·76	6·42	1·53	5·80	—62
(13) Jute, Raw	0·89	1·23	1·20	1·78	+ 55
(14) Fodder	0·81	0·59	0·80	0·60	+ 1
(15) Fruits and vegetables fresh.	1·02	0·91	1·08	0·91	...
(16) Iron and steel wrought	1·02	2·05	1·02	1·97	—8
(17) Kerosine oil	0·91	1·91	0·92	2·04	+ 13
(18) Gur, Jagree, Molasses, etc.	0·67	1·06	0·78	1·19	+ 13
(19) Tobacco	0·27	0·68	0·26	0·66	—2
(20) Provisions	0·56	1·23	0·63	1·31	+ 8
(21) Military stores	0·34	0·38	0·38	0·37	—1
(22) Railway materials	3·64	0·70	8·30	1·20	+ 50
(23) Live stock	0·25	0·73	0·22	0·69	—4
(24) Other commodities	10·80	11·89	9·65	11·44	—45
TOTAL	76·71	62·88	82·07	63·24	+ 36

41. Stores balances.—The table below shows the successive reductions in stores balances effected since 1921-22:—

Railways.	Stores Balances (in thousands).					
	1921-22.	1922-23.	1923-24.	1924-25.	1925-26.	1926-27.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Assam-Bengal	24,81	31,48	18,38	12,30	9,49	12,59
Bengal-Nagpur	1,40,26	1,61,88	1,48,09	1,49,44	1,27,64	1,17,17
Bombay, Baroda and Central India	2,76,83	2,72,43	2,33,25	1,77,39	1,62,48	1,46,38
Burma	66,62	84,85	98,71	84,62	75,00	44,82
East Indian (including Oudh and Rohilkhand).	3,92,50	4,39,19	4,10,66	3,14,19	2,81,46	2,48,17
Eastern Bengal	2,51,63	1,76,20	1,57,85	1,21,99	1,12,27	84,07
Great Indian Peninsula	4,66,49	3,88,35	3,97,77	2,89,49	2,38,67	2,23,13
Madras and Southern Mahratta	1,50,52	1,66,09	1,50,91	1,02,86	84,31	76,75
North-Western	3,94,12	3,92,69	3,79,78	3,24,39	3,23,75	3,69,92
South Indian	1,14,45	1,38,66	99,02	77,04	1,13,39	1,06,60
Other Railways	41,13	46,96	63,50	54,94	40,98	39,35
TOTAL	23,19,36	22,98,78	21,57,92	17,08,65	15,68,45*	14,68,85

* Final figures.

During the year under review the Railway Administrations continued their efforts to keep down the balances of stores, and as a result a reduction of about a crore of rupees was effected.

42. Compensation claims for goods lost or damaged.—The table below shows the payments on account of compensation claims during the quinquennium beginning with the year 1922-23. It will be seen that the total figures for all State-owned Railways fell gradually from Rs. 120 lakhs in 1922-23 to 29 lakhs in 1925-26, the latter being 24 per cent. of the former; and that, in the year under review, they were further reduced to Rs. 15 lakhs which is only 13 per cent. of the figure for 1922-23. This satisfactory result is due to the unremitting attention that has been paid to the subject by the Railway Board and Railway Administrations. The measures taken include better supervision over the staff, rivetting or locking of wagons and greater efficiency of the Watch and Ward Department.

All Railways with the exception only of the Burma Railways have contributed to this substantial reduction of more than 14 lakhs in 1926-27. The small increase on the Burma Railways is due chiefly to the fact that the year was marked by serious interruptions to traffic which resulted in delays in despatch and delivery of goods with a consequent increase in the number of claims for compensation.

Although as stated above all other Railways have shown substantial decreases in this direction the North Western Railway deserves special mention in view of the fact that the payments on that line have fallen below 2 lakhs in spite of an increase in the public traffic handled by it. No small credit is also due to the East Indian Railway, on which the charges for compensation claims have come down from nearly 58 lakhs in 1922-1923 to about 4 lakhs in 1926-27. Strenuous efforts are still being made to reduce the charges on the East Indian Railway to an even lower level.

Claims for goods lost or damaged paid by Class I Railways (excluding Jodhpur Railway) during 1922-23, 1923-24, 1924-25, 1925-26 and 1926-27.

Railways.	1922-23.	1923-24.	1924-25.	1925-26.	1926-27.	PERCENTAGE TO GOODS EARNINGS.	
						1925-26.	1926-27.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Assam-Bengal	23,085	17,069	17,587	21,841	20,979	0.25	0.22
Bengal and North-Western	1,70,516	1,62,461	80,680	92,932	85,369	0.58	0.50
Bengal-Nagpur	1,98,972	2,63,703	2,01,889	80,093	54,988	0.14	0.10
Bombay, Baroda and Central India	15,68,572	6,44,678	6,03,064	4,40,465	2,60,213	0.60	0.38
Burma	45,183	29,319	33,662	30,982	41,295	0.10	0.15
Eastern Bengal	1,98,554	1,77,020	1,68,020	1,86,736	1,83,822	0.56	0.48
East Indian	57,99,225	42,72,620	30,61,451	11,73,008	3,82,219	0.93	0.30
Great Indian Peninsula	19,68,436	16,17,133	6,63,609	3,41,130	1,92,400	0.37	0.20
Madras and Southern Mahratta	2,21,125	1,54,162	85,548	91,018	84,859	0.18	0.17
Nizam's Guaranteed State	38,222	24,206	17,022	18,219	11,211	0.16	0.09
North-Western	16,89,608	4,73,339	6,84,162	3,89,771	1,55,097	0.40	0.16
Rohilkund and Kumaon	45,015	16,681	21,860	17,088	4,318	0.50	0.13
South Indian	63,951	44,502	32,045	48,536	45,169	0.18	0.17
TOTAL	1,20,30,554	78,96,893	56,70,499	29,31,819	15,21,939	0.47	0.24

CHAPTER III.

NEW CONSTRUCTION AND ENGINEERING WORKS.

43. Capital Expenditure.—Up to end of March 1927 the total Capital at charge on all railways including those under construction amounted to Rs. 788.67 crores of which Rs. 700.96 crores was Capital at charge on State-owned railways inclusive of premia paid in the purchase of Companies' lines. The remainder 87.71 crores represented Capital raised by Indian States, Companies and District Boards.

The Capital at charge of State-owned Railways is composed as follows:—

	£		Rs. (omitting 000).
Liability and debit incurred in purchase of railways	150,109,299	Converted at Rs. 15 = £1	180,86,17
Less liability and debt cancelled by the operation of Annuities and Sinking Funds	29,241,208	Direct expenditure by Government	520,09,50
Net amount outstanding	120,868,091*	TOTAL	700,95,67

By far the greater portion of this amount, namely, Rs. 6,61,17,02,000 is Government Capital only and 1/18th or Rs. 39,78,65,000 is owned by Companies. These figures include Rs. 31.54 crores on account of Capital expenditure to the end of March 1927 on strategic lines.

44. The total capital outlay on all railways during 1926-27 was Rs. 29.20 crores of which Rs. 27.14 crores were spent on State-owned railways. The following statement shows how this outlay of Rs. 27.14 crores was distributed between open line works, rolling stock and new lines, similar figures being given for the previous four years and for 1913-14.

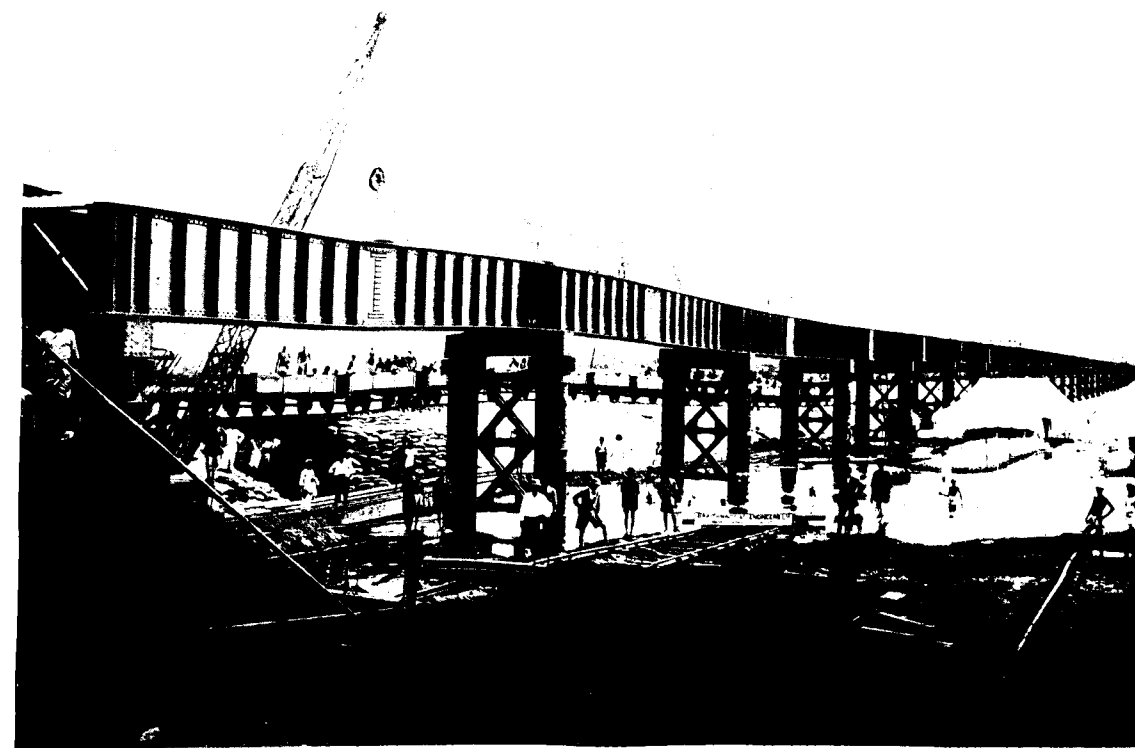
Year.	OPEN LINES.			New lines.	GRAND TOTAL.
	Works including Stores.	Rolling-stock.	TOTAL.		
	Rs. crores.	Rs. crores.	Rs. crores.	Rs. crores.	Rs. crores.
1913-14	9.30	7.31	16.61	1.86	18.47
1922-23	6.77	9.52	16.29	2.74	19.03
1923-24	7.69	9.51	17.20	2.51	19.71
1924-25	4.66	6.42	11.08	2.39	13.47
1925-26	9.44	5.80	15.24	4.01	19.25
1926-27	16.74	4.13	20.87	6.27	27.14

* £118,282,416 converted at the rate of £1=Rs. 15, £10,675 at the rate of £1=Rs. 10 and the balance of £2,575,000, representing the G. I. P. Ry. Co.'s share capital paid off during 1925-26, converted at the average rate of exchange.

Coleroon Bridge, South Indian Railway.



SHOWING OPERATIONS AT THE 39TH SPAN.



VIEW OF BRIDGE COMPLETE.

45. The distribution of the capital outlay in 1926-27 over the different State-owned lines is shown in the summary below :—

Railways.	OPEN LINES.			New lines.	GRAND TOTAL.
	Works, etc.	Rolling-stock.	TOTAL.		
	Ra. crores.	Ra. crores.	Ra. crores.	Ra. crores.	Ra. crores.
Bengal-Nagpur	0.54	0.30	0.84	1.05	1.89
Bombay, Baroda and Central India	1.24	0.48	1.72	0.04	1.76
Eastern Bengal	0.40	0.18	0.58	0.09	0.67
East Indian	1.92	0.77	2.69	1.19	3.88
Great Indian Peninsula	2.13	0.79	2.92	0.05	2.97
Madras and Southern Mahratta	1.01	0.13	1.14	0.40	1.54
North-Western	7.66	0.80	8.46	1.13	9.59
South Indian	0.98	0.19	1.17	1.54	2.71
Other Railways	0.26	0.49	1.35	0.78	2.13
TOTAL	16.74	4.13	20.87	6.27	27.14

Lines opened and under construction.

46. Lines opened during 1926-27.—A total mileage of 420.77 miles was opened to public traffic during the year and consisted of :—

280.92 miles	5' 6" gauge.
128.25 „	3' 3½" „
11.60 „	2' 6" „

A detailed list is given below of the lines opened during the year :—

Name of line.	Gauge.	Mileage.	Owner.	Working Agency.	Date of opening.
Landi Kotal Landi Khana	5' 6"	5.27	State	N. W. Ry.	3rd April 1926.
Bhagalpur-Mandar Hill	5' 6"	31.13		E. I. Ry.	1st October 1926.
Ganj Khwaja Diversion	5' 6"	2.42		E. I. Ry.	10th April 1926.
Shahdara Narowal	5' 6"	47.73		N. W. Ry.	22nd December 1926.
Talcher Coalfields	5' 6"	61.52		B. N. Ry.	20th January 1927.
Shoranur Angadipuram	5' 6"	17.54		S. I. Ry.	3rd February 1927.
Sayakhana-Chandil	5' 6"	74.77		B. N. Ry.	31st March 1927.
Dharmaband-Kharkharae	5' 6"	1.13		B. N. Ry.	18th February 1927.
Katla Blockhut to Garh-Dhurbreshwar	5' 6"	2.01		B. N. Ry.	2nd September 1926.
Mohuda avoiding line	5' 6"	0.58		B. N. Ry.	10th July 1926.
Bourkela to Koel Bank	5' 6"	2.28		B. N. Ry.	17th September 1926.
Chandrapura Gomoh chord	5' 6"	10.02		E. I. Ry.	1st May 1926.
Karepalli-Kothagodium	5' 6"	24.52		N. G. S. Ry.	21st March 1927.
Sriganganagar-Kearisinghpur	3' 3½"	15.26	N. G. S. Ry.	Bikaner St. Ry.	1st May 1926.
Than Chotilla	3' 3½"	12.56	Bikaner Durbar	Morvi St. Ry.	16th June 1926.
Segyi-Ye-U	3' 3½"	22.97	Morvi Durbar	Burma Rys.	15th August 1926.
Nanjangud-Chamrajanagar	3' 3½"	22.29	State	Mysore Ry.	27th August 1926.
Mayavajam Tranquebar	3' 3½"	18.21	Mysore Durbar	S. I. Ry.	25th November 1926.
Pegu Kayan	3' 3½"	36.96	State	Burma Rys.	27th February 1927.
Kalamba-Jherria	2' 6"	2.14	Baroda Durbar	Gaekwar's Baroda State Ry.	1st April 1926.
Krishnagar city Nabadwipghat	2' 6"	6.71	State	E. B. Ry.	30th June 1926.
Gambhirpura to Netrang	2' 6"	2.75	Rajpipla Durbar	B., B. & C. I. Ry.	21st February 1927.

47. The following lines were quadrupled during the year.

Name of line.	Gauge.	Mileage.	Working Agency.	Date of opening.
Bandra-Borivli (Quadrupling)	5' 6"	12.85	B., B. and C. I. Ry.	19th April 1926.
Asansol-Sitarampur (second up line)	5' 6"	4.36	E. I. Ry.	1st April 1926.
Asansol-Ondal (second down line)	5' 6"	14.53	E. I. Ry.	8th September 1926.

48. The following sections of line were doubled and opened for traffic :—

Name of line.	Gauge.	Mileage.	Working Agency.	Date of opening.
Kamptee Kalumna	5' 6"	4.43	B. N. Railway	18th September 1926.
Pyu-Nyaungchidauk Section	3' 3 $\frac{3}{8}$ "	9.11	Burma Railways	15th April 1926.
Nyaungchidauk-Oktwin Section	3' 3 $\frac{3}{8}$ "	15.01	Burma Railways	28th May 1926.
Oktwin-Kyungon Section	3' 3 $\frac{3}{8}$ "	17.41	Burma Railways	23rd July 1926.

49. During the year alterations to gauge were made as follows :—

Name of line.	Gauge.	Length.	Date of opening.
Parbatipur-Siliguri (E. B. Ry.)	From 3' 3 $\frac{3}{8}$ " to 5' 6"	84.60	30th September 1926.
Mandalay-Madaya (Burma Rys.)	From 2' 6" to 3' 3 $\frac{3}{8}$ "	16.93	5th February 1927.

50. Lines under construction on 31st March 1927.—At the end of the financial year 1926-27 a total of 2,551.44 miles of new lines was under construction distributed as follows :—

	Miles.
5' 6" Gauge	930.26
3' 3 $\frac{3}{8}$ " "	1,260.97
2' 6" "	360.21

During the year under review sanction was accorded to the construction of new lines totalling 492.29 miles.

	Miles.
5' 6" Gauge	204.58
3' 3 $\frac{3}{8}$ " "	249.17
2' 6" "	38.54

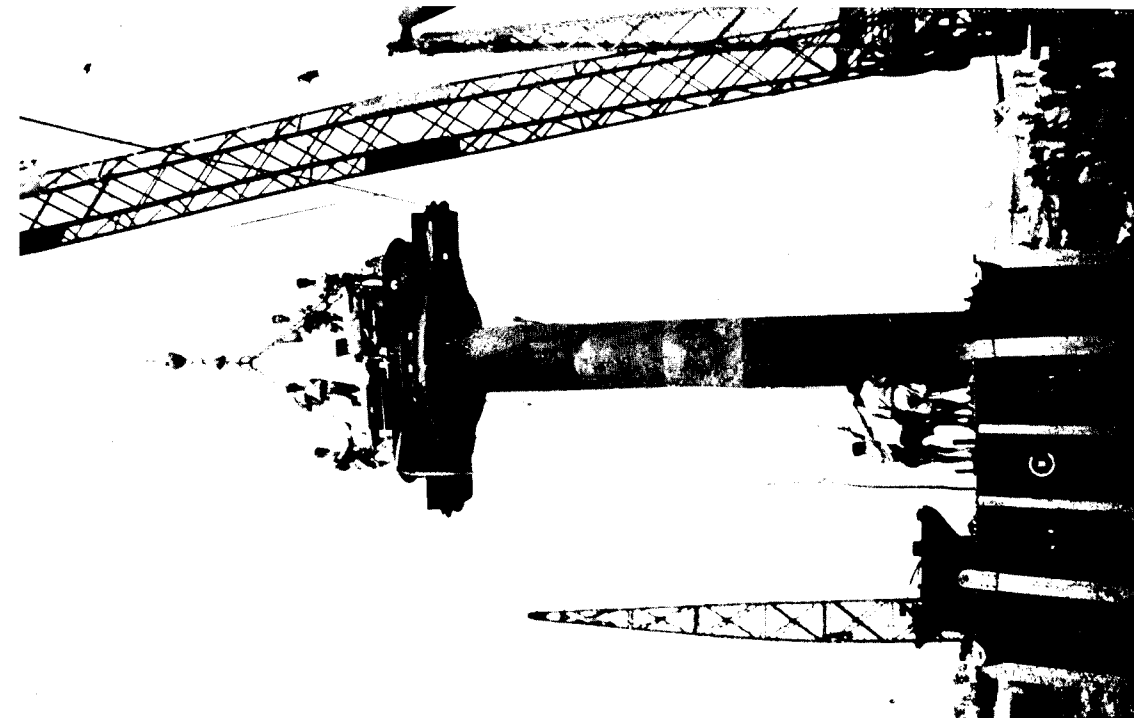
51. The lines under construction are given in the table below which also shows the construction agencies and the progress reached :—

Name of line.	Gauge.	Mileage.	Working agency.	Progress of work. Proportion completed.
Ghuttitanagar Branch	5' 6"	8.29	Bengal-Nagpur Railway.	.36
Raipur Vizianagram (Raipur & Parbatipur Section).	5' 6"	241.64		.10
Baruipur Laksmikantapur	5' 6"	23.80	Eastern Bengal Railway.	.25

Name of line.	Gauge.	Mileage.	Working agency.	Progress of work. Proportion completed.
Central India Coal fields	5' 6"	153.25	East Indian Railway.	.62 on Daltonganj Barkakhana Section.
Calcutta Chord	5' 6"	10.53		.65 on Anupur-Karimati Section. Land is being acquired.
Rikhiresh Road-Rikhiresh	5' 6"	7.12		.84 (opened on 2nd April 1927).
Agra Bah	5' 6"	43.19	Great Indian Peninsula Railway.	.40
Kurla Trombay (Extension of the Kurla Chambor Branch to Mandala 2.73 miles).	5' 6"	4.36		.82
Nidadavolu Narasapur	5' 6"	47.01	Madras and Southern Marhatta Railway.	.28
Cocanada Kotipalli	5' 6"	27.03		Construction recently sanctioned.
Rohtak Panipat	5' 6"	44.21		.16
Jassar Shakargarh Chak Amru	5' 6"	26.50	North Western Railway.	.10
Lyallpur Jaranwala	5' 6"	21.07		.18
Amritsar Narowal	5' 6"	39.82		.80 on Verka Dera-Baba Nanak Section (opened on 3rd May 1927).
Chak Jhumra Chiniot	5' 6"	21.14	South Indian Railway	.40 on Dera Baba-Nanak-Jassar Section.
Shoranur Nilambur	5' 6"	23.96		.60 on Jassar-Narowal Section.
Kazipet Belharshah	5' 6"	91.73		.04
Bahawalnagar-Phulra	5' 6"	64.50	North Western Railway.	.52 on Angadipuram Nilambur Section. (Shoranur-Angadipuram 17.54 miles opened).
Sirhind Rupar	5' 6"	30.51		.95 on Ramgondam-Goliara Section.
Sibsagar Road Khowang	3' 3 $\frac{3}{8}$ "	38.79		.82 on Goliara to Tandur Section.
Furkating Badulipara Jorhat	3' 3 $\frac{3}{8}$ "	42.17	Assam-Bengal Railway.	.40 on Tandur to Rajura Road Section.
Karimganj Longai Valley	3' 3 $\frac{3}{8}$ "	47.52		.40 on Rajura Road to Belharshah Section.
Netrakona-Mohanganj	3' 3 $\frac{3}{8}$ "	17.43		(Kazipet-Ramgondam 57.77 miles opened in 1923—21—25).
Taungdwingyi-Kyaukpadaung	3' 3 $\frac{3}{8}$ "	72.10	Buma Railways	.17
Kayan Thongwa, Extension	3' 3 $\frac{3}{8}$ "	10.54		.35
Heho Tayaw Extension	3' 3 $\frac{3}{8}$ "	11.16		.82
Myingyan Natogi Paleik	3' 3 $\frac{3}{8}$ "	69.49	Eastern Bengal Railway.	.50
Nyaunglebin Madauk	3' 3 $\frac{3}{8}$ "	11.17		.46
Dinajpur Ruhea	3' 3 $\frac{3}{8}$ "	47.42		Construction recently sanctioned.
Hotgi Sholapur	3' 3 $\frac{3}{8}$ "	9.65	Madras and Southern Marhatta Railway.	.50 on Taungdwingyi Natmauk Section.
Kanivihalli Swamihalli	3' 3 $\frac{3}{8}$ "	12.00		.25 on Natmauk-Kyaukpadaung Section.
Gudivada Bhimavaram	3' 3 $\frac{3}{8}$ "	40.90		.30
Guntur Gurzala Macherla	3' 3 $\frac{3}{8}$ "	80.44		.75
				.01
				.05
				.50
				.90
				1.00 on Section from chainage 0—6,700.
				.30 on section from chainage 6,700 to 63,200.
				.35
				.02

Name of line.	Gauge.	Mileage.	Working agency.	Progress of work. Proportion completed.
Dronachelam (Dhone) Kurnool	3' 3½"	4.89	Nizam's Guaranteed State Railway.	.07
Dindigul Pollachi	3' 3½"	75.49	South Indian Railway.	.34
Villupuram Trichinopoly	3' 3½"	108.47		.52
Virudunagar Tenkasi	3' 3½"	76.32		.85
Madura Bodinayakanur	3' 3½"	55.19		.20
Cuddalore Vridhachalam	3' 3½"	34.99		.25
Rajula Road Rajula Extension	3' 3½"	5.71	Bhavnagar Railway .	.60
Hannamangarh Sadulpur Chord	3' 3½"	45.60*	Bikaner Railway .	*.50 represents work on Hannamangarh Nohar section. Actual length of the entire chord cannot be given as the survey is not complete yet.
Canal loop line	3' 3½"	35.15		.75 on Kesrisinghpur-Raisinghgar Section.
Vijapur-Ambalasan Extension of the Kalol Vijapur Railway.	3' 3½"	26.00	Baroda	.12
Halvad Maliya Extension	3' 3½"	26.00	Dhrangadra	Progress reports not received.
Patna Kakoshi Kakhal	3' 3½"	26.13	Gackwar's Baroda .	Patan-Kakoshi (16 miles) opened. Work on remaining section held in abeyance since 1916.
Vijapur Ransipur	3' 3½"	14.10		Construction deferred since 1922.
Sibsar (Pandi Moti) Patan	3' 3½"	7.85	Gondal	Work held in abeyance since 1922.
Marwar Sanderao	3' 3½"	77.83	Jodhpur	.46 on Marwar junction to Jujwar. .13 on Jujwar-Desuri. Works stopped since 1921.
Bantwa Kutiyana	3' 3½"	11.17	Junagad	.81 (Bantwa Saradiya opened). Works on Saradiya-Kutiyana held in abeyance since 1916.
Veraval Una	3' 3½"	48.00		1.00 Section up to Jambur and up to Prachi Road opened. .37 on Prachi Road Jamwala section. Work deferred since 1925.
Shimoga Arasalu	3' 3½"	26.80	Mysore	.80 (Works stopped since 1921).
Nanjangud Mysore Frontier	3' 3½"	33.00		Nanjangud-Chamrajanagar Section opened. .05 on Nanjangud-Hardhanhalli Section which has been temporarily closed since 1920.
Kurnool Extension of the S. G. Railway.	3' 3½"	11.50	Nizam's Guaranteed State Railway.	First 28 miles opened. .40 on miles 28-30-95 section.
Jambusar Kavi	2' 6"	17.83	Bombay, Baroda and Central India Railway.	.00
Sammi Dehej	2' 6"	24.72		.00
Kangra Valley (Pathankot to Shanan).	2' 6"	103.00	North Western Railway.	.50 on Pathankot to Guler. .30 on Guler to Shanan.
Pandharpur Miraj Extension	2' 6"	84.32	Barai Light Railway .	.80
Anjar Bachan	2' 6"	23.75	Cutch	.03 Work stopped since 1917.
Dholpur Rajkhara	2' 6"	22.34	Dholpur	.16 Work stopped since 1923.
Zhob Valley	2' 6"	38.85	North Western Railway.	.81 on Hindubagh Kila Saifulla Section (opened on 2nd May 1927).
Parlakimedi Gunupur Extension	2' 6"	31.63	Parlakimedi Light .	Work not commenced.
Zankhvav Umerpada	2' 6"	13.77	Baroda	.15

Coleroon Bridge, South Indian Railway.



VIEWS SHEWING SCREWING OPERATIONS OF CYLINDERS.

52. Lines opened.—It will be seen that no new line of outstanding importance was opened during the year. The two Bengal Nagpur Railway projects—

(a) the *Talcher Coalfields line* which takes off the East Coast Section, and

(b) the *Barkakhana-Chandil* (formerly called the Hesla-Chandil) which is designed to provide for the development of the South Karanpura Coalfield,

should, however, be of more than local value in the future, as coal carrying lines.

Of the others, the *Shahdara-Narowal* broad gauge link is deserving of mention as a line cheaply and rapidly constructed under a guarantee from the Punjab Government; it was built to a low standard, at a cost of only Rs. 53,000 per mile, in ten months, and, though the country was flat and presented no construction difficulties, this result was decidedly creditable, especially as the above figure would have been lower by Rs. 2,000 per mile if rain had not caused considerable damage to the new banks in the closing stages.

The Burma Railways opened three branches as an instalment of their extensive programme of new lines, one of them, the *Mandalay-Madaya* being shown as a conversion of a previously existing 2' 6" tramway, though built on a new alignment.

The short length from *Landi Kotal to Landi Khana* may also be noticed as it completes the important and difficult Khyber Railway, which has been described in previous reports.

53. Lines under construction.—Of the total of 2,551 miles of lines of various gauges under construction at the end of the year, those mentioned below are the more important, including three (the Kazipet-Ballarshah, the Central Indian Coalfields line, and the Raipur-Vizianagram) which are being built to serve extensive undeveloped areas.

Kazipet-Ballarshah.

The Ballarshah Extension of the Nizam Guaranteed State Railway, 150 miles long, is perhaps of first importance, for it will open up a new broad gauge route from Madras to the North and effect a saving in distance of some 200 miles in the journey from Madras to Delhi. The section from Kazipet to Pedapalli has been already opened to traffic, and construction is now well advanced on the remaining portion, which passes through a difficult tract of country between the Godavari and Wardah rivers where there are large bridges. Good progress has been made with these bridges and the section of the line between the two rivers is being rapidly completed. It is hoped that it will be possible to open it throughout for public traffic in the autumn of 1927-28.

The Central Indian Coalfields Railway.

This broad gauge project was described in the report for 1924-25 and is important as opening the way for development of the South Karanpura and Korea Coalfields; it will also open a shorter route for coal traffic to the North-West and West.

Of the two sections under construction, *i.e.*, the *Daltonganj-Barkakhana* (110 miles) and the *Anuppur-Karimati* (40 miles), progress during the year has on the whole been satisfactory but on the former section considerable damage was done by floods which delayed work. It is hoped to have both sections ready for opening to traffic by December 1928.

Raipur Vizianagram Railway.

This trunk line on the 5' 6" gauge, 261 miles in length, passes through a large undeveloped area, and will provide direct communication between

the Central Provinces and the new harbour now under construction at Vizagapatam on the east coast. It was described in detail in the report for 1924-25. The section of the line from Vizianagram to Parvatipuram, 48 miles long, was completed and opened to traffic in 1909.

During the year under review some realigning work has been carried out which will appreciably reduce the length of the line. Work at the northern and southern ends is progressing well but on the middle portion sickness and delay in obtaining possession of land have impeded progress. The line will be opened by sections as they are ready, but it is not expected that the whole line will be opened throughout till 1931.

Calcutta Chord Railway.

This is a short but important broad gauge connection across the Hooghly in the vicinity of Calcutta. The purposes it is intended to serve were explained in the last year's report.

Progress has been slow on account of the exceptional nature of the works comprised in the scheme, and the coal strike in England seriously delayed the supply of heavy plant required for sinking the caissons of the Bridge over the Hooghly at Bally; this was expected to arrive in October 1926 but did not begin to arrive till April 1927.

The connection will probably not be completed till 1930.

Amritsar-Narowal Railway.

The construction of this line, about 40 miles long on the North-Western Railway broad gauge was sanctioned in February 1926. It will traverse a fertile and well irrigated area and facilitate pilgrimage to the Sikh shrines at Dera Baba Nanak and Kartarpur; by giving a direct connection between Amritsar and Jammu it is also expected to stimulate the already considerable trade between the former and Kashmir. A length of 28 miles up to Dera Baba Nanak from the Amritsar end was opened shortly after the close of the year, but the remainder including a large bridge over the Ravi River is not expected to be finished until 1928.

Chak Jhumra Khushab Railway.

The construction of this broad gauge chord line by the North-Western Railway was sanctioned in two parts, (i) from Chak Jhumra to Chiniot in November 1926 and (ii) the remainder in April 1927. It will provide a ~~new~~ connection between the Lyallpur District and Shahpur ~~which is badly~~ required and will also provide a shorter alternative route to Waziristan to the relief of the main line north of Lahore. About 80 miles of new line are involved and two large bridges over the Chenab and Jhelum rivers. It is hoped to open this line in 1929.

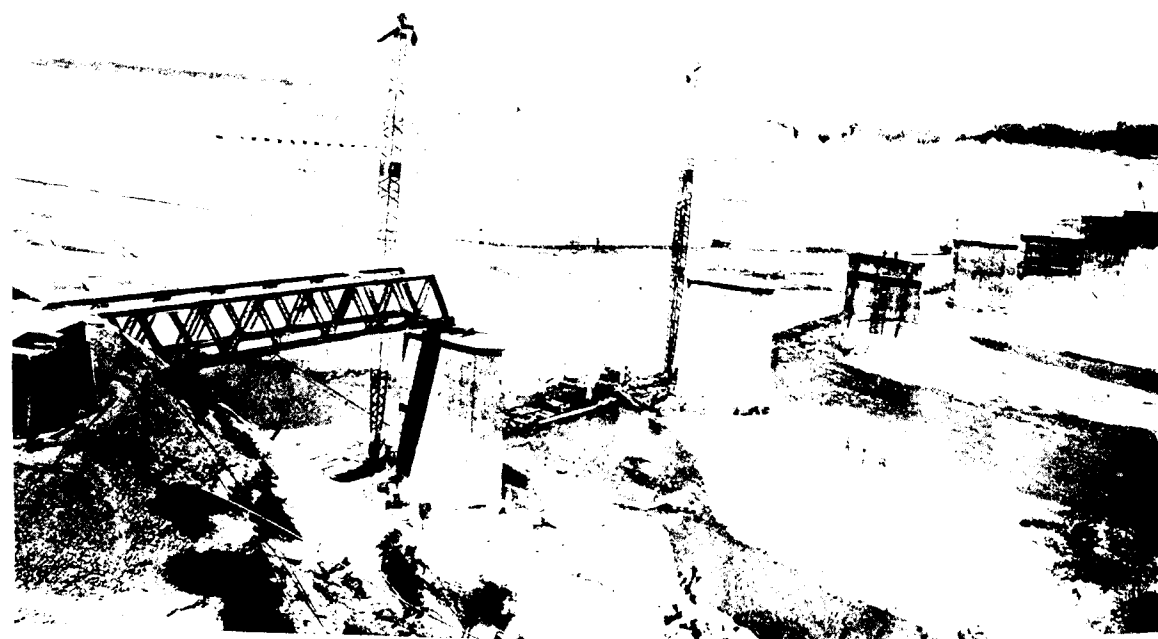
The Villupuram Trichinopoly Railway.

The construction of this metre gauge chord, on the South Indian Railway, 110 miles long, was put in hand in the year 1925-26. It is being built to main line standard and will form an alternative route between Madras and Trichinopoly. Its importance lies mainly in the relief it will afford to the existing main line, but it will also serve to open up and develop a populous tract of country.

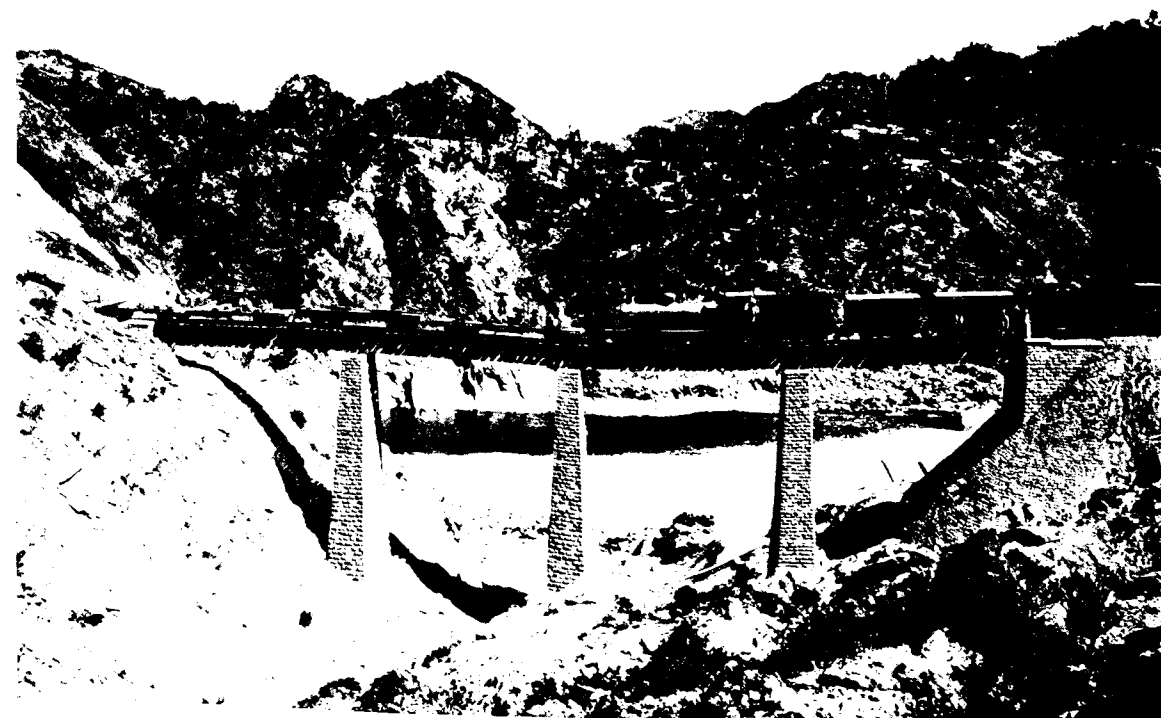
Progress has been satisfactory but the supply of permanent way material has been interfered with by the coal strike in England. It is hoped to have the line ready for opening to traffic by the end of 1928.

The Shoranur Nilambur Railway.

The construction of this broad gauge branch on the South Indian Railway, 41 miles long, was sanctioned in May 1924. It is designed to open out and develop the Moplah country in the Malabar District with its import-



VIEW SHEWING GIRDER ERECTION IN PROGRESS AT GAJ BRIDGE.



ONE OF FIVE VIADUCTS CONSTRUCTED.

ant forest areas. The portion from Shoranur to Angadipuram (18 miles) was opened to traffic by His Excellency the Governor of Madras on the 3rd of February 1927 and it is hoped to have the remaining and more difficult portion ready for opening by June 1927.

Kangra Valley Railway.

This line is a 2' 6" gauge extension from the North-Western Railway broad gauge terminal at Pathankot and traverses the wide and fertile tract known as the Kangra Valley. The line will shorten the journey to the important hill stations of Dalhousie and Dharamsala and is required for the transport of machinery and stores for the Uhl Hydro Electric Scheme and for maintenance of the transmission lines after opening. The Punjab Government, which has in hand the construction of the Hydro Electric Scheme, has agreed to guarantee this line against loss in working over a number of years.

Up to date the progress of work on tunnels, bridges and earthwork has been satisfactory and until lately it was hoped that the section of the line from Pathankot to Guler will be ready for opening in December 1927 and that from Guler to Shanan in July 1928. But recent heavy floods may make it impossible to realise this hope.

The Guntur-Gurzala-Macherla Railway.

This line is on the Madras and Southern Mahratta Railway metre gauge and is 80 miles long. It will open out the country lying between the main line of the Madras and Southern Mahratta Railway to Guntakal and the Kistna river, and will alleviate the effects of famines that periodically occur in the taluks of Sattanapalle and Palnad. Construction was sanctioned in January 1927. Land acquisition has been started and a little work done at Guntur. The line is expected to be completed by July 1929.

Virudhunagar Tenkasi. (Metre Gauge-76.32 miles).

Good progress was maintained on this South Indian Railway line which is expected to be completed and opened for traffic by the end of June 1927.

Dindigul-Pollachi. (Metre Gauge-75.49 miles).

Steady progress has been maintained on the construction of this line by the South Indian Railway although during the quarter ending 31st December 1926 cholera broke out at Pollachi. The probable date of opening for traffic is March 1928.

Taungdwingyi-Kaukpadaung. (Metre Gauge-72.10 miles). Burma Railways.

Progress has been slower than anticipated owing to heavy rains and outbreak of cholera in certain sections. Half the work has been done on Taungdwingyi-Natmauk section, but progress on the Natmauk-Kvakpadaung section has been much less. The probable date of opening of the former section is April 1928, and that of the latter April 1929.

Myingyan-Natogyi-Paleik. (Metre Gauge-69.49 miles). Burma Railways.

There has been little progress on this work, which was sanctioned in September 1926, owing to delay in obtaining possession of the necessary land. The probable date of opening is May 1929.

Pandharpur-Miraj Extension. (2' 6" gauge-84.32 miles)

This extension of the Barsi Light Railway is practically complete and is expected to be ready for opening to all kinds of traffic by the end of September 1927.

54. New Construction Programme.—In recent Annual Reports reference has been made to the arrangements and investigations which were being made with a view to the adoption of a largely increased programme of new construction. The figure of "mileage under construction" has been steadily growing and the efforts of the Railway Board and the Railway Administrations have now materialised in the production of a 5-year programme of construction by each of the large Railways. These programmes have been prepared in collaboration with the Governments of the Provinces served by the several Railway systems and subsequently discussed by the Agents with the Railway Board. The procedure laid down, moreover, provides for the annual revision of the programme after further consultation with the Local Governments.

It cannot, of course, be expected that every one of the many projects, which have been included in the programmes, will prove after survey and estimating to be worth constructing, but since the sum of the total additional open line mileage shown in them amounts to over 7,000 miles at the end of the quinquennium, there appears to be no reason why the anticipations in last year's Report in regard to an annual addition of 1,000 miles to the open mileage of Indian Railways should not be realised.

Railway Engineers employed on the large Railway systems of India have sometimes been criticised in the past for a lack of ability to design low grade railways, so that the construction cost may be commensurate with the traffic that is expected to be carried, and it is recognised that, in order to build some of the lines included in the construction programme on a remunerative basis, special attention must be paid to the necessity for this. The Railway Board have, therefore laid down certain standards of construction ranging from the highest class which has to carry a fast and heavy traffic down to the lightest form of construction. Standards A & B are for main and branch lines respectively as ordinarily built. Then follows Standard C which is a light line of the same gauge as the parent line but may be built to the cheapest form of construction which will carry the expected traffic. With a suitable speed restriction lighter rails may be used than would be permissible on a Standard B line. Signals and inter-locking may be cut down or dispensed with and the buildings and quarters reduced to a minimum. Standard D is a still lighter form of construction intended for feeder lines and pioneer railways, which will usually be of a narrower gauge than the parent line and includes any system of rail transport. This latter system need have no regular stations, the train merely halting at road crossings and other suitable places to pick up passengers to whom tickets will be supplied by the Conductor of the train. Extra to these Standards is the H. M. (Heavy Mineral) Standard for dealing with heavy mineral traffic such as occurs from the coal fields. This standard provides for much heavier engines and train loads than any now in use in India.

With the standards now laid down it should be possible to choose one which will suit the traffic to be expected and give a fair return in almost every case, unless the nature of the country is such as to preclude the construction of a cheap railway, or there are special reasons which make it impossible for any railway to compete successfully with road traffic.

55. Electrification of Railways.—The electrification of railway lines in the Bombay area at present in hand comprises (a) on the Great Indian Peninsula Railway the suburban lines up to Kalvan and the main lines to Igatpuri and Poona; (b) on the Bombay, Baroda and Central India Railway the suburban lines between Church Gate and Borivli and the main line between Grant Road and Bandra. The work on the electrification of the Great Indian Peninsula Railway lines has reached an advanced stage and electrified services have already been opened between Victoria Terminus and Kurla and Thana *via* the Harbour Branch and between Victoria Terminus and Bandra. These services have become highly popular and promise to be entirely successful.

With a view to inaugurating electrified services on the whole of these sections as early as possible the work on the uncompleted portions is being vigor-

ously pushed forward. By the opening of these electrified services not only will Bombay derive a great benefit in the matter of a better distribution of its population, but on the railways' side a considerable reduction in the operating expenses will be effected.

Re-investigations into the advisability of electrification of suburban lines in the vicinity of Calcutta and Madras were also completed during the year. The results of these investigations are at present under consideration. Proposals for the electrification of the Trichinopoly-Madura and other sections of the South Indian Railway have also been under consideration by the Railway Board in view of the possibility of the supply of cheap power from hydro-electric sources.

An examination of hydro-electric schemes in the Madras Presidency, of which mention was made in the last year's report, was carried out during the year and the results of these investigations were under discussion with the Government of Madras at the end of the year.

56. Open line improvements.—A brief account is given below of the more important open line schemes which have been completed or were in hand during the year.

Assam Bengal Railway.

The water scheme at Pahartali was completed and the greater part of Pahartali's requirements have been supplied from this source since January 1927. Owing to the rate of filtration not being up to expectations, it has not been possible to supply Chittagong up to date. The cause is thought to be clogging of the filter beds on account of the sand used being too fine and to the first filling of the reservoir containing a large amount of impurities.

By the end of the year the carriage repair shop and painting and upholstery shops were practically complete.

Bengal and North-Western Railway.

The goods yards at Gonda and Barauni Junctions have been remodelled and seven wayside stations between Sonapore and Chupra have been interlocked.

The Indara-Phephna and Darbhanga-Dhang sections have been relaid with 50 lbs. rails.

Electric lighting has been installed at Barauni Junction and Tahsil Deoria stations and is in hand at Darbhanga, Narkatiaganj and Bhatni.

Bengal-Nagpur Railway.

The doubling of the line between Kamptee and Kalumna was completed and opened during the year, while the doubling between Goilkera and Monharpur which includes the Saranda tunnel made good progress. The Dharma-band-Kharkaree Chord is nearing completion and it is hoped that it will be opened for traffic by September 1927.

A new flag station was opened at Narkopi on the Purulia Lohardaga Section.

The development of the Argada Colliery has made steady progress and it is now in a position to despatch 25,000 tons of coal monthly.

The extension of the machine shop at Khargpur is practically complete.

Bombay, Baroda and Central India Railway. (Broad Gauge).

The quadrupled lines between Borivli and Bandra were opened for traffic in April 1926 and those between Bandra and Grant Road in October 1926.

Satisfactory progress has been made with the new locomotive workshops under construction at Dohad and it is hoped that they will be brought into use in 1929.

Good progress has also been made with the Mahalakshmi Overbridge the construction of which has been undertaken to replace two congested level crossings.

Work on the remodelling of Ahmedabad and Kankaria yards had been practically completed at the end of the year under review.

The rebuilding of the Bassein Bridges was completed and these were opened for traffic by H. E. the Governor of Bombay on 22nd January 1927.

The remodelling of Bhayndar station and Godhra yard has been completed.

Train control has been installed on the Kotah-Shamgarh and Kotah-Agra East bank sections.

The piers of Ambika, Kim, Poorna and Watrak bridges have been strengthened and two bridges have been strengthened on the Godhra-Rutlan-Nagda section.

(Metre Gauge).

Phulera Yard has been remodelled. A flag station has been constructed at Gulabpura between Barl and Rupaheli.

Additional transhipment facilities have been provided at Sabarmati and the tranship platform at Hissar has been extended.

Girder renewals have been completed on the Rewari-Bhatinda and Ajmer-Nasirabad sections.

Quarters have been built for the electric staff at Bandikui and Abu Road. Extensions have been carried out to the carriage and wagon shops, Ajmer.

Burma Railways.

The doubling of the main line between Pyu and Kyungon was completed and opened for traffic. The remodelling of the locomotive workshop at Insein made good progress during the year. The new bridge over the Myitnge river was completed and brought into use. Good progress was made on the remodelling of Insein, Pyuntaza and Thazi stations.

Eastern Bengal Railway.

The Parbatipur-Siliguri conversion to broad gauge, a distance of 85 miles, was completed and opened for traffic in September 1926.

The narrow gauge line connecting Krishnagar City station with Nabadwipghat, a place of pilgrimage on the river Bhagirati, was opened on 30th June 1926.

The Barrackpore Race Course siding $1\frac{1}{2}$ mile in length was completed during the year but has not yet been opened to traffic.

Yard remodelling was completed during the year at 12 stations. Phase, one of the Sealdah remodelling consisting of additional stabling lines for passenger stock and more facilities for dealing with fish traffic, was nearing completion at the end of the year. Improved siding facilities at 10 stations on the Dacca District were provided and loops at 13 stations were lengthened. Additional loops were provided at Chashara.

Automatic train signalling between Calcutta South and Ballygunge was completed and brought into use in June 1926.

East Indian Railway.

The doubling of the grand chord line between Kastha and Ganjkhwaja on the Gya-Moghal Serai section is nearing completion and expected to be ready for opening in December 1927.

The work of remodelling Lucknow yard was nearing completion at the end of the year under review. The new station building was opened by His Excellency the Governor of United Provinces on December 19th, 1926.

Work on the extension of the locomotive workshops at Lucknow has progressed favourably and is expected to be completed by the end of 1929.

Great Indian Peninsula Railway.



The Bhagalpur-Mandar Hill Branch was opened after reconstruction on 1st October 1926.

The regirdering of the up track of the Lower Sone bridge was completed and the bridge opened for traffic in January 1927.

The remodelling of the yards at Kusunda, Mokameghat and Bareilly was completed and an up marshalling yard was constructed at Ondal. Remodelling was in progress at 12 other stations.

The second Up line between Asansol and Sitarampur and the second down line between Sitarampur and Grand Chord link Cabin were opened during the year. Train control on the Fyzabad-Moghalsarai section was opened on 10th June 1926.

Great Indian Peninsula Railway.

Electrified service between Victoria Terminus and Thana *viâ* Harbour Branch was opened for the public on 21st June 1926 and between Victoria Terminus and Thana *viâ* the main line on 1st November 1926. Foundations for the overhead structures of the Kalyan Karjat section of the main line Electrification were commenced. The preparation of the site for the Kalyan Power House was in hand and indents for plant had been submitted.

Good progress was made in the elimination of the Bore Ghat Reversing station.

Of the remodelling schemes in hand, Nagpur was completed and Mazgaon was nearing completion in the year under review. Progress on Victoria Terminus was satisfactory.

Jodhpur Railway.

The remodelling of Jodhpur yard and the construction of the new locomotive running shed and yard have been completed. The extension of the goods shed yard and platform has filled a long felt want and has eliminated a most fruitful source of congestion. The completion of the remodelling of this yard has greatly facilitated the quick handling and transit of wagons.

The remodelling of the passenger yard at Luni is approaching completion and it is anticipated that the major portion of the marshalling and goods yard will be completed during 1927-28.

The new arrangements for the locomotive water-supply at Jodhpur have been completed and new wells have been sunk at Marwar Pali and Samdari. The construction of the new bridge over the Luni river has been completed and considerable progress has been made in the replacement and renewals of girders in small bridges and culverts.

Madras and Southern Mahratta Railway.

Good progress has been made on the remodelling of the Perambur workshops.

The remodelling of Arkonam, Poona and Londa is almost complete while the remodelling of Jalarpet, Ghorpuri and Guntakal is well in hand. The Poona-Miraj train control system was extended to Belgaum during the year. The realignment of the main line near Jalarpet is practically completed but has not been brought into use yet as this depends upon the remodelling of the Jalarpet yard. With the exception of the foot-overbridges the widening of tracks between Karla and Moza on the Madras-Arkonam section is very nearly completed.

At Todiarpet Salt Depôt excavation for canals is practically completed. The Store sheds are about half completed and about 75 per cent. of the staff quarters have been erected.

H. E. H. the Nizam's Guaranteed State Railways.

The interlocking of Hyderabad yard (metre gauge) was completed and brought into use. High level platforms and small booking offices were constructed at certain suburban halts.

With the installation of electric detection and track circuiting the interlocking of Secunderabad station was completed. Extensions were completed at Secunderabad to the sewage system, water supply and electric equipment of quarters.

Work was continued on the remodelling of workshops at Lallaguda.

North-Western Railway.

A notable performance was accomplished in track renewals during the year. Some 300 miles of rails were replaced and 700 miles of sleepers renewed, and but for the failure of one of the largest suppliers of cast iron sleepers an even better record would have been obtained.

Pucca station buildings have been provided at 9 stations in place of kutchha ones. Defensible station buildings and staff quarters have been completed at Khairabad, Jahangira Road and Taru Jabba. 14 stations have been remodelled during the year or have been subjected to additions and alterations.

The Clifton Road overbridge at Karachi was completed. A skew girder bridge over the Pakpattan Canal was constructed and many canal feeder bridges in connection with the Sutlej Valley Irrigation project have been completed or were nearing completion.

A temporary office has been built at Lahore for the Chief Engineer, Surveys and Construction, and an extension to the headquarters office is in hand.

Many boundary walls have been provided at important stations on the Lahore and Multan Divisions in order to stop trespassing.

Substantial progress has been made with the bridge strengthening programme. The more important bridges in hand are the Attock Bridge over the Indus, the Alexandra Bridge at Wazirabad over the Chenab, the Adawahan Bridge over the Sutlej, and the Jhelum Bridge.

Considerable progress was made by the Signalling and Interlocking Department in extending the train control system, installing interlocking at a number of non-interlocked stations and remodelling the interlocking at others.

The extensive programme of providing electric installation at various stations is proceeding satisfactorily. Those nearing completion at the end of the year were Ferozepur, Amritsar, Bhatinda, Peshawar, Ambala, Khanewal and Lyallpur at which stations the generating plant is the property of the railway. Installations obtaining energy from local supply companies have been completed at Rawalpindi and Multan and are in hand at Karachi, Hyderabad, Shikarpur, Saharanpur, Shadara and Badami Bagh.

South Indian Railway.

A considerable amount of work was done during the year on the scheme for providing additional tracks and other facilities between Madras and Tambaram.

Satisfactory progress was made on the new broad and metre gauge workshops at Trichinopoly and the work is expected to be completed in March 1928.

The conversion of the Erode Branch from metre to broad gauge has been taken in hand. It is expected that the work will be completed in about two years.

Good progress has been made with the work of remodelling of Trichinopoly Junction.

57. Railway Facilities in and around Delhi.—During the year under review a scheme for the improvement of railway facilities near Delhi was generally approved by the Railway Board. This scheme which was estimated to cost about Rs. 84 lakhs included the provision of an interchange goods yard at Shakurbasti and a broad gauge engine shed at Kishanganj, the

Regirdering of the Alexandra Bridge, North-Western Railway.



VIEW OF COMPLETED BRIDGE.

construction of a central goods dépôt at Delhi Sadr and the replacement of the existing passenger station at Delhi Sadr by a new station near the Ajmer Gate overbridge.

58. Vizagapatam Harbour Scheme.—Good progress was made with the work on the Vizagapatam Harbour construction during the year. The rock breaker and dipper dredger, mentioned in last year's report, arrived and started work in 1926 and the large suction dredger, which was built at Renfrew, Scotland, arrived in January 1927. The latter was at once put to work on deepening the channel from the sea into the harbour but unfortunately it met with a serious accident. During a storm in March the vessel broke away from her moorings and went aground. Considerable difficulty was experienced in getting her off and owing to the rough weather prevailing at the time she was rather badly damaged. Later, the vessel was towed to Calcutta and arrangements made for repairs which it is hoped will be completed by September. Though the dredging of the harbour will be unavoidably delayed on account of this accident, work on the other portions of the scheme is being vigorously pushed forward. Progress is well ahead of the programme on the sinking of the monoliths for the quay wall about a third of which has been completed. Besides the works comprised in the original scheme, the construction of a separate manganese wharf and stores godowns has been sanctioned and taken in hand. As a result of investigations carried out by a malarial expert measures are also being undertaken for the prevention of malaria in and around the harbour area.

59. Working of Railways in the Cawnpore Area.—Four railways meet at Cawnpore, viz., the East Indian, Great Indian Peninsula, the Bombay, Baroda and Central India and the Bengal and North-Western and they have hitherto had independent station yards of their own. The great increase in interchanged traffic has rendered this arrangement most unsuitable and expensive, resulting in much delay and over-lapping and duplication of work. A special officer was, therefore, deputed to look into the problem with a view to devising a co-ordination of railway facilities at Cawnpore by which more expeditious and economical working could be secured. As a result of this investigation a scheme estimated to cost Rs. 77,00,000 was drawn up and sanctioned in September 1926.

60. Long distance passenger traffic of the Bombay, Baroda and Central India Railway at Belassis Road.—In 1925, the Railway Board appointed a special officer to enquire into the whole question of the terminal facilities in Bombay. As the present terminus of the Bombay, Baroda and Central India Railway at Colaba is to be closed in connection with the development proposals of the Bombay Improvement Trust, it was necessary to find a new site for it. The question arose whether a new station should be built at Belassis Road for this traffic or whether the Bombay, Baroda and Central India Railway should share Victoria Terminus with the Great Indian Peninsula Railway for long distance traffic.

If it were a question of starting fresh with a clean sheet, there is little doubt that great economies could be effected by dealing with all the main line passenger and parcel traffic from and to the great areas served by the Great Indian Peninsula and the Bombay, Baroda and Central India Railways in one well-equipped and centrally situated terminus in Bombay. The expenditure on platforms, waiting rooms, booking offices and other amenities as well as office accommodation and supervision, which has largely to be duplicated in two terminal stations, is an important factor in the general working of the railway for which no direct return is obtained. But to deal with this traffic satisfactorily from the point of view of the public, it is essential that a single terminus should be sufficiently central to avoid inconvenience to passengers either in arriving or departing. Railway business depends, however, for its prosperity very largely on avoiding inconvenience to the public and in the case of Bombay there is good ground for believing that Victoria Terminus is not so centrally situated as to be the most convenient site for a joint terminus for both railways. The special officer's investigations supported the view that at present Victoria Terminus

is on the whole more distant from the bulk of the population than Belassis Road, the advantage in favour of the latter station being about half a mile. Of the various Chambers and Associations consulted, 9 were in favour of a separate station at Belassis Road and 3 in favour of the combined station.

In deciding the question it was necessary to consider the direction of the future development of Bombay. Whereas in the southern part of the island there is the Back Bay Reclamation, which, if it were to result in a large residential population settling on the new land near Colaba, would move the centre of gravity southwards, various schemes in hand or in contemplation rely on the movement of residents in the opposite direction, and taking all schemes together it is practically certain that the centre of gravity will not move southwards.

A very important point, however, which influenced the final decision was the lack of space at Victoria Terminus for future extension. Although it would have been possible to find room at Victoria Terminus for the present long distance traffic of both railways, the provision for the future normal increase in such traffic would have necessitated very heavy expenditure. Moreover the land for the Belassis Road Terminus had already been acquired, and, as the further necessary expenditure in connection with the work was estimated at Rs. 53 lakhs, it was decided that the preferable course was to provide a separate new Terminus for the Bombay, Baroda and Central India Railway. The work has therefore been put in hand.

61. Dismantlement of the Arakan Light Railway.—In view of the unsatisfactory financial results of working the Arakan Light Railway, an isolated line of some 18 miles in length on the 2' 6" gauge in the west of Burma, combined with the absence of any prospect of improvement in future and the fact that the line was in a bad state of repair, the Government of India with the approval of the Secretary of State bought out the line on 1st April 1926 from the Liquidators of the Arakan Light Railway Company and decided to dismantle it. The dismantlement is in progress at present.

62. Rules for the preparation of Railway Projects.—In view of the large programme of new construction now in hand and contemplated, it was considered necessary during the year to revise the orders relating to the preparation of project reports and estimates to ensure uniformity in the method of examining and estimating for new projects. The existing orders were contained in a technical paper issued by the Railway Board but had not the character of authoritative rules binding on all Railway Administrations. Moreover, they contained a good deal of matter which was in the nature of advice rather than rules. A revised and up-to-date edition of the rules has, therefore, been prepared and issued, and with it a supplement, in the shape of a technical paper, in which have been embodied those parts of the matter in the earlier paper which were in the nature of advice, as well as additional advice, more especially on the estimation of traffic earnings and working expenses. An important principle embodied in the new rules is that the results of the traffic survey, to which is now given the greater prominence it merits, are made the basis for fixing the standard of construction to be adopted.

63. Revision of the rules for the acquisition of land for new railways.—Further, in consequence of the serious rise in the price of land during recent years, the Railway Board have had under consideration the need for revision of the instructions regarding land widths to be taken up for railway constructions, with a view to reducing, to a minimum, the amount of land to be acquired. After careful consideration of the question, the Railway Board came to the conclusion that the land widths prescribed previously were in excess of the minimum requirements compatible with safety. They accordingly issued, in February 1927, revised tables of land widths to be adopted in the case of all future constructions, in which the amount of land to be acquired has been substantially reduced.

Reconstruction of Attock Bridge, North-Western Railway.



VIEW SHEWING OPERATIONS IN PROGRESS.

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CHAPTER IV.

TRANSPORTATION AND WORKING.

64. Operating Statistics.—Last year's report explained that a complete review of the extensive business of a railway is difficult unless the operations are reduced to comprehensible terms by means of statistics. It was also mentioned that statistics are not only intended to register good results but to indicate the directions in which improvements are needed.

Business handled.—The first thing to notice is the work done or business handled by the railways during the year. This is best expressed by the terms net ton miles and passenger miles, which mean the number of tons or passengers carried multiplied by the distance over which they are moved. The figures for Class I Railways, which alone account for about 97 per cent. of the total traffic of all Indian Railways, are :—

	CLASS I—RAILWAYS, ALL GAUGES (IN THOUSANDS).			
	1924-25.	1925-26.	1926-27.	Percentage increase or decrease compared with 1925-26.
Net ton miles	21,063,684	19,661,723	20,103,214	+2.24
Passenger miles	19,102,445	19,512,534	19,603,413	+0.47

Service Performed.—The next thing to notice is the service performed in handling the business, in other words, the train miles run. Statement 17 in Volume II gives the train and engine miles of Class I Railways and statement 36 gives similar information for Class II and III Railways. The train miles are shown separately under passenger, mixed, goods and departmental. The engine miles are shown under shunting, assisting required, assisting not required, light and departmental. Assisting required miles are the miles run by engines attached to trains for banking or assisting purposes. Assisting not required miles are the miles of engines in steam which are attached to trains to prevent their running light, and which are not required for banking or assisting purposes. By 'departmental' is meant that the service is for the exclusive use of Railway material or employees. The following table shows the passenger and goods train miles for the last 3 years :—

	CLASS I—RAILWAYS, BROAD GAUGE (IN THOUSANDS).				CLASS I—RAILWAYS, METRE GAUGE (IN THOUSANDS).			
	1924-25.	1925-26.	1926-27.	Percentage of variations with 1925-26.	1924-25.	1925-26.	1926-27.	Percentage of variations with 1925-26.
Passenger train miles	49,084	51,787	56,211	+8.5	14,854	15,650	16,452	+5.1
Goods train miles .	43,472	40,888	40,594	—0.7	14,129	14,349	14,600	+1.7

There was thus an increase of over 8 per cent. in passenger train miles on the broad gauge and of 5 per cent. on the metre gauge. The goods train miles on the other hand have not varied much in the last two years.

Average speed.—The average through speed of passenger trains on the broad gauge has increased from 19.5 to 19.9 miles per hour and of goods trains from 9.58 to 9.84. The average through speed is the average speed of a train from start to finish inclusive of stops *en route*.

Average load.—The average number of tons carried in goods trains on the broad gauge has advanced from 372 to 381 tons. As a result of these improvements in speed and load of goods trains the comprehensive figure of gross ton miles per train engine hour has increased from 7,368 tons to 7,725 tons, an increase of 4·8 per cent. The average number of tons per metre gauge train has increased from 155·8 to 156·7 and the gross ton miles per train engine hour on the metre gauge from 3,118 to 3,176.

The average number of tons per wagon on the broad gauge has increased from 12·6 to 12·9 and on the metre gauge has remained stationary at 6½ tons.

Engines.—The engine miles per day per engine on the line have advanced considerably on the broad gauge from 57·8 to 76·2 miles and on the metre gauge from 63·3 to 65·4 miles, thus indicating that greater use has been got out of the engines. At the same time the percentage of engines under or awaiting repairs in mechanical workshops and transportation sheds has decreased on the broad gauge from 22·7 to 21·9 and on the metre gauge from 19·4 to 19·0.

Rolling Stock.—The percentage of passenger vehicles under or awaiting repairs has decreased from 15·9 to 13·4 on the broad gauge and from 12·0 to 11·1 on the metre gauge.

The average daily number of unserviceable goods wagons on the broad gauge has dropped from 9,800 to 8,818, and on the metre gauge from 4,188 to 3,980. These decreases are due to the improvements effected in the arrangements for repairs of rolling stock and the effect is that there were nearly 1,000 more wagons available for use daily on the broad gauge and 200 on the metre gauge. The average percentage of unserviceable wagons to the total goods stock dropped from 6·62 to 5·78 on the broad gauge and from 6·92 to 6·41 on the metre gauge.

Shunting engine miles.—The shunting engine miles of the last three years compare as follows, shunting being reckoned at 5 miles to the hour:—

	CLASS I.—RAILWAYS, BROAD GAUGE.				CLASS I.—RAILWAYS, METRE GAUGE.			
	1924-25.	1925-26.	1926-27.	Percentage of variations with 1925-26.	1924-25.	1925-26.	1926-27.	Percentage of variations with 1925-26.
	(in thousands.)				(in thousands.)			
Passenger and proportion of mixed	3,600	3,679	3,404	—7·5	1,425	1,500	1,504	+0·3
Goods and Proportion of mixed	19,538	17,543	16,897	—0·37	6,825	6,779	6,707	—1·1

In consequence of this general reduction in shunting engine mileage the percentage of shunting miles to train miles again shows a decrease in every case.

	BROAD GAUGE.				METRE GAUGE.			
	1924-25.	1925-26.	1926-27.	Percentage of variations with 1925-26.	1924-25.	1925-26.	1926-27.	Percentage of variations with 1925-26.
Shunting miles per 100 train miles (Passenger and proportion of mixed.)	6·65	6·46	5·62	—13·0	5·62	5·85	5·64	—3·09
Shunting miles per 100 train miles (Goods and proportion of mixed.)	42·5	40·5	39·7	—1·98	32·9	32·3	31·8	—1·55

65. Among individual railways the following results call for notice.

Eastern Bengal Railway.

The average net load of a goods train has increased from 352 to 360 tons on the broad gauge and from 169 to 185 tons on the metre gauge. The net ton miles moved per wagon day have improved from 136 to 155 on the broad gauge and from 94 to 105 on the metre gauge.

Owing to its short leads, numerous transshipments, terminals and junctions and its short average distance between stations this railway has always had a very high percentage of shunting miles to train miles. During the past three years special efforts have been made to reduce shunting engine hours by the use of Servis recorders and marshalling yard statistics. The results achieved have been satisfactory as the following figures show:—

Year.	Shunting miles per 100 train miles—Goods.	
	Broad Gauge.	Metre Gauge.
1924-25	112·1	69·4
1925-26	93·3	59·9
1926-27	86·0	59·2

In vehicle oil consumption the broad gauge figures show a considerable improvement during the past two years.

Pints of oil consumed per 1,000 vehicle miles.

1924-25	3·37
1925-26	2·97
1926-27	2·24

The metre gauge figures have remained at about 1·27 pints per 1,000 vehicle miles during the past three years, which figure compares favourably with other metre gauge railways.

East Indian Railway.

The average net load per goods train has increased from 417 tons to 434 tons. The percentage of shunting miles to train miles has fallen from 5·6 to 4·5 in Passenger service and from 41·8 to 41·0 in Goods service.

Great Indian Peninsula Railway.

Train miles per day per engine in use have increased from 141 to 149 miles. The percentage of shunting miles to train miles has been reduced from 14·3 to 13·1. The average net load per goods train has increased from 320 tons to 325 tons.

North Western Railway.

The percentage of shunting miles to train miles shows a reduction from 9·7 to 7·3 in Passenger service and from 37·1 to 35·8 in Goods service.

Engine miles per day per engine on the line have increased from 48·9 to 55·8 miles and per engine in use from 90·3 to 97·1 miles.

The average net load of goods trains has advanced from 343 to 372 tons.

The average wagon load has risen from 10·9 tons to 11·5 tons, and the net ton miles per wagon day from 237·9 to 244·4 miles.

66. *Fuel Economy.*—Fuel economy has been receiving special consideration during the year under review. The attention of railways has been drawn to various possible sources of wastage, and, in order to effect economy in every possible way, each of the State-worked railways has placed an officer on special duty together with fuel inspectors and other staff. Their duties are to devise, and put into operation, measures for the prevention of loss in fuel during transit and when stored at locomotive sheds, also to ensure the better utilisation of fuel issued to locomotives, and to instruct

the engine staff how to perform their duties in a manner most likely to ensure efficient and economical consumption of coal. The larger of the Company-worked railways have also instituted similar methods to ensure economy in fuel and, of these, the Madras and Southern Mahratta Railway was early in the field with very good results. As soon as further experience has been accumulated a committee will be appointed to consider the progress made on different railways and suggest the lines along which the energies of the special staff appointed can best be directed to obtain the most fruitful results.

A committee appointed by the Indian Railway Conference Association is considering the question of the most suitable design of coal-handling plant for locomotive sheds. The adoption of such plant at stations where the consumption is sufficient to warrant it, is expected to conduce to further economies.

The results of these special efforts so far obtained have been encouraging and, with the increased attention that is being paid to this feature of railway operation and, also, with the conversion of saturated locomotives to super-heater, it is hoped that still further improvement will result.

The total fuel consumption on Class I Railways dropped from 6,610,361 tons in 1925-26 to 6,494,188 in 1926-27 a decrease of 116,173 tons, in spite of an increase in train and engine mileage of 6½ million miles.

The following are the figures of Class I Railways for the last three years :—

	Lbs. of coal consumed per 1000 gross ton miles (Passenger and proportion of mixed).	Lbs. of coal consumed per 1000 gross ton miles (Goods and proportion of mixed).
<i>Broad Gauge.</i>		
1924-25	206.4	148.5
1925-26	190.3	142.9
1926-27	185.5	139.4
Percentage decrease in coal consumption compared with 1925-26.	2.52	2.45
<i>Metre Gauge.</i>		
1924-25	194.8	159.3
1925-26	194.8	158.9
1926-27	189.7	154.4
Percentage decrease in coal consumption compared with 1925-26.	2.62	2.83
<i>Narrow Gauge.</i>		
1924-25	414.0	455.0
1925-26	406.8	425.1
1926-27	393.0	379.2
Percentage decrease in coal consumption compared with 1925-26.	3.39	10.8

NOTE.—The figures for 1924-25 and 1925-26 differ from those quoted in previous reports in that it has now been decided to include the coal used for lighting up engines in addition to the coal used by engines during their run.

On individual railways the principal reductions were as follows :—

Bombay, Baroda and Central India Railway.

The lbs. of coal consumed per 1,000 gross ton miles fell on the broad gauge from 199.5 to 180.1 lbs., (Passenger service) and from 120.5 to 114.7 lbs. (Goods). On the metre gauge the consumption was reduced from 218.6 to 197 lbs. (Passenger) and from 156.2 to 145.1 lbs. (Goods).

Eastern Bengal Railway.

The coal consumption shows a considerable improvement both on the broad gauge and metre gauge. The figures are :—

Lbs. of coal consumed per 1,000 gross ton miles.

	BROAD GAUGE.		METRE GAUGE.	
	1925-26.	1926-27.	1925-26.	1926-27.
Passenger and proportion of mixed	235.1	206.8	214.6	199.1
Goods and proportion of mixed	132.2	114.8	164.9	140.0

East Indian Railway.

The consumption per 1,000 gross ton miles was reduced from 171.8 to 164 lbs. in Passenger service and from 127.7 to 121.7 lbs. in Goods service.

Jodhpur Railway.

The lbs. per 1,000 gross ton miles fell from 211.9 to 191.5 lbs. (Passenger) and from 184.2 to 169.6 (Goods).

Madras and Southern Mahratta Railway.

Compared with 1925-26 the coal consumption has fallen on the metre gauge, but risen slightly on the broad gauge.

Lbs. of coal consumed per 1,000 gross ton miles.

	Passenger.		Goods.	
	1925-26.	1926-27.	1925-26.	1926-27.
Metre Gauge	183.6	174.9	189.3	184.3
Broad Gauge	157.2	163.4	124.4	125.5

A comparison with 1919-20 figures, however, shows that during 1926-27 22,657 fewer tons of coal were consumed over the entire system in spite of an increase in train and engine mileage of over two million miles.

His Exalted Highness the Nizam's Guaranteed State Railways.

A fall is recorded on the metre gauge from 285 to 278.7 lbs. (Passenger) and from 184.6 to 169.7 (Goods), while on the broad gauge consumption fell from 153.2 to 138.2 lbs. on Goods service and remained stationary at 190 lbs. on Passenger service.

South Indian Railway.

The coal consumption has slightly fallen except on the broad gauge (Passenger service) the figures being:—

Lbs. of coal consumed per 1,000 gross ton miles.

	Passenger.		Goods.	
	1925-26.	1926-27.	1925-26.	1926-27.
Metro Gauge	200.5	200.0	135.9	134.1
Broad Gauge	175.7	181.6	160.7	151.1

67. Running of passenger trains.—Last year's report explained that, while it is necessary to leave to individual administrations the details of running of trains, the Railway Board review the position periodically by means of statistics. It was also mentioned that the heavy programmes of renewals and schemes for improvements interfere seriously with the punctual running of trains and it is by no means an easy matter to reconcile the conflicting interests.

From the figures given below for February 1927 it will be seen that the general position on Class I Railways remains much the same as in 1926, in which year there was a considerable advance over 1925. Every effort is however being made by Railway Administrations to improve on these figures.

1	PERCENTAGE OF TRAINS ARRIVING RIGHT TIME OR LESS THAN 10 MINUTES LATE TO NUMBER OF TRAINS RUN.				ALL TRAINS.		
	Mail and important through trains.	Mixed trains.	Suburban trains.	Other passenger trains.	Percentage of trains arriving right time to number of trains run.	Percentage of trains arriving under 10 minutes late to number of trains run.	Percentage of trains arriving right time or less than 10 minutes late to number of trains run. (Column 6 + Column 7)
	2	3	4	5	6	7	8
<i>Broad Gauge.</i>							
February 1926	80.6	81.5	98.5	82.4	71.8	16.4	88.2
February 1927	77.9	84.4	97.5	83.7	73.6	15.4	89.0
<i>Metre Gauge.</i>							
February 1926	74.8	77.4	95.3	85.2	70.5	11.2	81.7
February 1927	72.2	77.1	93.8	89.1	68.2	13.4	81.6

68. Great Indian Peninsula Railway Electric Service.—The electrified service between Victoria Terminus and Thana, via the Harbour Branch

was opened for public traffic on the 21st June 1926 and between Victoria Terminus and Thana, via the main line on 1st November 1926.

This service has shown considerable development during the year. In February 1927, 2,040 electric trains and 600 steam trains were run on the main suburban section up to Thana and 5,700 electric trains on the Harbour Branch.

As the train service increased the consumption of watt hours per ton mile decreased and the present figure is comparable with that obtained on similar electric systems in other parts of the world. The extent of delays to traffic due to defective trains has fluctuated during the year, being highest in July and November, probably due to the introduction of 4 new motor coaches on 21st June and 6 new motor coaches on 1st November. There have been 34 faults on the overhead equipment during the year, 27 of which were caused by birds. Bird protection has now been installed throughout.

Details of traffic on the Harbour Branch during 1926-27 as compared with 1925-26 are as follows:—

	Train miles per day.	No. of passengers.	Earnings.
			Rs.
1926-27	2,921	16,220,076	13,10,889
1925-26	740	4,844,244	3,17,755
Increase	2,181	11,375,832	993,134

It must be noted however that the apparent increase in numbers and earnings does not for the most part represent new traffic but existing traffic diverted from the Great Indian Peninsula Railway main line and the Bombay, Baroda and Central India Railway. Figures of Bombay Local and suburban traffic on the Great Indian Peninsula and Bombay, Baroda and Central India Railways for the last 3 years are given below:—

Number of Passengers carried.

	Great Indian Peninsula Railway.	Bombay, Baroda and Central India Railway.	TOTAL.
1924-25	25,605,771	40,961,298	66,567,069
1925-26	28,252,512	40,315,816	68,568,328
1926-27	31,797,351	38,918,616	70,715,967

69. Road Motor competition.—As has been the experience in other countries, Railways in India are beginning to feel the pressure of road motor competition. At present this is especially felt in the neighbourhood of large cities and suburbs but in some parts of the country motor services which parallel or short circuit railway routes have also made their appearance.

The general policy adopted by Railway Administrations is to meet such competition by endeavouring to afford to the public equal or better railway service than road transport can give while taking full advantage of the additional business brought to the railways by such motor transport as can act as feeders or distributors.

In Bombay the introduction of new motor bus services which chiefly cater for the better class of passengers has slightly affected the 1st and 2nd class traffic of the Bombay, Baroda and Central India Railway.

In and around Calcutta motor bus competition has been particularly active on some of the suburban sections of the East Indian and Eastern Bengal Railways. Detailed statistics are being maintained of all such competitive services and the matter is being closely watched.

The earnings of the Kalighat-Falta Railway in Bengal have been seriously affected in the last 2 years by motor buses plying on the District road alongside the railway. Similarly the Burdwan-Katwa Railway reports a falling off in passengers due to competition with motor buses on the road which runs close to the line.

In Rangoon the number of suburban passengers has been steadily decreasing in the past 3 years owing to the extension of the electric tramway service and motor buses.

With regard to other traffic the Great Indian Peninsula Railway reports that there are about 36 motor services competing for passenger traffic on different parts of the railway.

The Madras and Southern Mahratta Railway attribute the decline in their upper class earnings to the fact that private motor cars are being increasingly resorted to.

In the area served by the North Western Railway road motor traffic is rapidly developing in many places, especially between Kalka and Simla, Lahore and Amritsar, Amritsar and Batala around Jullundur, between Kohat and Peshawar, Kohat and Bannu and along the Khyber Railway.

On the South Indian Railway additional shuttle services were introduced between Madras and Conjeevaram on the metre gauge to compete with road motor services and some additional trains were also introduced on the Travancore Railway.

On the Rohilkund and Kumaon Railway motor bus competition has been felt along the Bareilly-Kathgodam road and an extra train has been put on to meet this.

Among the many methods of meeting road competition one instance may be mentioned in which the East Indian Railway introduced an experimental rail omnibus consisting of a bogie 3rd class carriage and a small engine from 1st December 1926 between Katrasgarh and Phularitand on the Asansol Division. The purpose of the rail omnibus is to serve short distance traffic by picking up and setting down passengers at level-crossings and elsewhere, tickets being issued on the train by a Conductor. Up to 31st March 1927, 4 trips in each direction were made daily and over 6,000 passengers per month were carried by the rail omnibus. It is intended to extend the service to Dhanbad and also to institute a similar service between Dhanbad and Pathardih *via* Jherriah.

On other Railways similar experiments have been made after carefully studying the local requirements of passengers and in some cases it has been found necessary to replace the 'rail omnibus' by a full length train in order to meet the development of traffic effected.

Experiments have also been in progress with self propelled coaches such as the 'Sentinel' and during the year enquiries were prosecuted in Great Britain and America regarding experimental work of this kind in those countries. The problem of finding the most suitable power unit for this class of work is one which continues to engage close attention.

70. Imperial Indian Mail.—From 5th November 1926 a new standard of travel was instituted in India by the commencement of the improved weekly mail service between Bombay and Calcutta in connection with the inward and outward English mail. Two new rakes have been provided for this service by the East Indian Railway and Great Indian Peninsula Railway and the train has been called the 'Imperial Indian Mail'. The accommo-

Imperial Indian Mail, G. I. P. Railway.



1. INTERIOR OF RESTAURANT CAR. 2. A DOUBLE-BERTH COMPARTMENT.
3. UPPER AND LOWER BERTH COMPARTMENT. 4. INTERIOR SHEWING NEW WARDROBES, ETC.

dation provided is equal to that on the most modern European through services and with sleeping accommodation, a dining car, baggage van and special attendants, passengers by this service can accomplish the journey in great comfort. Under a business arrangement with the Peninsular and Oriental Steam Navigation Company booking of seats in this train is arranged in advance in London for the outward journey and in Calcutta for the homeward journey—an additional fee of Rs. 25-8-0 being charged over the ordinary first class fare.

71. Vacuum Brake for Goods Trains.—For some years after the introduction of the vacuum brake on broad gauge wagons on Indian Railways it was only used partially and progress in extending its use was slow during the war period when materials were not easily available. It was evident ~~however~~ that the full value of this equipment could not be obtained so long as the paucity of wagons fitted prevented its use throughout a train. The Railway Board therefore impressed on all broad gauge Railway Administrations the importance of increasing the number of goods wagons equipped with vacuum brake with a view to running all goods trains with vacuum brake throughout from engine to brake van. The matter has also been taken up by the Indian Railway Conference Association and a system of penalties was devised in regard to the interchange of wagons not properly equipped. The advantages of this method of operation are briefly :—

- (a) enhanced safety in train operation with better control and greater confidence to the driver;
- (b) improvement in train speeds;
- (c) through communication between guard and driver rendering it possible for the guard to apply the brake in case of emergency;
- (d) reduction in brake van tonnage on Ghat sections with corresponding increase of paying freight;
- (e) longer life of the rubber fittings of the brake as the brake is in continuous operation and the fittings do not deteriorate through disuse;
- (f) localisation and prevention of theft of vacuum fittings.

It is satisfactory to record that the efforts of the Board and of Railway Administrations have now resulted in the majority of broad gauge goods trains being equipped with the brake throughout. The figures for the month of March 1927 were as follows :—

Percentage of goods trains run with through vacuum throughout.

Bengal Nagpur	85.2
Bombay, Baroda and Central India	99.1
Eastern Bengal	81.8
East Indian	69.0
Great Indian Peninsula	99.2
Madras and Southern Mahratta	99.5
North Western	97.7
South Indian	99.4

72. External train lighting.—Since 1925 Railways have been experimenting with external lighting of trains. This system serves to augment the lighting of platforms of small roadside stations and thereby is of assistance to passengers, especially at stations with low or rail level platforms. It further provides an additional safeguard against trespass into ladies' compartments, and is of assistance in the prevention of train robberies and a deterrent to trespassers on the off side of trains when in stations.

Certain carriages on each train are fitted with two or more electric lights on either side. By means of an automatic device these lights are switched on whenever the speed of the train falls below a certain speed and remain on until the train again exceeds that speed when they are automati-

cally switched off. It is proposed to extend the use of this device and a number of additional trains are being fitted.

73. Working of the wagon pool.—The question of continuing the broad gauge wagon pool was considered at the meeting of the Indian Railway Conference Association in 1925 and the following resolution was passed:—

“That the continuance of the wagon pool be now regarded as a settled policy subject to such additions and amendments as may from time to time be approved by the Indian Railway Conference Association.”

Reference was made in the report for 1925-26 to the difficulty of disposing of the empties which, at certain times of the year, were surplus on every Railway. By reason of these surpluses certain railways incurred hire charges on foreign wagons which they did not immediately require and on which it would be unfair to charge hire. To remove this anomaly the Operating Committee for Interchange decided that with effect from 1st January 1926—

- (1) a Railway should only be called upon to pay hire on a debit balance which it has incurred to meet the needs of its traffic and under no circumstances should a Railway be called upon to pay hire on a debit balance which it does not require.
- (2) The hire due from each debtor Railway which has incurred debits for the needs of its traffic should be divided among other Railways which did not need a debit at the time in proportion to the stock which they own.

Commercial Departments of Railways continue to make use of the Car Record Section for tracing wagons. Information is available within ten days of the date of interchange showing on which Railway any wagon is located. The misuse of non-pooled stock during the year showed a substantial decrease and the return of a railway's non-pooled stock to its own line was on the whole expeditious. The return of wagons due for periodical overhaul to the Home line continues to be satisfactory.

The benefits hoped for from neutral control of wagon examination at interchange junctions under the Director of Wagon interchange have materialised in the shape of speedier adjustment of bills for damages and deficiencies, more expeditious movement of stock through junctions, larger stocks of repair material and consequent better condition of stock due to repairs being attended to at once, and consequent avoidance of stripping of materials from one wagon in order to repair another.

The amount of bills against pairs of Railways have decreased to a very appreciable extent as will be seen from a comparison of the following figures on account of wagons interchanged at junctions where neutral control is established. This indicates that wagons as a whole were in a much better running condition than in the previous year.

YEAR ENDING.			
JUNE 30TH, 1925.		JUNE 30TH, 1926.	
Total amount of bills on account of damages and deficiencies.	Total Interchange.	Total amount of bills on account of damages and deficiencies.	Total Interchange.
Rs. 2,18,65,999	448,251	Rs. 1,47,80,975	521,345
Average per wagon.	Rs. 48.8		Rs. 28.4

that is, a reduction of 48.8 per cent. in the average debit for the year ending June 30, 1925.

Neutral control of wagon examination is now in force at the following interchange junctions:—

Ghaziabad, Delhi Sadar, Khanalampura, Agra East Bank, Chheoki and Nagpur,

and discussion is in progress regarding its introduction at Naihati, Raichur, Wadi and Asansol at an early date.

A Sub Committee was appointed by the Indian Railway Conference Association during the year to consider whether a more equitable method was practicable for accounting for interchange at junctions. The recommendations made by this Sub-Committee were accepted by the Operating Committee with the result that in future the interchange account at junctions will be based on actual figures of detention instead of on an arbitrary allowance of 16 hours per wagon.

74. Coal Department.—In 1926 the coal mined in British India amounted to 20,093,024 tons against 19,969,041 tons in 1925 or an increase of 123,983 tons.

The total quantity of coal despatched from the main coalfields in India by Railways was as follows:—

	Tons.
Umariya	108,799
Singreni	320,787
Pench Valley	416,708
Bengal, Bihar and Orissa Collieries	19,080,192
28498	

Of this amount the East Indian and Bengal Nagpur Railways despatched 19,719,563 tons, i.e., East Indian Railway 13,411,401 tons and the Bengal Nagpur Railway 6,308,162 tons.

Including bunker coal, shipments from the Port of Calcutta to Indian and Foreign Ports during 1926-27 amounted to 3,092,342 tons, of which 414,246 tons was on account of Railways as compared with 437,276 tons in 1925-26.

The State Railways' Coal Department inspected 6,578,378 tons of coal during 1926-27 as compared with 7,026,729 tons in 1925-26.

Railway Collieries.—The total output from the principal Railway owned collieries for the last two years was:—

Name of Colliery.	Owned by.	TOTAL OUTPUT (IN TONS).		DISTRIBUTION IN 1926-27 (IN TONS).				Sales and consumption at Colliery.
		1925-26.	1926-27.	E. I. R.	B. N. R.	E. B. R.	G. I. P. R.	
Bokharo-Ramgarh	E. I. & B. N.	721,376	652,068	311,026	321,432	...	...	19,610
Kurhurbaree and Serampore	E. I. . .	763,622	755,319	546,785	...	...	...	208,534
Kargali	G. I. P.	605,439	678,514	118,198	...	124,255	436,061	...
Mohpani	G. I. P.	76,514	49,837	...	...	...	49,837	...
Sawang	E. I. & B. N.	58,662	56,427	...	40,073	...	...	7,354

Kargali.—(a) **Central Power Station.**—During the year the Central Electric Supply Station was completed and tests on the electrical side gave every satisfaction. Considerable trouble however has been experienced up to date with the type of stoker installed.

The high tension transmission line has been completed as far as Jarangdih and the electrification of both Kargali and Jarangdih Collieries is well in hand.

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Arrangements are being made by the East Indian Railway to tap the main transmission line where it traverses their property and it is expected that power for the Bokaro Joint Colliery will be taken towards the end of 1927.

(b) *Colliery*.—At Kargali the introduction of the broad gauge line into the quarry itself has greatly facilitated the method of working and the flexibility and simplicity of the scheme admits of giving rapid and increased outputs if required.

The two electrical winders at the main shafts are almost finished and underground development will start early next year.

Mohpani.—The closing down of this Colliery has been rather a lengthy operation as considerable time was taken in withdrawing all the underground Plant and in flooding the workings to prevent fire.

Preparations are now being made to hand over the property to the civil authorities.

Bhurkunda.—Development work underground is proceeding satisfactorily both in the Simana and Nakari Seams and immediately the rail connection is made, the Colliery will be in a position to commence despatches. It is expected to despatch 120,000 tons of coal to the North Western Railway during 1927-28.

A Power House of 1,000 K. V. A. capacity is now being built to provide electric power both for Bhurkunda and Religara Collieries. The Station will be completed by the end of 1927.

Jarangdih.—Both shafts have now been sunk to the main (Kargali) seam and a start has been made on the underground developments.

Considerable difficulty was experienced in driving roads in the vicinity of the shaft bottom as, at first, the strata was faulted and badly broken. The progress now is satisfactory as the seam has again resumed its normal structure and 'bedding'.

The rail connection, Colliery siding and weighbridges were completed at the close of the year. Arrangements are being made to despatch 120,000 tons to the Bombay, Baroda and Central India and Madras and Southern Mahratta Railways during 1927-28.

Religara-Dari.—It has been decided to hold the development work of this Colliery in abeyance until a railway connection is obtained.

Talcher.—All development work has been held in abeyance as the terms of the mining lease were not settled during the year under review.

CHAPTER V.

ROLLING STOCK AND MATERIALS.

75. Additions to equipment.—The equipment and the net additions to equipment during 1926-27 are summarised in summaries Nos. VIII and IX in Volume II of this report. The details for individual lines will be found in statements Nos. 10, 11, 33 and 34.

During the year the following rolling-stock including arrears of previous years was on order for the broad and metre gauge railways:—

Item.	Broad Gauge.	Metre Gauge.
Locomotives	163	150
Coaching stock	3,490	1,026
Goods stock	7,971	5,676

Against these orders the numbers placed on the line by the end of the year were as follows:—

Item.	Broad Gauge.	Metre Gauge.
Locomotives	100	37
Coaching stock	1,474	400
Goods stock	5,429	2,867

The numbers of coaching and goods stock are stated in terms of four-wheeler units. These numbers shown as placed on the line do not, however, represent the actual net additions to the rolling-stock on railways, as many of the units were required to replace existing vehicles which had reached the end of their useful life.

76. The following statement shows the net additions to or reductions of rolling-stock on Class I Railways during 1925-26 and 1926-27:—

	5' 6" GAUGE.		3' 3½" GAUGE.	
	1926-27.	1925-26.	1926-27.	1925-26.
Locomotives—				
Number	—130	—18	—8	18
Total increase or decrease in tractive effort in pounds, during the year.	—289,887	2,099,251	368,307	408,190
Coaching Stock—				
Passenger carriages—				
Number	201	139	93	—2
Seats.				
1st	1,258	379	105	65
2nd	785	700	452	373
Inter	5,107	3,607	17	51
Third	25,350	28,688	7,487	2,940

	5' 6" GAUGE.		3' 3½" GAUGE.	
	1926-27.	1925-26.	1926-27.	1925-26.
Other coaching vehicles—				
Number	307	228	16	14
Goods stock—				
Wagons—				
Number	1,837	4,779	1,445	1,668
Increase in capacity in tons .	67,523	135,848	32,086	24,899
Other goods vehicles—				
Number	149	—397	88	291

Locomotives on Class I Railways, Broad and Metre Gauge, thus decreased by 138 in number although there was an increase in the total tractive effort of 78,420 lbs. This was due to the policy of steadily replacing condemned engines of low tractive effort by modern engines of higher tractive effort and is reflected in the average tractive effort per locomotive which on the broad gauge rose from 21,226 to 21,717 lbs., and on the metre gauge from 12,352 to 12,530 lbs.

The net addition to coaching vehicles was 294 passenger carriages and the increase in lower class seating accommodation was 37,961 seats. 1,874 coaching vehicles of all descriptions, replacements as well as additions, were placed on the line during the year as compared with 1,478 in 1925-26. In addition 4,516 were on order during the year and will be placed on the line in subsequent years.

The net addition to goods wagons amounted to 3,282 as against 6,447 in 1925-26. The increase in carrying capacity amounted to 67,523 tons on the broad gauge and 32,086 tons on the metre gauge.

77. Standardization of Locomotives.—Considerable progress has been made with the design and construction of the 8 new types of Broad and Metre Gauge trial locomotives referred to in last year's Report and it is anticipated that they will be put into service during 1927.

The Locomotive Officer on special duty with the Consulting Engineers has been in constant communication with the Locomotive Standards Committee in India on all matters connected with the design and equipment of the new locomotives. He has also kept the Committee advised of the latest developments in locomotive practice and consulted them regarding those which might with advantage be incorporated in the locomotives now under construction. As a result these locomotives will embody all the latest improvements and be thoroughly up-to-date and efficient.

In pursuance of their policy of progressive standardization, the Railway Board have also arranged for designs to be prepared and orders to be placed for four experimental four-cylinder 4-6-2 Broad Gauge locomotives with a high boiler pressure. The general design of these engines will follow closely upon that of the 4-6-2 standard heavy passenger locomotive, but their boilers will have a working pressure of 225 lbs. per square inch and they will be provided with cam shaft operated poppet valves, arranged to give a constant release and compression at all points of cut-off.

With regard to the standardization of Narrow Gauge locomotives (2' 6" and 2' 0"), the Consulting Engineers are engaged in the preparation of the

detail designs for nine different types and it is hoped that the work will have progressed sufficiently to permit of orders for trial locomotives being placed shortly.

The Consulting Engineers have also under preparation detail designs of new standard light and heavy 0-8-0 type Broad Gauge Shunting Engines to specifications and diagrams drawn up by the Locomotive Standards Committee and 5 light and 4 heavy trial engines of this type have been ordered.

78. Standardization of Rolling-Stock.—The design and construction of the new standard wagons and coaching stock underframes, referred to in last year's report, have been proceeded with and it is anticipated that the sample wagons and underframes will be put into service during 1927.

With the object of reducing the cost of manufacture and maintenance, the Railway Board considered the desirability of adopting various standard types of coaching stock bodies for use on all State Railways and convened a meeting of the Carriage and Wagon Superintendents to go further into the question.

Drawings were prepared based on their recommendations and sample coaches built in the workshops of each of the State Railways. These sample coaches were subsequently inspected by the Carriage and Wagon Standards Committee and it was decided to build 5 more sample bodies to designs amended in accordance with their recommendations. These revised sample bodies are now under construction and it is hoped that, when they have been completed, it will be possible to arrive at a decision on the question of standardization of coaching bodies.

79. Development of the use of Indigenous Timbers for Sleepers and Carriage Building.—Investigations have been continued into the possibilities of meeting the increasing demands for wooden sleepers by extending the use of cheaper indigenous timbers. These investigations are being made in collaboration with the staff of the Forest Research Institute, who have already carried out a great deal of invaluable research work in this connection.

The creosoting plant which was established in the Punjab by the North Western Railway for the preservative treatment of Himalayan soft-woods has now become an established factor in sleeper supply in that part of India. It is intended to instal another sleeper-treating plant in Assam during 1927-28 for the preservative treatment of certain common Assam hard-woods which have been found by the Forest Research Institute's experiments to promise well as sleeper woods. The Railway Board have sanctioned the employment of Mr. J. H. Warr by the Assam Bengal Railway as Manager of their sleeper-treating plant. Mr. Warr has been Officer-in-Charge of the Wood Preservation Section of the Forest Research Institute, Dehra Dun, for the last 3½ years. The further development of sleeper-treating in other parts of the country is under investigation.

Practical trials of small lots of some of the more common indigenous timbers for carriage building are also being made at the Carriage Shops of several Railways, after artificial seasoning of the timber in the Forest Department's kilns at Dehra Dun and Rangoon, and it is intended to build five or six complete trial carriages of similarly seasoned timbers. The Railway Board have under consideration the question of installing a central kiln-seasoning plant, from which artificially seasoned planking, etc., can be distributed to all the State Railways in large enough quantities to enable the staff of the Carriage and Wagon Shops to gain practical experience of it. The results of all these experiments and trials will be watched carefully, as they are expected to indicate to what extent Railways can with advantage undertake the artificial seasoning of timber at their Carriage and Wagon Shops.

80. Sleeper Pool Committee.—The Sleeper Pool Committee was formed during the year as a separate body, with the Director of Civil Engineering, Railway Board, as Chairman and the Timber Advisory Officer with the Railway Board as Secretary, to arrange for the purchase and distribution of wooden sleepers: this had previously been one of the functions of the Stand-

ing Committee of Chief Engineers (now abolished). In accordance with the recommendations of the Sleeper Enquiry Committee, whose report was published in 1924-25, the Committee of the Northern Group of the Sleeper Pool and representatives of the Punjab, United Provinces, and Kashmir Governments met in July 1926 and jointly recommended a scheme for sleeper supply for 1928-29 and afterwards. This scheme was still under the consideration of the Local Governments and the Railway Board at the close of the year.

81. Supply of Rails and Fishplates from indigenous sources.—The year under review was the last year of the Railway Board's pre-existing 7-year contract with Messrs. The Tata Iron and Steel Company, for the supply of rails and fishplates to the State-worked Railways. The total demands of the State-worked Railways for supply during the year 1926-27, amounted to 97,928 tons and orders for the entire quantity were placed with the Steel Company. The demands of the Company-worked Railways for which orders were placed with the Company amounted to 50,683 tons. Orders for the balance, being in excess of Tata's output, were placed abroad. Of these demands the Steel Company were able to supply 97,163 tons to the State-worked Railways and 50,675 tons to the Company-worked Railways leaving a balance of 773 tons, to be carried over into the year 1927-28.

During the year, however, negotiations for another contract for the supply of rails and fishplates to the State and Company-worked Railways were entered into with Messrs. The Tata Iron and Steel Company. These negotiations took a more definite shape on receipt of the report of the Tariff Board on continuance of protection to the Steel Industry. In paragraph 109 of that report the Tariff Board had recommended as follows:—

"It is obviously a matter of grave importance to the industry that nothing should occur which might render the protection on rails ineffective. The duty on rails of Rs. 13 per ton, which we have proposed, is very low, and the cost of production on which it is based presupposes that the industry obtains orders sufficient in each year to enable it to work up to its maximum rail output. We estimate that the average annual rail output of the Tata Iron and Steel Company will not exceed 200,000 tons during the next seven years and if a duty of Rs. 13 per ton only is imposed on rails, it is essential that the Railway Administrations should arrange to purchase the whole of their requirements of rails in India so far as they can be produced in the country. The f.o.r. fair selling price of rails at Jamshedpur, is so low, namely, Rs. 110 a ton, that the Indian railways as a whole would undertake no great sacrifice if any purchased the Company's output of rails on the average at this price. A reduction in the orders of rails by some 40,000 or 50,000 tons would raise the cost of production by several rupees, and if the Government are unable to arrange with the Railway Administrations that orders are placed for the whole of the Company's production of rails a substantial increase in the duty should be made."

In paragraph 87 of the same report the Tariff Board observed:—

"The future price of rails is affected by the reconstitution of the European Rail Makers' Association in the middle of 1926. This Association now controls all exports of rails and fishplates from the leading European countries and reserves to each country its own internal markets, which in the case of the United Kingdom include also the markets of the Dominions, India, and the Colonies. Continental rails will therefore no longer be exported to India and it appears to us improbable that the price of rails will be further reduced. On the contrary, some increase in price may be expected and we have thought it advisable, in fixing our estimate of the probable price of imported rails during the period of protection, to allow for an increase of ten shillings per ton."

The Government of India concurred in the views of the Tariff Board and in consultation with the Company-worked Railways and the Secretary of State for India decided to enter into a contract with the Tata Iron and Steel for a period of 7 years for the requirements of State and Company-worked Railways. The terms of the contract were under the consideration of Government at the close of the year.

82. Conversion of saturated engines to superheater.—The Railway Board, recognising the economies in locomotive operation that result from the use of superheated steam, put forward a proposal to the Agents of all Class I Railways early in 1926 to accelerate the programme for the conversion of saturated locomotives, with a view to its completion in 1929-30 instead of spreading the work over a period of 5 years, as had been previously provided for. They further suggested that, if the additional details necessary for such conversion could be standardized, it would result in a considerable reduction in expenditure both as regards first cost and subsequent maintenance charges.

The replies which the Railway Board received from Railways showed that there was sufficient unanimity in favour of their proposal to permit of steps being taken to put it into effect. They consequently, in consultation with the Consulting Engineers, undertook the preparation of the detail drawings of standard conversions for all of the B. E. S. A. types of locomotives and sufficient progress has been made in this connection to permit of Railways carrying out their 1927-28 accelerated conversion programmes in accordance with the standard designs. It is anticipated that the work of conversion of saturated locomotives will be completed by 1929-30, as intended.

83. Electric Headlights for Locomotives.—The Railway Board decided early in 1925 that, as a safety measure on State-worked Railways electric headlights should be provided on all locomotives working mail, passenger or mixed trains whether on double or single line sections. Branch lines, where trains are infrequent and run at slow speeds, were however exempted from this decision. It was recommended also that Company-worked Railways should adopt a similar programme. The work is scheduled to be completed by the 31st March 1928.

The total number of Mail, Passenger and Mixed engines belonging to Class I Railways, equipped with electric headlights at the end of March 1927 was 1,700 out of a total of 3,139.

84. Automatic Centre Buffer Coupler.—During the year further experiments were carried out in order to determine what alterations to existing underframes will be necessary to withstand the strains imposed by central buffing. The trials showed that, so far as the Indian Railway Conference Association wagons are concerned, the necessary strengthening can be carried out at a reasonable cost and that vehicles so altered are capable of withstanding the severe shocks which may be expected under service conditions. The question of strengthening the underframes of the older types of wagons is still under investigation, and after it has been decided what alterations are necessary, it is proposed to review again the financial aspects of the change over from side buffers to central buffer couplers. In the meantime, it has been arranged that all new locomotives and rolling-stock should be fitted with a yoke type of draft gear which will enable conversion to be effected by merely replacing the temporary draw hook with an automatic central buffer coupler. The two types of couplers under consideration for adoption namely the M. C. B. and Willison being different in principle will not intercouple and it is therefore not feasible to permit of both types being tried out in general service simultaneously. The good and bad features of the M. C. B. type are known from experience in other countries, and as the Willison Coupler is an experimental type of sufficient merit to warrant more extended trials, orders were issued to remove all M. C. B. type couplers in order to permit of stock fitted with the Willison Coupler, which has an efficient and effective transition device, to continue in service. Trials of the Willison Coupler are therefore being continued and

their application has been extended to coaching vehicles. Two Passenger rakes operating on the East Indian and Madras and Southern Mahratta Railways have been fitted with Willison Couplers throughout with a view to ascertaining how this type of coupler behaves under continuous service conditions.

85. Report of the State Railways Workshops Committee.—The report of the State Railways Workshops Committee referred to in last year's report was received in April 1926.

The first and second terms of reference related to the capacity of the existing shops to deal with the repairs to rolling-stock and locomotives, and the necessity for expansion.

The Committee recommended the re-organisation of the State Railways Workshops and the introduction of a scheduling system based on modern British and American commercial works practice modified to suit Indian conditions, which has for its object:—

- (a) the correct sequence of repairs to component parts.
- (b) the balancing of operations, and
- (c) the concurrent working of the various labour gangs.

If these are attained then delay through waiting for material and idle time between operations are eliminated and the period locomotives and vehicles are detained in workshops reduced, without necessarily speeding up the several operations.

In addition to lowering the unit repair costs the scheduling of workshop operations reduces the period of repair resulting in a greater percentage of the rolling-stock being available for service.

The results which have already been obtained in some of the mechanical workshops indicate that it will be possible to carry out repairs to rolling-stock in shorter periods than those laid down in the report and the expenditure which it will be necessary to incur in remodelling the existing shops will, it is hoped, be considerably less than was originally estimated by Railways or anticipated by the Committee.

The North Western Railway proposed to build new 40 pit locomotive shops at Karachi and Sukkur and to increase the accommodation in Rawalpindi to 20 pits. The Committee were of the opinion that there was no justification for shops at Karachi and Rawalpindi and considered that the provision of a new 40 pit shop at Sukkur would meet present requirements. It is now proposed that the new shop at Sukkur should only be provided with 32 pit accommodation, which together with the existing shop at Lahore, should be capable of maintaining all the locomotive stock in an efficient state of repair for the next eight years.

The Committee further recommended that new wagon repair shops with covered accommodation for 50 wagons should be provided at Rawalpindi and Sukkur, in addition to a new 100 unit shop at Karachi but it is not now considered necessary to provide any additional wagon repair facilities over and above the proposed new shop at Karachi.

Similar reductions are being made in the proposals for additional repair facilities on the other State Railways, for example, the Great Indian Peninsula Railway proposed to spend approximately 1½ crores of rupees on remodelling the locomotive and carriage and wagon repair shops at Jhansi, but it is now anticipated that the expenditure which it will be necessary to incur will be considerably less than 1 crore.

The East Indian Railway proposal to build a new locomotive shop at Jamalpur with 90 pits was cut down to a 70 pit shop by the Committee, but a re-examination of requirements in the light of recent experience indicates that a 54 pit shop is all that will be found to be necessary.

The locomotive and carriage shops at Karachi and the carriage and wagon shops at Rawalpindi on the North Western Railway, also the Bhusawal wagon shops on the Great Indian Peninsula Railway have already been closed down and it is anticipated that as the re-organisation proceeds it will be possible to close down also the shops at Rawalpindi and the carriage repair shop at Bhusawal.

The third, fourth and fifth terms of reference related to the concentration of the manufacture of spare parts, which is at present being carried out in all the larger workshops. The recommendation is to concentrate this work at Jhansi and Jamalpur and also to concentrate the building of all lower class coaching stock at Lilloah and miscellaneous four-wheeler coaching stock at Kanchrapara.

The economies which will accrue by the adoption of the recommendation to concentrate the manufacturing portion of the work may briefly be summarised as under:—

- (a) An increase in the number of similar items manufactured in particular shops which in a large number of cases will be sufficient to justify the installation of single purpose machines specially designed for their economic production.
- (b) Greater labour efficiency as a result of repetition work.
- (c) Reduction in the cost of supervision owing to the charges being spread over a greater volume of work.
- (d) Greater facilities for manufacturing all details on an interchangeable basis.
- (e) Lower labour and raw material costs due to work being concentrated in shops which are advantageously located in these respects.

The delivery of carriage underframes obtained from outside sources has proved to be so unreliable as to make it impossible to adhere to a regular building programme, and with the further concentration of carriage building such delays would be disastrous. The Committee for this reason have recommended that railways should undertake the manufacture of carriage underframes with a view to obtaining a more regular supply to the body building shops.

The sixth term of reference was connected with the question of the relative cost of spare parts manufactured in railway workshops and obtained from outside sources. The Committee considered that railway workshops can effectively compete with outside firms in this matter, but pointed out that railway costs are not always comparable with costs quoted by outside firms.

The Railway Board have accepted the main underlying policy of the report, namely, the modernisation of the State Railways workshops methods and have issued instructions to Agents of Railways for giving immediate effect to it. They have approved of the introduction of a progress system for the scheduling of repairs throughout the works, also a planning and production branch in each of the larger shops.

Mr. Wrench, who was a Member of the Committee, has been placed on special duty to assist administrations in giving effect to the Committee's recommendations and it is hoped that during the next financial year considerable economies will be effected.

As regards the findings of the Committee under term 6, the Board have had their workshop account system overhauled by Sir Arthur Dickinson, and

it is hoped to introduce an accounting system whereby the costs in Railway Workshops will be directly comparable with the costs quoted by outside firms.

In addition to the recommendations referred to above, the Committee have made several subsidiary recommendations, amongst them, for instance, the revision of the methods of store-keeping in the workshops, and the Railway Board are making arrangements to give effect to these recommendations.

86. Wagon requirements of Railways.—The whole question of wagon requirements was carefully examined by the Railway Board during the year in the light of the improvements which have been brought about by better organisation and methods of working, aided by the large sums of money which have been made available during the last two or three years. Among these improvements on the broad gauge may be mentioned:—

(1) *A reduction in the percentage of wagons under repairs from 7·4 per cent. in 1923-24 to 5·8 per cent. in 1926-27.*

(2) *The strengthening of tracks and bridges resulting in increased carrying capacity.*—As an instance the recent completion of the last important bridge in the Bridge Renewal Programme on the East Indian Railway is enabling the major portion of the East Indian Railway wagons to have their carrying capacity marked up from 19 tons to 22 tons, giving an equivalent in total extra carrying capacity of an additional 3,500 wagons.

(3) *Improvement of marshalling yards and terminal facilities and better working in marshalling yards.*—The insistence on the principle of marshalling for long distances has quickened up the turn round of wagons. In this connection and with this object in view several of the most important marshalling yards are undergoing or have undergone remodelling and at the same time the work of marshalling or sorting in these yards has been improved by a closer attention to statistical results. As an instance it may be mentioned that in the Delhi area improvements in working have resulted in the saving of 16 hours on each wagon and as no less than 2,000 wagons pass through this area daily there is an equivalent saving of 1,300 wagons throughout the year. Other large marshalling yards have been improved during the past few years and similar economies in the use of wagons have been obtained. This improvement in some instances has been due to the introduction of hump yards resulting in the time taken to break up trains being reduced from 1½ to 2 hours to about 30 minutes. It is therefore evident that the provision of additional hump or gravity yards will further improve the wagon position.

(4) *Reduction of train mileage by doubling tracks or adopting new routes.*—As an instance of this may be mentioned the completion of the doubling of the Grand Chord on the East Indian Railway where it will be possible to work 10 additional goods trains over this section instead of over the old main line resulting in a saving of 50 miles on each train journey. The saving in wagons from this cause is estimated to be about 600. Again the amalgamation of the Oudh and Rohilkhand Railway with the East Indian Railway together with improvements on the main line of the Oudh and Rohilkhand Railway has made available a shorter route to the Punjab with a considerable saving in mileage in each of the trains diverted over that route. Moreover considerable delays have been obviated by the elimination of junctions brought about by certain changes in the limits of the jurisdiction of the various State-managed Railways.

(5) *Extension of the use of telephone train control.*—The following sections have been equipped with telephonic train control under

sanction of the Railway Board during the last 5 years:—

Train Control.

Railway.	Section.	Miles.
B. N.	Shalimar-Tatanagar	154
	Berhampore-Waltair	173
B. B. & C. I.	Bandikui-Ajmer	140
	Bandikui-Agra Fort	94
	Ajmer-Sojat Road	74
E. I. (O. & R. Section)	Raisi-Moghalserai	482
	Cawnpore-Lucknow	46
M. & S. M.	Poona-Miraj	160
	Bezwada-Waltair	217
	Arkonam-Raichur	308
	Jalarpet-Bangalore City	87
	Miraj-Londa	117
	Castle Rock-Gadag	102
S. I.	Gadag-Bezwada	403
	Tanjore-Madura	127

and other sections have been equipped under sanction of railway administrations.

As an instance of the improvement which can be effected by the use of this device coupled with suitable adjustment of block sections it may be mentioned that on the Allahabad-Cawnpore section of the East Indian Railway, which is a single line, the maximum number of goods trains which it was possible to work before the introduction of train control was 8 or 9 in each direction. Since train control has been introduced the maximum capacity of the section has been increased to 13 trains in each direction.

(6) *Increased speed of trains owing to the better use of vacuum brakes.*—The average speed of main line goods trains from start to finish including stops *en route* has increased from 9·08 miles per hour in 1923-24 to 10·1 in 1926-27.

(7) *Improvements in the average carrying capacity of wagons.*—The improvement already effected in recent years by replacements has already begun to have its effect on the total average carrying capacity per wagon which has increased from 19·4 tons in 1923-24 to 19·7 tons in 1926-27.

Though the full effect of these additional facilities had still to be experienced, it was clear to the Railway Board that they were already entitled to expect a considerable improvement in the wagon user of all important railways, with the result that fewer wagons than before would be required to carry a similar volume of traffic efficiently and expeditiously; and they therefore, in consultation with the administrative head of each of the Class I railways, arrived at an average figure of the net ton miles per wagon day which it would be reasonable to expect that railway to attain. It should be mentioned that this figure necessarily varies on different railways, for it is dependent, among other things, on the average load of good traffic, on the proportion which heavy traffic bears to total traffic, on the balance of traffic, and on the extent of the graded sections of the line. It was then decided that until the actual wagon user figure of a railway approached the figure thus fixed no increase to the general service wagon stock of that railway was warranted. Applying the formula thus arrived at, the Railway Board found that none of the broad gauge systems required any additional general

service wagons in 1927-28, or indeed in 1928-29 so far as it was then possible to judge the traffic likely to offer itself in that year; and further that on most broad gauge railways it would be possible to scrap without replacement worn out or obsolete general service wagons, which in other circumstances would have been renewed. They therefore decided that they would not be justified in placing any orders for broad gauge general service wagons for delivery in 1927-28.

It was obvious that this decision of the Railway Board would cause considerable inconvenience to the wagon building industry in India. The question was therefore discussed more than once with the representatives of the firms and careful consideration was given to the proposals made by them. Eventually Government offered to call for tenders, in India only, for such miscellaneous wagons and underframes as would be required in 1927. Moreover Government agreed to instruct the State-worked Railways to place orders in India only for such spare parts of rolling-stock as they required and could not conveniently make in their own workshops and to call for tenders in India only for shedding, roof trusses and bridges spans up to 80 feet.

The wagon building firms at the same time were advised that in the event of either the Indian Standard Wagon Company or the Peninsula Locomotive Company preferring in lieu of this offer that their works should be taken over by Government, the latter would be prepared to purchase the works if after due inspection a fair price could be agreed upon. It was also made clear to them that if the Government should take over the works of the two companies it was their intention to use those of the Indian Standard Wagon Company for the manufacture of railway wagons and those of the Peninsula Locomotive Company for the manufacture of underframes.

On the 6th of January 1927 Government made a definite offer for the purchase of the works of these two firms. The Indian Standard Wagon Company rejected the offer but the Peninsula Locomotive Company accepted it.

The Government of India, therefore, in pursuance of their decision instructed the State-worked Railways and invited Company-worked Railways to call for tenders in India only for their 1927-28 requirements of carriage underframes and wagons. As a result orders were placed with the Indian Standard Wagon Company, Burn & Co., and Jesson & Co., for the following underframes and wagons for delivery in 1927-28:—

163 B. G. Bogie wagons

1218 M. G. 4-wheeled wagons

444 B. G. bogie underframes

95 B. G. 4-wheeled underframes

and the placing of some further small orders was still under consideration. The necessary arrangements for the purchase of the Peninsula Locomotive Company's works were also under consideration.

87. Value of railway materials purchased.—The value of stores purchased by Indian Railways in 1926-27 fell from Rs. 23.30 crores to Rs. 23.14 crores, excluding coal, stone, bricks, lime, etc. There were increases in the total value under tools and stores (90 lakhs), permanent way (74 lakhs), electric plant (31 lakhs), engineers plant (26 lakhs) and workshop machinery (10 lakhs), but these increases were more than set off by a large decrease under rolling-stock (237 lakhs).

The value of indigenous materials rose from Rs. 8.72 crores or 37.4 per cent. of the total to Rs. 10.60 crores or 45.3 per cent. If coal, stone, bricks, lime, etc., are included the percentage comes to 55 per cent. The

principal increases in indigenous materials were under "Permanent way," the value of which advanced by over a crore of rupees and "Tools and stores" which increased by 64 lakhs.

Statement showing value of stores purchased under principal headings.

Headings.	VALUE OF IMPORTED MATERIALS.			Value of indigenous materials.	Total purchases 1926-27.	Total purchases 1925-26.
	Purchased direct.	Purchased through Agents in India.	Total imported materials.			
	Rs. crores.	Rs. crores.	Rs. crores.	Rs. crores.	Rs. crores.	Rs. crores.
Rolling-stock	3.27	0.69	3.96	0.83	4.79	7.16
Tools and stores	0.84	2.96	3.80	3.86	7.66	6.76
Permanent-way	0.85	0.38	1.23	5.40	6.63	5.89
Electric plant	0.86	0.68	1.54	0.04	1.58	1.27
Building and station materials and fencing	0.24	0.37	0.61	0.25	0.86	0.92
Bridge work	0.28	0.05	0.33	0.17	0.50	0.54
Workshop machinery	0.42	0.27	0.69	0.01	0.70	0.60
Engineer's plant	0.21	0.17	0.38	0.04	0.42	0.16
Other materials*	...	...	...	4.89	4.89	...
TOTAL	6.97	5.57	12.54	15.49	28.03	23.30

88. The purchases by Railways through the Indian Stores Department under the principal heads were as follows:—

	(In thousands of rupees).
Textiles	26.02
Oils	11.96
Steel	8.24
Cement	7.31
Plant and Machinery	6.64
Paints	2.60
Parts of rolling-stock	75
Roof material	67
Miscellaneous	3.16
TOTAL	67.35

89. It must be remembered, however, that the above figures of value of stores purchased do not take into account the very large expenditure in India on work done and materials manufactured in Railway Workshops. An attempt has been made this year to arrive at figures of this expenditure

* Other materials consist of coal, stone, lime and ballast, etc., and figures for 1925-26 are not available.

as well as the cost of structural and other engineering works carried out "in situ." The figures include a certain amount of expenditure on the purchase of stores which is already included in the statement of value of railway materials purchased.

Cost of work done and materials manufactured in railway workshops.

	(In thousands of rupees).
1. Construction of Locomotives	61,88
2. Construction of Boilers	5,07
3. Construction of coaching stock including underframes	1,59,76
4. Construction of goods stock including underframes	40,55
5. Construction of spare parts of Locomotives	1,34,68
6. Construction of spare parts of Coaching and Goods stock	1,20,65
7. Construction of other Stores	1,15,78
8. Work done for other Departments (i.e.) departments other than that supervising the Workshops	2,45,50
9. Engineer's plant	45,38
10. Permanent-way	12,65
11. Bridge work	31,32
12. Other Engineering works	4,04,93
	<u>13,78,15</u>

Cost of structural and other engineering works carried out 'in situ.'

	(In thousands of rupees.)
Bridge work	94,53
Structural and other engineering works	3,49,74
	<u>4,44,27</u>

CHAPTER VI.

STAFF.

90. Number of staff.—The total number of employees on Indian Railways at the end of the year 1926-27 was 763,097 as compared with 750,079 at the end of 1925-26. The increase in route mileage during the same period was 421 miles. The following table shows the number of employees by communities on 31st March 1926 and 1927†:—

Year.	Europeans.	STATUTORY INDIANS.					GRAND TOTAL.
		Hindus.	Muslims.	Anglo-Indians.	Other classes.	Total.	
1925-26	5,017	542,613	166,714	13,659	22,046	745,062	750,079
1926-27	5,012	550,053	169,699	14,079	24,254	758,085	763,097

91. Cost of staff.—The following statement shows the cost of staff employed on Class I Railways during the years 1925-26 and 1926-27:—

Railway.	1925-26. Rs.	1926-27. Rs.
Assam-Bengal	51,48,420	58,13,675
Bengal-Nagpur	2,75,18,436	2,77,16,540
Bengal and North Western	70,76,187	71,11,372
Bombay, Baroda and Central India	4,28,31,328	4,39,14,424
Burma	1,46,58,207	1,52,35,564
Eastern Bengal	*2,29,06,122	2,44,66,745
East Indian	*6,28,52,884	6,48,68,080
Great Indian Peninsula	*5,48,88,982	5,84,93,346
Jodhpur	24,12,558	24,51,578
Madras and Southern Mahratta	*2,39,18,904	2,43,90,413
Nizam's Guaranteed State	54,97,257	54,86,340
North Western	*5,84,74,000	6,20,45,765
Rohilkund and Kumaon	*16,18,936	17,27,683
South Indian	*1,72,59,747	1,83,05,534
TOTAL	34,70,61,968	36,20,27,059

With the exception of His Exalted Highness the Nizam's Guaranteed State Railway all Railways show increases in expenditure on staff in 1926-27, which is attributable to the large construction programme and to ordinary increments under the time scale of pay.

92. Recruitment and Training of Officers.—The scheme referred to in last year's report received the sanction of His Majesty's Secretary of State in Council during the year and Regulations for recruitment in India to the following Railway Services were published under Government of India, Railway Department Resolution No. 2058-E., dated 15th July 1926:—

- (1) Indian Railway Service of Engineers.
- (2) Transportation (Traffic) and Commercial Departments of the Superior Revenue Establishment of State Railways, and

* Revised figures.

† Revised since the publication of Vol. II of the Report.

(3) The Mechanical Engineer and Transportation (Power) Departments of the Superior Revenue Establishment of State Railways.

Seven vacancies in the Indian Railway Service of Engineers and six in the Transportation (Traffic) and Commercial Departments were filled during the year under these regulations. Quota Committees were formed by Provincial and Local Administrations for the selection of candidates in each area and about 102 candidates were nominated for the two examinations. All the Provinces except Burma were represented at the examination which was held by the newly formed Public Service Commission in Delhi early in November. The successful candidates were duly appointed as probationers in the Indian Railway Service of Engineers and Transportation (Traffic) and Commercial Departments early in 1927. No selection of special class apprentices was made under the new regulations for recruitment to the Mechanical Engineer and Transportation (Power) Departments as applications had already been invited and selection made of 6 apprentices under an existing scheme of recruitment and training of this class of apprentices.

During the year under review the Board had under preparation schemes for the recruitment and training in India of officers for—

(1) Electrical Engineers.

(2) Signal Engineers.

93. Indianisation.—The following statement shows by Class I Railways the number of gazetted officers on State-managed Railways and officers of corresponding rank on Company-managed Railways on 1st April 1927 as compared with 1st April 1926. Full details of the numbers by departments will be found in Appendix F which also contains similar information relating to subordinates on scales of pay rising to Rs. 250 per mensem and over.

Statement of gazetted officers on State-managed Railways and officers of corresponding rank on Company-managed (Class I) Railways (excluding H. E. H. the Nizam's Guaranteed State and Jodhpur Railways) on the 1st April 1927 as compared with 1st April 1926.

Name of Railway.	1st April 1926.						1st April 1927.						INCREASE +, DECREASE -					
	Statutory Indians.					Grand Total.	Statutory Indians.					Grand Total.	Statutory Indians.					Grand Total.
	Europeans.	Hindus.	Muslims.	Anglo-Indians.	Other classes.		Europeans.	Hindus.	Muslims.	Anglo-Indians.	Other classes.		Europeans.	Hindus.	Muslims.	Anglo-Indians.	Other classes.	
A. B.	50	7	1	5	...	63	53	10	3	6	...	72	+3	+3	+2	+1	...	+6
B. N.	167*	30	6	15*	...	218*	162	38	5	12	...	207	-5	-2	-1	-3	...	-6
B. & N. W.	58*	4	1	...	...	63*	61	5	...	...	...	66	+3	+1	-1	...	...	...
B., B. & C. I.	153	20	...	9	14	196	148	21	1	10	15	195	-5	+1	+1	+1	+1	+4
Burma	94*	4	...	11	6	115	94	4	...	14	6	118	...	...	...	+3	...	+3
E. B.	78*	37*	2	11	3	131*	78	36	3	12	4	133	...	-1	+1	+1	+1	+2
E. I.	219	46	13	32	5	315	238	60	15	55	6	369	+7	+12	+3	+23	+1	+39
G. I. P.	194	25	7	13	8	247	192	25	6	15	9	247	-2	...	-1	+2	+1	+3
M. & S. M.	121	22	3	7	3	156	128	30	...	7	3	168	+7	+8	-2	...	...	+6
N. W.	197	66	21	20	5	318	218	79	21	26	7	351	+21	+13	...	-3	+2	+43
R. & K.	12	1	...	...	...	13	12	2	1	...	...	15	...	+1	+1	...	...	+3
S. I.	104*	23*	1	4	1	133*	105	39	2	4	3	153	+1	+16	+1	...	+2	+19
Railway Board and Miscellaneous officers	40	7	3	16	2	78	43	3	1	8	1	56	-6	-4	-2	-8	-1	-15
TOTAL	1,496*	294	56	152*	47*	2,045*	1,620	342	58	160	51	2,143	+24	+48	+2	+17	+7	+74

* Revised figures.

Statement showing percentages of total officers employed.

	EASTERN BENGAL, EAST INDIAN, GREAT INDIAN PENINSULA AND NORTH-WESTERN RAILWAYS.		TOTAL CLASS I RAILWAYS (EXCLUDING NIZAM'S GUARANTEED STATE AND JODHPUR RAILWAYS).	
	1st April 1926.	1st April 1927.	1st April 1926.	1st April 1927.
Europeans	67.98	65.32	73.15*	70.93
Statutory Indians—				
Hindus	17.39*	18.30	14.38*	15.96
Muslims	4.15*	4.12	2.74*	2.71
Anglo-Indians	8.40*	9.88	7.43*	7.88
Other classes	2.08*	2.38	2.30*	2.52
TOTAL	32.02	34.68	26.85*	29.07

* Revised figures.

The number of Indians filling gazetted posts increased from 26.85 per cent. to 29.07 per cent. On the four State-managed lines the increase was from 32.02 per cent. to 34.68 per cent. On the Eastern Bengal Railway 41 per cent. of these posts are held by Indians.

94. Vacancies among officers and how filled.—Following last year's practice a detailed statement will be found in Appendix G of this report showing the number of appointments created and vacancies which occurred among officers of gazetted rank on State-managed Railways and of corresponding rank on Company-managed railways and how they were filled in the last two years.

These figures are summarised in the tables below, separate statements being given for State and Company-managed Railways as well as for permanent vacancies as distinct from total vacancies (which include temporary also).

95. State-managed Railways—

Statement showing the number of appointments created and vacancies which occurred among officers of gazetted rank on State-managed Railways during 1926-27, and how they were filled.

Item.	No. of new appointments created during the year.	No. of appointments abolished during the year.	No. of vacancies which occurred during the year.	No. of vacancies which occurred in previous years not filled in these years remaining to be filled.	No. of net vacancies to be filled.	No. of vacancies not filled up during the year.	No. of vacancies actually filled.	FILLED BY					
								Europeans.	Statutory Indians.				
									Hindus.	Muslims.	Anglo-Indians and Domestic Europeans.	Other classes.	Total.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Agency	...	...	4	...	4	2	2	31	2	5	...	...	2
2. Engineering	28	...	10	5	15	10	5	...	5	...	...	...	5
3. Transportation and Commercial.	(a) 5	...	5	...	...	...	...	...	...	...	...	...	...
4. Mechanical Engineering	12	...	6	1	19	13	6	...	3	1	1	1	6
5. Stores	(b) 1	...	2	5	2	...	...	...	1	...	2	...	3
6. Other Departments	8	...	7	4	19	...	19	11	5	...	...	...	8
7. Total	54	6	34	25	107	27	80	42	26	7	3	2	38
8. Percentage of Europeans to No. of vacancies filled.	52.5	...	...	...	...	...	...	...	...	...	...	...	...
9. Percentage of Statutory Indians to No. of vacancies filled.	47.5	...	...	...	...	...	...	...	...	...	...	...	...
10. Percentage of Europeans to No. of vacancies filled.	43.9	...	...	...	...	...	...	...	...	...	...	...	...

(a) Posts of Probationers created to provide for the appointment of recruits during the training period.
(b) Probationer in Stores Department.

statement showing the number of **permanent** appointments created and vacancies which occurred in officers of gazetted rank on State-managed Railways during 1926-27, and how they were filled.

Item	No. of new appointments created during the year.	No. of appointments abolished during the year.	No. of vacancies which occurred during the year.	No. of vacancies which occurred in previous years not filled in these years remaining to be filled.	No. of net vacancies to be filled.	No. of vacancies not filled up during the year.	No. of vacancies actually filled.	FILLED BY				
								Europeans.	Statutory Indians.			
									Hindus.	Muslims.	Anglo-Indians and Domestic Europeans.	Other classes.
1	2	3	4	5	6	7	8	9	10	11	12	13
Agency	...	...	4	...	4	2	2	...	2	...	...	...
Engineering	7	...	10	3	20	...	20	10	7	3	...	...
Transportation and Commercial.	(a) 5	...	5	5	15	10	5	...	5	...	...	...
Mechanical Engineering	...	...	6	1	7	1	6	...	3	1	1	1
Stores	(b) 1	6	2	5	2	...	2	...	1	1	...	...
Other Departments	2	...	7	4	13	...	13	8	4	...	...	1
Total	15	6	34	18	61	13	48	18	22	5	1	2
Percentage of Europeans to No. of vacancies filled.	37.5	...	...	...	...	...	...	...	...	...	...	...
Percentage of Statutory Indians to No. of vacancies filled.	62.5	...	...	...	...	...	...	...	...	...	...	...

(a) Posts of Probationers created to provide for the appointment of recruits during the training period.
(b) Probationer in Stores Department.

From these two statements (column 8) it will be seen that the following temporary posts were filled during the year:—

Engineering	26
Other departments	6
	<u>32</u>

Against the 26 temporary engineering posts 21 Europeans and 5 Indians were appointed. As explained in last year's report a large number of posts of temporary engineers had to be created on account of the large construction programme and as sufficient Indians of experience were not forthcoming it was found necessary to complete requirements by recruiting in England. In a separate paragraph is described a scheme under which a certain number of Indian students with engineering qualifications will each year be given practical training on Indian railways for a year. The Board expect that this arrangement will enable them to recruit a larger number of trained staff for their temporary requirements in the country than what was possible in the past.

The 6 temporary posts in the 'other departments' included 2 Electrical Engineers (Colliery Department) 3 probationers in the Electrical Engineering Department and 1 Assistant Signal Engineer. Towards the end of 1925-26 in connection with the filling of certain posts in the Electrical Engineering Department, applications were invited in India, and a number of Indian youths were interviewed. It was found that these youths were lacking in workshop and practical experience. As it was considered that it was not likely that Indian youths with the requisite experience would be available, the Railway Board, in anticipation of their scheme of recruitment for the

Electrical Engineering Department, decided to take as probationers 3 Indian youths who had had theoretical training and to give them intensive practical training for 3 years with a view to appointment as Assistant Electrical Engineers. But for the immediate requirements of the Electrical Engineering Department (Collieries) 2 recruits had to be brought out from the United Kingdom. The temporary Assistant Signal Engineer was also recruited from the United Kingdom as no suitable recruit was available in the country.

The second statement above shows how the appointments against the **permanent** posts have been filled. The percentage of Indians appointed to the total number of vacancies filled works out to 62.5 per cent. If, however, the probationers in the Electrical Department, referred to in the preceding paragraph, are taken into account the percentage of Indians becomes 64.7. The figures, however, do not give a proper indication of the progress of Indianisation in the several services, as certain officers included in these figures were indented for in 1925-26 and actually joined in 1926-27, while certain others indented for in the current year have not yet arrived. To arrive at a correct appreciation of the progress of Indianisation during the current year, it is necessary to exclude the former class of officers and include the latter.

The figures of the various departments are analysed on this basis in the following paragraphs:—

Agency.—The two vacancies were both filled by Indians. (100 per cent.)

Engineering.—Of the 20 appointments filled 3 (2 Europeans and 1 Indian) were against the indent on the Secretary of State for 1925-26 but only arrived in 1926-27. The figure also includes 4 Royal Engineers who were recruited to bring up the complement of Royal Engineers in Railway employ which was considerably below normal strength. Of the remaining 13 posts 4 were filled by Europeans and 9 by Indians. The 4 European Officers were against the indent for 1926-27 and all arrived during the year. Under the regulations for recruitment for the Indian Railway Service of Engineers, officers of the Provincial Engineering Service or Subordinates are to be promoted to the extent of 20 per cent. of the number of direct recruits in India. The question of this promotion was under the consideration of the Railway Board during the year and if the promotions admissible, viz., 2 (20 per cent. of 9) had been made before the close of the year the appointments of Indians would have been 11 against 4 Europeans or 73 per cent. of the total.

Transportation and Commercial.—All the 5 appointments have been filled by Indians. (100 per cent.)

Other Departments.—The 13 appointments shown against this head were in the following departments:—

Electrical Engineering	2
Signal Engineering	2
Bridge Engineering	3
Medical	4
Coal Department	1 (European.)
Statistical Department	1 (Indian.)

Electrical Engineering.—Of the 2 appointments both of which were filled by Europeans one was recruited in England and one in India. The selection of the officer in India was made by the Public Service Commission from amongst a number of candidates who applied in response to advertisement. As already stated a scheme for the recruitment and training of Electrical Engineers in India has been submitted to the Secretary of State whose approval is awaited. Pending the introduction of this scheme 3 Indians were, as already explained, taken as probationers in 1926-27.

Signal Engineering.—For this branch also a scheme of recruitment and training was submitted for the approval of the Secretary of State. Indians have not generally specialised in this branch of the profession, and until the scheme has been brought into operation and Indians trained under it are available for employment, it will not be practicable to appoint Indians to the full extent contemplated. The two officers appointed were both Europeans. During 1926-27 two Indian probationers have been appointed to this department with a view to their being given practical training to fit them for employment as Assistant Signal Engineers.

Bridge Engineers.—Very few Indians are at present available who have specialised in this branch. The three officers appointed were Europeans. The question as to how recruitment should be made for this department in the future is under the consideration of the Railway Board.

Medical.—All the 4 officers appointed were Indians.

From the foregoing it will be seen that in departments for which qualified Indian candidates are available and for which facilities for training exist, e.g., Civil Engineering, Transportation and Commercial, Stores and Medical full effect has been given to the policy accepted by Government on the recommendations of the Lee Commission. For the specialist departments, e.g., Mechanical Engineering, Electrical Engineering, Signal Engineering and Bridge Engineering, owing to the absence of facilities for training and of fully qualified Indian candidates it has not been possible to give full effect to the policy, but the Railway Board have taken all necessary steps to provide for methods and facilities for such training with the idea of fitting Indians within a short space of time for filling the specialist posts.

96. Company-managed Railways—

Statement showing the number of appointments created and vacancies which occurred among officers on Company-managed Railways (Class I) excluding H. E. H. the Nizam's Guaranteed State and Jodhpur Railways and how they were filled, during 1926-27.

Item.	No. of new appointments created during the year.	No. of appointments abolished during the year.	No. of vacancies which occurred during the year.	No. of vacancies which occurred in previous years not filled in these years remaining to be filled.	No. of net vacancies to be filled.	No. of vacancies not filled up during the year.	No. of vacancies actually filled.	Filled by					
								Statutory Indians.					
								Europeans.	Hindus.	Muslims.	Anglo-Indians and Domiciled Europeans.	Other classes.	Total.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Agency	...	...	2	3	5	4	1	...	1	...	...	...	1
2. Engineering	26	8	27	14	59	16	43	14	23	2	3	1	29
3. Transportation and Commercial.	4	1	13	5	21	2	19	4	8	2	3	2	15
4. Mechanical	6	1	7	2	14	5	9	9	...	...	...	...	...
5. Stores	...	...	1	5	6	3	3	1	1	...	1	...	2
6. Other Departments	12	2	7	2	19	6	13	7	3	...	2	1	6
7. Total	48	12	57	31	124	36	88	35	36	4	9	4	53
8. Percentage of Europeans to total number of vacancies filled.	61	11	73	24	147	31	116	79	24	2	7	4	37
9. Percentage of Statutory Indians to number of vacancies filled.	39.8	...	...	...	...	...	...	...	...	...	...	...	...
10. Percentage of Statutory Indians to number of vacancies filled.	60.2	...	...	...	...	...	...	...	...	...	...	...	...
11. Percentage of Statutory Indians to number of vacancies filled.	31.9	...	...	...	...	...	...	...	...	...	...	...	...

Statement showing the number of permanent appointments created and vacancies which occurred among officers on (Class I) Company-managed Railways excluding H. E. H. the Nizam's Guaranteed State and Jodhpur Railways and how they were filled during 1926-27.

Item.	No. of new appointments created during the year.	No. of appointments abolished during the year.	No. of vacancies which occurred during the year.	No. of vacancies which occurred in previous years not filled in these years remaining to be filled.	No. of net vacancies to be filled.	No. of vacancies not filled up during the year.	No. of vacancies actually filled.	Filled by					
								Statutory Indians.					
								Europeans.	Hindus.	Muslims.	Anglo-Indians and Domiciled Europeans.	Other classes.	Total.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Agency	...	...	2	2	4	3	1	...	1	...	...	...	1
2. Engineering	3	1	9	3	14	4	10	4	6	...	...	...	6
3. Transportation and Commercial.	3	1	13	4	19	1	18	4	7	2	3	2	14
4. Mechanical	5	1	7	2	13	5	8	8	...	...	...	...	...
5. Stores	...	...	1	5	6	3	3	1	1	...	1	...	2
6. Other Departments	7	2	8	2	15	4	11	5	3	...	2	1	6
7. Total	18	5	40	18	71	20	51	22	18	2	6	3	29
8. Percentage of Europeans to number of vacancies filled.	43.1	...	...	...	...	...	...	...	...	...	...	...	...
9. Percentage of Statutory Indians to number of vacancies filled.	69.2	...	...	...	...	...	...	...	...	...	...	...	...
10. Percentage of Statutory Indians to number of vacancies filled.	56.9	...	...	...	...	...	...	...	...	...	...	...	...
11. Percentage of Statutory Indians to number of vacancies filled.	30.8	...	...	...	...	...	...	...	...	...	...	...	...

The Company-worked Railways finally accepted the policy of Indianisation as recommended by the Lee Commission only towards the end of the year 1925-26 and sufficient time has not yet elapsed to enable those Railways to prepare their schemes for giving full effect to that policy. While, therefore, some of the Railways who had already started recruiting Indians to a substantial extent have been able to show good progress towards Indianisation, the progress on the others has not been as great. Taking all the Company-worked Railways together the number of Indians appointed during the year 1926-27 was 56.9 per cent. of the total vacancies filled in the case of permanent appointments, and 60.2 per cent. if temporary posts are also taken into account.

The above tables show the vacancies filled and the distribution of the appointments among the various communities. It will be seen that as in the case of the State-worked Railways, in the branches of the service for which facilities for training exist, e.g., Engineering, Transportation and Commercial and Stores Departments—the percentage of Indians appointed approximates and in the case of the Transportation and Commercial Departments exceeds that recommended by the Lee Commission. In the case of the specialist branches, e.g., Mechanical Engineering, Signal Engineering and Electrical Engineering (the latter two being included under “other departments” in the statement) the Company-worked Railways are being faced with the same difficulty as the State-worked Railways.

A comparison of the figures with 1925-26 shows that very considerable progress has been made by the Company-worked Railways in the Indianising of their superior staff. The figures are:—

Percentage of Indians appointed of the vacancies filled.

Including temporary posts—	
1925-26	31.9
1926-27	60.2
Excluding temporary posts—	
1925-26	30.8
1926-27	56.9

97. As regards the higher subordinate grades a detailed statement will be found in Appendix F showing by Railways, the number of employees on scales of pay rising to Rs. 250 and over on the 1st April 1927 as compared with 1st April 1926. A summary of the figures is given below:—

Statement of Subordinates on scales of pay rising to Rs. 250 per mensem and over on Class I Railways (excluding H. E. H. the Nizam's Guaranteed State and Jodhpur Railways) on the 1st April 1927 as compared with 1st April 1926.

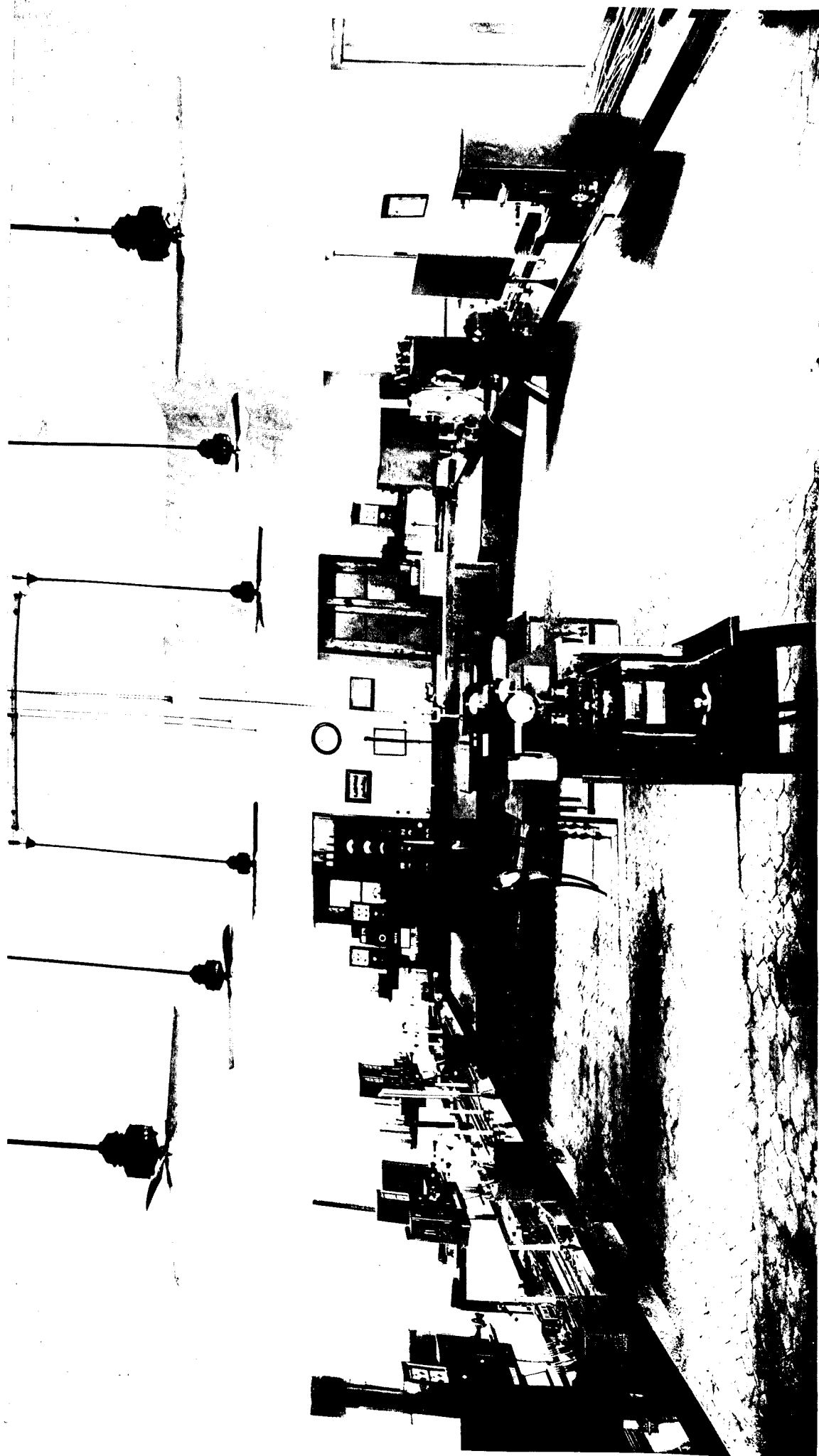
Name of Railway.	1st April 1926.							1st April 1927.							INCREASE +, DECREASE -				
	Europeans.	Statutory Indians.					Grand Total.	Europeans.	Statutory Indians.					Grand Total.	Europeans.	Statutory Indians.			
		Hindus.	Muslims.	Anglo-Indians.	Other classes.	Total.			Hindus.	Muslims.	Anglo-Indians.	Other classes.	Total.			Hindus.	Muslims.	Anglo-Indians.	Other classes.
A. B. .	17	26	4	41	9	80	97	19	28	3	37	9	77	96	+3	+3	-1	-4	...
B. N. .	321	144	10	412	8	54	695	323	178	14	400	13	614	936	+1	+34	+4	-3	+5
B. & N.-W. .	32	14	2	56	...	72	104	33	14	4	55	...	73	106	+1	...	+3	-1	...
B., B. & C. I. .	146*	261*	28	381	151	621*	967*	144	201	32	377	159	629	973	-2	...	+4	-4	+8
Burma .	26	82	9	167	34	312	338	23	87	9	227	41	364	386	-4	+5	...	+40	+7
F. B. .	132*	109	5	167	6	287*	410	128	128	7	171	6	313	440	-4	+19	+2	+4	...
E. I. .	678	323	31	1,171	13	1,538	2,216	621	378	34	1,005	10	1,427	2,048	-57	55	+3	-166	-3
G. I. P. .	382	75	35	646	128	984	1,316	335	165	30	720	142	1,057	1,392	+3	-10	-5	+74	+14
M. & S. M. .	73	88	1	170	0	227	300	75	36	1	182	15	234	300	+2	-2	...	+3	+6
N. W. .	313	325	118	391	80	684	1,197	322	343	145	402	71	961	1,283	+9	+19	+22	+11	+21
R. & K. .	5	4	1	13	2	20	25	6	4	1	12	1	18	24	+1	...	...	-1	-1
S. I. .	51*	71*	3	165	9	245*	290*	40	71	5	168	9	253	303	-3	...	+2	...	...
Total .	2,126*	1,672*	347	3,809	410	6,047	8,178*	2,076	1,908	285	3,765	476	6,210	8,295	-50	+121	+38	-44	+57

Statement showing percentages of total senior subordinates employed.

	EASTERN BENGAL, EAST INDIAN, GREAT INDIAN PENINSULA AND NORTH WESTERN RAILWAYS.		TOTAL CLASS I RAILWAYS (EXCLUDING H. E. H. THE NIZAM'S GUARANTEED STATE AND JODHPUR RAILWAYS).	
	1st April 1926.	1st April 1927.	1st April 1926.	1st April 1927.
Europeans .	28.26*	27.23	26.01*	25.03
Statutory Indians—				
Hindus .	18.10*	19.64	19.23*	20.41
Muslims .	3.67	4.18	3.02	3.43
Anglo-Indians .	46.14*	44.51	46.61*	45.39
Other classes .	3.83*	4.44	5.13*	5.74
TOTAL .	71.74*	72.77	73.99*	74.97

* Revised figures.

Railway School of Transportation, Chandausi.



TRANSPORTATION MODEL ROOM.

During the year there was an increase of 172 in the number of Indians holding these posts and a decrease of 50 Europeans. Three-quarters of the posts are now held by Indians.

98. Training of Staff.—In last year's report a full description was given of the Railway Transportation School at Chandausi. In the year under review the number of students who passed through the school was 57 officers and 508 subordinates or 565 in all. The courses held were as follows:—

Special courses for senior scale officers.—2 short courses.

Senior Courses.—8 Courses of 30 days each for Junior officers and Senior Subordinates.

Junior Courses.—8 Courses of 30 days each for Transportation Subordinates.

Area Courses.—8 Courses of 3 weeks each for Transportation staff of the Lucknow, Allahabad and Moradabad Divisions of the East Indian Railway and of the Delhi and Ferozepore Divisions of the North-Western Railway.

The miniature $2\frac{1}{2}$ " gauge railway in the transportation model room has been improved in various ways. In two respects this railway differs from ordinary models. First, the speed has to be low as stations are close together and time must be given for the exchange of block signals. Secondly, the amount of working done is extremely heavy. Trains are running practically continuously for 5 and 6 hours a day and the wear on the brass gear wheels and axle journals is remarkable and has shown the desirability of adopting a harder metal. The control apparatus has been brought into regular use. Each cabin is in communication with train controllers and charts of the train running are plotted, exactly as is done in actual practice.

In the locomotive model room a complete wagon underframe has been installed fitted with vacuum brake, an electric exhaustor being used to create vacuum, so that the brake operation can be fully demonstrated including passenger alarm apparatus and the guard's van valve. A Stone's train lighting set has been installed also 2 valve gear models made in the Jamalpur pattern shop complete in every detail.

The catering continues in the hands of a contractor. The wide variation of race and creed encountered makes catering a far from easy matter and complaints cannot be entirely avoided. The majority of the students however have expressed themselves quite satisfied with the food. The health of the school has been excellent throughout the year.

99. Area Schools.—In addition to Chandausi, Area Schools are now in being at Asansol on the East Indian Railway, at Lyallpur on the North-Western Railway and at Bina on the Great Indian Peninsula Railway. While none of these are yet functioning fully, all three are actually training staff.

Despite its limited space the Asansol School is dealing with some six hundred refresher students annually from the Transportation, Locomotive and Carriage and Wagon sides of the Operating Department. The number of students under training at one time is about 40. This school will eventually be transferred to Gomoh and besides dealing with the Eastern Divisions of the East Indian Railway, will also be the school for the Eastern Bengal Railway.

The Lyallpur School is at present primarily a probationers' school and the refresher work done so far has been very small. Apparatus is at present very limited, instruction being mainly in telegraphy, and commercial (booking and goods clerks) duties. The number of students in residence is close on 300.

Bina, like Asansol, is a temporary school and only deals with the refresher side. The accommodation available however is of a superior character, the building occupied by the school being the old district office, while various

buildings in the neighbourhood are used as hostels and quarters. Accommodation will shortly be available for 62 students and it is hoped to deal with 700 students per annum on the Transportation and Locomotive side.

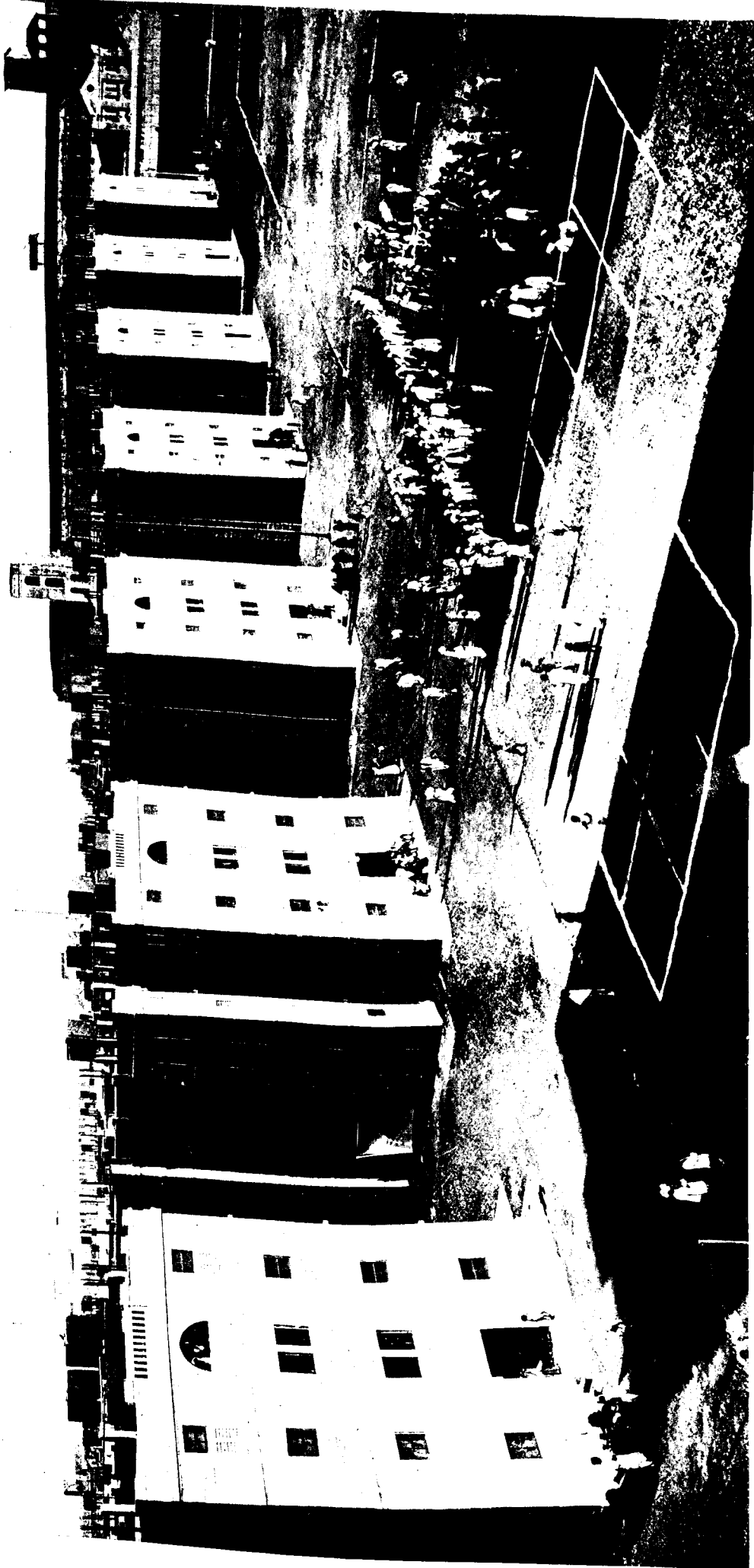
100. Railway Staff College at Dehra Dun.—The provision of an institution to give practical training to junior officers on Railways has been a long felt need. The Railway Transportation School at Chandausi, which is meant for the training of the subordinate staff only, could not be suitably extended to include a college for officers. The Railway Board have, therefore, decided to build a Staff College at Dehra Dun, which place is eminently suited for the purpose owing to its climate, situation and proximity to two other training institutions, *viz.*, the Forest Research Institute and the Prince of Wales' Royal Indian Military College. The lay-out of the College is under preparation and it is expected that work will soon be commenced. The scheme is estimated to cost about Rs. 20 lakhs roughly.

101. Facilities for the training of Students passing out of Engineering Institutions.—It was brought to the notice of the Railway Board that Indian students passing out of Engineering Institutions in the United Kingdom or in this country had few facilities for obtaining practical experience in order to fit them for their profession. With the large programme of construction in hand, it was considered that it would be possible to give a limited number of students, in addition to the probationers for the Indian Railway Service of Engineers recruited under the new regulations, practical training on construction works for a period of one year. It has, therefore, been arranged to afford practical experience on railway construction works on the State-worked Railways to 17 student engineers annually—9 from Indian Colleges and 8 from Colleges and Institutions in the United Kingdom. The training will extend over a period of one year during which the student engineers will be granted a stipend of Rs. 100 per mensem. Such training will not, however, give the student engineers any claim to appointment on the Railways.

102. Assistance to Railway Employees in the education of their children.—With a view to examine the difficult question of the extent to which Railway funds should be used for assisting Railway employees in the education of their children the Railway Board have obtained the services of an officer in the Indian Educational Service who is now collecting all the relevant facts regarding the assistance at present being given by railways. The object of the enquiry is first to obtain on an uniform basis the complete facts regarding assistance given from railway funds for the education of children of Railway employees; and, secondly, to enable the Railway Board to formulate the future policy to be pursued with regard to the present commitments of the railways and the facilities given by Provincial Governments for education.

103. Staff Welfare.—The Bombay, Baroda and Central India Railway have organised, through the Co-operative Credit Society of that railway, a Staff Welfare Fund which is intended to provide a means of assistance to employees of the railway who, through illness or other adversity, might require some tangible form of relief to tide them over a period of extreme financial embarrassment. The Fund owes its origin to the existence of surplus profits in the Co-operative Credit Society after the disbursement of the maximum dividend permissible under the Act and the necessary deduction for reserve. To the available surplus profits from the Co-operative Credit Society, the Railway Administration have agreed to add an annual contribution of Rs. 10,000 from the Fine Fund, and the Welfare Fund has been able to start with a sum of approximately Rs. 50,000 at its credit. The Fund is administered primarily by sub-committees which investigate and grant assistance up to certain limits, referring the larger and more important cases for decision by the Agent, who is assisted by an advisory committee, representative of different departments.

The Bombay, Baroda and Central India Railway have also taken the opportunity of the lack of public demand for the Bombay Development



GENERAL VIEW SHEWING CHAWLS OCCUPIED BY BOMBAY, BARODA & CENTRAL INDIA RAILWAY WORKSHOPS EMPLOYEES AT WORLI (BOMBAY).

Directorate chawls at Worli to lease five of these for the purpose of accommodating some 400 of the lower grade workshop staff of Parel. The chawls are conveniently situated within easy reach of the shops and close to the sea. The number of employees with their families now living in the chawls comprise a colony of nearly 2,000 people and there is an increasing demand for accommodation. Certain rooms in the chawls have been allotted for co-operative stores, a night school, a wrestling room and a small gymnasium, and a series of Lantern lectures by Indian lecturers have proved extremely popular. An effort has also been made to inspire enthusiasm for out-door sports. It is hoped that the success which has attended the scheme may result in a higher spirit of service and '*esprit de corps*' among the staff.

104. Strikes.—The only strike of importance during the year occurred on the Bengal Nagpur Railway. The Agent received a deputation from the Bengal Nagpur Railway Indian Labour Union in November 1926 and discussed the grievances which had been formulated by that body. He gave a detailed written reply in January 1927 and subsequently granted an interview to the President of the Union at which a threat to strike was withdrawn. Examination of points remaining undisposed of was proceeding when on the night of 11th February after attending a Union meeting a large body of workshop hands got out of control and attempted to take possession of Kharagpur Station. Next day the Kharagpur Branch of the Union declared a general strike within its jurisdiction and a few days later the Central Council of the Union declared a general strike over the whole line. The number affected varied from day to day and the greatest number was about 15,000, of whom 10,000 were at Kharagpur, out of a total staff of 65,000. On the 8th March the Union decided to call off the strike.

CHAPTER VII.

MISCELLANEOUS.

105. Amenities and improvements for the travelling public.—

Following the practice of the last three years an account is given below of the measures taken by each of the principal railways in the matter of improvements and amenities for the travelling public. Amongst many other improvements designed to meet the needs of passengers 18 Indian refreshment rooms and 87 vendors' stalls were opened during the year, over 100 additional waiting rooms or sheds were opened at existing stations and 20 waiting sheds were enlarged. Hindu and Muhammadan dining cars are run on 59-Up and 58-Down trains between Lahore and Delhi. Hindu refreshment cars have been provided on the Jodhpur Railway on 9-Up and 10-Down between Luni Junction and Hyderabad (Sind) and on 74-Down between Luni Junction and Jodhpur.

Assam Bengal Railway.

A mixed train in each direction between Bhairab Bazar and Mymensingh and a shuttle train between Chaparmukh and Nowgong were introduced from 1st September 1926. An up and down goods train between Lumding and Mariani and between Dhoom and Laksam was converted into a 3rd class mixed train from 7th July 1926 and 15th November 1926 respectively. An up and down passenger train between Chittagong and Chittagong Port for the convenience of passengers arriving or departing with the B. I. Coastal Mail Steamers was introduced from 1st May 1926 to run on mail days.

Roof tanks were fitted to a number of 3rd class carriages and the water supply was improved at several stations.

Refreshment stalls were provided at Laksam, Sitakund and Karimganj. A refreshment room for upper class passengers was provided at Dhoom.

The 3rd class waiting hall was completed at Chittagong and two waiting sheds for passengers with booking office and water supply arrangements were constructed at Sitakund.

A town booking office was opened in Sylhet Town, Balimara station was opened for coaching traffic, and a temporary flag station was opened at Pandu for the convenience of passengers attending the Indian National Congress.

Bengal and North Western Railway.

From 15th October 1926 an up and a down train previously running between Mau Junction and Azamgarh was extended to Shahganj, and from 1st December 1926 an extra train each way was introduced between Nautanwa and Kunra Ghat.

An Indian refreshment room has been opened at Muzaffarpur. 3rd class waiting sheds have been provided at Sagauli, Janakpur Road, and Raxaul and a waiting room for Indian ladies has been provided at Raxaul.

An additional booking office and a parcel godown have been opened in the 3rd class waiting shed at Bahraich; a luggage office for 3rd class passengers has been provided at Gorakhpur; and a station with facilities for booking of goods and passengers has been opened at Lakshmiganj.

Additional facilities for dealing with pilgrims visiting the Magh Mela at Allahabad have been provided at Izat Bridge station including 3 large enclosures.

Bengal Nagpur Railway.

New passenger train services were introduced between Khurda Road and Talcher and Danae and Barkakana.

New bogie 3rd class carriages of an improved design with bodies 10 feet wide were introduced. The compartments are fitted with sliding doorways 4 feet wide hung on ball-bearing runners and easy to operate. The windows have glass frames and venetian shutters and ventilation is provided by means of louvres above the window openings. The latrines to these carriages are well ventilated and fitted with enamel cast iron pans, electric lights and grab handles. The design of the pans and surrounding floor in the latrine is so arranged as to ensure thorough drainage.

About Rs. 15,000 has been expended during the year in providing additional drinking water and sheds. Foodstalls were opened at 4 and tea kiosks at 9 stations during the year. Waiting rooms for Indian ladies at 4 stations and passenger halls and extra waiting rooms at a number of stations were provided during the year. Extensions and improvements to booking offices at 6 stations and to passenger platforms at 13 stations were carried out during the year.

Burma Railways.

From 1st April 1926 an extra evening local train in each direction was put on between Toungoo and Pyu. From 15th May 1926 an additional suburban local train in each direction was introduced between Rangoon and Insein, increasing the number of passenger trains daily in each direction between Rangoon and Insein to 47.

Hydrants for drinking water were erected at 11 additional stations on the Southern Shan States Railway. Vendors' stalls were provided at 29 stations on the main line and 2 on Ywataung District. Tea rooms were provided at Zibingyi station on the Lashio Branch.

Prome and Thazi stations were rebuilt with improved waiting halls and waiting rooms.

In addition to the stations on the new extensions new stations were opened at Sinlanzu, Zawchaung, Ma-U and Potha-Aunggon, and a booking office was opened in Pegu City.

Bombay, Baroda and Central India Railway.

On the Broad Gauge one additional train each way was put on between Anand and Cambay from 1st September 1926; also an additional train each way between Bulsar and Broach during the busy season. Double train service was continued on the Broach-Jambusar Railway during the 1926 monsoon as an experiment, but no more traffic was carried than by the single service in the previous year.

On the Metre Gauge an up and down Goods train with third class carriages was put on between Harij and Mehsana from 1st April 1926. An up and down local previously running between Ahmedabad and Mehsana was extended from and to Varethia from 1st September 1926, and an extra local was run in each direction between Ajmer and Nasirabad. From 1st March 1927 an extra local in each direction was put on between Delhi and Palam. 3rd class accommodation was provided on the up and down parcels train between Marwar Junction and Mehsana and on up and down goods trains between Palampur and Mehsana. An extra train was run between Kalol and Vijapur.

On the broad gauge all the main line passenger trains are now electrically lit on the block system and also certain trains on the branch lines. On the metre gauge dynamos have been fitted to certain carriages to improve the lighting.

A through bogie, 1st, 2nd and 3rd class carriage was introduced between Bombay and Agra *via* Byana on the up and down Express trains but this was not patronised and was therefore discontinued. On the metre gauge through bogie thirds were introduced during the year as follows :—

Between Delhi and Hyderabad Sind by 3-Up and 4-Down Express.

Between Rajkot and Hyderabad Sind by Sind mail.

Between Ajmer and Merta Road by 3-Up and 4-Down Express.

Between Bhatinda and Delhi by 10-Up and 26-Down and 25-Up and 14-Down.

The arrangements for providing cool drinking water in running trains during the hot weather by travelling Hindu watermen was continued. The wells at 4 stations were deepened.

Vendors' stalls were provided at 9 stations and waiting sheds at 9 other stations.

4 new flag stations were opened and 8 old flag stations were converted into regular booking stations.

High level platforms were provided at Dungri and Umbergaon Road, and the platforms at Anand and Baroda were stone paved.

Foot over-bridges were provided at Palej and Bhayndar.

Eastern Bengal Railway.

On the broad gauge 5 additional trains were introduced on the converted section Parbatipur to Siliguri to improve the service to Northern Bengal and to make connections at Parbatipur. Of these the Northern Bengal Express has proved very popular. Three additional trains each way were put on to restore convenient services to local courts, which had been upset by the re-arrangement of the time table in connection with the through running to Siliguri.

On the metre gauge, 5 additional trains were introduced on various sections to improve connections with main line trains at Parbatipur. Additional trains were also introduced on branch lines.

The lighting of inter and 3rd class carriages has been improved 25 per cent. by fitting additional lights. Lights have also been fitted in the lavatories.

Rs. 36,000 were spent in increasing the number of water taps on platforms and in the provision of Ashford tube wells at 14 stations. Arrangements have also been made to supply large earthen vessels for drinking water for the travelling public at all stations.

The Hindu refreshment room at Katihar has been completed, and refreshment rooms for Hindus were also opened at Ranaghat and Naihati.

New 3rd class waiting halls have been built at 6 stations while the shelters on island platforms have been extended at 3 stations. At 14 stations sheds have been improved and at 18 stations new platforms have been constructed or the existing platforms raised. Indian ladies waiting rooms were constructed at 9 stations and waiting accommodation for upper class passengers at 4 stations.

Better booking facilities for inter and 3rd class passengers were provided at 2 stations and separate parcel offices and godowns were built at 4 stations. Nearly one lakh of rupees was spent in providing new approach roads and in improvements and heavy repairs to the existing approach roads to stations including improvements to porches on No. 8 platform and in the circulating area at Sealdah.

East Indian Railway.

A new express train service No. 7-Up and 8-Down was introduced between Howrah and Delhi *via* Agra Cantonment and Muttra. This service is timed at mail speed and is considerably appreciated by long distance 3rd class passengers.

A through fast train service was introduced between Agra Cantonment and Bareilly. Two mixed trains each way were introduced on the Bhagalpur-Mandar Hill branch which was reopened for traffic from 1st October 1926. An additional through train was introduced between Moghal Serai-Benares-Allahabad *via* Janghai from 1st March 1927. A service of 2 through trains daily now serves these places in each direction. No. 41-Up and 42-Down Howrah-Agra through expresses were also routed over this section. An additional through train was introduced each way between Partabgarh-Janghai-Jaunpore from 1st March 1927, to connect at Janghai with the additional service between Benares and Allahabad.

A number of 75 gallon drinking water tanks fitted with push cocks were installed in 50 brakevans for the Kumbh Mela traffic thus enabling passengers to obtain water from the trains at stations. After the Kumbh Mela was over the intention was to transfer the tanks to the through express and passenger trains.

Tube wells were provided at 3 stations, shelters for drinking water stands were erected at 12 stations, while the drinking water supply was improved in various ways at 19 stations.

Refreshment rooms for Hindus were completed during the year at Burdwan, Fyzabad and Lucknow, while Muhammadan refreshment rooms were opened at Howrah, Partabgarh and Lucknow. A vendors' stall of 4 units was constructed at Sone East Bank and an additional vendors' shop was provided in the 3rd class waiting shed at Benares Cantonment.

The inter class waiting room at Patna City and an Indian Ladies waiting room at Shiupur and a general waiting room at Dhampur were completed. 3rd class waiting sheds were completed at Lillooah, Hazaribagh Road, Sitapur, Shiupur, Hapur, Rampur and Basharatgunj, while pucca floors were provided in a number of other waiting sheds.

A 3rd class booking office for women was completed at Howrah and a new booking office was provided in the 3rd class waiting shed at Lhaksar.

New stations were opened at Katoghan, Aithal, and Macharga.

Approximately one lakh of rupees was expended on improving the facilities for booking of 3rd class passengers and checking of tickets at Howrah.

Passenger platforms were extended at 9 stations. Septic latrines to Zenana enclosures were provided at 8 stations.

During the year the electric lighting in a number of through express and passenger rakes was rearranged so as to improve the internal lighting and at the same time to light the train externally and the ground on each side to a distance of about 10 yards. This should assist in the prevention of train thefts and other crimes. Passengers alighting at way side stations will also be assisted by the additional light from the train. It is proposed to fit all passenger trains in this manner as the opportunity offers.

Great Indian Peninsula Railway.

The following additional passenger trains were introduced :—

29-Down and 28-Up Nagpur express trains between Bombay and Nagpur from 1st April 1926.

167-Down and 168-Up passenger trains between Lonavla and Poona from 1st September 1926.

The 3rd class passenger service by 33-Down and 34-Up parcels trains between Igatpuri and Bhopal was extended to Agra on and from 18th June 1926.

Up-to-date bogie carriages are being rapidly put on the line in replacement of obsolete types of 4 wheeled vehicles. The new bogie vehicles are fitted with electric lights, increased lavatory accommodation of a more sanitary type, and better seating accommodation.

At 8 stations Hindu and Muhammadan foodstalls with cook houses have been completed.

Waiting sheds for 3rd class passengers were provided at 6 stations.

Flag stations have been opened at Babupeth and Chawlkhedda for restricted booking of passengers and luggage to and from stations on the same branches.

Passenger platforms have been lengthened at 24 stations and foot-over-bridges constructed at 6 stations.

Jodhpur Railway.

An extra mixed train each way was introduced between Mirpur Kh. and Hyderabad (Sind) from 15th May 1926. A Sunday service was started on the Merta City branch from 6th June 1926. Through bogies thirds with luggage vans were introduced in April 1926 between Bikaner and Ahmedabad, Hyderabad and Phulera, and Phulera and Bikaner.

The separation of the Jodhpur and Bikaner Railway systems resulted in an acute shortage of rolling-stock, particularly coaching vehicles, on the Jodhpur Railway. This shortage has to an appreciable extent been overcome but the placing of new stock on the line has been considerably retarded by the delay in the shipment of underframes on account of the coal strike in England. It is anticipated that by the end of 1927-28 this shortage will have been made good.

Hindu refreshment cars have been provided on 9-Up and 10-Down between Luni Junction and Hyderabad and on 74-Down between Luni Junction and Jodhpur. Electric fans have been fitted in second class carriages.

The construction of the new station building at Raika Bagh Palace has been completed. Flag stations at Run and Bomadra were opened for through goods and coaching traffic from 1st September 1926.

Passenger waiting shed were completed at Pithoro, Jamesabad and Besroli.

Madras and Southern Mahratta Railway.

On the Broad gauge a fast Mixed train was introduced between Arkonam and Renigunta from 1st April 1926 and from the same date an extra train from Madras to Arambakkam and back was added to the Madras suburban services. From 1st March 1927 an additional midday local train in each direction was introduced between Madras and Trivellore. From 1st April 1926 a motor coach service was introduced between Tenali and Chirala and was extended to Chinnaganjam in June. The traffic outgrew the capacity of the rail coach and it was replaced by a light passenger train from September 1926.

On the Metre gauge Nos. 11 and 12 trains running between Poona and Koregaon were extended to and from Kolhapur. No. 6-Down Kolhapur Passenger was given a later start from Poona and run at an accelerated speed for the convenience of through passengers arriving at Poona by the Great Indian Peninsula Railway trains.

Additional platform hydrants have been provided at Trivellore on the broad gauge and at 9 stations on the metre gauge. The chlorination of the



FLOODS NEAR HLAINGDET (SOUTHERN SHAN STATES RAILWAY).

water supply at Pakala is being arranged experimentally and if it is found successful it will be extended to other stations.

Indian refreshment rooms were opened at Guntur and at Cuddapah. Refreshment stalls in 3rd class waiting sheds have been completed at 8 stations on the broad gauge and at 4 stations on the metre gauge. Provision of separate waiting accommodation for 3rd class lady passengers has been completed at Madras Central, Raichur and Bezwada on the broad gauge and at 9 stations on the metre gauge.

His Exalted Highness the Nizam's Guaranteed State Railway.

On the broad gauge 13 additional suburban trains were put on from 1st April 1926 and 6 more were added from 1st September 1926.

On the metre gauge 12 additional suburban trains were put on from 1st April 1926 and an additional passenger train was introduced between Hyderabad and Nizamabad on and from 1st September 1926.

The new broad gauge 3rd class bogies are fitted with—

- (a) Double roof electric lights,
- (b) Staggered torpedo ventilators thereby doubling the usual number to give better ventilation,
- (c) High backed seats to give more comfort.

Additional Indian refreshment rooms have been provided at Dornakal and Purna.

Waiting halls for 3rd class passengers have been built at Sailu and Umri stations. A 3rd class Zenana waiting room has been provided at Hyderabad metre gauge and a Ladies' waiting room at Parbhani.

Koloor was opened on 1st December 1926 as a Halt for the local booking of coaching traffic.

North Western Railway.

27 additional passenger trains were introduced during the year on various sections. 3 Sentinel steam coaches and 2 trailers were received in November and after erection and trial were put into service during the spring of 1927. The running of the two rail motors introduced in September 1926 between Landi Kotal and Peshawar Cantonment was discontinued in November for want of sufficient patronage.

With few exceptions all the main line trains are now electrically lit throughout, as well as many of the branch line services. During the year experiments were carried out with external lighting to assist passengers at night at low and rail level platforms and as a protection against thieves. The experiments were successful and it is proposed to extend the system to all important trains.

36 all-steel lower class carriages were added to the stock during the year, the lavatories of which are provided with automatic self closing water cocks to avoid wastage of water and to improve the flushing arrangement.

Tube wells, some with mechanical pumps and some with hand pumps, have been installed at many stations to take the place of open wells. These tube wells are particularly beneficial at small stations where the former shallow wells supplied indifferent water. At some of the larger stations special tube wells connected to the overhead tanks and distribution systems leading exclusively to taps now provide a pure source of drinking water. Among the stations treated this year are Wazirabad, Gunna Kalan, Wan Radha Ram, Pattoki and Okara.

At many stations the piped water supply is being improved and special cold water tanks installed. Water cooling shelters are being provided in increasing numbers and their design is being improved.

Refreshment rooms for Hindus and Muhammadans have been completed at Rohri and Ferozepur Cantonment, and tea rooms for Hindus and Muhammadans have been provided at Landi Kotal. Hindu and Muhammadan dining cars were run on 59-Up and 58-Down trains between Lahore and Delhi.

3rd class waiting halls have been completed at 16 stations and the waiting hall accommodation at Jullundur City has been doubled. Platform shelters have been provided at 7 stations. 1st and 2nd class Indian waiting rooms have been provided at Haripur (Hazara), Narowal and Rohri and Ladies' waiting rooms at Khairpur Mirs, Tando Adam, Hyderabad and Shikarpur. An inter class waiting hall has been built at Quetta.

Besides the stations on new branches, the following additional stations have been opened during the year:—Barkala, Dholan, Vakilwala and Bahuman. Additional booking offices for 3rd class passengers have been provided at Tando Adam, Sehwan and Jullundur City.

Additional passenger platforms have been provided at Chak Kalian, Lohi Bhir and Rumian.

Automatic weighing machines for booking 3rd class passengers' luggage have been installed at Lahore, Amritsar, Jullundur Cantonment, Pathankote and Gujranwala.

New vendors shops have been provided at a number of stations, including Sehwan.

Rohilkund and Kumaon Railway.

One additional up and down train has been provided on each of the following sections:—

Bareilly Junction—Kasganj Junction.

Bareilly City—Lalkua.

Kashipur—Ramnagar.

Kashipur—Kathgodam.

Two additional up and down trains have been added between Baisaipur and Shahjahanpur.

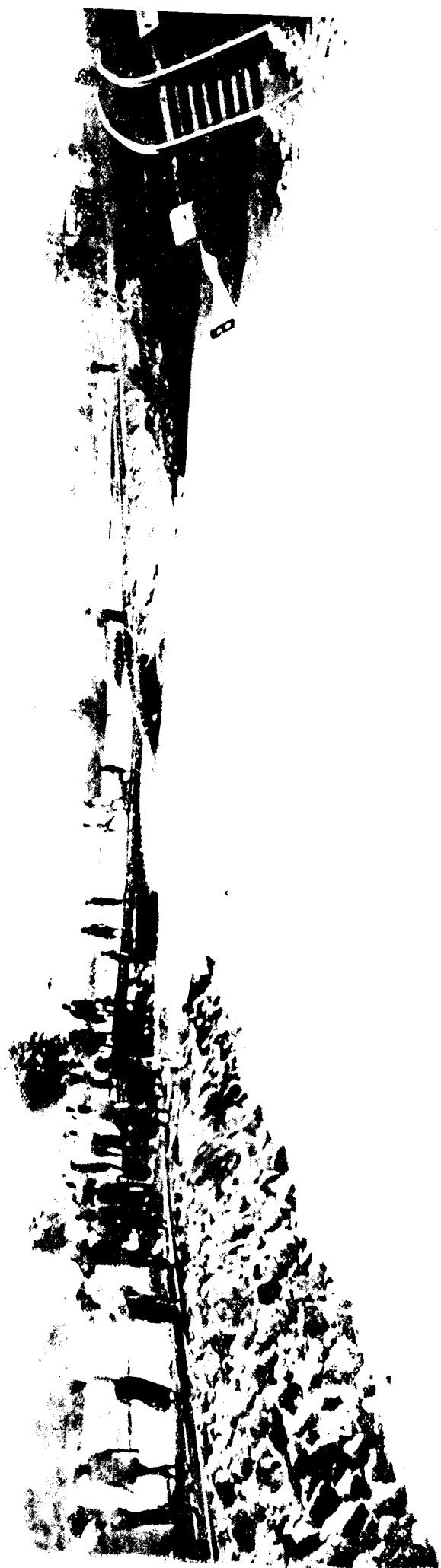
Three composite inter and 3rd and 27 third class carriages have been rebuilt and converted into new type omnibus sided carriages, and fitted with electric light in place of oil light. All coaching stock is now lighted electrically.

All 3rd class passenger stock is being internally painted with the roof and upper half of the sides white and the lower half light grey. This has considerably brightened up the interior of the carriages.

South Indian Railway.

On the Broad Gauge 2 through trains were introduced from 1st October 1926 between Jalarpet and Madras Central for the convenience of passengers to and from the West Coast.

On the Metre Gauge 2 through trains were introduced between Madras, Egmore and Trichinopoly, Tanjore and Trichinopoly, Chingleput and Conjeeveram from 10th June 1926.



Two more trains were put on between Chingleput and Conjeeveram from 1st February 1927 to counteract road motor competition. Two shuttle trains were run between Tinnevely and Shencottah from 10th June 1926 and rail motor services were introduced between Quilon and Trivandrum and Quilon and Punalur, from 1st January 1927.

Hydrants have been provided on 25 stations. An Indian light refreshment stall was provided at Palghat.

3rd class waiting sheds have been completed at 8 stations and at 4 more stations the sheds have been extended. Platforms have been widened at 10 stations. Upper class waiting rooms have been opened at Koilpatti, Irinjalakuda, Ollur, Tillavilagam and Papanasam, and a retiring and sleeping room for Indians has been provided at Negapatam.

Nine new stations have been opened. Chingleput and Villupuram stations have been lit by electricity. Ordinary oil lights at 7 stations have been substituted by high power lights, and additional high power lights have been provided at 6 stations.

Platform benches have been provided at seven stations and benches in the 3rd class waiting sheds at 22 stations.

106. Coupon tickets for mercantile firms.—This scheme, whereby first class tickets at reduced fares are issued to the representatives of firms for journeys totalling 3,000 miles performed on business within six months and which was originally introduced by the Madras and Southern Mahratta Railway, was described in paragraph 94 of last year's report. During the year it was adopted by the East Indian, Eastern Bengal, Great Indian Peninsula, North Western, South Indian, Bengal Nagpur and His Exalted Highness the Nizam's Guaranteed State Railways both in local and through booking. Some 380 of these coupon books were sold during the year and in addition 54 second class books were sold on the Great Indian Peninsula, Eastern Bengal and East Indian Railways. The question of introducing second class books on other railways is under consideration. Detailed rules regarding the issue of coupon books will be found in the time tables and guides of different railways.

107. Flood Damages.—The most serious floods of the year occurred in Burma where very serious damage was caused to the formation and bridges of the Burma Railways and communications were interrupted in 3 areas of considerable size:—

- (A) the Insein and Tharrawaddy Districts,
- (B) the Pegu District,
- (C) the vicinity of Thazi, the junction in Upper Burma where the Southern Shan States and Myingyan Branches take off from the main line.

There were also damages of a less serious nature in other places. The interruptions in the Insein, Tharrawaddy and Pegu Districts were simultaneous and were due to unusually heavy rainfall in the Pegu Yomas from August 13th to 16th, 1926. As a result Rangoon was completely cut off for a time from the interior of Burma. For miles railway embankments were under water, the abutments of bridges were under-mined and one bridge consisting of six spans of 40' was completely destroyed. 100,000 acres of rice land in the Pegu District were damaged. Roads also suffered severely and more than one town was under water for days. Although communications were restored with great rapidity considering the extent of the damage considerable inconvenience was caused and the railway company suffered considerable loss of revenue over and above the expenditure incurred in repairing the damage. The Burma Government appointed a Committee, including

the Chief Engineer of the Burma Railways, to investigate the causes of the floods and to make recommendations for the future. The causes were found to be the excessive rainfall and the deterioration of the waterways. The latter was chiefly due to the lengthening of the courses of the streams from the Pegu Yomas caused by the rising coast line, the consequent reduction in their slope and silting of their beds, inadequate allowance for waterways at certain places both on the roads and on the railway, the damming up of the natural drainage channels by fishermen and inadequate control over the floating of timber. The most important outcome of this enquiry has been the improved co-operation of the railway and Government Engineers in determining the waterway that should be provided at various points in the railway lines. It has also been decided that all difficult and doubtful questions of waterways throughout Burma shall in future be settled by a small standing committee consisting of a Railway Engineer and a Public Works Department Irrigation Engineer.

The floods in the vicinity of Thazi occurred two months later than those described above and were not included in the terms of reference of the Committee. These floods were due to excessive rainfall at Meiktila and in the range of hills to the east of the main line, which forms the watershed between the Samon River and the Myittha River, further to the east. The interruptions to the communications were of much longer duration in this area, the periods being—

Main line:—

South of Thazi—

Between Shweda (Mile 282) and Pyawbwe (Mile 287) from 18th October 1926 to 27th October 1926.

Between Nyaungyan and Thazi from 25th October 1926 to 26th October 1926.

North of Thazi—

Between Thedaw (Mile 322) and Kyaukse (Mile 339) from 18th October 1926 to 23rd November 1926

and again from 24th November 1926 to 7th December 1926.

Southern Shan State Branch.—From 18th October 1926 to 16th November 1926 and again from 23rd November 1926 to 13th December 1926.

Myingyan Branch.—From 18th October 1926 to 22nd October 1926.

Great Indian Peninsula Railway.

In September 1926 owing to unprecedented floods in the Nerbudda River the railway bridge between Shahpura and Bikrampur on the Jubbulpore-Itarsi section of the Great Indian Peninsula Railway was completely submerged and the girders consisting of 6 spans of 40' arches and 5 girder spans of 150' each were washed away. Communication on this section which forms part of the main route between Bombay and Calcutta was interrupted indefinitely and the mail trains were diverted *via* Katni, Bina and Jhansi. A new single line bridge on a new alignment is being constructed, to replace the bridge that was destroyed.

Bengal Nagpur Railway.

The Nerbudda bridge on the Narrow Gauge (Nainpur-Jubbulpore) section of the Bengal Nagpur Railway was also badly damaged, five main girders being washed away.

The very heavy rain in the Jubbulpore District from September 20th to 22nd, 1926, was also responsible for the breaching of the Bengal Nagpur Railway between Bilaspur and Katni. The breaches were mainly confined to banks except at Johilla where two girders of a bridge were washed away. A pontoon bridge was erected as soon as possible for the temporary transshipment of passengers, parcels and special consignments up to one maund in weight, and at the same time arrangements were made to erect temporary girders on the existing piers, which would enable trains to be pushed over the bridge and would supersede the transshipment over the pontoon bridge.

Bengal Doonars Railway.

This line was breached at Barnes Junction on 19th August 1926, due to the Teesta River cutting into the line. Transshipment of all kinds of traffic was arranged and through running could not be restored till 4th October 1926.

Bombay, Baroda and Central India Railway.

Owing to heavy rain on 1st September 1926 the line between Abu Road and Banas was breached in several places. Through communication was restored from the evening of 4th September. There was a further breach on the 8th September on the metre gauge section in 2 places, through communication being restored on the 13th and 15th September 1926.

North Western Railway.

The double line between Karachi and Landhi on the Karachi-Kotri section was badly breached on the 5th September 1926 due to a severe cyclone. The line was completely submerged in several places and all telephonic and telegraphic communication entirely broke down. Single line working was resumed the next day and double line working on the 10th.

The Kalka-Simla section was blocked by a heavy landslide between Taksal and Gumman on the 30th July and between Shogi and Kathlegat stations on the 6th September. All trains were transhipped and through communication was restored on 2nd August and 12th September respectively.

The Khyber Railway was breached on two occasions, *viz.*, on 9th August 1926 and 4th September 1926 through running being resumed on 11th August 1926 and 12th September, respectively.

Mysore Railways.

The line between Kavalanda to Chamaraajanagar was breached in several places on 9th September 1926, through communication being restored on 11th September.

Bengal and North Western Railway.

On the night of 2nd August 1926 the embankment was cut by villagers between Khadda and Chhitauni stations and a breach 180 feet wide was found which stopped communications beyond Khada. These were restored on 3rd September by opening a diversion round the breach.

The line between Suraimanpur and Reoti on the Chupra-Balia section was breached on 14th September. Passengers were diverted *via* Bhatni Junction, transshipment being not possible. Through running was resumed on 20th October.

Jodhpur Railway.

On the night of 9/10th September 1926 the line was badly breached between Janiana and Gole due to heavy floods in the Luni river. Through communication was restored on the 14th.

108. Accidents.—The following table shows the numbers of passengers, railway servants and other persons killed and injured in 1925-26 and 1926-27:—

	KILLED.		INJURED.	
	1926-27.	1925-26.	1926-27.	1925-26.
<i>A.—Passengers.</i>				
(1) In accidents to trains, rolling-stock, permanent way, etc.	16	22	126	161
(2) In accidents caused by movements of trains and railway vehicles exclusive of train accidents.	324	352	1,117	1,131
(3) In accidents on railway premises in which the movement of trains, vehicles, etc., were not concerned.	7	3	21	31
TOTAL	347	377	1,264	1,323
<i>B.—Railway Servants.</i>				
(1) In accidents to trains, rolling-stock, permanent-way, etc.	25	20	126	141
(2) In accidents caused by movements of trains and railway vehicles exclusive of train accidents.	319	333	1,253	1,285
(3) In accidents on railway premises in which the movement of trains, vehicles, etc., were not concerned.	46	49	2,204	1,897
TOTAL	390	402	3,583	3,323
<i>C.—Other persons.</i>				
(1) In accidents to trains, rolling-stock, permanent-way, etc.	19	35	35	78
(2) In accidents caused by movements of trains and railway vehicles exclusive of train accidents.	2,107	2,081	793	817
(3) In accidents on railway premises in which the movement of trains, vehicles, etc., were not concerned.	30	23	61	68
TOTAL	2,156	2,139	889	963
GRAND TOTAL	2,893	2,918	5,736	5,609

Nerbudda Bridge Washaway, G. I. P. Railway.



109. The number of passengers killed shows a decrease of 30 and the number of passengers injured shows a decrease of 59. These figures of passengers killed and injured are the lowest of the last five years in spite of an increase of passenger train mileage during this period of 9,906,000 miles or 15 per cent.

Year.	PASSENGERS.	
	Killed.	Injured.
1922-23	405	1,368
1923-24	372	1,272
1924-25	418	1,312
1925-26	377	1,327
1926-27	347	1,264

110. The following table analyses the main causes of accidents to railway servants on Class I Railways which occurred by movements of trains and railway vehicles exclusive of train accidents :—

Cause.	NUMBERS KILLED.		NUMBERS INJURED.	
	1926-27.	1925-26.	1926-27.	1925-26.
1. Misadventure or accidental	203	212	883	901
2. Want of caution or misconduct on the part of the injured person.	98	101	265	279
3. Want of caution or breach of rules, etc., on the part of servants other than the persons injured.	11	9	37	51
4. Defective apparatus or system of working, dangerous places, dangerous conditions of work or want of rules or systems of working.	1	1	4	5
TOTAL	313	323	1,189	1,236

These figures show a decrease of 10 killed and 47 injured compared with 1925-26.

111. Out of a total of 2,893 persons killed on railways 1,784 were trespassers and 253 committed suicide.

112. The following statement analyses the accidents which occurred on all railways during the last two years grouped under the principal causes.

Mining page
m 89 to 92 re 2/2/27 9/8-7.

A fuller statement showing the accidents in greater detail under the separate railways is to be found in Appendix D of Volume II of this report :—

	1926-27.	1925-26.
Running over cattle	10,053	9,612
Derailments not involving passenger trains	4,946	4,397
Accidents due to failure of couplings and draw gear	2,930	2,722
Accidents due to failure of machinery of engines, springs, etc., or faulty working of crew, or other causes	2,211	2,178
Derailment of passenger trains	381	347
Fires in trains or at stations or bridges	283	290
Collisions involving goods trains or goods vehicles	378	309
Broken rails	330	361
Running over obstructions on the line	320	294
Bursting of tubes and boilers of engines	604	275
Accidents due to failure of axles	46	145
Flooding of permanent-way	132	92
Collisions involving passenger trains	75	65
Passenger trains running in the wrong direction through points but not derailed	90	98
Collisions between light engines	68	66
Land slips	44	40
Accidents due to failure of tyres or wheels	49	20
Accidents due to failure of brake apparatus	19	33
Trains running through level-crossing gates	37	26
Failure of bridges or tunnels	20	12
Miscellaneous	447	712
TOTAL	23,463	22,094

Cases of running over cattle are still responsible for the largest number of accidents—43 per cent. of the whole.

'Derailment of passenger trains' and 'Collisions involving passenger trains' were rather more numerous and may be attributed to an increase in passenger train mileage amounting to over five million miles.

'Accidents due to failure of axles' and 'Miscellaneous accidents' show a decrease and there are also decreases under 'Fires in trains or at stations or bridges', 'Broken rails' and 'Accidents due to failure of brake apparatus'.

The small increase in 'Running over obstructions on the line' and 'Trains running through level crossing gates' is chiefly due to the increasing number of motor vehicles on the roads. In this connection it may be mentioned that the Railway Board have during the year given very careful attention to the question of level crossings with a view to improve the vehicle driver's field of vision and generally to provide better protection for crossings.

The other increases are mainly attributable to a general increase of 3·4 per cent. in train mileage.

113. The following is a brief account of the more serious accidents which occurred during the year :—

Derailment of 604-Up Express on the Lucknow-Cawnpore branch.—On 26th July 1926, No. 604-Up Great Indian Peninsula Express was derailed between Harauni and Jaitipore stations on the Lucknow-Cawnpore Branch of the East Indian Railway. The accident was due to the removal of dog spikes and fishplates by some unknown persons with the deliberate object of wrecking the train. Four bogie coaches and one four-wheeled car-

APPENDIX A.

List showing Railways in India alphabetically arranged under each gauge according to system of working.

[NOTE.—The railways under construction or sanctioned for construction on the 31st March 1927, are shown in italics.]

Name of Railway.	Working or Constructing Agency.
I.—STATE LINES WORKED BY THE STATE.	
5' 6" gauge.	
Eastern Bengal	Eastern Bengal Railway
East Indian	East Indian Railway.
Great Indian Peninsula	Great Indian Peninsula Railway.
North Western	North Western Railway.
South Bihar*	East Indian Railway.
3' 3½" gauge.	
Aden	Aden Railway.
Cawnpore-Burhwal Link	East Indian Railway.
Eastern Bengal (3' 3½" and 2' 6")	Eastern Bengal Railway.
2' 6" gauge.	
Kalka-Simla	North Western Railway.
Kangra Valley	
Zhob Valley	
(Khanai-Hindubagh)	
Kohat-Thal	
Trans-Indus (Kalabagh-Bannu)	
2' 0" gauge.	
Dera Ismail Khan-Tank Decauville	North Western Railway.
Jorhat (Provincial)	Assam Government.
II.—STATE LINES WORKED BY COMPANIES.	
5' 6" gauge.	
Bengal-Nagpur	Bengal Nagpur Railway Company.
Bezwada Extension	Nizam's Guaranteed State Railway Company.
Bombay, Baroda and Central India	Bombay, Baroda and Central India Railway Company.
Kolar Gold-fields	Madras and Southern Mahratta Railway Company.
Madras and Southern Mahratta	
South Indian	South Indian Railway Company.
3' 3½" gauge.	
Alnavar-Dandeli (Provincial)	Madras and Southern Mahratta Railway Company.
Alon-Ye-U	Burma Railways Company.
Assam-Bengal	Assam Bengal Railway Company.
Bangalore-Harihar	Madras and Southern Mahratta Railway Company.
Bombay, Baroda and Central India	Bombay, Baroda and Central India Railway Company.
Burma	Burma Railways Company.
Burma Extensions	
Dhone-Kurnool	Madras and Southern Mahratta Railway Company.
Hindupur (Yesvantpur-Mysore Frontier).	
Jodhpur-Hyderabad (British Section).†	Jodhpur Durbar.
Lucknow-Bareilly	Rohilkund and Kumaon Railway Company.
Madras and Southern Mahratta	Madras and Southern Mahratta Railway Company.

* Although a leased line, it is, for convenience, shown under the head "State lines worked by the State".

† The Indian State Section of this railway forms an integral part of the Jodhpur Railway. This line is worked by the administration of the Jodhpur Railway.

Name of Railway. Working or Constructing Agency.

II.—STATE LINES WORKED BY COMPANIES—*concl'd.*

3' 3 $\frac{3}{8}$ " gauge—*concl'd.*

Moulmein-Ye Burma Railways Company.
Nilgiri South Indian Railway Company.
Palampur-Deesa.* Bombay, Baroda and Central India Railway Company.

Pegu-Kayan } Burma Railways Company.
Pyinmana-Taungdwingyi }
South Indian South Indian Railway Company.
Southern Shan States Burma Railways Company.
Travancore (British Section) }
Travancore (Indian State Section).† } South Indian Railway Company.
Tirhoot Bengal and North Western Railway Company.

2' 6" gauge.

Broach-Jambusar Bombay, Baroda and Central India Railway Company.
Morappur-Hosur South Indian Railway Company.
Purulia-Ranchi } Bengal Nagpur Railway Company.
Raipur-Dhamtari }
Satpura Bengal Nagpur Railway Company.
Samni Dehej Bombay, Baroda and Central India Railway Company.
Tirupattur-Krishnagiri South Indian Railway Company.

2' 0" gauge.

Tumsar-Tirodi Light Bengal Nagpur Railway Company.

III.—BRANCH LINE COMPANIES' RAILWAYS UNDER GUARANTEE TERMS.

(A) WORKED BY THE BRANCH LINE COMPANY.

2' 6" gauge.

Ahmadpur-Katwa Ahmadpur-Katwa Railway Company.
Arakan Light.‡ }
Bankura-Damodar River Bankura-Damodar River Railway Company.
Burdwan-Katwa Burdwan-Katwa Railway Company.
Futwah-Islampur Futwah-Islampur Railway Company.
Kalighat-Falta Kalighat-Falta Railway Company.

(B) WORKED BY THE MAIN LINE.

5' 6" gauge.

Hardwar-Dehra East Indian Railway.

3' 3 $\frac{3}{8}$ " gauge.

Chaparmukh-Silghat§ }
Katakhal-Lalabazar§ } Assam-Bengal Railway Company.

2' 6" gauge.

Dasghara-Jamalpurganj Bengal Provincial Railway Company.

IV.—BRANCH LINE COMPANIES' RAILWAYS UNDER REBATE TERMS WORKED BY THE MAIN LINE.

5' 6" gauge.

Amritsar-Patti }
Hoshiarpur-Doab (Jullundur-Mukerian). } North Western Railway.

* This line is owned jointly by Government and the Palampur Durbar.
† Although for convenience classed among State railways, this line is the property of the Travancore Durbar.
‡ Also receives a subsidy from the Aracan Flotilla Company, and a guarantee of one per cent. by the Burma Government for a period of 10 years. The line was closed for all kinds of traffic from 1st June 1926.
§ Also receives a subsidy from the Assam Government.

Name of Railway. Working or Constructing Agency.

IV.—BRANCH LINE COMPANIES' RAILWAYS UNDER REBATE TERMS WORKED BY THE MAIN LINE—*concl'd.*

5' 6" gauge—*concl'd.*

Hoshiarpur-Doab (Phagwara-Rahon). } North Western Railway.
Mandra-Bhaun Eastern Bengal Railway.
Sara-Sirajganj }
Sialkot-Narowal }
Southern Punjab (Main Line) }
Southern Punjab (Jullundur-Doab) } North Western Railway.
Southern Punjab (Ludhiana Extension). }
Southern Punjab (Sutlej Valley) Bombay, Baroda and Central India Railway Company.
Tapti Valley }

3' 3 $\frac{3}{8}$ " gauge.

Ahmedabad-Parantij Bombay, Baroda and Central India Railway Company.

2' 6" gauge.

Champaner-Shivrajpur-Pani Light Bombay, Baroda and Central India Railway Company.

Dhond-Baramati } Great Indian Peninsula Railway.
Ellichpur-Yeotmal }
Godhra-Lunavada } Bombay, Baroda and Central India Railway Company.
Jacobabad-Kashmor North Western Railway.
Khulna-Bagerhat Eastern Bengal Railway.
Larkana-Jacobabad North Western Railway.
Mayurbhanj Bengal Nagpur Railway Company.
Nadiad-Kapadvanj Bombay, Baroda and Central India Railway Company.

Pachora-Jamner } Great Indian Peninsula Railway.
Pulgaon-Arvi }

2' 0" gauge.

Darjeeling-Himalayan Extensions Darjeeling-Himalayan Railway Company.
Matheran Light Great Indian Peninsula Railway.

V.—BRANCH LINE COMPANIES' RAILWAYS UNDER GUARANTEE AND REBATE TERMS.

3' 3 $\frac{3}{8}$ " gauge.

Jamnagar and Dwarka Jamnagar and Dwarka Railway Company.
Mymensingh-Bhairab Bazar Assam-Bengal Railway Company.

VI.—COMPANIES' LINES SUBSIDIZED BY THE GOVERNMENT OF INDIA.

3' 3 $\frac{3}{8}$ " gauge.

Bengal and North-Western* Bengal and North-Western Railway Company.
Bengal-Dooars Extensions* Bengal-Dooars Railway Company.
Mirpur Khas Jhudo* } Jodhpur Durbar.
Mirpur Khas Khadro* }
Rohilkund and Kumaon Rohilkund and Kumaon Railway Company.

2' 6" gauge.

Barsi Light* Barsi Light Railway Company.
Dehri-Rohtas Light Dehri-Rohtas Light Railway Company.
Shahdara (Delhi) Saharanpur Shahdara (Delhi) Saharanpur Light Railway Company.
Light.* }

* Receives land only from Government.

Name of Railway.	Working or Constructing Agency.
VII.—COMPANIES' LINES SUBSIDIZED BY LOCAL GOVERNMENTS.	
3' 3$\frac{3}{8}$" gauge.	
Dibru-Sadiya	Assam Railways and Trading Company.
2' 0" gauge.	
Darjeeling-Himalayan	Darjeeling-Himalayan Railway Company.

VIII.—UNASSISTED COMPANIES' LINES.

3' 3$\frac{3}{8}$" gauge.	
Ledo and Tikak-Margherita Colliery.	Assam Railways and Trading Company.
2' 6" gauge.	
Bengal Provincial	Bengal Provincial Railway Company.
Singri-Panchnoi River	Singri Panchnoi River Tramway Company.
2' 0" gauge.	
Jagadhri Light	Jagadhri Light Railway Company.
Kulasekarapatnam Light	East India Distilleries and Sugar Factories Limited of Madras.
Tirupati-Tiruchanur Light	Tirupati-Tiruchanur Light Railway Company.
Trivellore Light	T. N. Chetty & Sons, Madras.

IX.—DISTRICT BOARD LINES.

5' 6" gauge.	
Suramangalam-Salem	South Indian Railway Company.
Tenali-Repalle	Madras and Southern Mahratta Railway Company.
3' 3$\frac{3}{8}$" gauge.	
Bezwada-Masulipatam	Madras and Southern Mahratta Railway Company.
Podanur-Pollachi	South Indian Railway Company.
Tanjore District Board	
Tinnevely-Tiruchendur	

X.—COMPANIES' LINES SUBSIDIZED BY DISTRICT BOARD.

3' 3$\frac{3}{8}$" gauge.	
Bengal Dooars	Bengal Dooars Railway Company.
2' 6" gauge.	
Arrah-Sasaram Light	Arrah-Sasaram Light Railway Company.
Baraset-Basirhat Light	Baraset-Basirhat Light Railway Company.
Bukhtiarpur-Bihar Light	Bukhtiarpur Bihar Light Railway Company.
Jessore-Jhenidah	Jessore-Jhenidah Railway Company.
Tezapore-Balipara Light	Tezapore-Balipara Light Railway Company.
2' 0" gauge.	
Howrah-Amta Light	Howrah-Amta Light Railway Company.
Howrah-Sheakhala Light	Howrah-Sheakhala Light Railway Company.

XI.—INDIAN STATE LINES WORKED BY INDIAN STATES.

3' 3$\frac{3}{8}$" gauge.	
Bhavnagar State	Bhavnagar Durbar.
Bikaner State	Bikaner Durbar.
Gondal	Gondal Durbar.
Jetalsar-Rajkot	Gondal Railway.
Jodhpur	Jodhpur Durbar.

XI.—INDIAN STATE LINES WORKED BY INDIAN STATES.— concl.

3' 3$\frac{3}{8}$" gauge—concl.	
Junagad State	Junagad Durbar.
Khijadiya-Dhari	Gondal Railway.
Morvi	Morvi Durbar.
Mysore	Mysore Durbar.
Porbandar State	Porbandar Durbar.
Udaipur-Chitorgarh	Mewar Durbar.
2' 6" gauge.	
Bodeli-Chhota Udaipur	Baroda Durbar.
Cutch State	Cutch Durbar.
Dholpur-Bari	Dholpur Durbar.
Gaekwar's Baroda State	Baroda Durbar.
Kolar District	Mysore Durbar.
Mohari-Barauli*	Dholpur Durbar.
2' 0" gauge.	
Gwalior Light	Gwalior Durbar.
Pipar-Bilara Light	Jodhpur Durbar.
Tarikere-Narasimharajapura Light	Mysore Durbar.

XII.—INDIAN STATE LINES WORKED BY THE MAIN LINE.

5' 6" gauge.	
Bahawalnagar-Cholistan (Indian State Section).	North Western Railway.
Bhopal Itarsi (Indian State Section).	Great Indian Peninsula Railway.
Bhopal-Ujjain	
Bina-Goonna-Baran	
Jammu and Kashmir (Indian State Section).†	
Jind-Panipat (Indian State Section).‡	North Western Railway.
Karepalli-Kothagudiam	Nizam's Guaranteed State Railway Company.
Kazipet-Balharshah	
Khanpur-Chachran	North Western Railway.
Ludhiana-Dhuri-Jakhal	Great Indian Peninsula Railway.
Nagda-Ujjain	
Petlad-Cambay (Anand-Tarapur Section).	Bombay, Baroda and Central India Railway Company.
Petlad-Cambay (Tarapur-Cambay Section).	
Rajpura-Bhatinda	North Western Railway.
Sirhind-Rupar (Indian State Section).	
3' 3$\frac{3}{8}$" gauge.	
Cooch Behar State	Eastern Bengal Railway.
Dhrangadra	Bombay, Baroda and Central India Railway Company.
Gaekwar's Mehsana	
Hingoli Branch	Nizam's Guaranteed State Railway Company.
Jaipur State	Bombay, Baroda and Central India Railway Company.
Kolhapur State	Madras and Southern Mahratta Railway Company.
Okhamandal	Jamnagar and Dwarka Railway Company.
Palanpur-Deesa.§	Bombay, Baroda and Central India Railway Company.
Rajkot-Jamnagar	Jamnagar and Dwarka Railway Company.

* Although, for convenience, classed among Indian State Lines worked by Indian States, this line is the property of Government.

† The British section of this railway forms an integral part of the North Western Railway.

‡ The section of this railway in British territory forms an integral part of the North Western Railway.

§ This line is owned jointly by Government and the Palanpur Durbar.

Name of Railway.	Working or Constructing Agency.
XII.—INDIAN STATE LINES WORKED BY THE MAIN LINE—concl'd.	
3' 3$\frac{3}{8}$" gauge—concl'd.	
Sangli State	Madras and Southern Mahratta Railway Company.
Secunderabad-Gadwal	Nizam's Guranteed State Railway Company.
Shoranur-Cochin	South Indian Railway Company.
2' 6" gauge.	
Jhagadia-Thawe Road	Bombay, Baroda and Central India Railway Company.
Parlakimedi Light	Bengal Nagpur Railway Company.
Rajpipla State	Bombay, Baroda and Central India Railway Company.
XIII.—COMPANIES' LINES GUARANTEED BY INDIAN STATES.	
5' 6" gauge.	
Nizam's Guaranteed State	Nizam's Guaranteed State Railway Company.
3' 3$\frac{3}{8}$" gauge.	
Hyderabad-Godavari Valley	Nizam's Guaranteed State Railway Company.
2' 6" gauge.	
Bangalore-Chik Ballapur Light	Mysore Durbar.
XIV.—LINES IN FOREIGN TERRITORY WORKED BY BRITISH INDIAN RAILWAY COMPANIES.	
3' 3$\frac{3}{8}$" gauge.	
Peralam-Karaikkal	} South Indian Railway Company.
Pondicherry	
West of India Portuguese	Madras and Southern Mahratta Railway Company.

APPENDIX B.

Notes on the relation of the Government to Railways in India.

(Reprinted from the Report for 1914-15 and brought upto date.)

Diversity of Relations between the State and Railways.—One of the special features of the Indian Railway system is the diversity of conditions that prevails in the relation of the State to the various lines in respect of ownership and control. Of the important lines situated in British India or in which the Government of India is interested, four (the North-Western,* Eastern Bengal, East Indian (with which has been amalgamated the Oudh and Rohilkhand Railway from the 1st July 1925) and Great Indian Peninsula Railways) are owned and worked by the State; six (the Bombay, Baroda and Central India, Madras and Southern Mahratta, Assam-Bengal, Bengal-Nagpur, South Indian and Burma) are owned by the State but worked on its behalf by companies enjoying a guarantee of interest from the Government; three important lines (the Bengal and North-Western, Rohilkund and Kumaon and Southern Punjab) and many of less importance are the property of private companies, some being worked by the owning companies and some by the State or by the companies that work State-owned systems; several minor lines are the property of District Boards or enjoy a guarantee of interest granted by such Boards.

The diversity of conditions is in certain respects less important than might at first appear for the following reasons:—

The Government of India exercises under the Indian Railways Act, 1890, in respect of all railways in British India (and also, by virtue of arrangements with Indian States, in respect of certain railways passing through such States), certain general powers. Thus a railway may not be opened until a Government Inspector has certified that it has been constructed so as to comply with requirements laid down by the Government and can be used for the public carriage of passengers without danger to them. The Government of India can also, in the interest of the safety of passengers, require a railway to be closed, or the use of particular rolling-stock to be discontinued, or may prescribe conditions for the use of the railway or the rolling-stock. They can appoint a Railway Commission to investigate complaints on certain matters such as the withholding of reasonable traffic facilities or the grant of undue preference.

In addition, the Government of India (or in some cases Local Governments) exercise under the provisions of contracts detailed control over the management of all Railways in British India greatly exceeding that which is secured by the Indian Railways Act. They also have a certain financial interest in all companies in British India, and a preponderating interest in most of the Railways which are of the first importance.

History of Relations of the Government and Companies.—The main causes which have led to the present diversity of conditions in regard to the agency by which railways are managed, and the relations of the Government with the various classes of companies now in existence, are summarised in the following paragraphs:—

The first proposals for the construction of railways in India were submitted in 1844 to the East India Company in England by Mr. R. M. Stephenson, afterwards Chief Engineer of the East Indian Railway, and others; they included the construction of lines by railway companies to be incorporated for the purpose and the guarantee by the East India Company of a specified return. A contract for the construction by the East Indian Railway Company of an experimental line of 100 miles from Calcutta towards Mirzapore or Rajmehal at an estimated cost of 1,000,000*l.* was made in 1849, and a return of 5 per cent. was guaranteed by the East India Company on the Capital; and a similar contract was made in the same year with the Great Indian Peninsula Railway Company for a line from Bombay to Kalyan at an estimated cost of 500,000*l.* But the policy of entrusting generally the construction of Indian railways to guaranteed companies was not adopted until 1854 on the recommendation of Lord Dalhousie, who, in a minute, dated 20th April 1853, explained his reasons for preferring the agency of companies, under the supervision and control of the Government, to the construction of lines on behalf of the Government by its own officers. He held that the State Engineer officers would make railways as well, and possibly as cheaply, and as expeditiously as companies; but that the withdrawal from other duties of the large number

*Includes the Delhi Umballa Kalka Railway which was purchased by the Secretary of State on 31st March 1926.

of officers required would be detrimental to the public interest, that the conduct of commercial undertakings did not fall within the proper functions of any Government and least of all within the functions of the Government of India, since the dependence of the population on the Government was, in India, one of the greatest drawbacks to the advance of the country, and that the country would therefore benefit by the introduction of English energy and English capital for railway purposes, with the possibility that such energy and capital would in due course be encouraged to assist in the development of India in other directions.

Old Guaranteed Railways.—The policy supported by Lord Dalhousie was adopted, and between 1854 and 1860 contracts for the construction of Railways in India were made by the East India Company, or (after 1858) by the Secretary of State for India with the East Indian, Great Indian Peninsula, Madras, Bombay, Baroda and Central India, Scinde (afterwards, the Scinde, Punjab and Delhi), Eastern Bengal, Great Southern of India (afterwards, when amalgamated with the Carnatic Railway Company—see below—the South Indian) and Calcutta and South-Eastern Railway Companies. Under these contracts the railway companies undertook to construct and manage specified lines, while the East India Company (or the Secretary of State for India) agreed to provide land and guaranteed interest on the capital, the rate fixed being in various cases 5, 4½ and 4¼ per cent. according to the market rates prevailing when the various contracts were made. Half of any surplus profits earned was to be used towards repaying to the Government any sums by which it had been called upon to supplement the net earnings of any previous period in order to make good the guarantee of interest; and the remainder was to belong to the shareholders. In practically all matters of importance except the choice of staff, the companies were placed by the contracts under the supervision and control of the Government which had power to decide on the standard and details of construction; the rolling-stock to be provided, the number, time and speed of trains; the rates and fares to be charged; the expenditure to be incurred; the standard of maintenance; and the form of accounts. The railways were to be held by the companies on leases terminating at the end of 99 years, and on such termination the fair value of their rolling-stock, plant and machinery was to be paid to them. But provision was also made to enable the Government to purchase the lines after 25 or 50 years on terms calculated to be the equivalent of the companies' interests therein and also to enable the companies to surrender their lines to the Government and to receive in return their capital at par.

Early Attempts to Secure Funds for Railway Construction without a Guarantee.—An attempt to secure the construction of railways in India, on terms more favourable to the Government than those of the contracts with the original guaranteed companies, was first made in 1862, when a subsidy, but not a guarantee, was granted to the Indian Branch Railway Company which proposed to make feeders to the trunk lines in Northern India, and did actually make one such line. Similar assistance was granted later to the Indian Tramway Company, which made a short line in Madras. In 1864, the terms granted to the two companies mentioned were taken as a standard for general adoption with a view to the encouragement of similar companies. The chief provisions were that the Government, besides giving the necessary land free of costs, would grant an annual subsidy for 20 years at a rate not exceeding £100 per mile of line, with an addition in respect of large bridges costing more than £10,000. These terms failed to attract capital, and the two unguaranteed companies which had begun work found themselves after a few years unable to proceed without further assistance from the Government. Consequently, in 1867, a contract was entered into with the Indian Branch Railway Company (which soon after changed its name to the "Oudh and Rohilkhand Railway Company") by which the company was guaranteed interest at 5 per cent. per annum on the cost of certain lines to be carried out by it, on conditions similar to those laid down in the contracts of the period 1854–1860. Similarly, the Indian Tramway Company, after having been given in 1868 a guarantee of 3 per cent. per annum, went into liquidation in 1870, and became absorbed in a new company called the Carnatic Railway Company (afterwards amalgamated with the Great Southern of India Railway Company to form the South Indian Railway Company), with which the Secretary of State entered into a contract guaranteeing interest on its capital at 5 per cent. per annum. In 1869, Sir John Lawrence summed up the result of the experiment of the construction of railways by unguaranteed companies as follows:—"The Government of India has for several years been striving to induce capitalists to undertake the construction of railways in India at their own risk, and on their responsibility with a minimum of Government interference. But the attempt has entirely failed, and it has become obvious that no capital can be obtained for such undertakings otherwise than under a guarantee of interest fully equal to that which the Government would have to pay if it borrowed directly on its own account."

The attempt to encourage unguaranteed companies having thus been unsuccessful, it became necessary to decide whether the old practice of relying on guaranteed companies, of the type that had provided capital for, and had constructed, the first railways in India, should be continued. The Government of India expressed their objections to

this course. They doubted whether their power of control over such companies secured the greatest possible economy in construction. They also dislike the arrangements under which they guaranteed the interest on the capital of companies, and thus became responsible for loss on working while having only a comparatively remote prospect of profiting by the result of successful working. Two important changes were consequently made in the practice that had been followed since the beginning of railway construction in India:—

1. Arrangements were made with some of the most important of the guaranteed companies that, in lieu of the provision that half of any surplus profits was to be applied in repayment of sums advanced by the Government under the guarantee of interest, half of the surplus profits for each half-year should be the property of the Government. In consideration of this modification, the Government relinquished, in the case of three companies, the Great Indian Peninsula, the Bombay, Baroda and Central India and the Madras, its right to purchase the lines at the end of the first 25 years from the dates of the respective contracts.
2. It was decided by the Secretary of State that the time had arrived when in both raising and expending such additional capital as might be required for new lines in India, the Government should secure to itself the full benefit of its own credit and of the cheaper methods which it was expected that it would be able to use. Accordingly, for several years after 1869, the capital expenditure on railways was chiefly incurred direct by the State and no fresh contracts with guaranteed companies were made except for small extensions. Among the lines constructed or begun by State agency and from State capital between 1869 and 1880 were the Indus Valley, Punjab Northern, Rajputana-Malwa, Northern Bengal, Rangoon and Irrawady Valley and Tirhoot.

Progress in the Construction of Railways.—By the end of 1879, in about 25 years from the introduction of railways in India, 6,128 miles of railway had been constructed by companies which had expended, approximately, £97,872,000 (these figures include the Calcutta and South-Eastern and Naihati Railways which were constructed by companies but were purchased by the Government in 1868 and 1872, respectively). By the same date 2,175 miles of railway had been constructed by the Government at a cost of £23,695,226.

Introduction of Modified Guarantee Terms.—In 1880, the necessity for great and rapid extension of the railway system was urged by the Famine Commissioners, appointed after the great famine of 1878, who estimated that at least, 5,000 miles were still necessary for the protection of the country from famine. It was held by the Government of the time that a limit was necessary on the capital borrowed annually; and it was clear that the limit fixed was not high enough to allow of such progress in railway construction as was desirable. With reference to this difficulty the Famine Commissioners remarked: "that there would be manifest advantages in giving free scope to the extension of railways by private enterprise if it were possible; and, though the original form of guarantee has been condemned, it may not be impossible to find some substitute which shall be free from its defects, and may secure the investment of capital in these undertakings without involving the Government in financial or other liabilities of an objectionable nature."

Action in the direction suggested by the Commission was taken by the formation of three companies without a guarantee (the Bengal Central in 1881 and the Bengal and North-Western and Rohilkund and Kumaon in 1882), and three new guaranteed companies (Southern Mahratta in 1882, the Indian Midland in 1885, and the Bengal-Nagpur in 1887). The Bengal and North-Western and the Rohilkund and Kumaon Railway Companies are referred to more fully, in a later paragraph. The Bengal Central Railway Company's operations were not successful at the outset, and a revised contract was entered into with the company, with effect from the 1st July 1885, under which the Secretary of State guaranteed interest at 3½ per cent. on the company's capital, the balance of net earnings remaining after payment of interest on advances by the Secretary of State and debenture capital (but not the share capital) being divided between the Secretary of State and the company in the proportions of three-quarters to the former and one-quarter to the latter. The new contract gave the Secretary of State the right to take possession of the line on the 30th June 1905, or subsequently at intervals of 10 years, on repaying the company's capital at par. The rate of interest guaranteed to the Southern Mahratta Railway Company was also 3½ per cent.; in this case the balance of net earnings remaining after payment of interest on advances by the Secretary of State (but not on share or debenture capital) was divisible in the same way as in the case of the Bengal Central Railway Company. The guarantee to the Indian Midland and the Bengal-Nagpur Railway Companies was 4 per cent.; and the Secretary of State was entitled to three-quarters of the surplus profits in excess of all interest charges. The lines constructed by the three companies last mentioned were declared to be the property of the Secretary of State, who had the right to determine the contracts at the end of

approximately 25 years after their respective dates, or at subsequent intervals of 10 years, on repaying at par the capital provided by the companies.

The Assam-Bengal Railway Company was formed on similar lines in 1892, except that any surplus profits were to be divided between the Secretary of State and the company in proportion to the capital provided by each. The rate of guarantee in this case was $3\frac{1}{2}$ per cent. for the first six years and thereafter 3 per cent. The Burma Railways Company was formed in 1897 to manage and develop the line in that Province that had been constructed by the State. Interest at $2\frac{1}{2}$ per cent. was guaranteed on the share capital raised by the company, and the surplus profits were originally divisible in the proportion of four-fifths to the Secretary of State and one-fifth to the company, but since 1908 the division has been proportional to the capital invested by each in the undertaking. The contract with the Burma Railways Company is terminable by the Secretary of State in 1928, or on subsequent occasions, on repayment of the company's capital at par.

The terms of guarantee given to the companies formed since 1880 have thus been much more favourable to the Government than in the case of those formed before 1869.

Termination of Contracts of the Old Guaranteed Companies.—In dealing with the guaranteed companies formed before 1869 and with those formed in 1881 and subsequently, it has been the practice (except in the cases mentioned above, when the purchase of some of the old guaranteed lines was postponed in order to secure to the Government a share in surplus profits) to use in some way or other at the earliest possible date the right reserved by the Government of terminating the contracts of the various companies. The method of making use of this right has differed in different cases. The Eastern Bengal, Oudh and Rohilkhand and Scinde-Punjab and Delhi lines were purchased and transferred to State management, the last named now forming part of the North Western Railway. Similarly, the Bengal Central line was purchased and made part of the Eastern Bengal Railway. The Madras and the Indian Midland lines were acquired but left, after acquisition, under the management of companies working other lines with which it was advantageous to amalgamate them. In the cases of South Indian, Bombay, Baroda and Central India, Southern Mahratta, and Bengal-Nagpur, the course adopted has been to arrange for the continuance of management by the original company (or by a new company closely related to the old one), but to secure more favourable financial conditions for the State by one or more of the following methods:—reduction of the amount of capital retained by the companies in the undertakings, reduction of the rate of interest guaranteed by the State on such capital and modification in favour of the Government of the clauses relating to the division of surplus profits. This method was adopted also in regard to the East Indian and the Great Indian Peninsula Railways, but the contracts under which they were being worked having terminated on the 31st December 1924 and the 30th June 1925 respectively, the management of these lines has been taken over by State from those dates.

Arrangements between the Government and Companies at present.

—The relations between the Government and the guaranteed companies now working railways may be summarised as follows:—

The lines that they work are the property of the State.

The greater part of the capital is the property of the Government, either through having been originally supplied by it or through the acquisition by the Government of the greater part of the companies' interests on the termination of old contracts.

When funds required for further capital expenditure, the Government has the option either of providing them or of calling on the company to provide them. The company receives guaranteed interest at a fixed rate on its capital; and similar payments out of the earnings are made to the Government. If, after these have been made, surplus profits remain, they are divided between the Government and the company in the various proportions provided for by the contracts. The company's share is in all cases only a small fraction of the Government's share.

All the contracts, except one, which is for a fixed term of 25 years, are terminable at the option of the Secretary of State, at specified dates; and on termination the company's capital is repayable at par.

The administrative control exercised by the Government over the companies is as follows:—

The company is bound to keep the line in good repair, in good working condition and fully supplied with rolling-stock, plant, and machinery; to keep the rolling-stock in good repair and in good working condition; and to maintain a sufficient staff for the purposes of the line;—all to the satisfaction of the Secretary of State.

The Secretary of State may require the company to carry out any alteration or improvement in the line, or in the working that he may think necessary for the safety of the public or for the effectual working of the line.

The Secretary of State may require the company to enter into agreements, on reasonable terms and conditions, with the administrations of adjoining railways for the exercise of running powers, for the supply to one another of surplus rolling-stock, for the interchange of traffic and rolling-stock and the settlement of through rates, and for additions and alterations to, or the redistribution of, existing accommodation in junctions or other stations in view to their convenient mutual use.

The train service is to be such as the Secretary of State may require. In order to secure a general control over the rates quoted by companies, the Secretary of State has retained power to settle the classification of goods and to authorise maximum and minimum rates within which the companies shall be entitled to charge the public for the conveyance of passengers and goods of each class.

The company has to keep such accounts as the Secretary of State may require, and these are subject to audit by the Secretary of State.

In all other matters relating to the line the company is made subject to the supervision and control of the Secretary of State, who may appoint such persons as he may think proper for the purpose of inspecting the line, auditing the accounts, or otherwise exercising the power of supervision and control reserved to him. In particular, the Secretary of State has the right to appoint a Government Director to the Board of the company, with a power of veto on all proceedings of the Board. All the moneys received by the company in respect of the undertaking, whether on capital or revenue account, have to be paid over to the Secretary of State.

All expenditure by the company has to be stated and submitted for the sanction of the Secretary of State.

Thus, the Government has the preponderating financial interest in the lines worked by the two classes of guaranteed companies, those formed before 1869 and retained as working agencies with reduced capital after purchase, and those formed on terms more favourable to the State after 1880; it has exceedingly wide control over the methods of working; and it has the right of taking possession of the lines at specified times on repayment at par of the capital of the companies.

Other Lines worked by Companies.—In addition to the lines referred to above, and apart from lines constructed by Branch line companies, District Boards and Indian States, two lines of some importance have been constructed by companies which receive no direct assistance by the Government, namely, the Bengal and North-Western Railway and the Rohilkund and Kumaon Railway. (The Rohilkund and Kumaon Railway Company was guaranteed interest at 4 per cent. during construction and received for 10 years thereafter a subsidy of Rs. 20,000 per annum. This ceased in 1894.) While, however, these companies have no guarantee or other direct payment from the Government, they derive some advantage (partly through direct participation in profits and partly through reduction of expenses) from the fact that the working of certain State lines has been entrusted to them, the Tirhoot Railway to the former company and the Lucknow-Bareilly Railway to the latter. Their lines can be purchased by the State in 1932 on terms which are different in respect of the different sections of the lines, but are, on the whole, much more favourable to the companies than those provided for in the contracts with the guaranteed companies. Failing purchase in 1932, the lines will become the property of the State in 1981 on terms much less favourable to the companies. The general administrative control exercised by the State over these companies and the control over expenditure are similar to that which is exercised, as explained above, over guaranteed companies.

APPENDIX C.

The Organisation for Government control.

The initial policy of the Government of India for the construction and working of railways was the establishment of guaranteed railway companies of English domicile. Control over the operations of these companies was at first secured through the appointment of a Consulting Engineer of Guaranteed Railways. Some years later local Consulting Engineers were appointed for the exercise of control over guaranteed railways and over State-owned railways in the construction of which the State had been financially interested and which had been leased to companies for working. These officers combined the duties of supervision and control on behalf of the Government of India and of an Inspector under the Government of India Railway Act. The Government of India were not directly concerned with the ownership of railways until 1869 when the Calcutta and South Eastern Railway was surrendered to the Indian Government under the terms of the contract between the Secretary of State and the Company.

Owing to the Government of India having in 1869 definitely adopted the policy of direct construction and ownership of railways, a period of rapid development of railway construction ensued and it became necessary to relieve the Public Works Department Secretariat of the Government of India in some measure of the detailed control of railways. Accordingly in 1874 a State Railway Directorate was established and the greater portion of the State Railway establishment and business connected with State Railway Administration was transferred to the control of the Director of State Railways, an officer who functioned on much the same lines as the head of a department under the Government of India. The Consulting Engineer to the Government of India for State Railways was at the same time associated with him but all important matters had still to be referred to the Public Works Department. A special Deputy Secretary in the Railway Branch of the Secretariat of the Public Works Department was also appointed to conduct the correspondence between the Government of India and these officers.

Early in 1877 a further change was made in the organisation responsible for the administration and control of State Railways and in the place of one Director of State Railways three Directors of territorial systems and one Director of State Railways Stores were appointed. These territorial divisions comprised the following systems:—

Central	1,179 miles.
Western, and	927 miles.
North Eastern	830 miles.

This division of the administration on a territorial basis proved unsatisfactory in practice as it resulted in the issue of conflicting orders as far as the management of open lines was concerned although no difficulty was experienced in the supervision of new construction.

As the number of lines under construction had decreased and in order to remedy the defect just mentioned, it was decided in 1880 to abolish the Directors of the Central and Western Systems and to transfer the work allotted to them to the Consulting Engineers of the neighbouring guaranteed railways. The abolition of these two appointments resulted in an increase in the administrative work of the Secretariat and it was found necessary to raise the status of the Deputy Secretary to whom the powers previously exercised by the Directors had been entrusted, to that of Director General of Railways.

In the revised organisation the Consulting Engineer to the Government of India for State Railways was associated with the Director General of Railways and assisted the latter primarily in an advisory capacity in matters of civil engineering while the Director of Stores similarly acted in matters concerning stores and rolling stock and at the same time was an adviser in matters affecting establishment. The Director of Traffic was appointed at the same time as an adviser on traffic problems and the accounts work of the department was placed under the Accountant General, Public Works Department.

Government control and supervision of the Guaranteed Railways continued to be exercised by the Local Consulting Engineers to Government. There were five such officers at the time with headquarters at Bombay, Madras, Calcutta, Lahore and Lucknow. The Consulting Engineers at Madras and Bombay worked directly under the Government of these Presidencies, while those at Calcutta, Lahore and Lucknow were under the immediate orders of the Government of India. Under this arrangement practically all powers affecting the finances and day to day management of the

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railways were vested either in the Consulting Engineers or in the Government, both for the guaranteed railway companies and later on for State Railways which had been leased for working to railway companies.

The following is a list of the administrative appointments that existed in 1881:—

1. Member of the Governor General's Council, Public Works Department.
2. Secretary, Public Works Department.
3. Deputy Secretary, Railway Branch.
4. Under Secretary, Railway Branch.
5. Consulting Engineer of State Railways.
6. Director General of Railways.
7. Director of Construction.
8. Accountant General, Public Works Department.
9. Director of State Railways, Stores.
10. Three Assistants to the Director General of Railways.
11. Consulting Engineers for Guaranteed Railways at Calcutta, Lahore and Lucknow.
12. Deputy Consulting Engineers for Guaranteed lines, Calcutta, Lahore and Lucknow.

Madras and Bombay.

13. Joint Secretary, Railway Branch and Consulting Engineer for Railways.
14. Deputy Secretary, Public Works Department.

Punjab.

15. Secretary, Public Works Department.

By this time also Local Governments and Administrations had been induced to take a practical interest in the management of railways and in a few cases short extensions had been constructed from funds the interest of which Local Governments had accepted responsibility to pay. Such lines were controlled by the Local Governments concerned under the general supervision of the Government of India.

After 1881 further alterations of a more or less detailed character were made in the administrative organisation and by 1890 the following changes had taken place. Instead of a Deputy Secretary and Under Secretary, Railway Branch, there were then only an Under Secretary and an Assistant Secretary, Railways in the General Branch. The posts of Director of State Railways, Stores, and Director of Construction had disappeared and in their place there was an Under Secretary, who was an *ex-officio* Deputy Director General of Railways. The post of Accountant General, Railways, had also been abolished and the Accountant General, Public Works Department, was once more made responsible for this work.

Further changes were made in 1897. In that year the post of Director General of Railways was abolished and the post of a Secretary to the Government of India in the Public Works Department was created in its place. The other administrative and secretariat appointments at the headquarters of the Government of India at the time were:—

- (1) Director of Railway Construction and Deputy Secretary and *ex-officio* Director of Stores.
- (2) Director of Railway Traffic, and Deputy Secretary and *ex-officio* Director of Railway Statistics.
- (3) Two Under-Secretaries.
- (4) Two Assistant Secretaries.
- (5) One Mechanical Assistant.

The post of Consulting Engineer for State Railways was also abolished and his duties transferred to the two Directors. The supervision of the accounts work of the Department, however, still remained under the Accountant General, Public Works Department, who was also an *ex-officio* Deputy Secretary to the Government of India.

In October 1901, Sir Thomas Robertson, C.V.O., was appointed by His Majesty's Secretary of State for India in Council as Special Commissioner for Indian Railways to enquire into and report on the administration and working of Indian Railways. In his report, which became available in 1903, Sir Thomas recommended that the administration of the railways in India should be entrusted to small Board consisting of a President or Chief Commissioner who should have a thorough practical knowledge of railway working, and 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. He recommended that the Board should, in addition to the necessary office establishment, be provided with—

- (1) A Secretary who should have received a suitable training in the practical working of railways, and who should be *ex-officio* a Secretary to the Government of India.
- (2) A Chief Inspector of Railways, to advise on all technical, engineering and mechanical questions.
- (3) A suitable number of Government Inspectors.

Sir Thomas Robertson's recommendations were carefully considered by the Governor General in Council and the Secretary of State, and early in 1905 it was decided that the Railway Branch of the Public Works Department of the Government of India should be abolished and that the control of the railway systems in India should be transferred to a Railway Board consisting of three persons, a Chairman and two Members. The Chairman of the Board was vested with the general control of all questions committed to the Railway Board with power to act on his own responsibility subject to confirmation by the Board. The Railway Board were authorised to delegate to the Chairman or a Member the power of settling questions which might arise on any tour of inspection, such decision to be recorded subsequently as an act of the Railway Board. The Board was made subordinate and directly responsible to the Government of India in the Department of Commerce and Industry.

The Railway Board assumed office in March 1905 and were provided with the following establishment:—

1. Secretary.
2. Examiner of Accounts.
3. Under Secretary, Construction.
4. Under Secretary, Traffic.
5. Registrar.
6. Director of Railway Construction.

Certain changes were, however, made in the following year and the establishment then consisted of:—

- 1 Secretary.
- 3 Assistant Secretaries; one each for Establishment, Construction and Traffic.
- 1 Registrar.
- 1 Director of Railway Construction.
- 1 Railway Accounts Officer.

Sir Thomas Robertson had further suggested in his detailed recommendations that extended powers, both administrative and financial, should be delegated to Boards of Directors of Companies, that the appointments of Consulting Engineers should be abolished and that the work which they performed under the Railways Act should be entrusted to a body of Government Inspectors to be appointed for the purpose. These recommendations were given effect to in a modified form in 1908.

Within a short time after the constitution of the Railway Board, it was found that work was being hampered by having the Commerce and Industry Department between the Railway Board and the Governor General in Council and in October 1908 on the recommendations of the Railway Finance Committee presided over by Sir James Mackay (now Lord Inchcape), the following changes were introduced:—

1. The appointment of the Chairman of the Railway Board was changed into that of President of the Railway Board and enhanced powers were vested in the President.
2. The Board with its staff became collectively the Railway Department distinct from and independent of the Department of Commerce and Industry, though remaining under the administrative charge of the Hon'ble Member, Commerce and Industry Department, as the Railway Member.
3. The President of the Board was given direct access to the Viceroy as if he were a Secretary to the Government of India.

At the same time in consequence of the amalgamation of the Public Works Department Accounts and Civil Audit Establishments under the control of the Finance Member of the Government of India the appointment of Accountant General, Public Works Department, was abolished and the appointment of Accountant General, Railways, was revived.

In 1909 the post of Director of Railway Construction was abolished and the appointment of Chief Engineer with the Railway Board for the purpose of advising the Railway Board on technical matters connected with Civil Engineering was created.

In January 1914, it was decided that the importance of financial and commercial considerations in connection with the control of Indian railway policy justified a modification of the rule that the President and Members of the Railway Board should all be men of large experience in the actual working of railways. It was then decided that in future one member who equally with the others might be appointed President should be selected for commercial and financial experience and a member with the necessary qualifications was appointed.

This arrangement was, however, altered in 1920 when it was decided that all the three members of the Board should possess railway experience. To assist the Board, however, in the consideration of financial questions, the post of Financial Adviser to Railway Board was created.

Owing to the expansion of railways in India and the increased work thrown on the Board a second Assistant Secretary, Engineering, was appointed in 1914, and in 1916 the duties of the Construction Branch were divided between one branch dealing with Projects under an Assistant Secretary and a second branch dealing with Way and Works which was sometimes under a separate officer and at other times under the Secretary or Chief Engineer. In 1922 the charge of the Way and Works branch was divided between the Assistant Secretary in charge of Projects and the Assistant Secretary in charge of Stores.

In November 1922, the Board's establishment was strengthened by the appointment of a Chief Mechanical Engineer. This appointment was created to enable the Board to have at headquarters a reliable adviser on matters connected with mechanical engineering.

During 1921 a Committee presided over by Sir William Acworth visited India and one of the questions referred to was the evolution of a satisfactory authority for the administration of the varied functions which the Railway Board had to perform as:—

- (a) the directly controlling authority of the three State-worked systems aggregating 9,028 miles,
- (b) representative of the predominant owning partner in systems aggregating 22,949 miles,
- (c) the guarantor of many of the smaller companies,
- (d) the statutory authority over all railways in India.

The Acworth Committee recommended in their report:—

- (1) that a new Department of Communications responsible for railways, ports and inland navigation, road transport and posts and telegraphs under a Member of Council in charge of Communications should be created,
- (2) that under the Member of Council for Communications there should be a technical staff consisting on the railway side of a Chief Commissioner and four Commissioners and that of the four one should be in charge of finance and the organisation and staff of the office and the other three Commissioners should be in charge of three respective divisions, Western, Eastern and Southern,
- (3) that the technical staff attached to the Commission should be strengthened specially on the traffic side.

The Government of India, though they did not accept the first recommendation of the Acworth Committee, agreed to the re-organisation of the Railway Board being undertaken on the principles underlying the report of the Acworth Committee. The appointment of a Chief Commissioner was accordingly sanctioned in November 1922 and in accordance with the recommendations of the Acworth Committee he is solely responsible, under the Government of India, for arriving at decisions on technical questions and advising the Government of India on matters of Railway policy; he is not liable to be over-ruled, as the President was, by his colleagues in the Railway Board.

The first duty of the Chief Commissioner was to work out detailed proposals for the re-organisation of the Railway Board and as a first step he made recommendations to the Government of India for the immediate appointment of a Financial Commissioner. This recommendation was strongly endorsed by the Indian Retrenchment Committee and the appointment of the Financial Commissioner was made in April 1923 with the sanction of the Secretary of State. The further proposals of the Chief Commissioner for the re-organisation of the Railway Board were accepted by the Government of India and the Secretary of State and were introduced from the 1st April 1924. It was decided, however, for reasons connected with the present statutory position of the Railway Board, and to avoid confusion with the provisions for a Railway Commission under Chapter V of the Railways Act, to retain the name "Railway Board" for the headquarters organisation of the Railway Department instead of "Railway Commission" as recommended by the Acworth Committee.

The Railway Board as now constituted consists of the Chief Commissioner as President, the Financial Commissioner and two Members, the Chief Commissioner being

Secretary to the Government of India in the Railway Department. The proposal of the Acworth Committee that the Indian Railways should be sub-divided into three territorial divisions with a Commissioner in charge of each was not accepted, and the work of the Members of the Board is now divided on the basis of subjects and not on a territorial basis. One Member deals with technical subjects and the other with general administration, personnel and traffic subjects, the Financial Commissioner representing the Finance Department on the Board and dealing with all financial questions.

The reorganisation carried out in 1924 had for one of its principal objects the relief of the Chief Commissioner and the Members from all but important work so as to enable them to devote their attention to larger questions of railway policy and to enable them to keep in touch with Local Governments, railway administrations and public bodies by touring to a greater extent than they had been able to do in the past. This object was effected by placing a responsible Director at the head of each of the main branches of the Board's work, namely Civil Engineering, Mechanical Engineering, Traffic and Establishment. The former Chief Engineer and the Chief Mechanical Engineer who had been employed mainly in consultative work, became Directors and together with the Directors of Traffic and Establishment have been made responsible for the direct disposal of the work of their branches under the general orders of the Railway Board.

The posts of Joint Secretary and 4 Assistant Secretaries were replaced by 6 Deputy Directors working under the Directors and in charge of branches dealing with Establishment, Works, Projects, Stores, Statistics and Traffic. One Assistant Director was also added to supervise the Technical Branch and the Drawing Office. The disposal of the general work of the Railway Board was provided for by the continuance of the post of Secretary in whose name all letters and orders of the Board are issued. The position of the Board as a Department of Government of India has been maintained and it works under the Member for Commerce and Railways. As already stated the Chief Commissioner is the Secretary to the Government of India in the Railway Department and orders issued by the Board over the signature of the Secretary are orders of the Government of India.

Experience of the working of this organisation during 1924-25 and the decision agreed to by the Legislative Assembly in September 1924 to separate railway finances from the general finances of the country made it necessary to appoint a Deputy Director and an Assistant Director of Finance. An Assistant Director of Statistics was also added during that year. Later a Director of Finance was added to the establishment occupying, as regards disposal of work, the same position as the Directors referred to above.

Further experience of the reduction of work resulting from the large delegation of powers and responsibility to the Agents of State-managed Railways and the Board of Directors of Company-managed railways enabled a re-arrangement of work to be made during 1925-26 accompanied by a reduction in the staff. Under this re-arrangement the posts of 3 Deputy Directors, an Assistant Director and the Assistant Secretary Establishment to the Secretary and a temporary post of Deputy Secretary was created. Further a separate technical office was established to take charge of the technical work of the engineering branches. The Technical Officer also acts as *ex-officio* Secretary to the permanent Standardisation Committees which have been appointed to deal progressively with all questions of standards of equipment.

The present superior staff under the Railway Board, therefore, consists of 5 Directors, 4 Deputy Directors, a Technical Officer, 2 Assistant Directors, a Secretary and a Deputy Secretary.

APPENDIX D.

Resolution regarding the separation of railway from General Finances, adopted by the Legislative Assembly on the 20th September 1924.

"This Assembly recommends to the Governor General in Council that in order to relieve the general budget from the violent fluctuations caused by the incorporation therein of the railway estimates and to enable railways to carry out a continuous railway policy based on the necessity of making a definite return to general revenues on the money expended by the State on Railways.

- (1) The railway finances shall be separated from the general finances of the country and the general revenues shall receive a definite annual contribution from railways which shall be the first charge on the net receipts of railways.
- (2) The contribution shall be based on the capital at charge and working results of commercial lines, and shall be a sum equal to one per cent. on the capital at charge of commercial lines (excluding capital contributed by companies and Indian States) at the end of the penultimate financial year plus one-fifth of any surplus profits remaining after payment of this fixed return, subject to the condition that, if in any year railway revenues are insufficient to provide the percentage of one per cent. on the capital at charge surplus profits in the next or subsequent years will not be deemed to have accrued for purposes of division until such deficiency has been made good.
- The interest on the capital at charge of, and the loss in working, strategic lines shall be borne by general revenues and shall consequently be deducted from the contribution so calculated in order to arrive at the net amount payable from railway to general revenues each year.
- (3) Any surplus remaining after this payment to general revenues shall be transferred to a railway reserve; provided that if the amount available for transfer to the railway reserve exceeds in any year three crores of rupees only two-thirds of the excess over three crores shall be transferred to the railway reserve and the remaining one-third shall accrue to general revenues.
- (4) The railway reserve shall be used to secure the payment of the annual contribution to general revenues; to provide, if necessary, for arrears of depreciation and for writing down and writing off capital; and to strengthen the financial position of railways in order that the services rendered to the public may be improved and rates may be reduced.
- (5) The railway administration shall be entitled, subject to such conditions as may be prescribed by the Government of India, to borrow temporarily from the capital or from the reserves for the purpose of meeting expenditure for which there is no provision or insufficient provision in the revenue budget subject to the obligation to make repayment of such borrowings out of the revenue budgets of subsequent years.
- (6) A Standing Finance Committee for Railways shall be constituted consisting of one nominated official member of the Legislative Assembly who should be chairman and eleven members elected by the Legislative Assembly from their body. The members of the Standing Finance Committee for Railways shall be *ex-officio* members of the Central Advisory Council, which shall consist, in addition, of not more than one further nominated official member, six non-official members selected from a panel of eight selected by the Council of State from their body and six non-official members selected from a panel of eight elected by the Legislative Assembly from their body.
- The Railway Department shall place the estimate of railway expenditure before the Standing Finance Committee for Railways on some date prior to the date for the discussion of the demand for grants for railways and shall, as far as possible, instead of the expenditure programme revenue show the expenditure under a depreciation fund created as per the new rules for charge to capital and revenue.
- (7) The railway budget shall be presented to the Legislative Assembly if possible in advance of the general budget and separate days shall be allotted for its discussion, and the Member in charge of railways shall then make a general statement on railway accounts and working. The expenditure proposed in the railway budget, including expenditure from the depreciation fund and

the railway reserve, shall be placed before the Legislative Assembly in the form of demands for grants. The form the budget shall take after separation, the detail it shall give and the number of demands for grants into which the total vote shall be divided shall be considered by the Railway Board in consultation with the proposed Standing Finance Committee for Railways with a view to the introduction of improvements in time for the next budget, if possible.

- (8) These arrangements shall be subject to periodic revision but shall be provisionally tried for at least three years.
- (9) In view of the fact that the Assembly adheres to the resolution passed in February 1923, in favour of State management of Indian Railways, these arrangements shall hold good only so long as the East Indian Railway and the Great Indian Peninsula Railway and existing State-managed railways remain under State management. But if in spite of the Assembly's resolution above referred to Government should enter on any negotiations for the transfer of any of the above railways to Company management such negotiations shall not be concluded until facilities have been given for a discussion of the whole matter in the Assembly. If any contract for the transfer of any of the above railway to Company management is concluded against the advice of the Assembly, the Assembly will be at liberty to terminate the arrangements in this Resolution.

Apart from the above convention this Assembly further recommends—

- (i) that the railway services should be rapidly indianised, and further that Indians should be appointed as Members of the Railway Board as early as possible, and
- (ii) that the purchases of stores for the State Railways should be undertaken through the organisation of the Stores Purchase Department of the Government of India."

APPENDIX E.

Government of India, Railway Department, Resolution No. 2131-F., dated the 19th February 1925, on the subject of the financing of branch lines of railways.

The Governor General in Council, with the sanction of His Majesty's Secretary of State for India, is pleased to issue the following orders on the subject of Financing of Branch Lines, in supersession of all previous orders on the subject.

1. Branch and Feeder Lines are constructed under an agreement by which the State guarantees a minimum return on the capital, or alternatively, undertakes that the line shall receive, out of the earnings of the main line from traffic contributed by the branch, such a sum, known as a rebate, as will make up the total earnings of the branch to a given sum, while the branch in each case shares with the main line any profits exceeding the guaranteed minimum.

2. This method of encouraging the construction of lines originated 30 years ago simply because the Government of India was unable to furnish the necessary capital.

3. The Acworth Committee pointed out that this method, while enabling lines to be built which would otherwise not have been built, has no other merit. The financial terms usual before the war are now quite inadequate and if the system is to continue they will have to be revised. All the witnesses before the Committee who asked for a revision of the terms admitted that, if the main line were in a position to build a given branch itself, they would prefer that it should be done by the main line rather than that it should be done as a separate undertaking.

4. Amongst the disadvantages pointed out by the Committee are the following:—

- (i) The Branch Line Company is usually a fifth wheel to the coach. It implies in some cases a separate construction staff; it always implies a separate Board of Directors, and separate accounts.
- (ii) Where the branch is worked by the main line, if its Directors feel that the management is unsatisfactory, they not only make representations to the main line administration, but in the last resort can appeal to the Railway Board which does not make for harmony.
- (iii) Capital raised by a small private undertaking, even with a Government guarantee, will cost more than money raised by the State.
- (iv) Inconceivable confusion results from the multiplication of independent Railway Companies—each company, small or great, desires to reserve for itself a separate sphere of influence; and jealously demands that, if any new-comer intrudes into that sphere, he shall pay toll to the original concessionaire. This only complicates a situation which ought to be considered solely from the point of view of the public interest. New proposals for the extension or connection of lines by small independent companies are either refused owing to protests by the old company or only permitted on a basis of elaborate accounting between the new company and the old for the profits which hypothetically would have belonged to the old line had the new line not been opened.

5. The only arguments urged in favour of the Branch Line Companies were:—

- (i) That money had been raised which the Government of India was unable to furnish.
- (ii) That a claim was made that the Branch Line Company obtained from local sources money that would never be subscribed to a Government loan.
- (iii) That there may be cases of a Branch Line of smaller gauge worked independently, which the Branch Line Company can operate more economically than a main line.

6. The Acworth Committee, therefore, so far from approving of this system considered that the aim of the Government should be to reduce by amalgamation the number of existing companies and that it should only be in cases where the State cannot or will not provide adequate funds that private enterprise in the direction should be encouraged.

7. The disadvantages pointed out by the Acworth Committee require to be even further amplified. The existing Branch Line Companies have ceased for some time to raise additional capital for capital requirements. They have either obtained overdrafts from various Banks for this purpose at heavy rates of interest or issued debentures at special rates of interest (usually about 7 per cent.) or in several cases asked

for money to be advanced to them by the Railway Board. So far, therefore, from reducing the amount that the Government of India have to raise in the open market, they are at present increasing that amount.

8. Another serious disadvantage which is not mentioned by the Acworth Committee is that the main line usually works the Feeder or Branch Line for a remuneration which, in most cases, is limited to a maximum of a fixed percentage of the gross earnings of the Branch Line (usually 40 per cent. or 50 per cent.)—terms of remuneration which at present are grossly inadequate. The result of this arrangement is that many of the main lines whose working expenses are from 60 to 80 per cent. of the gross earnings are saddled with heavy expenditure which ought to have been debited to Branch Line Companies. Where the Branch Line Companies are "successful," that is, where the shares stand at a high figure, their profits are inflated owing to their working expenses being thus artificially reduced. Again, where in the case of less "prosperous" Branch Line Companies, the Government has to make a direct subsidy in order to make up the guaranteed interest on the capital, the amount paid by way of subsidy does not reveal the true loss of the Government in connection with the Branch Line Company. To this subsidy should be added also the additional loss incurred from the main line working the Branch Line at less than the actual cost. Even this, however, does not give a complete statement of the loss sustained by Government in connection with these Companies. These Companies have been supplied with land free of charge and the cost of such land is not taken into account either in the Capital or the Revenue Accounts of the Companies concerned.

9. The only real argument in favour of these Companies is that they must be utilised in cases where the Government itself is unable or declines to raise the necessary amount of capital for new constructions. It is doubtful whether such a position is likely to recur in the future. It is admitted that to use the agency of these Companies is a far more expensive method of raising money for the construction of railways than direct Government loans can ever be. The amount of assistance given by Branch Line Companies, in the past has been trivial; the total amount of capital raised through the agency of Branch Line Companies has only been about Rs. 10½ crores—an amount which in itself is less than the lapse that occurred last year in the provision for capital expenditure in the Railway Budget.

10. The difficulties and complications now experienced in connection with these Branch Line Companies are out of all proportion to the insignificant financial facilities offered by the Companies. The Government of India have therefore decided that the Branch line policy should be abandoned and that an endeavour should be made to reduce the number of the existing Branch Line Companies. If on any occasion the Government of India should be unable to find funds for construction (which is not the case at present), and should it be considered advisable to tap fresh sources for subscription to railway loans by offering terms different from those given to the ordinary Government loans, that is, by offering not only a fixed rate of interest but a share in the profits of a particular Branch Line, there appears to be no particular advantage of using a financial half-way house specially to float a loan on such terms; there appears to be no reason why the Government should not float the loan direct. But it will probably be found sufficient to raise short term debentures at a high rate of interest—to be liquidated when the loan market is favourable—a procedure adopted now by the Branch Line Companies, but at a higher rate of interest than would be necessary for the Government.

11. There remains the case of the District Board Railways for which some of the capital or the security for the capital is secured by a special cess levied by the District Board throughout the district.

The Acworth Committee pointed out that where a District Board was the promoter of a new Branch Line, considerations other than purely commercial came into play with the result of further complications and confusion. In a footnote to the report they referred to the views expressed by the Madras Government who had drawn attention to a case in which, although no short-circuiting was involved, there had been a delay of over 10 years in arriving at a decision in regard to the terms for working a District Board Railway by the South Indian Railway Company. The amount of capital raised by District Boards for such lines has been only Rs. 137 lakhs while the amount raised by Company lines subsidised by District Boards amounts to Rs. 2½ crores. These amounts are insignificant as compared with the total capital raised by the Government and it is clear that the relief afforded to the Government of India in raising the loans is quite disproportionate to the great complications which have resulted in the working of the railway administration. Loans raised direct by the District Boards do not relieve the market of the Government of India; the money is ultimately borrowed from the Government of India.

12. The legal position regarding the powers of District and Local Boards in the matter of railway construction and management depends in part on the Indian Railways Act, 1890, which, in the absence of express exclusion of its application, extends to all District Board railways and, in part on the nature of the provision made in the

matter in the District or Local Boards Act of the province concerned. It is only in the Madras Presidency that the question has assumed prominence and it will suffice to indicate briefly the nature of the provisions contained in the Madras Local Boards Act, 1920. Action under section 113 of that Act can only be taken "with the previous sanction of the Government of India." Having obtained such sanction, a District Board may either itself construct and maintain a railway within, or partly within, the local area under the control of the Board, or may subscribe to any debenture loan raised by the Government of India or by any other local authority or by any company for the construction or maintenance of any railway which the Board considers likely to be of benefit to the district, or may guarantee the payment from the district fund of such sums as it shall think fit as interest on capital expended on any such railway (that is, whether the railway is constructed by the Government of India or by any other local authority or by a Company).

Section 236 of the same Act provides that the accumulations of a local railway cess may be utilised for all or any of the purposes specified in section 113, including the guaranteeing of payment of interest on capital spent on a railway.

A District Board in Madras, therefore, can guarantee the payment from the district fund of the money sufficient to make up the minimum interest on capital expended on a railway within its area whether such railway is constructed by the Government of India or by a Company, the only disadvantage attaching to this particular form of guarantee being that the Act does not make the payment of the guaranteed interest a first charge on the District Board Fund.

13. The Government of India could not reasonably use their powers under the Indian Railways Act, 1890, or under *e.g.*, section 113 of the Madras Local Boards Act, 1920, to prevent a District Board or a local body from constructing a light railway or a tramway which had no physical connection with any existing main line and which that local body proposed to work itself or through a local company. But as things stand at present there is no reason for continuing the practice under which District Boards are allowed to make money out of Branch Lines connected with a main line when they themselves cannot make any arrangements for the working of the lines and require to have them run by the main lines.

14. These District Board railways must not be confused with the light and feeder railways which constitute a provincial subject under the Devolution Rules. The provincial subject in question comprises "light and feeder railways and extra-municipal tramways in so far as provision for their construction and management is made by provincial legislation." That is to say, it comprises only individual light or feeder railways or extra-municipal tramways for the construction and management of which specific provision has been made by an Act of the local legislature of the province concerned. Hitherto, no such legislation has been enacted with the result that the entry in question in the provincial schedule, as also the qualifying words in entry 5(a)* in the central schedule, have no operation, and all existing railways of every description are included in the central subject defined in the last-named entry. It should also be observed that the provincial subject in question is "subject to legislation by the Indian Legislature in the case of any such railway or tramway which is in physical connection with a main line or is built on the same gauge as an adjacent line," the effect being that a provincial bill designed to provide for the construction of a light or feeder railway or extra-municipal tramway in physical connection with a main line or built on the same gauge as an adjacent main line would require the previous sanction of the Governor General under clause (f) of sub-section (3) of section 80 A of the Government of India Act; and it may be presumed that few occasions are likely to arise in which provision will be made by local legislation for the construction of a light or feeder railway not answering one or other of these descriptions.

15. The proposal set forth in this Resolution are not designed to evade the legitimate operation of the legal position described, in the case of District Board railways, in paragraph 12 and in the case of provincial light and feeder railways, in paragraph 14; but it follows from the proposals that Local Governments and District or Local Boards should not, in the absence of special circumstances, be encouraged to build branch or feeder lines. In other words, the normal procedure will be the construction by the Government of India, or, at its cost, by a Company, of a branch line which a District Board or Local Government desires to have constructed and is prepared to guarantee. But, should the railway programme not permit the construction of such a line within a reasonable time, the possibility of permitting a District Board or Local Government to construct it from its own funds would require consideration.

Unremunerative Lines.

16. The above proposals relate to the procedure adopted in the past and the procedure which it is proposed to adopt in the future for the financing of the construction of branch or feeder lines expected to prove remunerative from the point of view

*"Railways and extra-municipal tramways, in so far as they are not classified as provincial subjects under entry 6 (d) of Part II of this schedule."

of railway earnings only. But there are cases where the Local Governments or local authorities may desire that a line should be constructed which will not be remunerative on railway earnings and the construction of which is desired by them for purely local reasons on account of the administrative advantages it is likely to confer or for the development of a particular area. It is proposed that in future the Railway Board in such circumstances should have power to arrange for the construction of the line from railway funds if the Local Government or the local authority guarantees the Railway Board against loss. The guarantee would be to the effect that the local authority would make up the difference between the net earnings and the interest and other charges payable. As it is not desirable that the Central Government should make any profit out of such contributions by local authorities, it is also proposed that where contributions have been made by a local authority for this purpose the repayment of such contributions should be a first charge on any net profits subsequently realised from the line, should the line prove remunerative.

17. The Central Government must, however, retain the power to decide whether a line is to be built or not; the proposals in the preceding paragraph must not be taken to imply that a Local Government by giving a guarantee can require the Railway Board to construct a line. Proposals of a Local Government might run counter to the general railway policy or might take the form of short-circuiting railway traffic and so lead to a reduction of receipts from existing lines.

18. These proposals have been circulated to Local Governments and have been generally welcomed by them as affording a suitable method of reconciling central and local interests and of providing for local bodies and Local Governments a method of securing the construction of railways which may be required for purely local reasons, and which, while not likely to prove remunerative on purely railway earnings, are likely to provide such indirect benefits to Local Governments and local bodies as will more than repay the amounts paid under the guarantee. Several such arrangements have already been made with Local Governments.

APPENDIX F.

Statement of Gazetted Officers and Officers of corresponding rank employed on Class I Railways (excluding H. E. H. the Nizam's Guaranteed State and Jodhpur Railways) on the 1st April 1927 as compared with 1st April 1926.

Statement of Gazetted Officers and Officers of corresponding rank employed on Class I Railways (excluding H. E. H. the Nizam's Guaranteed State and Jodhpur Railways) on the 1st April 1927 as compared with 1st April 1926.

Item.	A. B.		B. N.		D. & N. W.		B., P. & C. I.		BUENA.		E. B.		E. I.		G. I. P.		M. & S. M.		N. W.		R. & K.		S. I.		Ry. Board and Miscellaneous officers.		TOTAL.	
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APPENDIX F—contd.

Statement of Gazetted Officers and Officers of corresponding rank employed on Class I Railways (excluding H. E. H. the Nizam's Guaranteed State and Jodhpur Railways) on the 1st April 1927 as compared with 1st April 1926—contd.

Item.	A. B.		B. N.		B. & N. W.		B. R. & C. I.		BURMA.		E. B.		E. I.		G. I. P.		M. & S. M.		N. W.		R. & K.		S. I.		Ry. Board and miscellaneous officers.		TOTAL.		
	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
8. Total—		50	53	107	102	58*	61	153	148	94*	94	78*	78	219	220	194	192	121	123	197	218	12	12	104*	105	49	43	1,406	1,520
8-01. Europeans		7	10	30	28	4	5	20	21	4	4	37*	36	48	60	25	25	22	30	66	73	1	2	23*	39	7	3	294	342
8-02. Statutory Indians—		1	3	6	5	1	..	..	1	..	..	2	3	12	15	7	6	2	..	21	21	..	1	1	2	3	1	56	58
(a) Hindus		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(b) Muslims		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(c) Anglo-Indians		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(d) Other classes		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(e) Total		13	19	51	45	5	5	43	47	21*	24	53*	55	97	133	53	55	34	40	121	133	1	3	29*	48	28	13	549	623
8-03. GRAND TOTAL		63	72	218*	207	63*	66	196	195	115	118	131*	133	316	362	247	247	155	168	318	351	13	15	133*	153	77	56	2,045	2,143
9. Increase + Decrease—																													
9-01. Europeans		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9-02. Statutory Indians—		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(a) Hindus		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(b) Muslims		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(c) Anglo-Indians		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(d) Other classes		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(e) Total		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9-03. GRAND TOTAL		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Percentage of total—																													
10-01. Europeans		79.4	73.6	76.6	78.3	92.1	92.4	78.1	75.9	81.7	79.7	59.5	69.3	62.4	78.6	77.7	78.1	76.2	61.9	62.1	80.0	78.2	63.6	63.6	78.8	73.2	70.9	70.9	70.9
10-02. Statutory Indians—		11.1	13.9	13.7	13.5	6.3	7.6	10.2	10.8	3.5	3.4	28.3	27.1	15.2	16.6	10.1	14.2	17.8	20.8	22.5	7.7	13.3	17.3	25.5	9.1	5.3	14.4	16.0	16.0
(a) Hindus		1.6	4.2	3.8	2.4	1.6	..	..	0.6	..	..	1.5	2.3	3.8	4.1	2.8	2.4	1.3	..	6.6	6.0	..	6.7	0.7	1.3	3.9	1.8	2.7	2.7
(b) Muslims		7.9	8.3	8.3	8.3	..	..	4.0	5.1	9.6	11.8	8.4	9.0	10.1	15.2	5.3	6.1	4.5	4.2	9.1	7.4	..	2.0	2.6	20.8	14.3	7.4	7.9	7.9
(c) Anglo-Indians		..	..	..	..	..	..	7.1	7.7	5.2	5.1	2.3	3.0	1.6	1.7	3.2	3.7	1.9	1.8	1.9	2.0	..	..	..	..	..	..	..	..
(d) Other classes		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Revised figures.

* Revised figures.

APPENDIX F—contd.

Statement of Subordinates, drawing Rs. 250 per mensem and over on scales of pay rising to Rs. 250 per mensem and over, employed on Class I Railways (excluding H. E. H. the Nizam's Guaranteed State and Jodhpur Railways) on 1st April 1927 as compared with 1st April 1926.

Item.	A. B.		B. N.		B. & N. W.		B. & C. I.		BURMA.		E. B.		E. I.		G. I. P.		M. & S. M.		N. W.		R. & K.		S. I.		TOTAL.	
	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.
1. Agency Department—	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1-01. Europeans	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1-02. Statutory Indians—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(a) Hindus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(b) Muslims	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(c) Anglo-Indians	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(d) Other classes	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(e) Total	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1-03. GRAND TOTAL	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2. Engineering Department—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2-01. Europeans	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2-02. Statutory Indians—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(a) Hindus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(b) Muslims	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(c) Anglo-Indians	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(d) Other classes	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(e) Total	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2-03. GRAND TOTAL	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3. Transportation—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3-01. Europeans	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3-02. Statutory Indians—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(a) Hindus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(b) Muslims	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(c) Anglo-Indians	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(d) Other classes	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(e) Total	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3-03. GRAND TOTAL	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

* Revised figures.

APPENDIX F—concl.

Statement of Subordinates, drawing Rs. 250 per mensem and over on scales of pay rising to Rs. 250 per mensem and over, employed on Class I Railways (excluding H. E. H. the Nizam's Guaranteed State and Jodhpur Railways) on 1st April 1927 as compared with 1st April 1926—concl.

Item.	A. B.		B. N.		B. & N. W.		B. D. & C. I.		BURMA.		E. B.		E. I.		G. I. P.		M. & S. M.		N. W.		R. & K.		S. I.		TOTAL.	
	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.	1926.	1927.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
4. Commercial—																										
4-01. Europeans																										
4-02. Statutory Indians—																										
(a) Hindus																										
(b) Muslims																										
(c) Anglo-Indians																										
(d) Other classes																										
(e) Total																										
4-03. GRAND TOTAL																										
Mechanical Engineering—																										
5-01. Europeans																										
5-02. Statutory Indians—																										
(a) Hindus																										
(b) Muslims																										
(c) Anglo-Indians																										
(d) Other classes																										
(e) Total																										
5-03. GRAND TOTAL																										
Stores Department—																										
6-01. Europeans																										
6-02. Statutory Indians—																										
(a) Hindus																										
(b) Muslims																										
(c) Anglo-Indians																										
(d) Other classes																										
(e) Total																										
6-03. GRAND TOTAL																										

7. Other Departments—

7. Other Departments—																										
7-01. Europeans																										
7-02. Statutory Indians—																										
(a) Hindus																										
(b) Muslims																										
(c) Anglo-Indians																										
(d) Other classes																										
(e) Total																										
7-03. GRAND TOTAL																										
8. Total—																										
8-01. Europeans																										
8-02. Statutory Indians—																										
(a) Hindus																										
(b) Muslims																										
(c) Anglo-Indians																										
(d) Other classes																										
(e) Total																										
8-03. GRAND TOTAL																										
9. Increase + Decrease—																										
9-01. Europeans																										
9-02. Statutory Indians—																										
(a) Hindus																										
(b) Muslims																										
(c) Anglo-Indians																										
(d) Other classes																										
(e) Total																										
9-03. GRAND TOTAL																										
Percentage of total—																										
10-01. Europeans																										
10-02. Statutory Indians—																										
(a) Hindus																										
(b) Muslims																										
(c) Anglo-Indians																										
(d) Other classes																										

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* Revised figures.

REPORT BY THE RAILWAY BOARD ON INDIAN RAILWAYS FOR 1926-27.

APPENDIX G—concl'd.

Statement showing the number of appointments created and vacancies which occurred among officers of Gazetted rank on State Railways and of corresponding rank on Companies' Railways (Class I) excluding H. E. H. the Nizam's Guaranteed State and Jodhpur Railways, and how they were filled during 1926-27—concl'd.

... were filled during 1920-21—concd.

Departments.	Number of new appointments created during the year.	Number of appointments abolished during the year.	Number of vacancies which occurred during the year.	Number of vacancies which occurred in previous years not filled in these years remaining to be filled.	Number of net vacancies to be filled.	Number of vacancies not filled up during the year.	Number of vacancies actually filled.	FILLED BY						TOTAL
								Euro-peans.	STATUTORY INDIANS					
									Hindus.	Muslims.	Anglo-Indians.	Other classes.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Madras and Southern Mahratta Railway.														
1. Agency	..	..	1	1	2	1	1	..	1	..	..	..	1	
2. Engineering	11	..	6	..	17	1	16	4	10	..	..	..	..	
3. Transportation	..	..	4	..	4	..	4	1	2	..	1	1	12	
4. Commercial	..	..	..	..	..	..	..	..	..	..	..	..	3	
5. Mechanical	2	..	1	..	3	..	3	..	..	..	..	..	..	
6. Stores	..	..	..	2	2	1	1	3	..	..	..	..	..	
7. Other Departments	4	..	3	..	7	6	1	1	..	..	..	..	..	
8. TOTAL { 1926-27	17	..	15	3	35	9	26	10	13	..	2	1	16	
{ 1925-26	16	..	13	..	29	3	26	10	13	..	2	1	16	
9. Percentage of Euro-peans to number of vacancies filled. { 1926-27	38.5	..	..	..	..	..	..	..	..	..	..	..	..	
{ 1925-26	53.8	..	..	..	..	..	..	..	..	..	..	..	..	
10. Percentage of Statutory Indians to number of vacancies filled. { 1926-27	61.5	..	..	..	..	..	..	..	..	..	..	..	..	
{ 1925-26	46.2	..	..	..	..	..	..	..	..	..	..	..	..	
Rohilkund and Kumaon Railway.														
1. Agency	..	..	..	..	..	..	..	..	..	..	..	..	..	
2. Engineering	..	..	..	..	..	..	..	..	..	..	..	..	..	
3. Transportation	..	..	..	..	..	..	..	..	..	..	..	..	..	
4. Commercial	..	..	..	..	..	..	..	..	..	..	..	..	..	
5. Mechanical	..	..	..	..	..	..	..	..	..	..	..	..	..	
6. Stores	..	..	..	..	..	..	..	..	..	..	..	..	..	
7. Other Departments	..	..	..	..	..	..	..	..	..	..	..	..	..	
8. TOTAL { 1926-27	..	..	..	..	..	..	..	..	..	..	..	..	..	
{ 1925-26	..	..	..	..	..	..	..	..	..	..	..	..	..	
9. Percentage of Euro-peans to number of vacancies filled. { 1926-27	..	..	..	..	..	..	..	..	..	..	..	..	..	
{ 1925-26	..	..	..	..	..	..	..	..	..	..	..	..	..	
10. Percentage of Statutory Indians to number of vacancies filled. { 1926-27	..	..	..	..	..	..	..	..	..	..	..	..	..	
{ 1925-26	..	..	..	..	..	..	..	..	..	..	..	..	..	
South Indian Railway.														
1. Agency	..	..	1	..	1	1	..	..	..	..	..	..	..	
2. Engineering	5	1	4	..	13	4	9	2	6	..	1	..	7	
3. Transportation	..	..	2	5	6	..	6	1	5	..	..	..	5	
4. Commercial	..	..	..	4	..	..	..	..	..	..	..	..	..	
5. Mechanical	1	..	..	1	..	..	..	..	..	..	..	..	..	
6. Stores	..	..	..	1	2	..	2	2	..	..	..	..	..	
7. Other Departments	2	1	1	..	2	..	1	1	1	..	1	..	1	
8. TOTAL { 1926-27	8	2	8	11	25	5	20	6	12	..	2	..	14	
{ 1925-26	12	1	10	16	37	11	26	19	6	..	..	1	7	
9. Percentage of Euro-peans to number of vacancies filled. { 1926-27	30.0	..	..	..	..	..	..	..	..	..	..	..	..	
{ 1925-26	73.1	..	..	..	..	..	..	..	..	..	..	..	..	
10. Percentage of Statutory Indians to number of vacancies filled. { 1926-27	70.0	..	..	..	..	..	..	..	..	..	..	..	..	
{ 1925-26	26.9	..	..	..	..	..	..	..	..	..	..	..	..	

APPENDIX H.

Officers of the Railway Department (Railway Board) on 31st March, 1927.

The Hon'ble Sir Charles Innes, K.C.S.I., C.I.E., I.C.S.,
Member of Council of Governor General.

Railway Board.

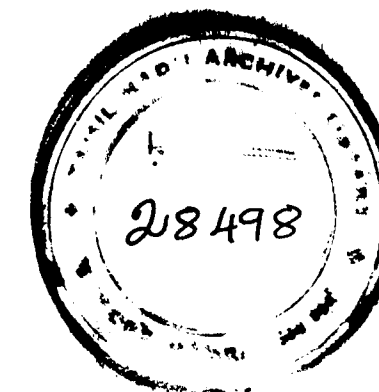
Sir Clement Hindley, Kt.	Chief Commissioner of Railways.
Mr. A. A. L. Parsons, C.I.E., I.C.S.	Financial Commissioner of Railways.
Sir Austen Hadow, Kt., C.V.O.	Member.
Mr. P. C. Sheridan, C.M.G.	Member.
Mr. A. Lines	Director, Civil Engineering.
Mr. A. J. Chase, O.B.E.	Director, Mechanical Engineering (on leave).
Mr. F. J. Page	Director, Mechanical Engineering (Offg.).
Mr. A. M. Hayman, O.B.E.	Director, Finance.
Mr. H. C. Sparke	Director, Traffic.
Mr. S. D. Gupta, M.B.E.	Director, Establishment.
Mr. J. C. Highet	Secretary.
Mr. J. Kaul	Deputy Secretary.
Mr. J. F. Blackwood	Temporary Officer, Programme.
Mr. P. R. Rau	Deputy Director, Finance.
Mr. H. Jackson	Deputy Director, Stores.
Mr. B. Moody	Deputy Director, Statistics.
Rai Bahadur B. D. Puri	Assistant Director, Finance (on deputation).
Mr. H. J. M. DeLange	Assistant Director, Finance (Offg.).
Mr. Gopal Nath Mehra	Assistant Director, Statistics.
Mr. E. C. Rundlett	Chief Superintendent.

Attached Officers.

Mr. A. F. Harvey	Technical Officer.
Mr. R. G. Marriott	Timber Advisory Officer.

Accountant General, Railways.

Mr. J. M. Hartley	Accountant General, Railways.
Dewan Bahadur R. Sundrachari	Deputy Accountant General.
Mr. I. S. Puri	Deputy Accountant General.
Rai Sahib S. N. Palit	Assistant Accountant General.



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