

GOVERNMENT OF INDIA
RAILWAY DEPARTMENT
(RAILWAY BOARD)

INDIAN RAILWAYS
in 1921-22

Administration Report, Volume I



CALCUTTA
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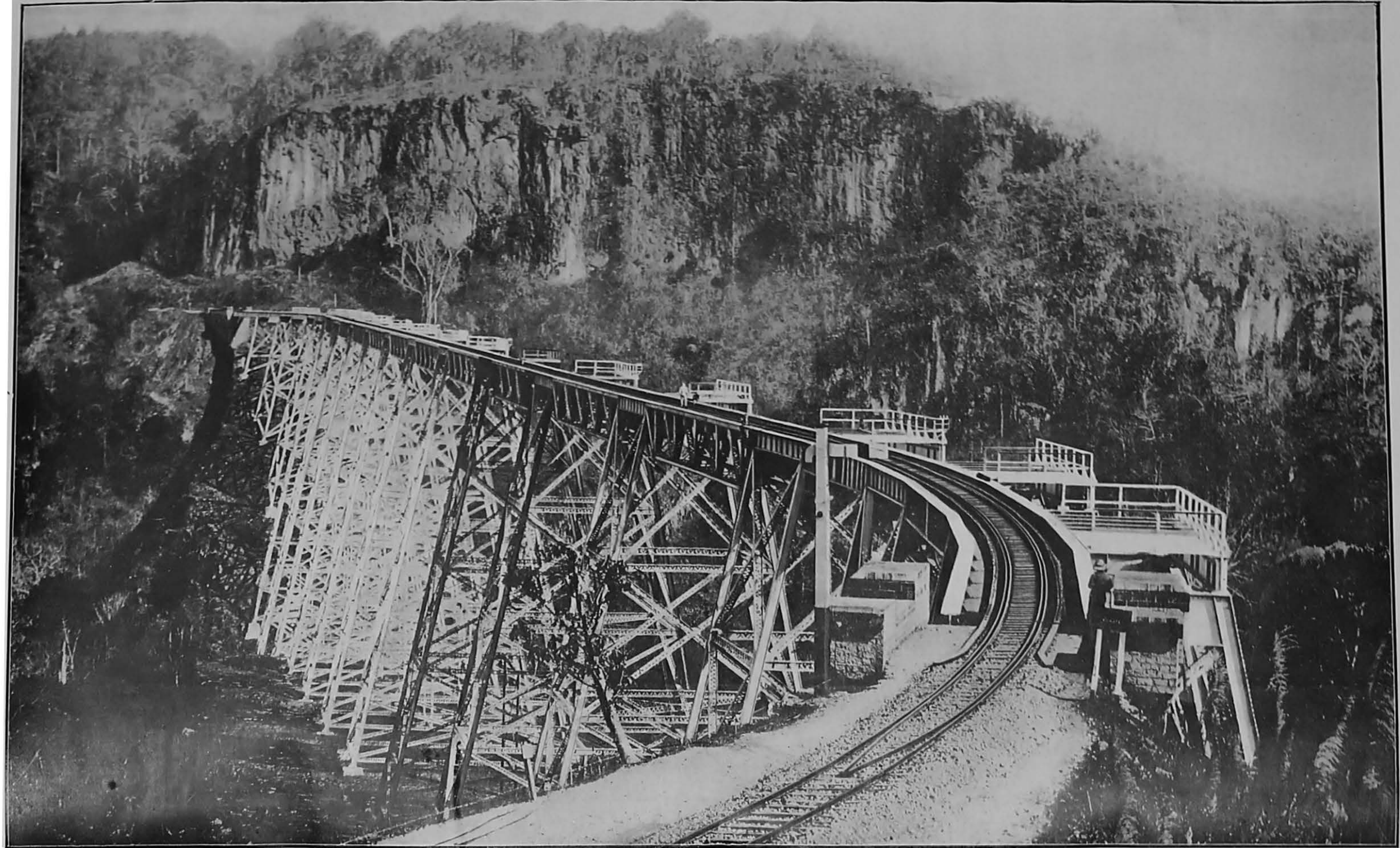
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PREFACE.

IN compiling their Administration Report for 1921-22, the Railway Board have decided to adhere in respect of main outline to the principle followed in the last report. Each chapter of Volume I, with the exception referred to below, therefore, corresponds to an appendix or a group of appendices in Volume II as quoted in the heading, and includes an explanation or survey of the results of the year exhibited.

There is, however, one new feature in this report which has been specially introduced to meet the circumstances of the present. Hitherto the scope of the report has not proceeded beyond the year under review. The Railway Finance Committee, have, however, recommended and the Legislature have confirmed the introduction of a five year forward programme for railway capital expenditure. The columns of the public press contain ample evidence of the interest taken in this matter and of the urgent public desire that full advantage shall be taken of this important change to effect improvement with the least possible delay. It is, however, a matter of regret that public criticism in these matters too often seems to display a want of appreciation of the difficulties to be encountered and of what is being done to surmount them. To a certain extent it is recognised that the public attitude in this matter has been due to want of information, and an effort to meet this need has, therefore, been made in this report.

A special Chapter VIII has been introduced in which the main difficulties in passenger and goods working with which the public are principally concerned are referred to, and a description of the remedies both in hand and in prospect is given. Apart from this special chapter and throughout the report, the review under each heading has further been extended to include both a description of what has been done and what it is hoped to achieve under the operation of the five year programme of capital expenditure. Though it is naturally impossible in the space available to do more than to refer to the principal improvements in contemplation, sufficient information is given to show that the work of bringing railways up to the standard necessary to meet public demands is being pushed on with all possible energy.

A few changes have also been made in the form of some of the Appendices in Volume II, the principal ones being the introduction of new headings in appendices 5 and 11 to show separately traffic originating on home line (whether local or foreign), and a reduction in the number of principal commodities hitherto shewn in the last named appendix.

Note on Indian Currency.—For the information of foreign readers of this report who are unaccustomed to the use of Indian currency and units, it may be mentioned that Rs. 1,00,000 is usually referred to colloquially as “ a lakh of rupees.” Similarly, 100 lakhs constitutes “ a crore.”

In previous reports when the standard rate of exchange was Rs. 15 to the pound sterling the lakh was equivalent to £6,666 and a crore to £666,666. With effect from the beginning of the official year 1920-21, as proposed by the Currency Commission the standard rate of exchange has been fixed at Rs. 10 to the pound sterling, and at this rate the “ lakh ” is the equivalent of £10,000 and the “ crore ” as 1 million sterling.

An anna is a 16th part of a rupee and a pie the 12th of an anna.

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MAPS.

- (i) A general map of India showing railways open and under construction on the 31st March 1922.
- (ii) A map of railway systems in India, Burma and Ceylon, showing each system in a distinctive colour, prepared by Mr. J. H. Trott (included only in copies of the report used for official purposes. It may be obtained by the public, on payment, from Mr. J. H. Trott, Aligarh, United Provinces, who holds the copyright).

CHAPTER I.

FINANCIAL.

(See Appendices 4 and 8 of Volume II.)

In the circumstances of recent years financial considerations have assumed a position of very special importance in relation to nearly every matter connected with railway development and working. The defects in our financial arrangements have been exhaustively reviewed in the Report of the Railway Committee presided over by Sir William Acworth which visited India in the cold weather of 1920-21, and the consideration of the measures necessary to give effect to the remedies which they proposed has formed an important part of the work of the Railway Department in the year under review. For these reasons it has been considered desirable to give precedence to matters financial in this year's report in order that the bearing on the events of the year of such changes as it has been found possible to carry out may be duly appreciated.

Importance
of Railway
Finance.

2. The total capital expenditure incurred on the construction of all railways in India up to the end of 31st March 1922 amounted to Rs. 656.06 crores, of which Rs. 506.12 crores represented outlay charged to funds raised by the State inclusive of premia paid in the purchase of Companies' lines, the balance having been provided by Indian States, private Companies and District Boards. For a description of the property represented by this outlay the reader is referred to chapter I of the last administration report. The outlay during the year 1921-22 was Rs. 25.78 crores, of which Rs. 23.43 crores represented expenditure incurred on State-owned lines. The distribution of this sum between the open line works and rolling-stock and new lines is shown below. The figures for the previous eight years are also shown for purposes of comparison.

Capital
Expenditure.

| 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 | 9.29 | 7.31 | 16.60 | 1.86 | 18.46 |
| 1914-15 | 6.72 | 9.08 | 15.80 | 1.35 | 17.15 |
| 1915-16 | 1.74 | 4.06 | 5.80 | .94 | 6.74 |
| 1916-17 | 1.14 | .72 | 1.86 | 1.11 | 2.97 |
| 1917-18 | 1.49 | .90 | 2.39 | 1.40 | 3.79 |
| 1918-19 | 5.02 | .71 | 5.73 | .51 | 6.24 |
| 1919-20 | 8.72 | 4.56 | 13.28 | .21 | 13.49 |
| 1920-21 | 12.91 | 10.15 | 23.06 | 1.02 | 24.08 |
| 1921-22 | 11.28 | 10.04 | 21.32 | 2.11 | 23.43 |

It will be noticed that both under works and rolling-stock the outlay in 1921-22 fell short of that incurred in the previous year, and this was due

not to any deliberate slackening of the effort to recuperate, but to the fact that the grant allotted was Rs. 23 crores against Rs. 25½ crores in the previous year. In accordance with the old procedure since discontinued the coat had to be fashioned in accordance with the cloth available. The distribution of the expenditure over open line works, rolling-stock and new construction on the various lines is shown in the summary below :—

| Railway. | OPEN LINES. | | | New lines. | GRAND TOTAL. |
|--|-------------|----------------|-------------------|------------|--------------|
| | Works, etc. | Rolling stock. | Total open lines. | | |
| | Rs. crores. | Rs. crores. | Rs. crores. | | |
| Bengal-Nagpur | 0.33 | 3.57 | 3.90 | .49 | 4.39 |
| North Western | 2.76 | .54 | 3.30 | .74 | 4.04 |
| Great Indian Peninsula | 2.14 | .70 | 2.84 | .38 | 3.22 |
| East Indian | 1.48 | 1.46 | 2.94 | .10 | 3.04 |
| Bombay, Baroda and Central India | 1.37 | .33 | 1.70 | .05 | 1.75 |
| South Indian | .65 | .92 | 1.57 | ... | 1.57 |
| Eastern Bengal | .74 | .43 | 1.17 | ... | 1.17 |
| Madras and Southern Mahratta | .24 | .76 | 1.00 | ... | 1.00 |
| Other railways | 1.57 | 1.33 | 2.90 | .35 | 3.25 |
| TOTAL | 11.28 | 10.04 | 21.32 | 2.11 | 23.43 |

As this chapter deals only with the broad outlines of the financial position, it is not proposed to attempt any detailed explanation of the expenditure incurred. Further information on this aspect of the expenditure will, however, be given in a later chapter on Developments. A few of the more prominent facts accounting for the relatively higher scale of expenditure on some lines may, however, be mentioned. The heavy expenditure on the Bengal-Nagpur Railway is accounted for by the special requirements of the line which runs through a rapidly developing tract of country which, it is hoped, will in the near future be the great industrial area of India. The North Western and the Great Indian Peninsula Railways have spent large sums of money on the provision of traffic facilities which are required even more than stock on these two lines. Both have also certain important lines under construction which have to be completed. The East Indian Railway has spent a relatively larger proportion on rolling-stock which this line urgently required mostly in connection with the shortage of engines and wagons for coal traffic. The Bombay, Baroda and Central India Railway Administration has devoted special attention to the improvement of facilities in connection with the heavy suburban traffic. The South Indian Railway has spent a fairly large amount on the provision of additional stock and on the facilities to cope with the overcrowding difficulty which is keenly felt on this line.

**Separation
of Railway
Finance
from general
finance.**

3. These very briefly are the facts of the position so far as Capital is concerned in the last year of the old financial regime. During the year under review an important change in financial policy in respect of railway budgets was decided upon. Hitherto the annual allotments for railway

expenditure have been determined from year to year, and the amounts have consequently varied irregularly up and down in accordance with the general financial position of the country. The unhappy results of this arrangement have been very forcibly remarked upon in the Acworth Committee's Report and need not be further referred to. Many efforts have been made in the past to get away from it but, unfortunately for railways, hitherto without success.

The remedy proposed by the Acworth Committee was of a very far-reaching order. To quote the words of the report they proposed :—

- “(i) the complete separation of the railway budget from the general budget of the country and its reconstruction in a form which frees a great commercial business from the trammels of a system which assumes that the concern goes out of business on each 31st March and re-commences *de novo* on the 1st of April, and
(ii) the emancipation of the railway management from the control of the Finance Department of the Government of India.”

There was of course no suggestion that the railway organisation should be independent of the control of the legislature; its financial transactions would be subject to the same control as those of any other Department of Government. The important distinction was, however, implied that whereas arrangements for the financing of all Departments had hitherto been considered together, the Acworth Committee proposed that railways, in respect both of capital and revenue expenditure, should in future remain apart; that there should be a definite programme of capital expenditure and in consequence a definite programme of borrowing for railway purposes; and finally, that the net profits earned should stand outside the general revenues of the country, and ordinarily be either devoted to the provision of additional railway facilities or to the reduction of rates and fares. The report was received in the month of August 1921, and in view of the great importance of this proposal it was decided that it should be given first consideration. A Resolution was brought before the Legislative Assembly, on the 13th September 1921 recommending the appointment of a Committee of both Houses of Legislature to consider the following questions arising from the Acworth Committee's report, *viz.* :—

- (i) the separation of railway from general finance and
(ii) the requirements of railways in regard to the capital expenditure during the next 10 years.

This Committee, known as the “Railway Finance Committee,” consisted of 4 official and 12 non-official members of the Council of State and the Legislative Assembly. It was presided over by the Hon'ble the Finance Member. It assembled in Calcutta on the 5th December 1921. After full discussion the Committee came to the conclusion that the question of separating railway finance on the lines laid down by the Acworth Committee was outside the domain of practical politics in the existing state of Indian finance. They recommended, however, that the question should be re-examined three years hence when it might be hoped conditions would be more normal and financial equilibrium would be re-established.

4. The Committee was, however, greatly impressed by the evidence recorded in the Acworth Committee's Report in regard to the need of **Quinquennial Programme.**

rehabilitation and improvement of the existing lines, and they considered that for this purpose a guaranteed programme extending over a course of years was almost as important as the possession of larger funds. They accordingly recommended—

- (a) that the programme should be prepared on a five years' basis, the provision of each quinquennial period being considered about two years before the termination of the existing period;
- (b) that there should be no lapse of money voted for any one year but not spent within that year, such sums being carried on to the credit of railway administrations up to the limit of the total amount fixed for the quinquennium;
- (c) that the finance programme should be strictly adhered to, subject of course to the understanding that a war or other unforeseen contingency radically disturbing the money markets might render it necessary to curtail the programme in any one year;
- (d) that the programme for capital expenditure during the next five years should be fixed at Rs. 150 crores; and
- (e) that this sum should be devoted to the rehabilitation and improvement of existing lines (paramount stress being laid on the improvement of the conditions of travel of third class passengers) and to the completion of lines already under construction.

The Railway Finance Committee's report was taken into consideration by the Legislative Assembly in March 1922, and while they reserved their opinion in regard to the separation of railway finance from the general finances of the country, they accepted the Committee's proposals in respect to five years' programme of Rs. 150 crores. The Government of India and the Secretary of State have also agreed to these proposals, and they will form the basis of future railway capital finance. All railways have been called upon to prepare five years' programmes and some indication of the scope of what it is hoped to achieve will be given in a subsequent chapter of this volume. It is impossible to overrate the importance of this decision as affecting railway development in India. For the first time railway administrations have now been placed in a position to plan ahead and to carry out their schemes of improvement with a full assurance of financial support. Moreover the old obligation to spend the grant allotted within the year has now disappeared, and railways are at last in a position to order their outlay with due regard to the object to be attained without the constant fear of lapsed grants and subsequent withdrawal of resources.

Depreciation fund.

5. The difficulty in regard to fluctuating budgets and the evils of the system of lapses has thus been successfully surmounted so far as capital is concerned. But the same difficulty in respect of revenue renewals still remains. The existing practice on Indian railways in respect to the provision for maintenance of property differs from that adopted in private industrial concerns. As was explained in the last administration report, an ordinary commercial concern provides for depreciation of its property by setting aside annually a certain portion of the profits for credit to a depreciation fund which is charged with renewals as they are made. It has been hitherto held to be inconsistent with the ordinary scheme of Government finance to set aside for the future money not actually required for the current year's

expenses. No provision is, therefore, made for depreciation and the expense of renewals of worn out plant is met as part of the ordinary annual working expenses. The result is obviously to make this vital matter of renewals dependent, as used to be the case in respect to capital, on the state of Government of India ordinary finances. The Railway Finance Committee considered this matter and expressed the opinion that the method of providing for depreciation, not by a proper depreciation fund, but by allotting each year a grant from revenue for expenditure on renewals and replacements, was open to many objections. They, therefore, recommended that early steps should be taken to calculate the rates of depreciation which should be allowed for the various classes of railway plant and material, in order that the recurrence of the deterioration which has taken place in recent years might be avoided and depreciation for renewals and repairs provided for automatically. It will be recognised that stability in respect to the provision for revenue renewals is in its way of almost greater importance than for capital since it is the deterioration of the assets both rolling-stock and track which is responsible in a large measure for the present railway troubles. The question of fixing principles of depreciation which will provide a safeguard such as that contemplated by the Railway Finance Committee in respect of the immense property of Indian Railways is obviously a matter of considerable technical difficulty. Measures have, however, been initiated which will, it is hoped, provide a solution, and it may confidently be hoped that we are now within measurable distance of surmounting this last great difficulty in our railway financial arrangements.

6. Turning now to the consideration of the results of the year's working. The total gross earnings of all the railways in India during the year 1921-22 amounted to about Rs. 92.89 crores. The share of the Imperial Government in this respect was Rs. 81.87 crores, the balance was distributed among other proprietors, *viz.*, Provincial Governments (Rs. 0.02 crore), District Boards (Rs. 0.25 crore), Indian States (Rs. 3.46 crores) and private companies (Rs. 7.29 crores). The amount actually realised (technically known as gross receipts) from the State-owned railways amounted to Rs. 81.69 crores. The payments on account of working expenses during the course of the year amounted to Rs. 65.67 crores. The net receipts were therefore Rs. 16 crores representing a return of 2.75 per cent. on the total capital. This percentage compares with the previous years' figures as follows:—

Results of working.

| Year. | Return on capital. per cent. |
|-------------------|---------------------------------|
| 1913-14 | 5.58 |
| 1914-15 | 4.92 |
| 1915-16 | 5.46 |
| 1916-17 | 6.46 |
| 1917-18 | 7.30 |
| 1918-19 | 7.53 |
| 1919-20 | 6.28 |
| 1920-21 | 4.74 |
| 1921-22 | 2.75 |

Against this return various liabilities associated with borrowed capital and otherwise have to be taken into account in order that the actual financial position from the point of view of the State may be apparent. Taking these into consideration the position is as shown below:—

| | Rs. |
|--|---------------------|
| Traffic receipts from Government Railways | 81,69,27,380 |
| Government share of surplus profits from subsidised Companies' Railways | 24,73,577 |
| | 81,94,00,957 |
| TOTAL RECEIPTS | 81,94,00,957 |

| | Rs. |
|---|---------------------|
| Working expenses | 65,66,78,003 |
| Surplus profits paid to Companies | 1,06,40,122 |
| Interest on Government debt | 15,65,46,753 |
| Interest on capital contributed by Com- panies | 3,35,17,353 |
| Annuities in purchase of Railways | 5,07,83,728 |
| Sinking Funds | 43,35,430 |
| Land and Subsidy to Companies | 7,19,922 |
| Miscellaneous | *—10,89,853 |
| | 91,21,31,458 |
| TOTAL CHARGES | 91,21,31,458 |
| Net loss | 9,27,30,501 |

It would be futile to attempt to minimize the serious significance of these figures. For the first time since 1900 the railways have fallen from the status of an important source of revenue to the country and are responsible for an addition of a very heavy amount to the annual liability of Government.

Financial results compared with those in other countries.

7. On the other hand it is certainly unjustifiable on the facts to take these results as any true criterion of future possibilities of railways and to make them the basis of the conclusion, as had been sometimes done in the public press, that railways have ceased to be a paying proposition or that the poor results are due to faults in the administration. The fact of the matter is that railways are suffering from the natural result of a combination of unfavourable economic factors which have similarly affected every form of business in the country and in fact in the world. Working expenses have risen to an unprecedented degree, and the earning power of the lines has not responded for the reason that trade was almost at a standstill. There is, however, no reason to imagine that these conditions represent other than a temporary phase similar to what is apparent in every other part of the world. It will perhaps help us to see the railway position in India at present in truer perspective if

* Subject to adjustment.

the corresponding results of other countries are simultaneously taken into consideration. Taking all English railways together the working expenses for the year 1921 represented a percentage of 104 of gross earnings which is considerably higher than our Indian record figure. Unfortunately the results for a similar period for railways in other parts of the world are not available, but in a good many cases in the previous year the railways worked at actual loss, the expenses having exceeded the receipts. Some information extracted from the authorised reports and the Bulletins of the International Railway Association in this respect is given below.

South Australian Railways.—The annual report of this railway for the year 1920-21 shows that the working expenses absorbed 90¼ per cent. of earnings and there was a deficit of £561,304 on the year's working after payment of interest.

Canadian Railways.—The Dominion Minister is reported to have stated in May 1921 (*vide* the *Railway Gazette* of 1st July 1921) that even with freight and passenger rates almost doubled since prewar times the deficit on last year's working was \$48 millions and that contrary to all expectation the deficit had during the year jumped up by another \$22 millions. The Minister declared that he could not see much prospect of any management materially reducing the loss on the Grand Trunk Pacific National Transcontinental system for some years.

French Railways.—The *Railway Gazette* of 15th July 1921 stated that according to the most recent detailed figures available, the French Railways were being operated at a daily deficit of 8,000,000 francs, equivalent to about £109,000,000 a year, or nearly a million sterling every three days.

Italian Railways.—The Bulletin of the International Railway Association for May 1921 states that in the 1919 period the deficit on the Italian Railways was 860,000,000 lire equivalent to over £34,000,000. It was anticipated that the deficit for 1920-21 would be between 1,500,000,000 and 1,600,000,000 lire (about £60,000,000 and £64,000,000 respectively).

American Railways.—The Bulletin of the International Railway Association for June 1920 stated that of the 180 first class railway systems 117 had incurred expenditure exceeding 85 per cent. of the receipts, while in the case of 48 others the working receipts were not sufficient to meet the expenditure.

South African Railways.—The same authority states in regard to South African Railways that after payment of interest on capital the loss on the working of the railways during the year ended 31st March 1920 was £559,942.

It is apparent, therefore, that India is certainly not alone in her railway difficulty, and that compared to the results which other countries have had to record there is even some ground for congratulation.

8. Although, however, it is not considered that there is any real reason for undue pessimism in regard to the future, there is no doubt that the financial results of Indian Railway working call for careful examination. As was to be expected the relative effect of the general depression has not been uniform

**Analysis of
financial
results.**

over all administrations. The figures for the principal individual lines are as follows :—

| Railway. | Receipts. | Working expenses. | Net receipts. | Other liabilities. | Net loss (—) or profit. (+) |
|---|--------------|-------------------|---------------|--------------------|-----------------------------|
| | Rs. crores. | Rs. crores. | Rs. crores. | Rs. crores. | Rs. crores. |
| North Western | 12.99 | 12.80 | .19 | 4.25 | —4.06 |
| Great Indian Peninsula | 13.27 | 12.41 | .86 | 4.22 | [—3.36 |
| Bengal-Nagpur | 6.68 | 5.33 | 1.35 | 2.34 | [— .99 |
| Eastern Bengal | 4.43 | 3.77 | .66 | 1.55 | — .89 |
| Assam-Bengal | .85 | .84 | .01 | .66 | — .65 |
| Madras and Southern Mahratta | 6.57 | 4.61 | 1.96 | 2.57 | — .61 |
| Ondh and Rohilkhand | 3.31 | 2.58 | .73 | .99 | — .26 |
| Dolhi Railway Works, State Stores, etc. | ... | ... | ... | .04 | — .04 |
| Aden | .03 | .03 | .00 | .01 | — .01 |
| East Indian | 13.39 | 8.57 | 4.82 | 4.45 | + .37 |
| Tirhoot | 1.20 | .56 | .64 | .31 | + .33 |
| South Indian | 4.60 | 3.34 | 1.26 | .96 | + .30 |
| Bombay, Boroda and Central India | 10.25 | 7.99 | 2.26 | 2.15 | + .11 |
| Burma | 3.52 | 2.47 | 1.05 | .94 | + .11 |
| Jodhpur-Hyderabad | .19 | .15 | .04 | .02 | + .02 |
| Lucknow-Baroilly | .35 | .18 | .17 | .10 | + .07 |
| Bozwada | .06 | .04 | .02 | .01 | + .01 |
| TOTAL FOR RAILWAYS | 81.69 | 65.07 | 16.02 | 25.57 | —9.55 |
| Miscellaneous items not attributable to particular lines. | | | | | +*.28 |
| Not loss | | | | | —9.27 |

* Subject to adjustment.

The analysis of earnings and working expenses will be made in subsequent chapters and nothing need be said about these matters here. But in regard to the contingent liabilities of Government in respect to each line some explanation is necessary in order that the position may be fully understood. The figure of "other liabilities" in the statement above is made up of—

| | Rs. crores. |
|--|-------------|
| (i) Liability for interest on capital expended | 19.00 |
| (ii) Annuity and Sinking Fund charges | 5.51 |
| (iii) Companies' share of surplus profits | 1.06 |
| | 25.57 |

Interest on capital.

9. In respect of interest the liability amounted to Rs. 19.00 crores, and the only point which need be mentioned in this connection—and it has now become one of the first importance—is the increased rate. Prior to the war, the average rate paid for capital raised was under 3½ per cent. But on all capital expenditure since 1916-17 the rate which has to be allowed is 6.1038 per cent. The result of the increased rate combined with the necessity for heavy capital expenditure has raised the Government liability by over Rs. 5

crores since 1913-14 and this extra liability has got to be met from improved earnings.

10. The position in respect to annuities was briefly explained in the last Administration Report. Liabilities of this nature still exist in respect to the East Indian, Great Indian Peninsula, Madras and Southern Mahratta, Eastern Bengal and North Western Railways in respect to the old capital of Sind, Punjab and Delhi Railway. In all these cases the old Companies' shareholders were compensated by means of terminable annuities instead of by direct payment. In some cases shareholders who preferred to do so have been permitted to exchange their annuities for a corresponding value of India stock, and similar stock has also been issued in exchange for debenture capital in some instances. In order to provide for the extinction of debt of this type, sinking funds have been established which are maintained by charge to revenue. Thus in both cases a similar provision has been made for gradual liquidation of the debt incurred. The net capital to be paid off by annuities amounted to £81,844,165, of which £19,355,081 has been redeemed by annuity payments made up to 31st March 1922, and the outstanding balance still to be paid amounts to £62,489,084. The position in respect of sinking funds is that the total amount undergoing redemption by means of sinking funds on Eastern Bengal Railway, Sind, Punjab and Delhi and East Indian Railways is £13,178,179, of which £6,693,183 has been redeemed to end of 1921-22 and the balance still to be redeemed amounts to £6,484,996. The question of the propriety of charging the railway revenue account with the annuity and sinking fund payments has been considered on several occasions. It was discussed at considerable length at the time of the purchase of the East Indian Railway in 1879-80 and was again broached in 1899 when the Great Indian Peninsula Railway was purchased. It was once more considered in 1906-07 when the Government of India made certain proposals to solve this difficult and complicated question. The Secretary of State, after consideration of all the facts of the case, decided that the existing method of charging these payments to railway revenues was correct. With the shrinkage of railway revenue, this matter is now again making its appearance in the public press, but it is probable that the general consensus of public opinion will support the prudent policy hitherto pursued.

Annuities and Sinking Funds.

11. Apart from these forms of liability, there are others of a general nature not associated with particular lines. The figure of Rs. 28 lakhs in the statement in paragraph 8 includes the cost of the central administration, subsidies paid to companies and also of land given to guaranteed companies, and other miscellaneous items of receipts and expenditure.

Land given free to subsidised railway companies.

Special mention is perhaps necessary in regard to the question of land, the policy in regard to which has formed the subject of some discussion in the legislature. The expenditure on this account is represented by payments for land which is made over free of cost to subsidised railways. Government make what is in effect a free gift of the use of land to companies, as an inducement to take up enterprises which are likely to be beneficial to the public. The proprietary rights remain vested in Government. So far as the companies are concerned, the cost of land, if they had to pay for it, would doubtless appear in the capital section of their accounts. So far as Government is concerned, the concession is practically a free gift which must be made from

revenue. In case the land at any time reverted to Government, it would of course be possible for Government to use it for other purposes, but even then unless it were employed for the purposes of a commercial department, it would not be in accordance with the authorised system of accounts to charge the cost of the land to capital.

Separation of strategic Railways.

12. Apart from these purely financial matters, there is one point of a rather different nature which affects the results of the principal State-worked line, the North Western Railway. This line has in the year under review the unenviable distinction of having contributed the largest individual amount to the aggregate Government loss, and in assigning a reason for this it is important to remember that it is this line alone which has to carry the burden of what are known as the strategic lines—a group of railways originally constructed primarily for military rather than commercial purposes. The classification of the lines now included under this head was of course adopted many years ago, and some of the routes comprised now carry a considerable quantity of ordinary commercial traffic. They include the following:—

| | Miles. |
|---|----------|
| (1) Sind-Pishin including main line from Ruk to Chaman, with narrow gauge branch from Khanai to Hindubagh, and the loop from Sibi to Bostan | 492·31 |
| (2) Spezand-Nushki-Mirjawa Extension | 387·52 |
| (3) Sind-Sagar including main line from Lala-Musa to Sher-Shah, Golra-Basal Section, Kohat Section, Bhera Branch, Dandot Branch, Kundian-Campbellpur Section, Mari-Ghazighat and Peshawar-Jamrud Branches | 602·18 |
| (4) Nowshera-Dargai 2' 6" gauge line (now converted to 5' 6") | 40·81 |
| (5) Kohat-Thal 2' 6" gauge line | 61·75 |
| (6) The Kalabagh-Bannu line which including the Tank Branch is 164·16 miles long, although not classified as a strategic line, is really in all essentials of the same nature as above | 164·16 |
| (7) The Khyber Railway now under construction is also a strategic railway | 26·00 |
| TOTAL | 1,774·73 |

These lines have like commercial railways been financed out of the ordinary railway programme. Their capital cost is included in that of the North Western Railway, which bears the cost of maintenance and working and in addition has to meet interest charges. As the whole system is worked as one, it is of course not possible to separate out exactly the financial liability correctly attributable to these sections. But an approximate account is always prepared, and the result is to show that even in favourable times these lines in the aggregate hardly earn sufficient to cover working expenses, much less pay for the interest on capital outstanding. As will be seen from the figures given in appendices 5 and 6 of volume II, the results of the working of the first five lines mentioned above in the year 1921-22 were:—

| | Rs. crores. |
|----------------------------|----------------|
| Gross earnings | 1·64 |
| Working expenses | 2·46 |
| Loss | ·82 |

The result in the year under review is therefore that the North Western Railway had to bear an actual loss for working and in addition to carry the liability for interest on the capital outstanding. As the procedure hitherto adopted in this matter has become a matter of public controversy, a brief examination of the facts of the position may be of interest.

There are admittedly certain drawbacks in the inclusion of these lines in a system which is otherwise supposed to be worked as a commercial proposition. The result obviously must be to obscure to some extent the accounts of the actual working of the commercial section of the line. The principle followed in this matter has in fact been on several occasions considered, and quite recently has formed the subject of discussion in the legislature. On 13th February 1922, a resolution was moved in the Council of State as follows :—

“ This Council recommends to the Governor General in Council that in future a separate revenue and expenditure account should be kept of the working of military or strategic lines; that the losses connected with the working of these railways should be debited and the profits, if any, credited to the military Department, and that the capital outlay on new lines or works of this nature should be debited to military accounts.”

The first part of the Resolution was adopted and has been given effect to. The second part which contemplated making these railways a military liability was negatived.

In order that the reasons which have led to this decision may be appreciated it is necessary that the actual facts of the special position in India shall not be lost sight of.

Firstly, it must be borne in mind that it is an accepted principle of ordinary Government accounts that the department incurring expenditure shall bear it whether other departments benefit thereby or not. This is necessary since any general attempt to sub-divide expenditure to accord with services performed would be productive of confusion in accounts. Following this principle the provision and upkeep of railways for whatever purposes required has been treated as a liability of the Railway Department. Even if the procedure is not strictly logical in this case, it is simple, direct and free from complications. It is with reference to this principle that the military authorities do not charge civil departments with the value of certain supplies and services. In fact the military authorities might with equal justification claim that the whole of the cost of troops maintained for internal security purposes should be transferred from the “ military services ” group in the accounts and treated as part of the expenditure connected with the maintenance of law and order.

Secondly, the attempt to sub-divide railways as suggested is inevitably accompanied by complications. The proposal to treat all railways now classified as “ strategic ” as a military liability is in any case unjustifiable. The division in this respect now maintained was made in 1888, and many of the lines now so classified have developed into paying commercial sections. It is in fact exceedingly difficult to draw a line between railways which are solely military and those which serve a commercial purpose except in clear cases such

as the Khyber Railway. The failure to meet working expenses and interest especially in the earlier years on which much stress was laid in the debate is of course no criterion that the line is not a commercial proposition, and many lines in India so circumstanced were certainly not constructed to serve military requirements.

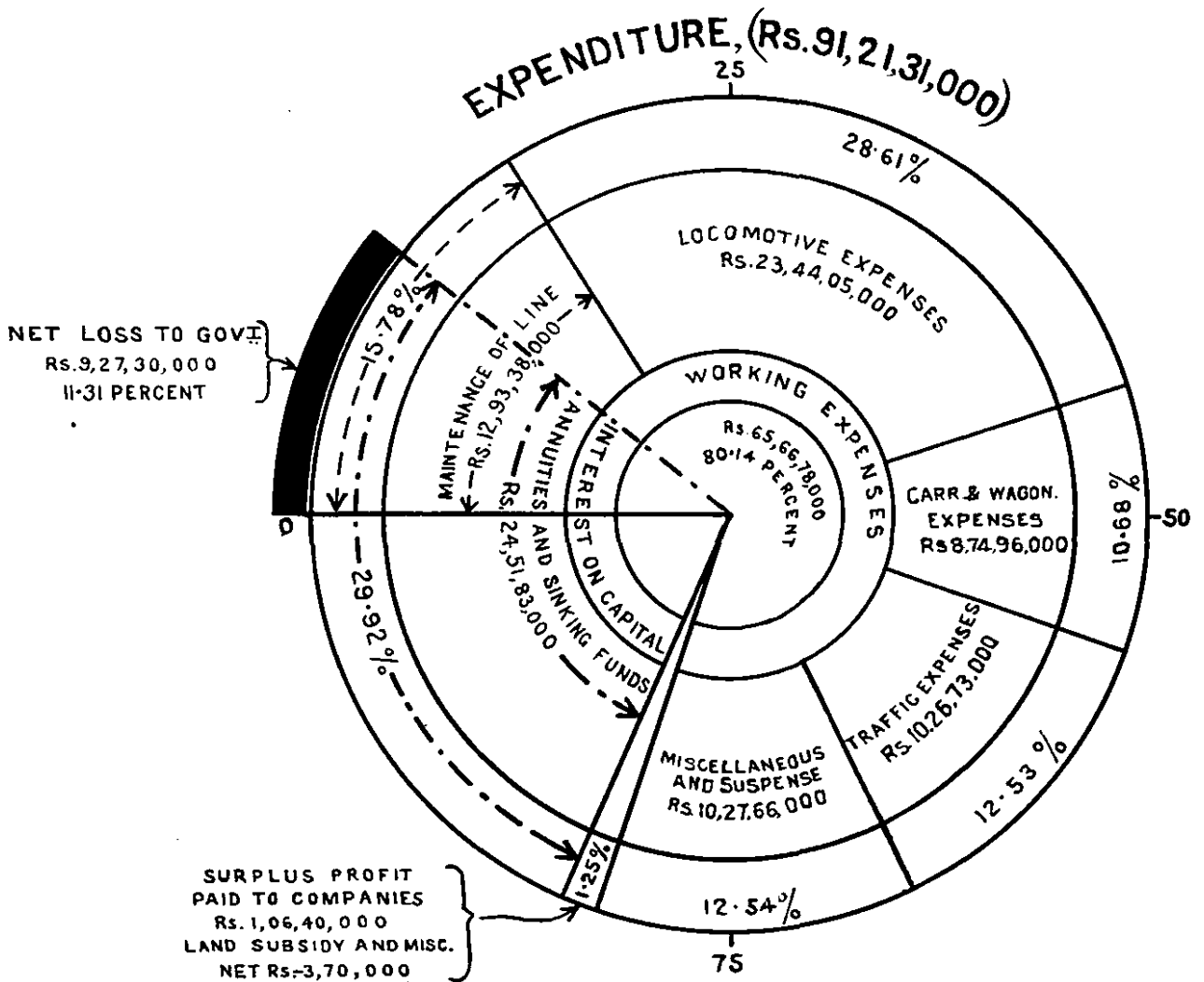
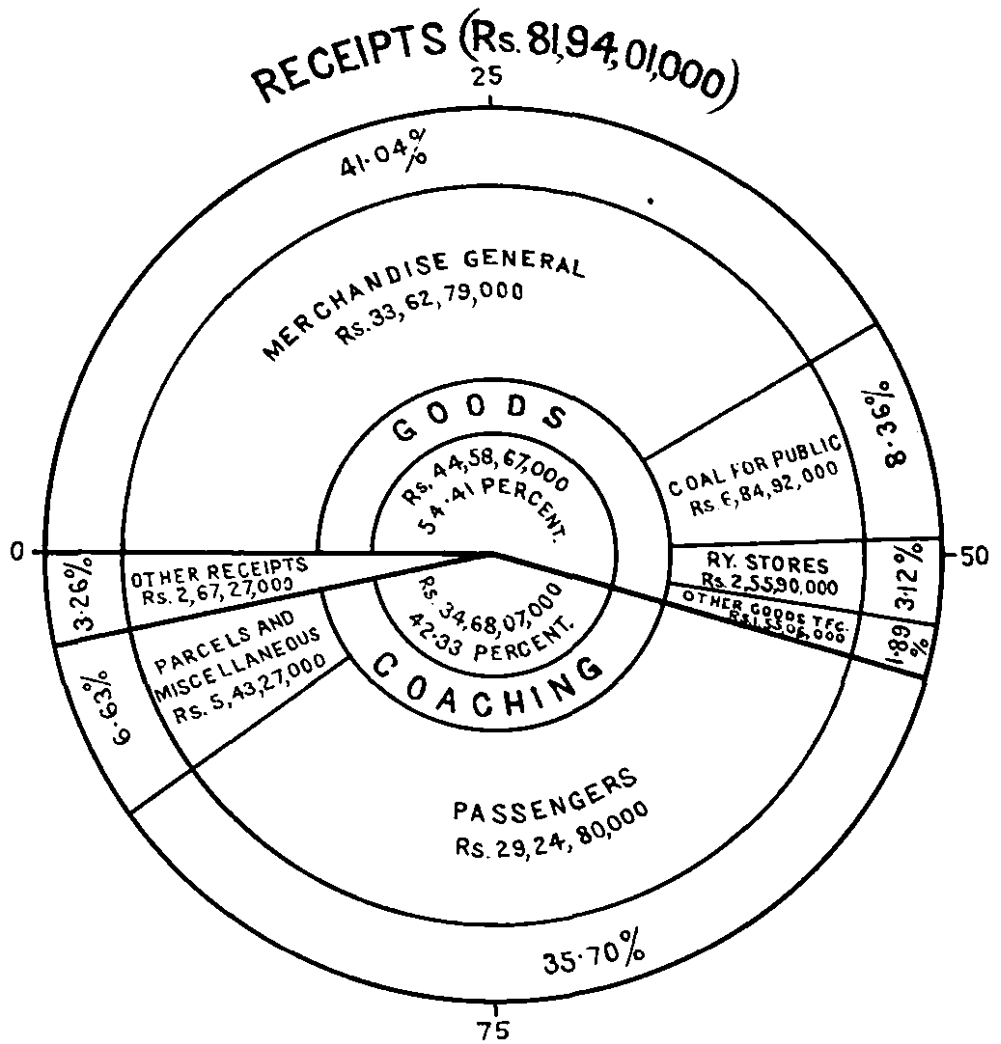
There is moreover a further practical difficulty involved in the suggestion to separate. If part of the railway system is to be made a military liability, the Army Department will justifiably expect a voice in the matter of working, and in ordinary times difficulties in respect of through service not necessary for military purposes would inevitably follow.

On the whole, therefore, the weight of argument seems decidedly in favour of the existing procedure. Since the year closed, the matter has been considered by the Central Advisory Council who have recommended that the present arrangements shall continue with certain modifications necessary to make the financial position in the accounts more clear than had hitherto been the case.

Railways as
source of
India's
revenues.

13. In concluding this brief review of the financial position of railways in India in 1921-22, it is perhaps permissible, in view of the unfavourable results disclosed, to make some reference to the honourable position held by railways in the past among the principal sources of India's revenue. In the last 22 years, the net gain to Government from the working of railways has aggregated nearly 108 crores of rupees after paying all interest charges, and in several cases contributing liberally, as explained above, towards the extinction of capital liability by payment of annuities. The fact that railways have demonstrated in the past in this very practical manner their capacity to add to the country's revenue should suffice as an ample assurance that the temporary set-back in 1921-22 is not due to any inherent cause, and that the old traditions will be resumed when trade and internal prosperity have recovered from the disorganisation which has followed in the wake of the war.

RAILWAY RECEIPTS & EXPENDITURE ON STATE OWNED LINES IN INDIA. 1921-22.



CHAPTER II.

EARNINGS.

(See Appendices 5, 9, 11, 14 and 24 of Volume II.)

14. As mentioned in the previous chapter, the total earnings of the State-owned railways amounted to Rs. 81·87 crores against 87·00 anticipated when the budget was framed. The earnings of Indian Railways are naturally so far as goods transport is concerned, very largely dependent on trade, and even the passenger traffic though less directly connected with the same factor invariably responds to the stimulus of a good trade year and a bountiful monsoon. Railway Earnings depend on Trade position.

15. The outstanding feature of the trade position in 1920-21 was that India was for the first time a debtor country, the value of imports exceeding the exports by Rs. 77 crores. In the year under review the same result recurred, but the figures both of imports and exports showed a decrease. Imports fell off to Rs. 266 crores, a decrease of 21 per cent. compared with the previous year. Exports were valued at Rs. 245 crores, a decrease of 5 per cent. compared with 1920-21. On the whole, therefore, India was again a debtor country and the trade depression was even more pronounced than in the previous year, though the balance was rather more in India's favour. Trade review.

The most noticeable features of the import trade of the year 1921-22, as compared with 1920-21, were a heavy decrease in the imports of manufactured goods, especially under cotton manufactures, iron and steel, motor vehicles, paper, woollen piece-goods and hardware and an increase in the imports of sugar, wheat and coal. The chief features of the year's export trade were an increase in the export of rice, tea and raw cotton and a large decrease in the shipments of jute, gunny bags and cloth. The check in imports was probably principally due to higher prices accentuated by high freights and increased customs duties. As regards the export trade, as there had been a good monsoon all over India, there was consequently no lack of commercial crops for export; but this favourable state of affairs was neutralised by the reduction in the buying powers of the continental countries which for the time being deprived India of its best markets for its produce.

Turning now to the internal position, the conditions were in most respects favourable to a prosperous railway year. The monsoon gave general and sufficient rain for agricultural operations and the winter rains were also very good except in Bengal. The season on the whole was therefore from an agricultural point of view favourable, and almost all the crops yielded a good outturn. The total production of rice showed an increase of 19 per cent. and that of cotton 24 per cent. as compared with the preceding season. Sugar cane, sesamum, groundnut and indigo also yielded much better crops than in the preceding year. The outturn of jute, however, showed a decrease of 32 per cent. owing to a greatly restricted area having been placed under the crop, due chiefly to the low prices obtained for the

two preceding crops and to a large carry-over from the previous year and also to the high prices of foodstuffs, which induced cultivators to grow more paddy in place of jute. Summarising therefore the year was favourable for internal trade but conditions were against a development of external transactions on which railways depend to a great extent for their long lead traffic. The result of these conditions is very clearly reflected in the figures of tonnage carried and the earnings especially of the lines leading to the principal ports.

**Analysis of
Railway
Earnings.**

16. In the light of these facts an analysis of the railway traffic for the year shows many points of considerable interest.

The total earnings of all lines rose from Rs. 91.98 crores in 1920-21 to Rs. 92.88 crores—a fact which taken by itself is a remarkable evidence of the capacity for development of earning power of the railways even under unfavourable conditions. Analysing the result by the two main sources of earnings, the rise of nearly a crore is found to be made up of a fall in passenger earnings of about half a crore and a rise in goods of about a crore and a half. It is interesting in this connection to look back on past results which are shown in the summary below and form a valuable index of the progress of development even during the stormy years of the war.

| Year. | PASSENGER TRAFFIC. | | GOODS TRAFFIC. | | Other traffic earnings (in thousands). | Total earnings (in thousands). |
|-------------------|------------------------|--------------------------|----------------------|--------------------------|--|--------------------------------|
| | Number (in thousands). | Earnings (in thousands). | Tons (in thousands). | Earnings (in thousands). | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | No. | Rs. | Tons. | Rs. | Rs. | Rs. |
| 1913-14 | 457,718 | 21,17,51 | 82,613 | 37,77,49 | 4,63,51 | 63,58,51 |
| 1914-15 | 451,086 | 20,35,29 | 80,972 | 35,09,18 | 4,98,27 | 60,42,74 |
| 1915-16 | 464,381 | 20,98,57 | 82,499 | 38,75,79 | 4,91,68 | 64,66,04 |
| 1916-17 | 486,031 | 23,08,19 | 86,242 | 41,43,00 | 6,17,23 | 70,68,42 |
| 1917-18 | 430,269 | 25,23,15 | 85,472 | 44,49,54 | 7,63,70 | 77,36,39 |
| 1918-19 | 459,732 | 28,97,78 | 91,161 | 49,13,89 | 8,17,01 | 86,28,68 |
| 1919-20 | 520,027 | 33,16,29 | 87,630 | 47,11,60 | 8,87,43 | 89,15,32 |
| 1920-21 | 559,246 | 34,76,65 | 87,542 | 47,96,84 | 9,25,27 | 91,98,76 |
| 1921-22 | 601,329 | 34,29,31 | 86,248 | 49,52,32 | 9,07,04 | 92,88,67 |

**Passenger
traffic.**

17. The connection between trade conditions and railway results is naturally more apparent in respect of goods than passengers. Passenger traffic is affected by many other conditions beyond those which govern the development of trade. Agricultural and general prosperity is, however, usually accompanied by good passenger returns and the check in the speed of annual numerical increase of passengers, which the figures disclose, is probably

directly attributable to the rise in prices which has curtailed the power of the population to travel to an extent which was possible in the days before this unhappy feature made itself so apparent. If the figures are now examined in greater detail certain interesting facts are disclosed. For convenience in comparison, the results in numbers and earnings by the different classes are shown in the table below from the last year before the war to date.

| 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. |
| | | | | | | Rs. | Rs. | Rs. | Rs. | Rs. |
| 1913-14 . . . | 812 | 3,461 | 12,371 | 410,960 | 30,114 | 63,94 | 83,70 | 1,03,48 | 18,37,03 | 19,36 |
| 1914-15 . . . | 725 | 3,462 | 12,618 | 403,559 | 30,722 | 59,78 | 89,89 | 1,03,31 | 17,62,96 | 19,35 |
| 1915-16 . . . | 729 | 3,791 | 13,648 | 413,254 | 32,959 | 58,76 | 1,01,41 | 1,12,82 | 18,04,85 | 20,73 |
| 1916-17 . . . | 823 | 4,607 | 14,349 | 431,456 | 34,796 | 72,26 | 1,30,01 | 1,22,41 | 19,61,59 | 21,99 |
| 1917-18 . . . | 883 | 4,216 | 7,719 | 381,017 | 36,434 | 95,25 | 1,43,30 | 1,16,73 | 21,44,51 | 24,36 |
| 1918-19 . . . | 1,048 | 5,119 | 8,721 | 404,388 | 40,456 | 1,11,60 | 1,72,66 | 1,42,88 | 24,42,61 | 27,74 |
| 1919-20 . . . | 1,108 | 6,439 | 10,200 | 460,306 | 41,974 | 1,28,80 | 2,17,94 | 1,69,68 | 27,68,91 | 30,96 |
| 1920-21 . . . | 1,148 | 7,129 | 11,750 | 490,280 | 48,039 | 1,30,48 | 2,26,49 | 1,91,19 | 28,91,25 | 37,24 |
| 1921-22 . . . | 1,085 | 6,492 | 10,654 | 490,733 | 52,365 | 1,38,47 | 2,29,63 | 1,77,80 | 28,41,83 | 41,88 |

In respect of the last year it will be noticed that the numbers of passengers by first, second and intermediate classes have declined compared with 1920-21, while the third class shows a small increase. In spite of the fall in numbers the earnings from the first two classes have risen, while the yield from the intermediate and third classes has fallen compared with 1920-21. This latter result which is very significant is due to decreased load. Economic factors have in fact forced the third class passengers in India to forego indulgence in long journeys in the same way as has happened elsewhere in the world, and have checked the rapid increase in the numbers travelling which is evidenced in the figures of previous years. Decreased third class travelling is also to some extent attributable to the fact that insufficiency of stock has forced many railway administrations to refuse to make special arrangements for *melas* which in the ordinary course of events attract large numbers of passengers.

18. Turning now to the goods traffic, the figures given at the end of Goods traffic, paragraph 16 above reveal the interesting fact that compared with previous year the tonnage lifted in the year under review showed a decrease of over 1 million tons, but the earnings went up by Rs. 1½ crores. This apparent anomaly is explained by a fall in the quantity of commodities carried at cheap rates principally coal accompanied by increases in some of the better paying commodities. Other contributory causes were the increase of rates for coal carried for use by the public and the withdrawal of concession rates in some cases. The combined effect of these factors has been to increase the earnings in spite of a fall in tonnage lifted. These facts are illustrated by the figures in the summary below which shows the more important commodities carried by railways and the earnings derived therefrom. Commodities with a tonnage less than one million have been lumped together.

| Commodity. | 1920-21. | | 1921-22. | |
|-------------------------------------|-------------------|----------------|-------------------|----------------|
| | Tons in Millions. | Rs. in crores. | Tons in Millions. | Rs. in crores. |
| (1) Coal | 21.86 | 8.21 | 18.78 | 7.30 |
| (2) Railway stores | 18.22 | 2.64 | 20.01 | 2.78 |
| (3) Wheat and wheat flour | 3.24 | 2.80 | 2.35 | 1.83 |
| (4) Rice | 4.63 | 3.11 | 4.85 | 3.37 |
| (5) Other grains | 4.90 | 3.68 | 5.13 | 4.21 |
| (6) Stone | 3.05 | 0.72 | 2.79 | 0.69 |
| (7) Metals | 3.30 | 2.27 | 2.82 | 2.10 |
| (8) Salt | 2.24 | 1.47 | 2.30 | 1.61 |
| (9) Wood | 2.25 | 1.03 | 2.38 | 1.12 |
| (10) Sugar | 1.76 | 1.52 | 2.18 | 2.52 |
| (11) Oils and oil seeds | 2.89 | 2.52 | 3.05 | 3.10 |
| (12) Cotton and yarn | 1.06 | 4.04 | 2.16 | 4.81 |
| (13) Lime, chalk, etc. | 1.25 | 0.38 | 1.43 | 0.40 |
| (14) Jute and gunny bags | 1.72 | 1.57 | 1.32 | 1.29 |
| (15) Fodder | 1.21 | 0.86 | 1.23 | 0.80 |
| (16) Other Commodities | 13.06 | 11.15 | 13.47 | 11.69 |
| TOTAL | 87.54 | 47.97 | 86.25 | 49.52 |

Coal.

19. It will be noticed that so far as tonnage is concerned by far the most important commodity is coal representing about 22 per cent. of the total goods traffic carried during the year. The average quantity carried during the last five years has been over 22 million tons; this was reduced to 19 million tons in the year under review, or a decrease of 3 million tons owing principally to decreased output from the collieries as the result of labour troubles. The earnings from this source were consequently less by about 1 crore of rupees. The most interesting feature of the year was that India was actually for the first time for many years importing considerable quantities of coal.

Other Commodities.

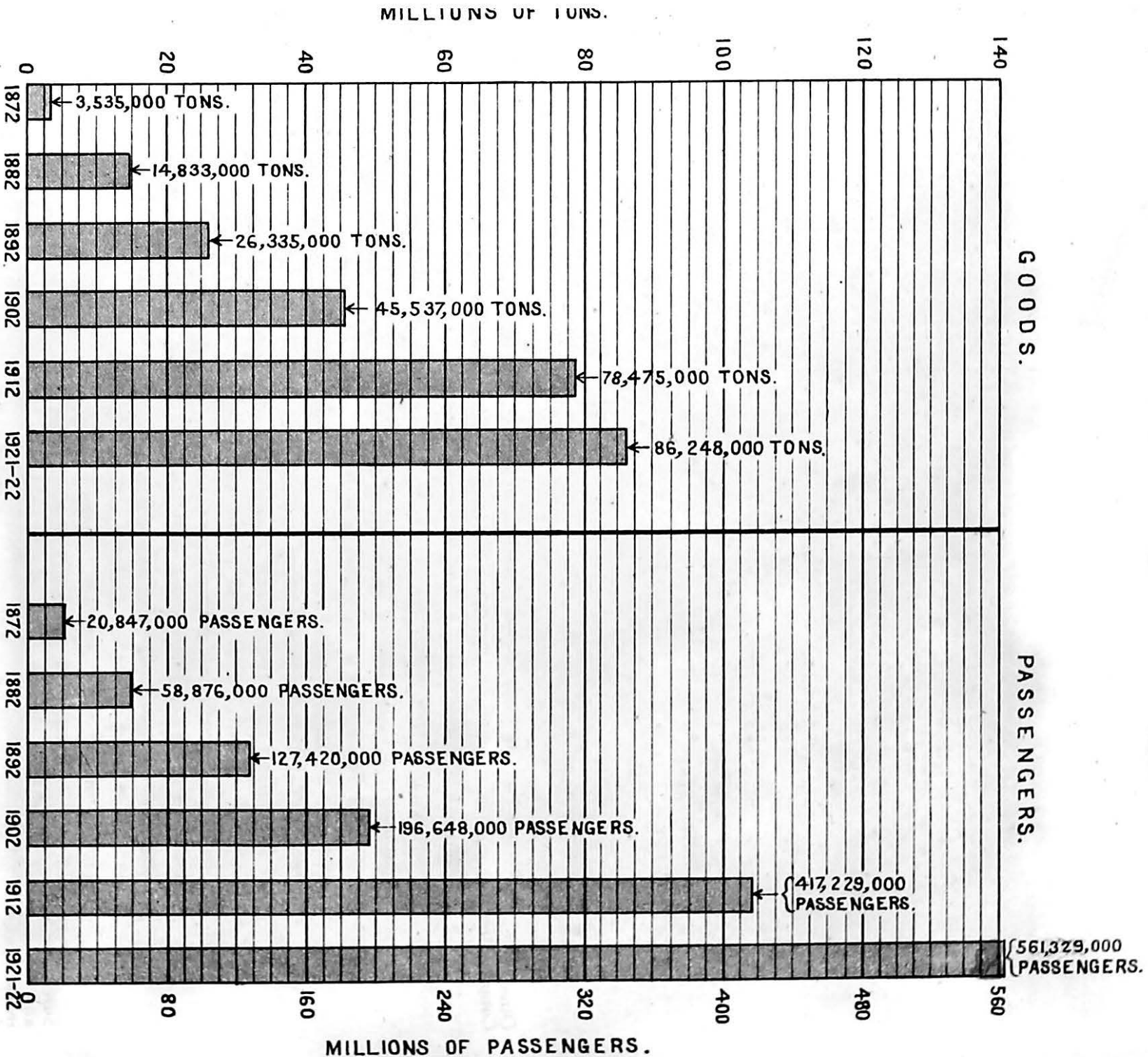
20. Apart from railway stores, the next heaviest item of traffic is represented by food grains, wheat, rice, etc. The variations in traffic in these commodities are due to a number of conflicting causes. The tonnage of rice rose owing to the removal of the embargo on Burma export and the corresponding result in respect of other grains was the natural sequence to a good harvest. The wheat position was extraordinary. Exports were still under the embargo imposed in April 1915 and as already mentioned India was during the year importing wheat from abroad. The traffic in wheat and wheat flour which in 1913-14 was 3.56 million tons fell off to a total of 2.35 millions of tons in 1921-22.

The increased import of sugar is shown in the increased earnings from this commodity of nearly a crore of rupees but apart from this nearly all of the imported commodities including kerosene oil, piece goods, provisions, etc., gave very disappointing returns owing to the trade depression already referred to.

Surcharge and increase in rates and fares.

21. Before concluding this chapter mention must be made of the fact that the earnings given above exclude the surcharge on goods and parcels traffic which remained in force throughout the year under review. This surcharge was levied with the object of securing additional revenue for the general purposes of the country and was not credited to railway earnings. The surcharge has since been replaced by increased rates which have been introduced with effect from 1st April 1922.

DEVELOPMENT OF GOODS & PASSENGER TRAFFIC DURING THE LAST FIFTY YEARS.



CHAPTER III.

WORKING EXPENSES.

(See Appendices 6, 12, 13 and 15 of Volume II.)

22. As was anticipated in the last report there has been a further rise in the working expenses of railways in the year under review. The extent of the rise in recent years will be gathered from the percentages of expenses to earnings given below :—

Factors affecting rise in expenses.

| Year | Percentage of expenses to gross earnings of all railways. |
|---------|---|
| 1913-14 | 51·79 |
| 1914-15 | 54·19 |
| 1915-16 | 50·91 |
| 1916-17 | 47·26 |
| 1917-18 | 45·72 |
| 1918-19 | 48·45 |
| 1919-20 | 56·81 |
| 1920-21 | 65·54 |
| 1921-22 | 76·22 |

It will be noticed that in the year immediately before the war the expenses were in the neighbourhood of 52 per cent. of earnings, while they have now reached 76 per cent., the increase over last year's proportion being no less than 10·68 per cent.

This rise in the cost of working railways is, as mentioned in a previous chapter, not peculiar to India, but it is nevertheless a matter of particular seriousness in this country where many lines were being worked on a narrow margin of profit even before this feature became so apparent. The effect on the general financial results of railways has already been dealt with in the first chapter of this volume. But apart from this it has for the present introduced a new and in most cases an insuperable difficulty in the way of further extensions. It is, therefore, from every point of view a matter of the first importance that the reasons which have led to this progressive increase shall be located and a remedy, if possible, applied. For this purpose the first step necessary is obviously to make a careful analysis of the figures in order to isolate so far as possible the temporary factors in the situation from the more serious permanent causes of more expensive working. Naturally the relative importance of these two types of causes varies on different administrations, but it is still possible to draw certain general conclusions from the analysis of the figures as a whole.

Analysis of expenses by spending departments.

23. The summary below shows the distribution of the expenses on all railways for the years 1920-21 and 1921-22 between the various spending departments :—

| Department. | Work | Amount spent in | | Proportion of working expenses to gross earnings. | |
|----------------------|---|-----------------|-------------|---|-----------|
| | | 1920-21. | 1921-22. | 1920-21. | 1921-22. |
| | | Rs. crores | Rs. crores. | Per cent. | Per cent. |
| Engineering . . . | Maintenance of way, works and stations. | 11-95 | 14-33 | 12-99 | 15-43 |
| Locomotive . . . | Maintenance and renewing of engines and cost of fuel and running stores and other expenses attached to provision of motive power. | 20-88 | 25-42 | 22-70 | 27-37 |
| Carriage and wagon . | Maintenance and running of carriages and wagons. | 7-30 | 9-39 | 7-94 | 10-11 |
| Traffic | Working of trains from a business standpoint, i.e., booking of passengers and goods and arrangements for transport. | 10-61 | 11-24 | 11-53 | 12-10 |
| Agency and others | Agent's office expenses, Audit, Stores, Medical and Police charges, etc. | 4-70 | 5-16 | 5-11 | 5-56 |
| Ferry | Steam boat expenses | ·31 | ·34 | ·34 | ·37 |
| Miscellaneous* | Law charges, compensation, contribution to Provident Fund, etc. | 4-54 | 4-92 | 4-93 | 5-28 |
| | TOTAL | 60-29 | 70-80 | 65-54 | 76-22 |

It will be noticed that the increase has, as was to be expected, affected all the departments, but the relative amounts differ widely and nearly half of the total increase has occurred in the Locomotive Department alone. If these individual results are now again analysed under administrations, a fair idea of the main underlying causes may be deduced.

Engineering Department Expenses.

24. *Engineering Department.*—The excess expenditure incurred last year over the previous year's expenses is Rs. 2-38 crores and is attributable principally to the following lines :—

| Railway. | Rs. crores. |
|--|-------------|
| North Western | ·75 |
| Great Indian Peninsula | ·47 |
| Bombay, Baroda and Central India | ·34 |
| South Indian | ·24 |
| East Indian | ·11 |
| Nizam's Guaranteed State | ·10 |
| Eastern Bengal | ·09 |
| Oudh and Rohilkhand | ·08 |
| Bengal-Nagpur | ·07 |
| Burma | ·07 |
| Jodhpur-Bikaner | ·04 |
| Other railways | ·02 |
| | 2-38 |

From these figures it appears that the principal excesses occurred on four lines and an examination of their accounts shows clearly that it is in the main due to heavier renewals of rails, sleepers and bridges. So far then as this

* Including total working expenses of certain smaller lines not included in the details by departments.

avenue of expenditure was responsible, the increase is the natural outcome of the effort being made to bring lines up to standard, and to this extent it may fairly be hoped that it is temporary. There is, however, of course a certain permanent element represented by rise in wages and cost of materials for ordinary repairs which will probably prevent a return to previous rates of working. The comparative prices of sleepers and rails contrasted with 1913-14 will show the extent of the rise in costs which is attributable to these two essentials of railway working.

| | Price. | |
|----------------------------------|-----------------|------------------|
| | 1913-14. | 1921-22. |
| <i>Sleepers.</i> | | |
| | Rs. A. P. | Rs. A. P. |
| 1. Deodar Sleepers Broad gauge . | 4 4 0 | 8 8 0 |
| 2. Sal (Nepal) " " " . | 5 0 0 | 8 8 0 |
| " (") " Metre gauge . | 2 8 0 | 3 2 0 |
| 3. Sal (C.P.) " Broad gauge . | 5 0 0 | 8 8 0 |
| " (") " Metre gauge . | 2 0 0 | 4 0 0 |
| 4. Douglas Fir Sleepers | 4 12 0 | 10 0 0 |
| <i>Rails and Fish Plates.</i> | | |
| Rails | Rs. 100 per ton | Rs. 158 per ton. |
| Fish plates | " 130 " | " 185 " |

25. *Locomotive Department.*—The excess over the previous year's expenses is Rs. 4.54 crores and it occurred principally on the following railways :—

Locomotive Department Expenses.

| Railway. | Rs. crores. |
|--|----------------|
| North Western | 1.27 |
| Great Indian Peninsula | 1.01 |
| Bombay, Baroda and Central India | .64 |
| South Indian | .41 |
| Madras and Southern Mahratta | .28 |
| East Indian | .24 |
| Bengal-Nagpur | .20 |
| Burma | .12 |
| Oudh and Rohilkhand | .09 |
| Eastern Bengal | .06 |
| Other railways | .22 |
| | 4.54 |

In this case the increase is, allowing for the relative size of the lines, very much more equally distributed, and an examination of the railways' accounts shows that there is one universal underlying cause which accounts for the general rise, *viz.*, the high price paid for fuel. It is a matter for satisfaction that this rise was due to temporary causes connected with the shortage in supply of Indian coal and the purchase of foreign fuel at rates which were considerably in excess of the equivalent of Indian price. To this extent, therefore, the cause is special and temporary, but Indian coal has been affected by economic causes like everything else and has reached a higher price which will probably mean a permanent addition to working costs. A comparison of

prices actually being paid with those current in 1913-14 will illustrate the extent of the rise that has taken place in this item of working costs.

| Class of Indian coal. | Price per ton in 1913-14. | | | Price per ton in 1921-22. | | |
|---------------------------------|---------------------------|----|----|---------------------------|----|----|
| | Rs. | A. | P. | Rs. | A. | P. |
| Deshergarh | 5 | 0 | 0 | 7 | 8 | 0 |
| Selected Jherria | 4 | 0 | 0 | 6 | 4 | 0 |
| First class RaneeGANj | 4 | 4 | 0 | 6 | 8 | 0 |
| First class Jherria | 3 | 12 | 0 | 6 | 0 | 0 |
| Second class Jherria | 2 | 12 | 0 | 4 | 12 | 0 |

As in all other cases the addition to the wages bill is a permanent liability.

Carriage and Wagon Department Expenses.

26. *Carriage and Wagon Department.*—The excess is Rs. 2.09 crores and is attributable as follows:—

| Railway. | Rs. crores. |
|--|-------------|
| Eastern Bengal | ·43 |
| North Western | ·41 |
| Bengal-Nagpur | ·35 |
| Great Indian Peninsula | ·27 |
| Madras and Southern Mahratta | ·26 |
| Oudh and Rohilkhand | ·14 |
| East Indian | ·10 |
| Bombay, Baroda and Central India | ·09 |
| South Indian | ·02 |
| Other railways | ·02 |
| | 2·09 |

The underlying cause is not quite so easy to locate in this case as in the preceding. Increased expenditure appears to be due largely to increased renewals and to this extent as in case of engineering it is the natural sequel to the depreciation which could not be made good during the war. But the ordinary repair bill is also extraordinarily heavy, and this is undoubtedly to be attributed to the fact that on every railway in India stock is being run which should have been renewed and to which unduly frequent repair is unavoidable. It may fairly be hoped that this feature will gradually right itself as the arrears of depreciation are overtaken. The increased cost of individual shop repairs is, however, a permanent feature which can only be combatted by more efficient machinery and more economical methods.

Traffic Department Expenses.

27. *Traffic Department.*—The excess is Rs. 63 lakhs and occurred principally on

| Railway. | Rs. lakhs. |
|--|------------|
| North Western | 12 |
| Oudh and Rohilkhand | 10 |
| Bombay, Baroda and Central India | 11 |
| East Indian | 7 |
| Other railways | 23 |
| | 63 |

The increase in this case is fairly uniform on all lines. It is solely due to the increased cost of staff and contains no temporary element. Every line in India is making efforts to economise in this respect, but labour agitation and the constant demands on the part of the public for passenger superintendents,

watch and ward staff, etc., must inevitably add to the cost of traffic working to an extent that no possible economies can neutralise.

28. *Agency, etc.*—The excess amounts to Rs. 46 lakhs and the highest figures are :— Agency Expenses.

| Railway. | Rs. lakhs. |
|----------------------------------|---------------|
| Great Indian Peninsula | 9 |
| Eastern Bengal | 6 |
| Bengal-Nagpur | 5 |

The individual increases are small and are principally accounted for by higher wages and the increased cost of stationery, forms and general office expenses. The increases are all of a permanent nature, and the field for economy is not large, but everything possible is already being done to reduce the need for clerical staff by decentralising control.

29. *Miscellaneous expenditure.*—The excess is Rs. 38 lakhs made up of increases on Expenses on Miscellaneous Items.

| Railway, | Rs. lakhs. |
|----------------------------------|---------------|
| East Indian | 43 |
| Great Indian Peninsula | 11 |
| Oudh and Rohilkhand | 11 |
| South Indian | 4 |
| Burma | 3 |
| Eastern Bengal | 3 |

and decreases on

| | |
|--|----|
| Bengal-Nagpur | 14 |
| Bombay, Baroda and Central India | 12 |
| Nizam's Guaranteed State | 9 |
| North Western | 1 |
| Madras and Southern Mahratta | 1 |

This head includes a number of different items such as hire and demurrage on stock, provident fund, gratuities, railway schools, law charges and compensation. Most of them have risen for permanent reasons, but a special mention is due to the last item, *viz.*, compensation for lost and damaged goods, etc. This item of expenditure has in the last few years increased to an extraordinary degree, owing to the growth of pilferage and the increased value of goods. The figures of payments for the last six years will illustrate the seriousness of the position.

| Year. | Rs. |
|-------------------|-------------|
| 1916-17 | 17,94,659 |
| 1917-18 | 23,07,969 |
| 1918-19 | 45,91,795 |
| 1919-20 | 71,24,675 |
| 1920-21 | 1,11,86,306 |
| 1921-22 | 1,16,21,975 |

The measures which have been taken to combat this evil are described in a subsequent chapter.

30. Summarising therefore, there seems good reason to hope that a sensible degree of our present inflated working expenses will disappear gradually as the lines are brought back to normal condition. And in this connection a special mention is necessary in respect to the progress in making up arrears Renewal Programme.

in the renewal programme. The financial procedure in this respect has already been explained in Chapter I of this report. The figures of expenditure in previous years were quoted in last report, but they are sufficiently interesting in view of the last year's results now available to bear repetition.

| YEAR. | PROGRAMME REVENUE EXPENSES. | |
|-------------------|-----------------------------|------------------|
| | Provision. | Expenditure. |
| | Rs. (in crores). | Rs. (in crores). |
| 1913-14 | } Figures not available } | 3.68 |
| 1914-15 | | 3.30 |
| 1915-16 | | 2.82 |
| 1916-17 | 2.50 | 2.20 |
| 1917-18 | 3.30 | 1.54 |
| 1918-19 | 4.07 | 2.00 |
| 1919-20 | 9.75 | 3.59 |
| 1920-21 | 10.75 | 5.30 |
| 1921-22 | 9.25 | 7.23 |

The improvement in what has actually been accomplished as indicated by the expenditure incurred is very satisfactory, as it shows that the strenuous efforts to make up the leeway which all railways incurred during the war are at last beginning to be effective.

Apart from special renewals, the increase in ordinary repairs to permanent-way and bridges is unlikely to prove susceptible to any measures of economy for some time to come and may even rise above the existing level. Information in the hands of the Board goes to show that there are arrears in this respect on some lines which the present level of expenditure does not suffice to provide for. Such matters as fencing, painting of bridges, ballast, etc., have been neglected in the years of the war and the deficiency has got to be made good.

Repairs to rolling-stock are to a certain extent affected at present by temporary conditions, but the present high cost of shop working is a factor on all lines which is worthy of serious attention. Possibly in this matter improvements in indigenous supplies will help to keep costs down. But it must not be lost sight of that constant improvements in speed and in type of stock which the public demand must inevitably swell the repair bill.

31. Finally, as affecting all departments the rise in the cost of wages constitutes the most difficult problem of all which still awaits solution. Every railway in India has now under the Railway Board's instructions adopted systematic measures by means of Retrenchment Committees or otherwise to prepare and carry out a regular campaign of economy embracing all avenues of railway expenditure from which good results are expected.

Retrenchment
Committee.

CHAPTER IV.

RAILWAY STAFF.

(See Appendix 23 of Volume II.)

32. The total number of railway employes at the close of the year 1921-22 was 754,478 of which 6,858 were Europeans, 11,831 Anglo-Indians and 735,789 Indians. In last year's report a table showing the variations in numbers of each of these classes in the last ten years was given, and the figures are sufficiently interesting to bear repetition.

Number of staff.

| Year | Europeans. | Anglo-Indians. | Indians. | TOTAL. |
|-------------------|------------|----------------|----------|----------|
| 1912 | 7,850 | 10,066 | 571,506 | 589,422 |
| 1913-14 | 7,986 | 10,437 | 614,382 | 633,305 |
| 1914-15 | 7,641 | 10,349 | 582,493 | 600,483 |
| 1915-16 | 7,274 | 10,412 | 607,919 | 625,605 |
| 1916-17 | 6,907 | 10,425 | 619,202 | 636,534 |
| 1917-18 | 6,802 | 10,239 | 636,967 | 654,008 |
| 1918-19 | 6,702 | 10,450 | 667,824 | 684,976 |
| 1919-20 | 6,943 | 10,866 | 695,269 | 713,078 |
| 1920-21 | *7,281 | *11,940 | *729,789 | *749,010 |
| 1921-22 | 6,858 | 11,831 | 735,789 | 754,478 |

33. In view of the present demand for the more extended employment of Indians in the railway services, it is of interest to note that in the last ten years the number of Europeans employed has fallen from 7,850 to 6,858 and the number of Indians has risen by nearly 165,000. During the war, the number of Europeans decreased in 1918-19 to 6,702, a fall of about 1,200, and of these only about 250 appear to have rejoined in 1919-20, but the number has again shown a decrease.

Indianisation of Railway Services.

During the Delhi Session of 1921-22 the following Resolution was adopted by the Council of State:—

“The Council recommends to the Governor General in Council the necessity of taking early steps to increase the number of Indians in the higher grades of service of the State managed railways, and of devising means to secure the adoption of a similar policy by Companies managing State Railways.”

In accepting the Resolution, the Government pointed out that they had already accepted the policy of gradually Indianising all the public services and stated that that policy would be applied to the higher railway establishments wherever possible, subject to the necessity of making efficiency the paramount consideration in railway matters. Since the report of the Public Services Commission was issued much has been done already towards

Indianising the superior establishments of State worked Railways. In the Engineering Department 20 per cent. of the officers are now Indians, in the Superior Traffic Department 25 per cent. and in the Superior Stores Department 8 per cent. In the Locomotive and Carriage and Wagon Departments it has only been possible to make a small beginning due chiefly to the lack of facilities for proper training in this country. Extensive schemes for the training of mechanical engineers are now, however, under consideration.

Government have used their influence to induce Companies to follow a similar principle on their lines to which it seems to be popularly supposed that they are antagonistic. It may, however, be remarked that these bodies are in respect of other matters usually charged with working their lines solely in the interests of the shareholders' profits, and it seems somewhat illogical to suppose that in the matter of economy in respect to staff they would not for similar reasons prefer to employ cheaper Indian labour if this was for practical purposes equally efficient. As a matter of fact every Railway Company in India has expressed entire agreement with the Government of India policy and given practical evidence of their desire to give effect to it.

In this connection it is interesting to note the progress made during the last 6 years on all lines taken together. In 1916, the number of Indians holding superior posts in all departments of Companies' and State Railways in India was 85; in 1922 it was 212. The increase has taken place chiefly in the Engineering and Traffic Departments. In the former, the number has risen in the period mentioned from 39 to 81, and in the latter, from 32 to 82. In the Audit Department, there are now 23 Indians against 7 in 1916. In the Stores and Printing Department, there are 7 against none in 1916. In the Agency Department, there are 4 Indians against 3 in 1916. The further progress in this respect is being carefully watched, and all Agents have been required to furnish half-yearly statements showing the appointments made. It is recognised that one of the principal difficulties in this matter hitherto has lain in the want of facilities for preliminary training in India for candidates for railway employment. Practically all branches of railway work require the possession of technical qualifications of some sort and for this purpose the general literary education given in ordinary schools and colleges is obviously inadequate. Engineering colleges have existed for some years, but apart from these institutions which provide for only one side of railway working, and the small facilities which railways have themselves provided for elementary training in mechanical engineering, no definite arrangements have so far been attempted to meet the needs of indigenous railway recruitment.

Mechanical training.

34. In this connection, however, a word of mention is necessary in respect to the measures which have been taken in some cases with the assistance of local Governments to improve the existing arrangements for preliminary training in mechanical engineering referred to above. At Jamalpur on the East Indian Railway, facilities have for some years existed for training mechanics. It has recently been decided to enlarge the scope of these arrangements and to start a new technical school together with residential accommodation for the staff. The local Government has promised a non-recurring grant for capital purposes in addition to an annual grant in return

for which a certain number of vacancies will annually be reserved for qualified youths of Bihar and Orissa.

At Kanchrapara and Lilloah apprentices are taken in the shops and arrangements exist for giving them a theoretical training outside the shops. The whole question of apprenticeship training in Bengal has been subjected to the most careful examination by the Bengal Government. In 1919, a Committee was appointed to consider this matter. Sir Rajendranath Mookerjee was president, and the other members of the Committee were Sir Nilratan Sarkar, the then Vice-Chancellor of the Calcutta University; Mr. Hindley, the then Deputy Agent of the East Indian Railway; Mr. Spalding, the Locomotive Superintendent of the Eastern Bengal Railway; Mr. Everett, Superintendent of Industries and Inspector of Technical and Industrial Institutions, Bengal; and Mr. Heaton, Principal of the Civil Engineering College. As the result of that Committee's report, it has been decided by the Government of Bengal to establish a technical school in Calcutta. The primary function of it will be to provide part time technical classes for apprentices employed in the various workshops, including the railway workshops, of the district. A site in a central position in Calcutta has been purchased at a cost of Rs. 8 lakhs, and it is understood that the building is under erection. The Government of Bengal have also, on the recommendation of the Committee referred to above, established a Board of Control for apprenticeship training. Further, it has been decided to concert arrangements with the Eastern Bengal Railway for a practical course of six years at Kanchrapara, and apprentices undergoing this course will receive theoretical training concurrently with their practical instruction. The Bengal Government propose to meet the cost of a technical school at Kanchrapara including equipment and the cost of the educational staff. On its part, the Eastern Bengal Railway has undertaken to provide the apprentices with practical training, to remunerate them, and to supply a hostel superintendent, etc. Those of the apprentices who are successful at a selected examination will be put through a higher theoretical training at an institution such as the Sibpur College.

Turning to Bombay, the Great Indian Peninsula and the Bombay, Baroda and Central India Railways have long had apprentices' classes for their apprentices which up to this have been controlled and managed by the Young Men's Christian Association. The teaching staff was drawn from the railway mechanical engineering staff and for teaching purposes they were under the control of the Young Men's Christian Association. The Railways are now negotiating with the authorities of the Victoria Technical Institute for the future control of their classes.

The Madras and Southern Mahratta Railway already provides classes for apprentices both at Perambur and Hubli. The arrangement at Hubli is somewhat similar to that at Lilloah.

As regards Negapatam, the railway workshops are being transferred to Trichinopoly, but at Trichinopoly provision is contemplated for a railway school in connection with the new combined broad and metre gauge workshops.

At Lucknow, Gorakhpur and Jhansi, classes are already provided for railway apprentices. Quite recently, a committee consisting of Government

experts and of employers of labour was appointed to draw up a programme for a course of training. It is now proposed to locate a college at Lucknow in the neighbourhood of the Oudh and Rohilkhand Railway locomotive workshops. At this college, it is understood, provision will be made both for the training of engineers and for the training of mechanics. An entrance examination will be held. The successful candidates will undergo preliminary practical training in the Oudh and Rohilkhand Railway workshops during which period they will attend concurrent technical courses at the college. The practical training of the students will be supervised on the railway by a qualified workshop instructor who will be paid by Government, but selected by the railway. The training of mechanical and electrical foremen will be on the same lines as those already followed in the Jhansi technical school: that is to say, they will undergo five years' training in the Oudh and Rohilkhand Railway workshops together with a theoretical training in the college.

In addition to the school at Jhansi, there is also a school at Gorakhpur. Arrangements have now been made for the Gorakhpur school to work in collaboration with the Bengal and North-Western Railway, that is to say, practical training will be given in the railway workshop and theoretical training in the school. Both the Jhansi and Gorakhpur schools are intended to turn out expert mechanics.

At Lahore, the Punjab Government have decided to open a college for the training of electrical and mechanical engineers. It has been arranged that this college should work in collaboration with the North Western Railway. The students will receive practical instruction in the railway workshops and theoretical instruction at the College. The local Government has also under consideration a school for the training of artisans which also will work in with the railway schemes for the training of apprentices.

The Bengal-Nagpur Railway has already made arrangements for the training of European, Anglo-Indian and Indian apprentices. The men are given practical training in the workshops at Kharipur and at these workshops night schools also exist for theoretical instruction. There are also night schools at Ajmer and Insein to supplement the theoretical instruction in the schools. There is no school at present at Pahartali on the Assam-Bengal Railway, but the railway is already in correspondence with the local Government on the subject of the establishment of a school on the lines of that at Kanchrapara.

After the close of the year under review, an experienced officer was placed on special duty to go into the whole question of the training of Indians for both superior and subordinate grades of all departments, and it is understood that his report provides amongst other things for extending and co-ordinating the different schemes outlined above, so far as the railways are concerned, and for securing more uniformity in the length and character of the courses.

Cost of staff.

35. Turning now to the financial aspect of the staff question as it affects railways, a reference was made in the last report to the extraordinary rise in the expenditure on staff on all lines which was principally attributable to the higher rates of wages. The figures already given in the opening paragraph of this chapter show that the increase in numbers employed on all lines was

5,468, but from the comparative figures given in the summary below it will be seen that the increase in cost has again been out of all proportion to the extra numbers employed.

| Railway system. | 1920-21. | 1921-22. |
|--|--------------|--------------|
| | Rs. | Rs. |
| Assam-Bengal | 43,05,087 | 45,26,921 |
| Bengal-Nagpur | 2,04,41,518 | 2,31,07,461 |
| Jodhpur-Bikaner | 25,88,148 | 31,82,555 |
| Bombay, Baroda and Central India | 3,43,17,434 | 3,82,21,926 |
| Burma | 1,00,25,568 | 1,04,29,720 |
| East Indian | 3,38,59,589 | 3,88,91,105 |
| Eastern Bengal | 1,76,78,409 | 1,83,73,337 |
| Great Indian Peninsula | 4,76,35,884 | 4,61,55,542 |
| Bengal and North-Western | 58,60,948 | 62,36,753 |
| Madras and Southern Mahratta | 1,75,32,252 | 1,88,11,356 |
| Nizam's Guaranteed State | 42,43,019 | 46,33,073 |
| North Western | 4,60,59,848 | 5,17,53,929 |
| Oudh and Rohilkhand | 78,57,328 | 95,72,871 |
| Rohilkund and Kumaon | 13,93,327 | 13,58,989 |
| South Indian | 1,30,04,503 | 1,37,64,901 |
| TOTAL | 26,68,02,862 | 28,90,20,439 |

No particular object would be served by attempting to trace the particular reasons which have led to the increase on individual lines. In some cases the apparent decrease in cost is due to the fact that last year's figures were unduly inflated by the payment of heavy arrears consequent on improved scales having been introduced with back effect.

36. During the year under review, agitation amongst the staff developed **Strikes.** into actual strikes of a more or less serious nature on the following lines:—

1. Assam-Bengal Railway.
2. East Indian Railway (on two occasions).
3. Great Indian Peninsula Railway.
4. Rohilkund and Kumaon Railway.
5. Bombay, Baroda and Central India Railway.

The most important strikes were those which occurred on the Assam-Bengal and East Indian Railways. From the evidence collected the causes appear in both cases to have been only remotely if at all connected with any actual grievance of the staff against the administration. The object of the outbreak on the Assam-Bengal Railway was to bring pressure on Government to repatriate tea garden coolies in Sylhet. The men on the East Indian Rail-

way struck work without warning. The cause was an alleged assault by a European shunter and a European fireman on an Indian fireman. The Assam-Bengal Railway strike lasted from 25th May 1921 to 31st August 1921, and those on East Indian Railway from 19th December 1920 to 6th January, 1921 and from 2nd February 1922 to about the middle of April 1922. Apart from the inconvenience caused to the traders and the general public, the loss caused by these strikes both to the Government (and through them to the taxpayer) and the employés themselves was very heavy.

Since the close of the year under review, Government have had under consideration measures which will, it is hoped, provide a medium for impartial consideration of the grievances of the staff, and it is sincerely to be hoped that the result of these measures and the pressure of public opinion may conduce to discourage the increasing tendency to this form of agitation which has formed such an unwelcome feature in the last year's record.

CHAPTER V.

RAILWAY MATERIALS.

(See Appendix 22 of Volume II.)

37. The value of materials purchased by Indian Railways in 1921-22 (excluding coal, coke, stone, bricks, lime, ballast, etc.) reached the record total of Rs. 38.61 crores which represents an advance of Rs. 8.35 crores beyond last year. The objects on which the money was spent and the sources of purchase are shown in the following summary :

Value of
Railway
materials.

| Class of Materials. | VALUE OF IMPORTED MATERIALS. | | | Value of indigenous materials. | Total purchases. |
|---|------------------------------|---------------------------------|---------------------------|--------------------------------|------------------|
| | Purchased direct. | Purchased through Indian Firms. | Total imported materials. | | |
| | Rs. crores | Rs. crores. | Rs. crores. | Rs. crores. | Rs. crores. |
| 1. Rolling-Stock | 13.04 | 6.62 | 13.66 | 1.53 | 15.19 |
| 2. Tools and Stores | 2.11 | 6.14 | 8.25 | 5.09 | 13.34 |
| 3. Permanent-Way | 2.13 | 5.57 | 2.70 | 3.95 | 6.65 |
| 4. Electric plant | 58 | 35 | 93 | 02 | 95 |
| 5. Bridge Work | 92 | 03 | 95 | 01 | 96 |
| 6. Workshop machinery, etc. | 54 | 12 | 66 | 5 | 60 |
| 7. Building and station materials and fencing | 27 | 23 | 50 | 12 | 62 |
| 8. Engineer's plant | 13 | 10 | 23 | 01 | 24 |
| TOTAL | 19.72 | 8.16 | 27.88 | 10.73 | 38.61 |

The first point of interest which will be noticed in these figures is that something over two-thirds of the expenditure is represented by materials of foreign origin. The main reasons which necessitate these proportionately heavy purchases abroad were explained in last year's report and the analysis of expenditure given above shows that these reasons were particularly applicable to the heavy transactions of the year under review. Of the imported total nearly half is represented by the one item Rolling-Stock.

38. Until a few years ago, India's capacity to supply her own rolling-stock was practically negligible, and even now the output is small and has hitherto been regrettably uncertain. It is, however, satisfactory to note that even under this head, a good beginning has been made and over Rs. 1½ crores were spent in the country. Of the imported articles, engines and the spare parts of coaching and goods stock formed the major portion, no less than Rs. 6 crores having been spent on the former and over Rs. 4½ crores on the latter item.

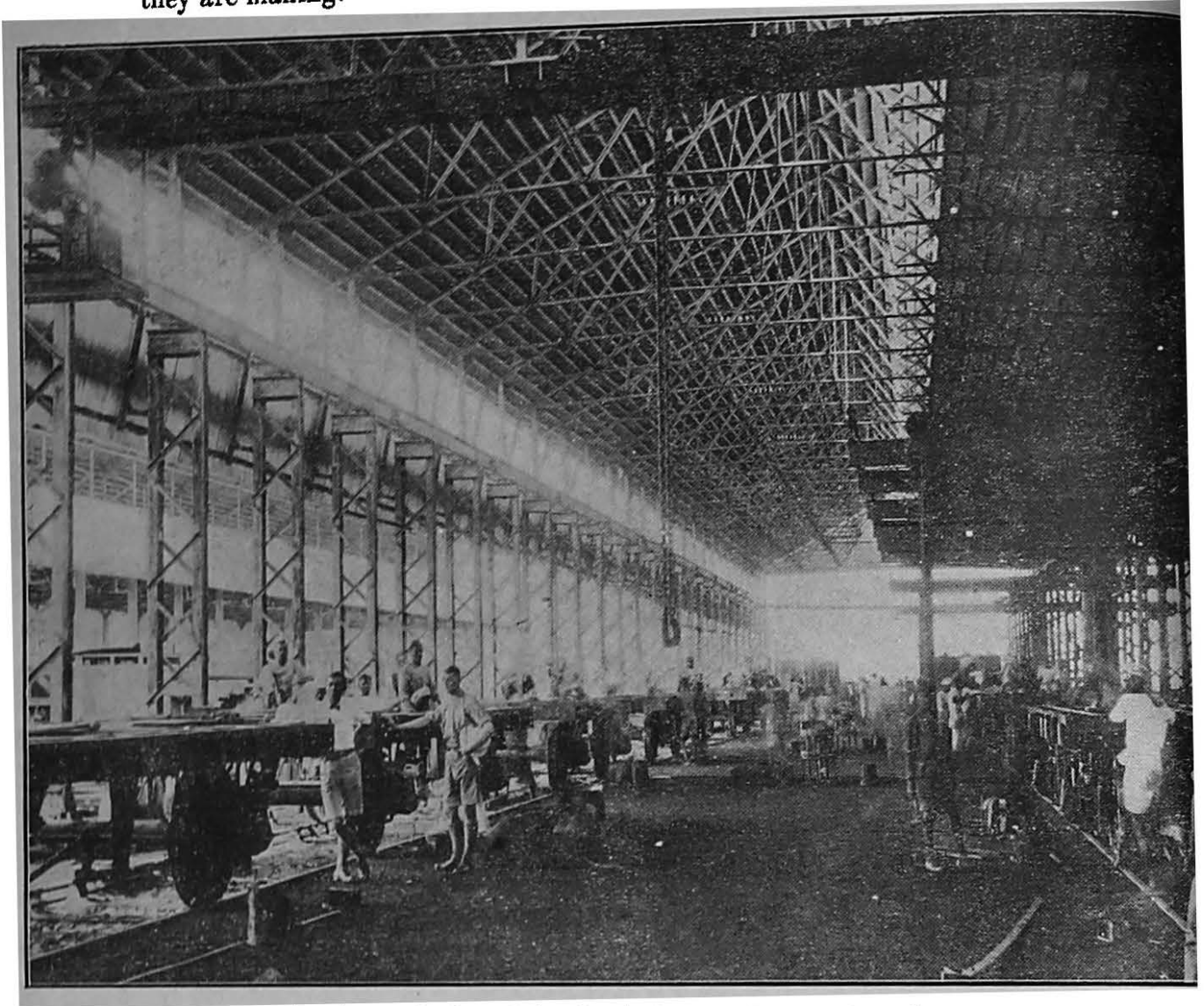
Supply of
Rolling-Stock.

39. As mentioned above, the capacity of the existing private wagon constructing shops is still limited, but although the actual output from this source has for various reasons been small, progress is being made and it is hoped that India's deficiency in this matter is now in a fair way to be made good. As this matter is of particular interest to those who desire—and quite

Indian
Standard
Wagon
Company's
Works.

rightly—to see India independent of foreign supplies in this respect, some information on this subject may be of interest.

By the courtesy of the Indian Standard Wagon Company, which is one of the latest firms to start in this business, the Railway Board are enabled to publish an illustration and details which give some indication of the progress they are making.



An erecting bay—Indian Standard Wagon Company, Asansol.

The works of this Company are situated near Asansol. The area of land occupied by the works and quarters is about 110 acres of which the works occupy 38 acres. The covered portion of the works has a total area of 274,754 square feet.

The works are designed for an output of 3,000 wagons a year and include plant for manufacturing from the raw material every item on the wagon except wheels and axles. The works include stamp and press shops completely fitted with modern powerful machinery, spring shops, smithy and machine shops, etc., all equipped with the latest types of machine tools. All of the shops are fitted with electric-overhead travelling cranes and other modern conveniences. It is hoped that works of this class will be able to supply India with wagons which will compete both in price and quality with the foreign article, and on this their success must depend.

Erection of
loco. Engines
in India.

40. In respect to engines, India has so far no facilities at all. In the year under review, the first step in this direction was however taken. In October 1921, Government gave the general undertaking that tenders would

be invited annually in India for all the railway locomotive engines and boilers required by Government during the 12 years commencing with 1923. The first tender was invited on 15th October 1922 and the following general conditions were prescribed :—

- (a) The invitation to tender was to be published simultaneously in India and in England.
- (b) The quality of the locomotive engines offered must satisfy in every respect the specifications laid down.
- (c) The price in the case of tenders made in India must compare not unfavourably with that of the imported articles.
- (d) Tenderers in India must satisfy Government that an appreciable part of the manufacturing would be done in India.
- (e) Manufacturers receiving orders in India would be expected to provide facilities in their works for the training of a limited number of Indian technical students, and where such firms have their main works outside India or are subsidiary companies promoted by or closely connected with firms which have their main works outside India, they would be expected to provide thereat similar facilities to students recommended by the High Commissioner for India in London.

As a result of this announcement, it is understood that at least one firm is erecting works for locomotive manufacture and it is hoped that next year's report may be able to record some progress in the direction of making India independent in this important matter.

41. Next to rolling-stock, the most important head of purchase is the comprehensive one of tools and stores. Of the total against this head, Rs. 2.11 crores represented the value of materials imported direct, Rs. 6.14 crores the value of imported stores purchased in India and Rs. 5.09 crores the value of articles manufactured in India. It will be noticed that direct foreign purchases were comparatively small, mostly for miscellaneous stores which are not procurable in India.

Supply of Railway Tools and Stores.

42. On rails and sleepers a total sum of Rs. 6.65 crores was spent; of this 2.82 crores represented the value of rails and fastenings and Rs. 3.83 crores the value of sleepers. Rails and fastenings worth Rs. 1.19 crores were manufactured in the country and materials worth Rs. 1.63 crores were imported from abroad. A reference was made in the last report to the valuable assistance in this respect which has been rendered to railways by the enterprise of Messrs. Tata and Sons with their steel works which now supply the majority of the rails used on Indian railways besides a great quantity of other engineering material. The steady progress made in this respect will be evident from the figures below :—

Rail supply.

| Year. | Value of rails and fastenings manufactured in India. |
|---------|--|
| | Rs. crores. |
| 1915-16 | .19 |
| 1916-17 | .47 |
| 1917-18 | .09 |
| 1918-19 | .58 |
| 1919-20 | 1.02 |
| 1920-21 | .74 |
| 1921-22 | 1.19 |

Sleeper
Supply.

43. As regards sleepers, Rs. 2.65 crores represent the cost of wooden sleepers and Rs. 1.19 crores the cost of metal sleepers. With the exception of a small purchase of creosoted pine sleepers, State-worked railways managed with local supplies, but the Company-worked railways found it necessary to supplement their local purchases with about 3 lakhs of sleepers from America and Australia. The expenditure on wooden sleepers of indigenous origin purchased in recent years has increased considerably, and in 1921-22 a figure of Rs. 2.35 crores was reached. To some extent this heavy expenditure is due to rise in prices, the ordinary price of a broad gauge sleeper having risen to about Rs. 8 which is nearly double the pre-war rate.

Metal sleepers worth Rs. 77 lakhs were imported and similar sleepers to a value of Rs. 42 lakhs were manufactured in India. The Great Indian Peninsula Railway obtained cast iron sleepers of the value of Rs. 68 lakhs from abroad. The Bengal-Nagpur Railway imported steel sleepers worth some 8 lakhs of rupees.

Railway
Industries
Committee. |

44. From what has been stated in the preceding paragraphs, it will be apparent that a start has been made in the matter of establishment of railway industries. Further efforts in this direction must depend mostly on private enterprise. This matter was thoroughly considered by the Stores Purchase Committee whose report was published in 1920. A further impetus to the question was given by the discussion in the Legislative Assembly which took place in March 1922 on the late Sir Vithaldas Thackersey's resolution on the subject. After discussion the Assembly passed the following resolution:—

“That this Assembly recommends to the Governor General in Council that a Committee consisting of the members of the Indian Legislature be appointed to consider and report at an early date as to what steps should be taken by the Government of India to encourage the establishment of the necessary industries, so that as large an amount as possible of the Rs. 150 crores proposed to be set aside for the rehabilitation of railways during the next five years be spent in India and further to advise the Government of India in regard to the revision of the Indian Stores Rules.”

In accordance with this resolution, a Committee under the presidency of the Hon'ble Mr. C. A. Innes was appointed to consider the question further. Two meetings of this Committee were held in the month of March 1922. A number of points connected with the encouragement of Indian Railway Industries were discussed, and the revision of the Stores Purchase Rules was thoroughly gone into by the Committee. Further discussion on the subject has been held over pending consideration of the Indian Fiscal Commission's report which has recently been published.

Importance
of indigenous
Supplies.

45. There is one important point in respect to this matter which must not be lost sight of. If railways are to be worked economically in the best interests of the tax-payer, it is essential that they shall buy their material in the cheapest market. Prices in England and other countries have fallen and are falling rapidly, and if Indian-made materials are to take the place of supplies from abroad, it is essential that they shall be able to keep pace with this tendency. If this difficulty can be surmounted, there is no doubt that

Indian Railways will derive very important financial and administrative advantages. To mention only one point. The stores balances on State-owned Railways were valued at the end of 1921-22 at the very large sum of Rs. 23 crores. It is probable that measures now being taken will enable this to be largely reduced, but even so the balance which it is absolutely unavoidable to retain in reserve will be very regrettably large and must remain so until the enterprise of India's own manufacturers can put the country in a position to be independent of sources of supply 6,000 miles away.

46. As stated at the beginning of this chapter, the figures so far given exclude from consideration fuel and some other materials such as bricks, lime, etc., which are usually purchased and charged direct to works concerned. Most of these latter articles have for some years been purchased locally, and there is nothing of particular interest to be said about them. But the question of fuel on which railways depend for their existence has now become a matter of very great concern in view of the unprecedented rise in working expenses for which it is largely responsible. Fuel.

47. The increase in the expenditure on coal by railways in recent years is attributable to the combined result of several distinct factors which have operated in very different degrees on different administrations. It is, therefore, somewhat difficult to give a general review of the causes which will furnish a complete explanation of local variations. The statement below gives the figures for the principal railways for the last 4 years. Expenditure on fuel.

| Railways. | Expenditure in crores of rupees. | | | | Fuel consumed in millions of tons. | | | | Train-miles in millions. | | | |
|-----------------------------------|----------------------------------|-------------|-------------|-------------|------------------------------------|-------------|-------------|-------------|--------------------------|---------------|---------------|---------------|
| | 1918-19. | 1919-20. | 1920-21. | 1921-22. | 1918-19. | 1919-20. | 1920-21. | 1921-22. | 1918-19. | 1919-20. | 1920-21. | 1921-22. |
| North Western | 1.11 | 1.20 | 1.34 | 2.45 | .95 | .98 | 1.07 | .99 | 22.75 | 22.24 | 19.68 | 20.83 |
| Great Indian Peninsula. | 1.00 | 1.21 | 1.19 | 2.25 | 1.18 | 1.21 | 1.19 | 1.17 | 23.08 | 23.88 | 23.42 | 22.32 |
| Bombay, Baroda and Central India. | .75 | .84 | .84 | 1.45 | .57 | .61 | .65 | .62 | 16.73 | 17.46 | 18.46 | 17.71 |
| Madras and Southern Mahratta. | .44 | .40 | .55 | .83 | .46 | .45 | .46 | .45 | 12.16 | 12.00 | 12.23 | 13.50 |
| South Indian | .37 | .42 | .52 | .80 | .30 | .28 | .29 | .31 | 7.50 | 8.15 | 8.80 | 9.31 |
| East Indian | .27 | .29 | .34 | .51 | 1.08 | 1.07 | 1.08 | 1.03 | 26.01 | 26.17 | 26.93 | 24.05 |
| Burma | .31 | .34 | .43 | .46 | .22 | .26 | .24 | .24 | 5.78 | 6.37 | 6.46 | 6.41 |
| Eastern Bengal | .18 | .22 | .23 | .30 | .29 | .31 | .33 | .35 | 7.43 | 7.96 | 8.29 | 8.04 |
| Bengal-Nagpur | .17 | .19 | .19 | .25 | .52 | .54 | .54 | .58 | 11.44 | 12.10 | 12.00 | 12.09 |
| Oudh and Rohilkhand. | .14 | .17 | .16 | .22 | .20 | .21 | .21 | .23 | 5.99 | 6.19 | 6.23 | 6.38 |
| Bengal and North-Western. | .11 | .11 | .11 | .13 | .15 | .15 | .14 | .14 | 6.04 | 5.07 | 5.92 | 6.06 |
| Assam-Bengal | .06 | .07 | .08 | .07 | .05 | .06 | .06 | .05 | 2.17 | 2.43 | 2.49 | 2.00 |
| Rohilkund and Kumaon. | .03 | .03 | .03 | .04 | .03 | .03 | .03 | .04 | 1.14 | 1.09 | 1.06 | 1.13 |
| TOTAL | 5.03 | 5.67 | 6.01 | 9.76 | 6.00 | 6.16 | 6.29 | 6.20 | 148.22 | 151.60 | 151.05 | 148.83 |

Considering totals only, the expenditure on fuel has risen from Rs. 5.03 crores in 1918-19 to Rs. 9.76 crores in 1921-22 and the budget figure for 1922-23 is Rs. 10.02 crores. Roughly speaking, therefore, the expenditure has nearly doubled, though the quantity consumed and the train-miles have but slightly increased.

48. It is, therefore, obvious that the main factor responsible for the increase is the rise in price to which a reference is made in the chapter on working expenses. Rise in price of coal.

The statement below compares the contract prices of various classes of Indian Coal prevailing in the years 1918-19, 1921-22 and 1922-23 :—

| Classes of coal | CONTRACT PRICES PER TON | | | | | |
|---------------------------------|-------------------------|-------|---------|-------|---------|-------|
| | 1918-19 | | 1921-22 | | 1922-23 | |
| | Rs. | A. P. | Rs. | A. P. | Rs. | A. P. |
| Deshergarh | 6 | 0 0] | 7 | 8 0 | 11 | 0 0 |
| Selected Jherriah | 5 | 0 0 | 6 | 4 0 | 9 | 8 0 |
| First Class RaneeGANJ | 5 | 4 0 | 6 | 8 0 | 9 | 8 0 |
| First Class Jherriah | 4 | 12 0 | 6 | 0 0 | 8 | 12 0 |
| Second Class Jherriah | 3 | 8 0 | 4 | 12 0 | 6 | 8 0 |

It will be noticed that the prices have almost doubled in the last four years. But there is another factor which had an important bearing in last year's expenditure, *viz.*, the threatened shortage of supply and the consequent necessity of purchase of expensive foreign coal, the price of which varied between £2-14 and £3-16 per ton delivered in India. These few facts give a very ample explanation of the rise which has taken place in the aggregate expenditure on fuel for railways. But as already mentioned, there are other factors which account for the widely different scale of expenditure on different administrations.

**Analysis
of fuel
expenditure
by railways.**

49. Taking the individual railways, the North Western Railway spent last year about Rs. 2½ crores on fuel which represents one-fourth of the total expenditure on all railways. This railway is situated at a considerable distance from the Bengal and Bihar coalfields and has consequently to carry coal over long distances. An idea of the difference in cost of coal on this railway and on the East Indian Railway will be gathered from the fact that the average cost per ton including freight, etc., from pit's mouth to engine shed was Rs. 17.23 on the North Western Railway against Rs. 7.19 on the East Indian Railway. In the year under review, the North Western Railway had to use imported coal obtained from Africa, Japan and England to the extent of 277,275 tons which represents about two-fifths of the total foreign coal used on railways. This accounts for the abnormal rise in expenditure on fuel on this railway.

The Great Indian Peninsula Railway spent Rs. 2¼ crores on fuel. The quantity consumed was proportionately large, owing to Ghat Sections. The traffic carried was also heavy, the train-miles being the largest of all railways excepting the East Indian Railway. The Great Indian Peninsula Railway consumed 196,981 tons of foreign coal which was imported from Africa, Australia, China and England.

The Bombay, Baroda and Central India Railway's expenses on fuel amounted to about Rs. 1½ crores which was almost double the amount spent in 1918-19. The amount of foreign coal consumed on this railway was 144,734 tons which was obtained from Africa and Great Britain. The average cost per ton of foreign coal issued on the broad gauge section was about Rs. 49 against Rs. 21 for Indian coal.

The Madras and Southern Mahratta and the South Indian Railways suffer from the same disadvantage as the North Western Railway in being

situated at some distance from the coalfields and have consequently to pay heavy amounts for freight. The average cost per ton of Indian coal issued on these railways was Rs. 22 (Rs. 17 in the case of the metre gauge section) and Rs. 29 (Rs. 31 in the case of the metre gauge section), respectively, against Rs. 7.33 on the Bengal-Nagpur Railway 5' 6" gauge. These railways also had to use imported coal to the extent of 88,098 tons at an average issue price of Rs. 44 (Rs. 42 in the case of the metre gauge section) and Rs. 50 a ton, respectively.

The East Indian and the Bengal-Nagpur Railways are in the fortunate position of being situated in the principal coal-producing areas in India and their expenses on fuel are therefore much smaller. The East Indian Railway had to spend only half a crore of rupees and the Bengal-Nagpur Railway a quarter of a crore. The train-miles on the East Indian Railway were the largest of all railways in India and the consumption of coal was also the largest excepting the Great Indian Peninsula Railway.

The Eastern Bengal, Bengal and North-Western, Oudh and Rohilkhand, Rohilkund and Kumaon and Assam-Bengal Railways, being situated comparatively close to the coal areas, also share in the low prices of coal, the average cost per ton issued on these railways being Rs. 8.86 (Rs. 12.29 in the case of the metre gauge section), Rs. 11.60, Rs. 12.41, Rs. 13.50 and Rs. 15.64, respectively.

The Burma Railways obtained its coal supply from Wales and Bengal, the average issue price being Rs. 38.61 and Rs. 29.09 per ton, respectively.

Apart from these particular causes of variations which are special to each administration, the relative consumption is affected by the gradients of the line and the class of traffic dealt with. The great variations due to these causes are shown in the diagram which gives the average consumption of coal per 1,000 ton-miles. Generally speaking, however, there has been an apparent slight rise in the amount of fuel consumed per train-mile which in 1920-21 was 93.29 lbs. and in 1921-22 had increased to 93.31 lbs. This is probably attributable to the increased amount of inferior Bengal coal used and greater weight of trains.

50. So far we have dealt only with the consumption and may now turn to the question of supply. The summary below shows the total coal mined in India and the proportion consumed on railways:—

Coal supply.

| Year. | Coal mined in India. | Indian coal consumed by locomotives on Indian railways. |
|----------------|----------------------|---|
| | Tons. | Tons. |
| 1919 | 22,628,037 | 6,055,492 (1919-20) |
| 1920 | 17,962,214 | 6,287,068 (1920-21) |
| 1921 | 19,265,916 | 5,478,902 (1921-22) |

The decreased output of collieries is reported to be due to labour shortages, flood and cholera; it is also due to the shallower portions of some of the mines having been exhausted and the deeper areas not having yet been opened up. India requires an ever increasing supply of fuel for her rising industries and consequently the deficiency in the indigenous output had to be made good from foreign sources.

In the year preceding the war, about 300,000 tons of foreign coal were used on Indian railways. In the year 1920-21, the consumption of this class of coal was a negligible quantity, being 586 tons only. In the year under review, no less than 710,066 tons of foreign coal were consumed on railways. The railways were not alone in purchasing foreign coal. Other industrial concerns had to follow the same course. The total quantity of foreign coal imported into India and the proportion consumed on railways is shown in the summary below:—

| Year. | COAL IMPORTED. | | | Foreign coal consumed by railways. |
|-------------------|----------------------|-----------------------|-----------|------------------------------------|
| | From United Kingdom. | From other countries. | Total. | |
| | Tons. | Tons. | Tons. | Tons. |
| 1919-20 | 8,410 | 31,247 | 39,657 | 860 |
| 1920-21 | 9,973 | 77,023 | 86,996 | 586 |
| 1921-22 | 811,085 | 1,067,475 | 1,878,560 | 710,066 |

These figures form a useful commentary on the statements which have sometimes been put forward that railways have utilised their position as carriers to appropriate an undue share of the indigenous supply in preference to adopting the unwelcome alternative of buying their share of the expensive foreign coal.

From the facts and figures given in the preceding paragraphs one important conclusion emerges. The present output of Indian coal is barely sufficient for her needs and necessity therefore arises to open up new coalfields and to economise in the use of coal and measures which will conduce to such economy and to enlargement of supply have now assumed particular importance. In order that all possible avenues of economy may be explored, Fuel Saving Committees have been restarted on most lines. The use of oil as an alternative fuel was referred to in the last report and possibly this may in the future give some relief. But with the increasing demands which must follow industrial development, it is improbable that these measures can serve to afford the necessary measure of relief, and it is therefore of the first importance that means should be found to increase the available supply.

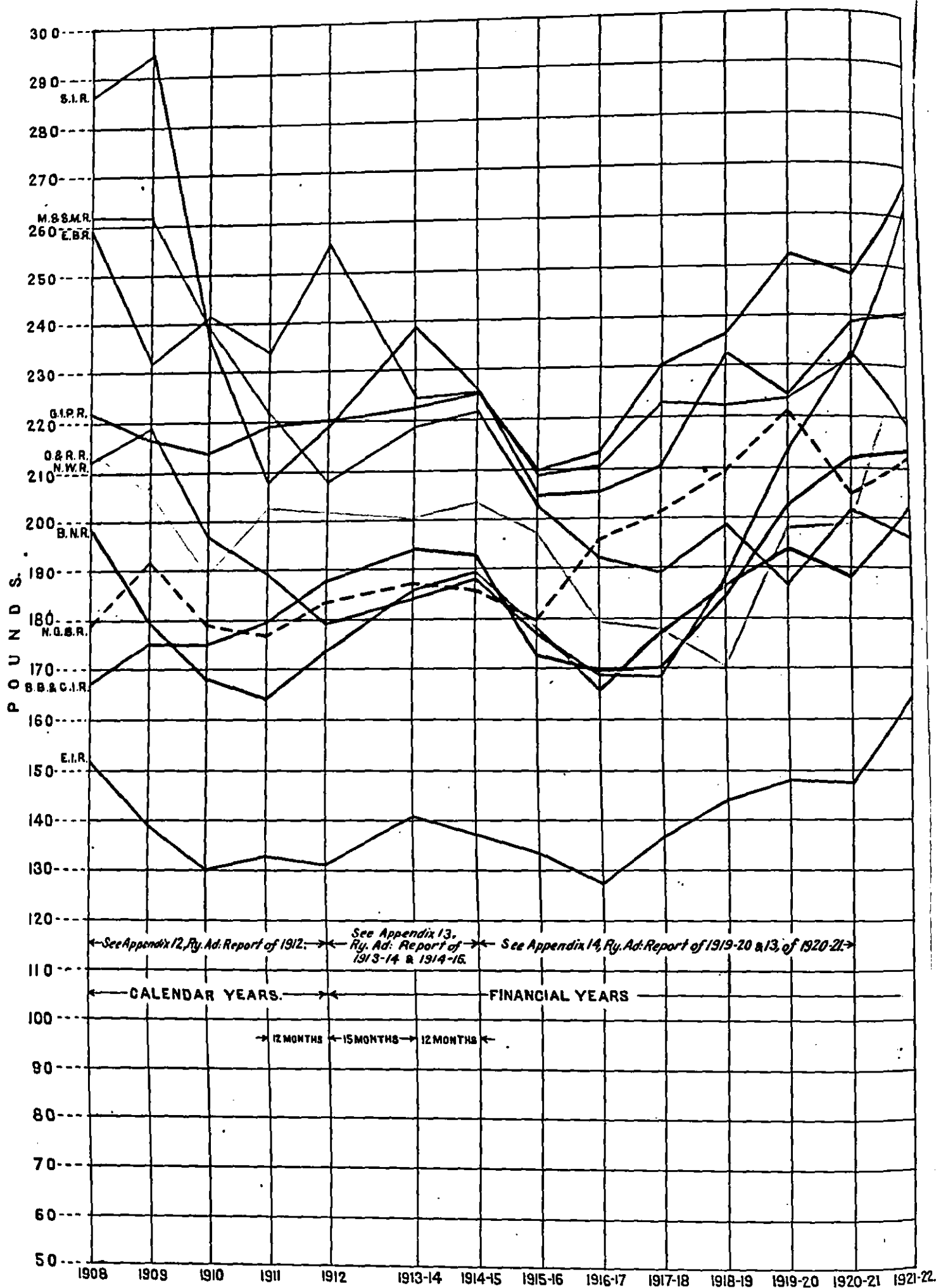
Railway Collieries.

51. In order to attain this object and at the same time to give railways an assured supply of their own, the policy of starting new collieries by railway agency has a great deal to recommend it. In the last Administration Report it was stated that seven such collieries were already being worked by railways. During the year under review steps were taken to acquire further property for the purpose.

For the three State-worked railways it is proposed to acquire a colliery in the Karanpura Coalfield, and prospecting surveys have been undertaken for proving coal and determining the areas to be purchased.

Prospecting work is also in hand in East Bokharo and Karanpura with a view to the acquisition of a colliery for the joint use of the Bombay, Baroda and Central India Railway and the Madras and Southern Mahratta Railway.

FUEL CONSUMED PER 1000 GROSS TON MILES ON ALL BROAD GAUGE RAILWAYS IN INDIA.



The Bengal-Nagpur Railway Company too are carrying out prospecting surveys in the Talchir and South Karanpura coalfields.

52. Apart from this alternative, very important assistance can be rendered in the direction of increasing available sources of supply by improving transportation facilities without which new collieries cannot be opened up or worked profitably. It is therefore urgently necessary that the possibilities of constructing lines shall be considered to serve areas where the coal has been proved to exist. A good instance is that of the Talchir Coalfield where the coal is said to be as good as in the Jherriah field and great developments are anticipated when railway communication has been established, and for this purpose it has been decided to construct the Cuttack-Talchir Railway, a length of 65 miles, at an estimated cost of Rs. 81 lakhs. Another important coal line that the Bengal-Nagpur Railway propose to construct is the Hesla-Chandil Chord. This line is intended to relieve congestion of coal traffic on existing lines. An extensive survey of possible lines to serve the Karanpura coalfield is now being made with a view to the most suitable routes for development of this area being determined in order that these lines the construction of which is so urgently required in the general interests may be taken in hand as soon as circumstances permit. **Coal lines.**

Lastly, there is much to be done in the matter of improving facilities in the existing coalfields and special attention has been devoted to this aspect of the difficulty in the programmes of the lines concerned.

CHAPTER VI.

ROLLING-STOCK.

(See Appendices 16, 17, 18 and 19 of Volume II.)

Public
interest in
stock.

53. Judging from the columns of the public press the question of the sufficiency of rolling-stock continues to take precedence of all other railway matters in point of public interest, and it is perhaps only natural that this should be so, since short-comings in this respect are matters in which the public are very directly interested. It is, however, unfortunately the case that this subject is in actual practice one of considerable technical complication and most of the simple panaceas which are put forward with so much confidence are impracticable of adoption. Some explanation of this aspect of the matter will be given later on in this chapter.

Number and
cost of stock.

54. Turning then first to the consideration of the facts of the actual position, Railways had when the year opened 9,365 engines, 24,951 coaching, and 201,194 goods vehicles. The additions made during the year were 378 engines, 289 coaching vehicles and 6,322 wagons, bringing the totals up to 9,743 engines, 25,240 coaching vehicles and 207,516 wagons. The table below shows the distribution of this stock on the railways according to their different gauges :—

| Gauge. | Engines. | Coaching vehicles. | Goods vehicles. |
|------------------|----------|--------------------|-----------------|
| Broad | 6,347 | 13,712 | 144,058 |
| Metro | 2,865 | 9,559 | 56,833 |
| Narrow | 531 | 1,969 | 6,625 |
| TOTAL . | 9,743 | 25,240 | 207,516 |

In addition to the above, there were also 137 rail motor cars in use on the railways. As stated last year, the major portion of these cars are used for inspecting purposes.

The total stock represented a value of 141 crores of rupees.

Facilities
for further
provision.

55. Though the actual rate of progress in adding to our stock of engines and vehicles does not show any very great improvement over the previous year, there are several favourable features in the position which augur well for the future. Firstly, India's capacity to manufacture her own stock is improving and some details in regard to extension in this direction have already been given in the previous chapter. Secondly, and apart from the prospective increase of indigenous supply of wagons, another very welcome change is very evident, namely the decrease in prices below the inflated level which followed the war period. Some of the latest orders in England have been placed at prices which compare very favourably with those which had to be paid twelve months ago. English built standard wagons have been obtained for something

in the neighbourhood of £340 compared with £750 quoted in last report. The price of engines has similarly fallen and the cost of a modern type powerful superheater engine has now reached the comparatively reasonable figure of £7,500 as against £11,000 mentioned in last report.

It is hoped that this tendency will continue as the result is to expand to a very appreciable extent the capacity for improvement represented by the funds at our disposal. The five years' programme as drawn up contemplates an addition of 942 engines, 6,699 coaching vehicles and 32,300 goods vehicles. These numbers were, however, based on a very high level of prices which were current when the programme was framed, and it now seems possible that for the above reason they may be very substantially improved upon.

56. Apart from numbers, the next point of interest is the question of improvement in type of stock. So far as engines are concerned, there is not much to report except that on the North Western Railway there were 151 engines fitted for oil burning, and the Karachi District is almost entirely run with this type of engine. The Great Indian Peninsula Railway Company also have now introduced a new type of oil burning passenger engine.

Improvements in type of stock.

In respect to passenger stock, the question of improvements is naturally one in regard to which the public take particular interest and many suggestions have from time to time been made in the press and in debates in the legislature especially in respect to the third class.

57. One of the most frequent proposals is for the introduction of corridor stock. This idea is of course not a novelty in India as stock of this type has at various times been tried on several lines. At present there is third class stock of this type on the Bombay, Baroda and Central India, Bengal-Nagpur, East Indian, Great Indian Peninsula, Oudh and Rohilkhand and South Indian Railways. The numbers are all small, and there is no information that any line is building more. Theoretically the corridor type may appear to give advantages, but in practice these are more than counterbalanced by the following objections:—

Corridor Carriages.

(i) *Insecurity.*—It was found necessary in 1910 to take off foot boards as a precaution against train thieves, as the corridor would provide a safe and convenient alternative for such people in the absence of train attendants. The female compartment would also be accessible.

(ii) *Loss of space.*—Any form of corridor involves waste of space. Similar sized coaches accommodate from 16 to 20 per cent. less passengers if fitted with corridors and cross seating in place of longitudinal seats.

(iii) *Practical difficulties in working.*

- (a) Corridors are found to be speedily clogged with bulky packages.
- (b) Delay both in loading and unloading owing to fewer doors and blocked corridors.
- (c) Difficulty in providing adequate latrine accommodation.
- (d) Added danger in accidents owing to fewer means of exit.
- (e) Inferior ventilation in most types.

58. Another variation which has its supporters is the fitting of cross seats in place of the longitudinal method hitherto adopted. Stock of this

Seats in carriages.

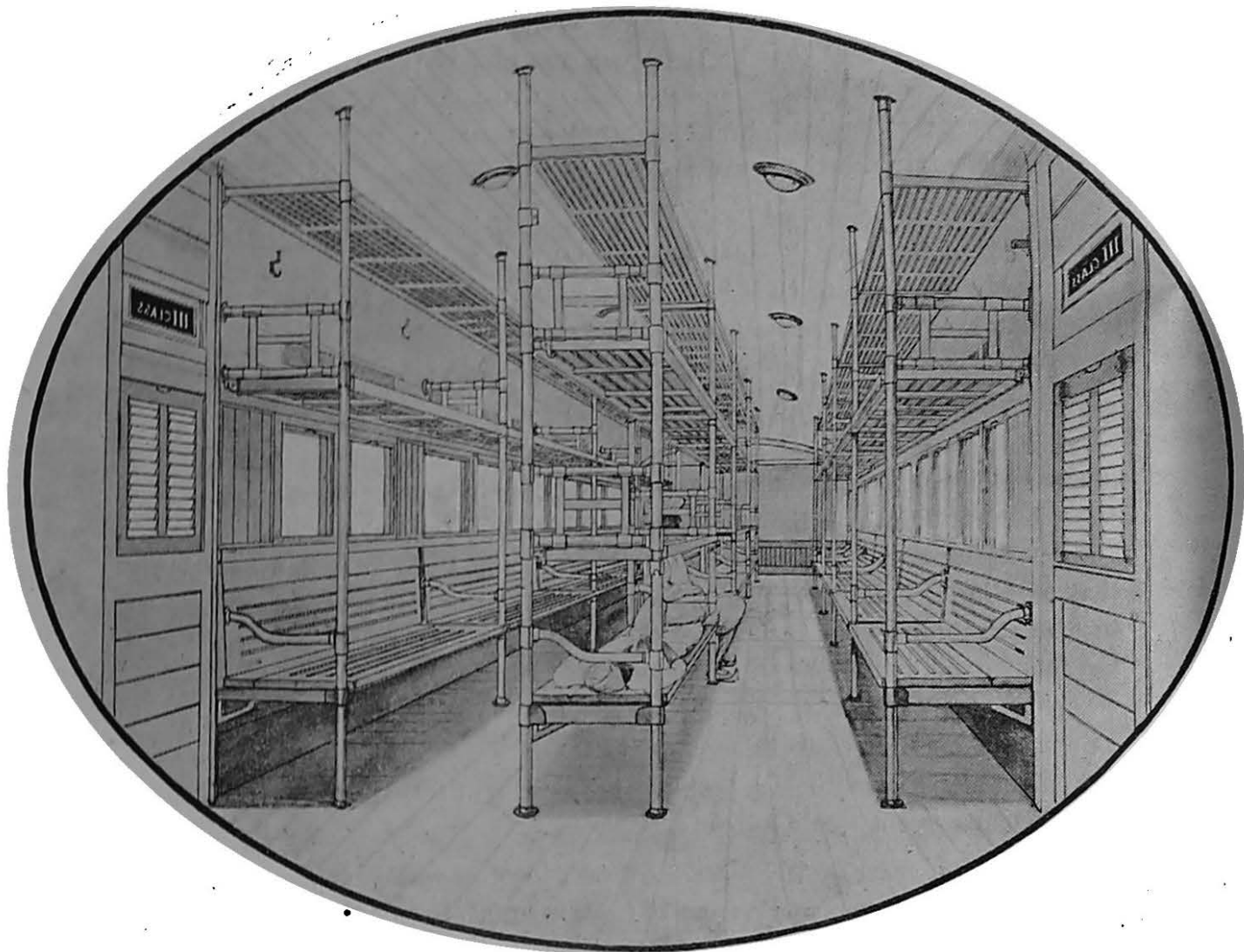
type is used for suburban traffic. Its drawbacks for long distance traffic are similar in many respects to those mentioned for corridor stock, *viz.*:—

- (i) Reduced seating accommodation owing either to alleyway up centre or side or to extra doors necessary.
- (ii) Latrine difficulty almost impossible of solution.
- (iii) Lying down accommodation impossible.

The advantages are very difficult to discover from the point of view of the passenger.

59. Other suggestions relate to the improvement of latrine accommodation, and it is hoped that in this matter a distinct advance will be made by the new type of third class carriage which is under trial on the Great Indian

Other
improvements.



Interior of an improved type of 3rd class carriage on the G. I. P. Railway.

Peninsula Railway. This carriage of which an illustration is given provides also, as will be noticed, additional accommodation and very much more leg room than was available in the previous types in use. In all such matters the drawbacks are often only apparent after considerable trial, and this type of carriage is therefore being experimentally used on one line at the outset.

As regards the provision of latrines, out of the total of 16,660 lower class coaches, 11,403 are at present provided with latrine accommodation, and all new stock except that intended for suburban service is being built with improved facilities in this direction. The alleged inaccessibility of the

latrines is at any rate partly due to the habits of the passengers who carry big packages with them and thus block the passages.

60. Another matter about which complaints are sometimes made is the insufficient lighting of carriages. The total number of vehicles suitable for lighting by gas or electricity at the end of the year 1921-22 was 23,240; of this 12,600 are fitted for lighting with gas and 8,877 with electricity and only 1,763 remain to be so fitted. The summary below shows the position in this respect with regard to the broad, metre and narrow gauge lines separately.

Lighting of
Trains.

| Gauge. | Gas lit Coaches. | Electric lit Coaches. | Coaches not yet fitted. | TOTAL. |
|------------------------|------------------|-----------------------|-------------------------|--------|
| 5'-6" | 9,730 | 2,457 | 529 | 12,716 |
| 3'-3½" | 2,535 | 5,528 | 833 | 8,896 |
| 2'-6" and 2' | 335 | 892 | 401 | 1,628 |
| TOTAL | 12,600 | 8,877 | 1,763 | 23,240 |

It will be noticed that on the broad gauge railways, 96 per cent. of the coaches have been provided with gas or electric lights, on the metre gauge railways, 91 per cent. of the coaches are so fitted and on the narrow gauge railways, 75 per cent. of the coaches are lit by gas or electricity.

The principal railways are now replacing gas with electricity. Improvement in this direction could not be made during the war owing to want of materials, but the deficiency is now being made good with all possible speed.

61. As regards goods stock, the outstanding drawback in the past has been the multiplicity of types in use on the various administrations which results in difficulties in the matter of interchange and through running, and especially in the matter of repairs. It will be recognised that in view of the different conditions of traffic on different lines a number of types is unavoidable. But it is also obviously uneconomical that individual railways, the whole of whose wagons are the property of Government, should be required to keep a stock of spare parts which suit their own administrations alone and cannot be used for general purposes. This question has received a good deal of consideration in the past and standard designs have been drawn up.

Standardisation of
wagons.

In July 1921, the Railway Board decided that it was desirable that the standard designs for broad and metre gauge wagons and carriage underframes should be revised in the light of criticisms received from various quarters, and in September 1921 the Indian Railway Conference Association appointed a committee to consider the views of the mechanical and the traffic officers of the different Indian Railways. The Committee had also to study the criticisms of three firms of consulting engineers as well as the builders of the sample vehicles in England and in India. After inspecting 14 types of vehicles for the broad gauge, 19 types of metre gauge sample vehicles and the 67' carriage underframes which were made in England and erected in Kanchrapara, they have now submitted their report in which they have recommended 39 types of vehicles including two petrol tank wagons, 2 cattle wagons and 2 explosive vans. The Committee have endeavoured to embody the best features of modern carriage and wagon design into vehicles which will serve as recommended standards of their respective types. The feature which they have principally studied is that referred to above, *viz.*, that renewable parts

such as axle boxes, drawbars, buffers, wheels, brake blocks, etc., should always be interchangeable between different types. This report was considered by the Indian Railway Conference Association at their meeting in October 1922.

Automatic coupling.

62. There is one other matter of a technical nature regarding stock which merits a word of mention. Reference was made in the report for 1919-20 to the question of the introduction of automatic coupling. This matter is of great importance in connection with ease in handling and also prevention of regrettable accidents which are inseparable from the existing arrangement. The automatic coupling is standard in America and is being introduced in Australia. The difficulty is of course in the transition stage when stock having two different types of coupling must simultaneously be utilized. In order to study the procedure adopted two officers were deputed to Australia in 1919-20. Since then information has been collected from American firms specialising in this business, but in order to avoid any possible mistake in this important matter and to ensure that the most suitable type is adopted, it will be necessary to send an officer to America to study matters on the spot.

Repairs to stock.

63. Before concluding this chapter, a word of mention is necessary in respect to the important question of repairs to stock. This item of expenditure is now exceptionally heavy, owing principally to the fact that a large number of carriages and wagons which have exceeded the limits of their useful life have had during the war period and since to be retained in use. Old stock of this class naturally needs constant attention, and the result is reflected in higher expenditure and heavier strain on repairing shops. At the end of 1921-22 railways showed 28 engines, 1,587 carriages and 4,711 wagons awaiting renewal and the amount spent on repairs had risen in the year under review to the large sum of Rs. 10.89 crores. It is obvious, therefore, that the work of repair which now falls on shops has increased to a very serious extent, and in addition it must also be borne in mind that the major portion of the erection of new stock and all the building of passenger stock has to be performed by railway agency. Consequently the question of adequacy of shop facilities and the supply of up-to-date machinery has assumed great importance.

Railway workshops.

64. During the year under review a considerable sum was spent on the equipment and extension of shops and stores buildings. It is proposed in the near future to build new shops or considerably improve the equipment of the existing shops on several railways and special mention may be made of the more important of the schemes in hand or in contemplation.

Trichinopoly shops, South Indian Railway.—The existing shops of the South Indian Railway at Negapatam have become incapable of dealing with the work. On grounds of convenience, economical handling and despatch, it has been decided to construct combined broad and metre gauge workshops for the South Indian Railway at Trichinopoly. The cost of the scheme is estimated approximately at Rs. 3½ crores. This will entail the conversion of the Erode-Trichinopoly branch to broad gauge which is estimated to cost Rs. 42 lakhs. Both the schemes have received the approval of the Secretary of State for India and commencement of work has been authorised.

Karachi shops, North Western Railway.—In view of the rapid development of Karachi as a port which will assume an even greater importance when the contemplated broad gauge connections to Agra and Bombay are

realised, and of the general development of traffic on the North Western Railway, it has been decided to construct an up-to-date and efficient locomotive carriage and wagon shop with a marshalling yard in the neighbourhood of Karachi. The whole scheme is estimated to cost approximately Rs. 336 lakhs. The requisite land is being acquired at present, and detailed estimates for the scheme are under preparation.

Dohad shops, Bombay, Baroda and Central India Railway.—The accommodation in the existing locomotive, carriage and wagon shops at Parel, Bombay, being inadequate, and any extension of the existing shops at Parel being found to be impracticable, owing to the congestion of the Bombay area, it is proposed to erect new workshops at Dohad station, 338 miles from Bombay, at an approximate cost of Rs. 200 lakhs.

Kanchrapara shops, Eastern Bengal Railway.—Considerable extensions are being made to the locomotive shops of the Eastern Bengal Railway at Kanchrapara. A new smithy and a foundry have been added in order to meet the immediate needs, but the inadequacy of the locomotive shops has long been recognised and a scheme is under preparation for carrying out extensions and improvements, the total cost of which is estimated at Rs. 42 lakhs approximately.

Khargpur shops, Bengal Nagpur Railway.—In the current year, four and a-half lakhs of rupees have been set aside for the extension of the electricity generating plant at Khargpur and one lakh of rupees for a similar purpose at Adra. Extensive developments are to take place at the Khargpur workshops within the next three years, as twenty-one lakhs of rupees are to be spent in improving the machinery and plant.

These represent only the larger schemes of extension, but in practically every railway shop in India it will be necessary in the near future to spend large sums of money on newer and more up-to-date plant and minor schemes of extension. It is, therefore, particularly important that this question of adequacy of shop accommodation and equipment shall not be lost sight of in judging of the possibilities for increase in the numbers of rolling-stock which it is hoped to make during the progress of the quinquennial programme.

CHAPTER VII.

REHABILITATION AND DEVELOPMENT.

(See Appendices 1, 2 and 3 of Volume II.)

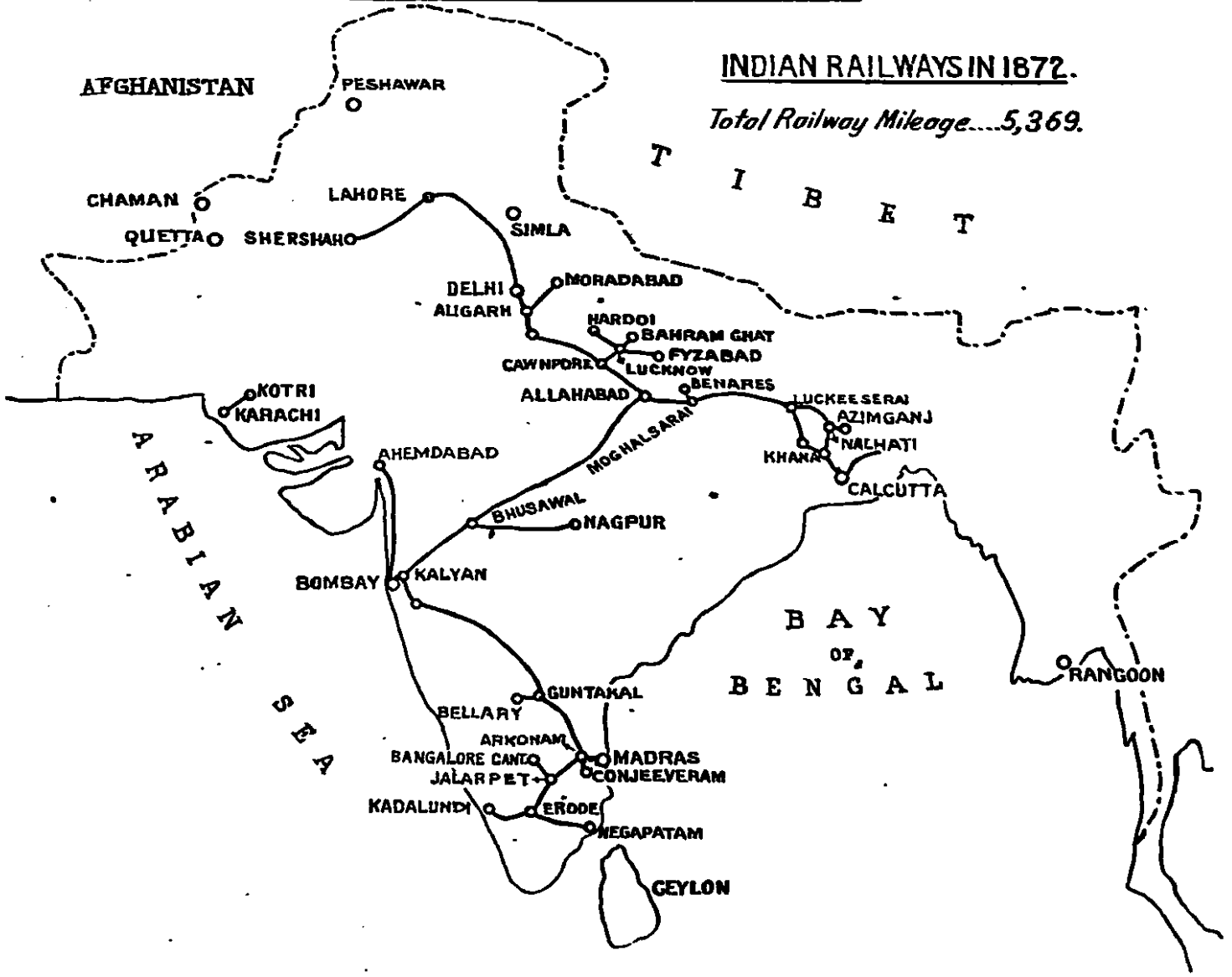
**Railway
development
during last
fifty years.**

65. In these days when everything pertaining to railways is subjected to a constant stream of criticism, it is important that the public shall occasionally look on the other side of the picture and give some recognition of what has been and is being accomplished in the way of development of facilities for railway travel in India. Speaking generally the present tendency seems to be to notice only the faults, to forget the difficulties involved in the remedy, and to neglect to recognise the many great improvements which have actually been made in recent years. For the benefit of those who are perhaps inclined to think that India's progress in this respect has been unduly slow, it may perhaps be helpful to look back on the conditions in India in this respect only fifty years ago. The two small maps which are reproduced in this issue will perhaps serve to illustrate better than any dull recital of figures the change that has come over India in the matter of railway communication since 1872, and a perusal of some of the old time tables relating to the period lends considerable colour to the picture. As an example the journey from Karachi to Delhi, a distance of 907 miles, is performed in these days in one continuous journey of about 36 hours. The experiences of the traveller of 1872 appear to have been much more varied. The single daily train started from Karachi at 9-15 P.M. and arrived at Kotri, a distance of 109 miles, at 6 A.M. next morning. There the line ended, and the travellers transferred to the Indus Flotilla steamer which ran to Shershab twice a month. No timings were quoted, and it was specially provided that the time of departure and speed depended on the state of the river. The distance was about 575 miles. At Shershab the passengers disembarked and proceeded again by train. From Shershab to Delhi the journey of 567 miles was performed in about 44 hours with a break at Beas where the river was unbridged and where passengers made their own arrangements to get to the opposite bank and rejoin the train. The total journey which occupied an indefinite time, cost the first class passenger Rs. 263-12-6 which included his food while on the steamer. The third class passengers who were not found in food or cabin accommodation, were transported for Rs. 26-3-9 which is about double the cost at the present day. This one instance may perhaps serve to illustrate some of the difficulties of travelling fifty years ago and the advance which has been made in the interim.

**Further
developments
contemplated.**

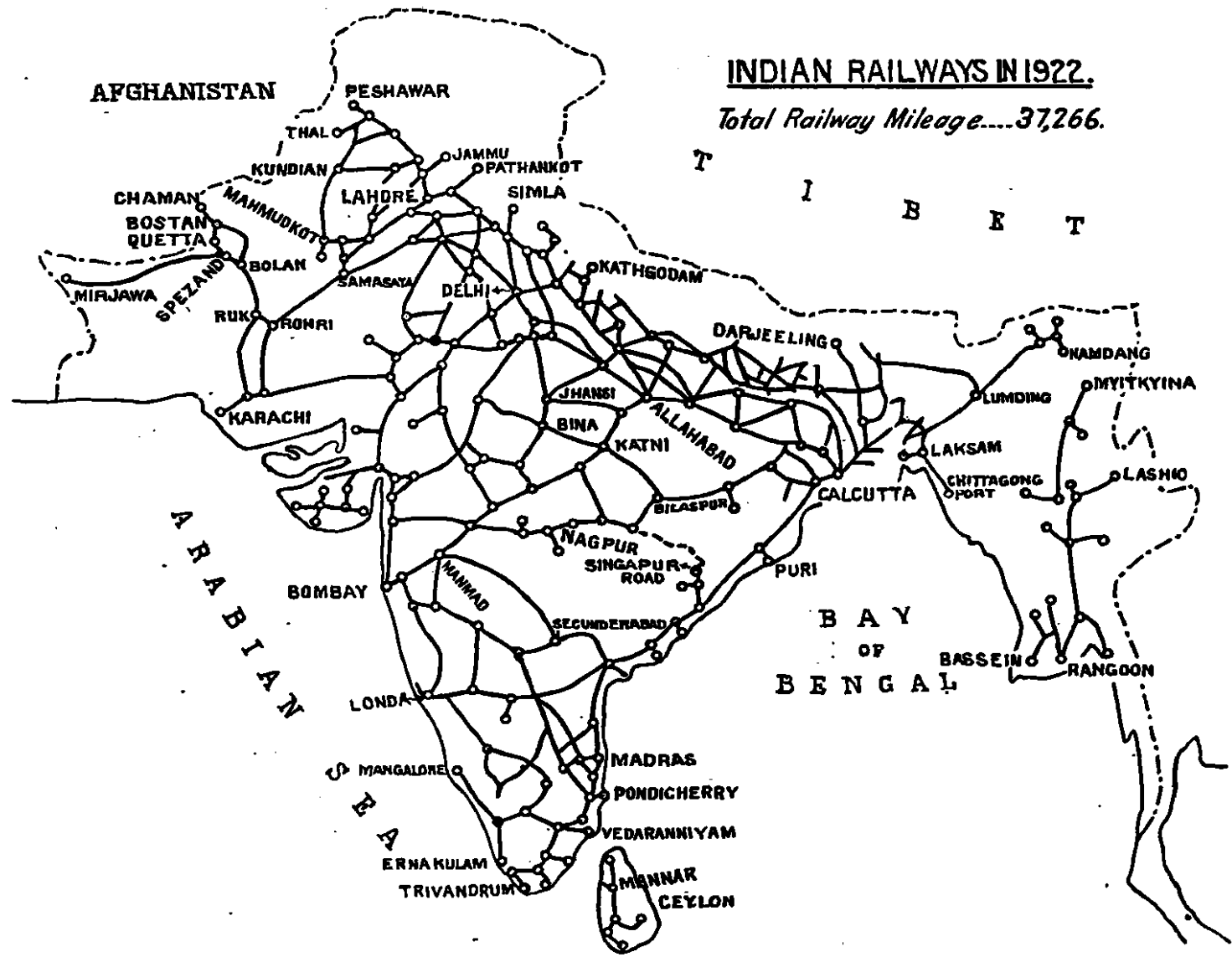
66. We may now turn from the past to the present and consider very briefly the further improvements which it is hoped to make in the near future. As already stated in the opening chapter of this volume, it has been decided by the Legislative Assembly on the advice of the Railway Finance Committee to spend a sum of Rs. 150 crores on the rehabilitation of railways in the five years 1922-23 to 1926-27, and the main purpose of this chapter is to furnish a brief outline of what has already been done with this object in the year under review and of what it is hoped to achieve by 1926-27. No mention will be made in this place of the question of stock as this subject has already been

— RAILWAY DEVELOPMENT. —



INDIAN RAILWAYS IN 1872.

Total Railway Mileage....5,369.



INDIAN RAILWAYS IN 1922.

Total Railway Mileage....37,266.

fully treated in chapter VI dealing with this subject. Apart from rolling stock the amount which is to be spent on other improvements in the five years amounts to Rs. 72 crores. Very great care is being exercised to ensure that this money shall be devoted in the first place to works which are of the first order of urgency in order that the greatest possible relief may be afforded within the quinquennium. It will, however, be recognised that the expenditure has necessarily to be spread over a very vast number of relatively small works, and it is impossible in this report to refer to anything beyond the most important on each line. Naturally of course the programmes as now described are only tentative and will be modified to suit circumstances if necessary as the work proceeds.

67. On the East Indian Railway, the most important consideration at present is the coal traffic, and with a view to deal satisfactorily with this problem extensive schemes are already in hand and more are contemplated. The main line starting from Calcutta is being quadrupled between Burdwan and Khana Junction, and the extension of a third line to Ondal is under consideration. From Ondal to Barakar the main line is being trebled, and, in places quadrupled. Large additions to the yards at Ondal and Asansol are in progress, while those at Borachuck, Kulti and Sitarampur will also be enlarged.

**East Indian
Railway.
Programme of
works.**

In the Jherriah coal-field, the line from Dhanbad to Phularitand is in course of being doubled, and extra yard accommodation is being provided at Dhanbad and at all the stations between Dhanbad and Katrasgarh. The recently opened Jeenagorah branch will provide additional facilities for the coal traffic and, in order to increase the usefulness of the railway in this respect, it has been decided to extend the yard at Pathardih.

These alterations and improvements with others in view, will provide for a greatly increased down traffic, which in turn will make for an accelerated movement of empty wagons from the northern and western directions. To deal with this increase in the movement of wagons from the north and west large works will be undertaken in the upper districts. The number of passing sidings on the Moghalserai and Allahabad sections is being added to, and it is probable that portions of the line between Allahabad and Tundla will be doubled.

New and large yards are being provided at Gya and Moghalserai and these improvements combined with the doubling of the Grand Chord, which will be pushed on as rapidly as possible, will provide the necessary facilities for the flow of empty wagons to the coal-fields.

Involved in the abovementioned schemes is the renewal of the girders of the Lower Sone bridge and the provision of a second track on the Upper Sone bridge—both engineering works of considerable magnitude, as these bridges are amongst the largest in India; and indeed the Upper Sone bridge is believed to be next to the Tay bridge in Scotland, the longest in the world.

The improvements so far mentioned are designed to provide further facilities for all classes of traffic. But the special claims of passengers and especially of third class passengers have not been forgotten. Additional refreshment rooms are to be made at Asansol, Patna, Gya, Allahabad and Tundla. A number of intermediate class waiting rooms are to be constructed and special waiting accommodation for third class female passengers at Jamalpur, Mokameh, Nawada, Katni and other stations has been provided for. A

regular annual programme of improvements to watering arrangements for passengers and extended facilities such as lighting and better latrine arrangements has been provided for.

**Bengal
Nagpur
Railway.
Programme
of works.**

68. On the Bengal Nagpur Railway improvements are mainly directed to making provision both for coal traffic and industrial development in the area served.

All the station yards between Khargpur and Howrah are to be remodelled at a cost of one and a-half crores of rupees. Four lakhs of rupees are to be spent on the alterations to Bhoojudih station, one lakh of rupees on improvements at Khargpur station; six and a-half lakhs of rupees on Tatanagar station; and sixteen lakhs of rupees are to be devoted to the carrying out of the improvements at Anara station.

In order to facilitate the coal traffic from the Jherriah coal-fields doubling the line from Anara to Kandra is now in hand. This is expected to cost 41 lakhs of rupees. The work, when completed, will enable the railway to deal more expeditiously with coal destined for Bombay, and more particularly for Tata's iron works at Jamshedpur. From Adra coal for Calcutta will come direct by the line *via* Khargpur, and coal for the Tata iron works will use the two "avoiding lines" at Anara and Kandra.

At Tatanagar station the alterations and improvements are with the object of meeting the needs of a growing industrial colony at Jamshedpur. Assisted sidings to serve the new industrial works either in operation or about to commence operations are in course of construction.

In conjunction with the doubling of the line between Anara and Kandra on the Sini-Anara line, a section one hundred and fifty miles long of the main line between Sini and Manharpur is to be doubled. This includes the Saranda Tunnel, which is half a mile long. Work is already in progress on the main line.

Particular regard has been paid to the comfort and convenience of third class passengers in the way of waiting shed accommodation, booking offices, zenana waiting rooms, drinking water supply and refreshment rooms. Provision has also been made for lengthening the existing platforms to enable the present passenger train rakes to be increased so as to reduce the overcrowding of trains.

**Eastern
Bengal
Railway.
Programme
of works.**

69. On the Eastern Bengal Railway the position is different to that of either of the other two lines radiating from Calcutta. This line is not concerned with coal, but has to deal with a dense general traffic besides providing specially for suburban passengers. Consequently the improvements necessary are of a more general character and individually smaller and take the form mostly of improving existing traffic facilities. One large work, however, the extension of the broad gauge from Santahar, the present terminus, to Parbatipur is in hand, and this will later have to be carried through to Siliguri, thus avoiding the present transshipping due to break of gauge on this route. This scheme involves extensive alterations and remodelling of yards especially at Parbatipur.

Water supply is a difficulty in many places and sinking of tube wells is to be undertaken at a number of stations.

On the main line, Sealdah to Siliguri, improvements include the construction of a waiting shed on the Up platform at Poradah. The Poradah-Paksey-

Santahar train control system is to be extended south to Ranaghat, where it will be linked with the Sealdah control system. Nattore is to be provided with a large covered shed on the Up platform. Besides minor improvements at Santahar extensive additions are in view at the locomotive workshops at Saidpur, where provision has also to be made for the erection of a power house for generating electricity for lighting and for supplying current to the workshops for driving machinery. This power house will also supply current for lighting the station and yard at Parbatipur. It is also proposed to increase the platforms and refreshment rooms at Siliguri and also the sheds to facilitate transshipment to the Darjeeling-Himalayan Railway. Arrangements are also to be made at Siliguri for using electricity for lighting and power.

On the east and west main line, Katihar to Amingaon, Katihar station yard will undergo considerable alterations vastly improving the facilities provided, and Katihar will have electricity for lighting and power. At Barsoi Junction an additional platform shed and further accommodation for third class passengers waiting for trains are to be provided. Arrangements are also to be made for supplying current for lighting and power at Lalmonirhat.

In the Calcutta area the entrance to the station yard at Sealdah is to be remodelled in order to facilitate shunting movements and avoid the delays now involved in bringing in trains. The locomotive yard and the carriage and wagon sidings are also to undergo considerable alterations. They will be increased in size to an appreciable extent. Cossipore will have additional delivery points with shed accommodation. A new station will be opened between Sealdah and Dum Dum Junction, just south of the Circular Canal. A system of train control is to be installed at Sealdah with lines of communication to Ranaghat, Dum Dum cantonment, Majerhat and Chitpur. Three road overbridges are to be allowed for probably near Ballygunge and at Naihati.

On the southern section of the railway system Ballygunge and Budge Budge stations are to be remodelled, and it is possible that the double line may be extended from Majerhat to Budge Budge. In the southern section also the railway authorities are contemplating making arrangements for providing additional passenger facilities at stations, such as second platforms and overbridge. A new locomotive shed is to be built at Sealdah South Station and watering arrangements are to be improved. In the special interests of the third class passengers Hindu and Mahomedan refreshment rooms are being put in at several stations, zenana waiting rooms at 9 stations and a considerable sum is to be spent on various small improvements in the way of platform sheds and waiting rooms.

70. On the lines leading to Bombay perhaps the most important consideration is the provision of adequate facilities for suburban traffic in and around Bombay, and in view of the public interest taken in this matter some details of the difficulties to be encountered will perhaps serve to dispel the idea that such matters as overcrowding in these areas admit of any easy solution. Considering first the Great Indian Peninsula Railway. The number of passengers with which the suburban service had to deal in the last year before the war was 33,900 per diem. In 1921 the number had risen to 58,206. From Kalyan to Byculla the line has been quadrupled, but to

**Programme
of works in
Bombay
suburban
area.**

effect a similar improvement in the congested area between Byculla and Victoria Terminus, with the accompanying necessity for remodelling of yards and extension of stations, is a very much more difficult proposition. And while this latter part remains incomplete, the capacity of the line is as a whole limited by the number of trains which can be dealt with on the single pair of tracks between Byculla and the terminus with the added drawback in insufficient facilities at stations *en route*. This limit has already been reached; and though it may appear to the public that the problem of preventing overcrowding in this area is a simple one to be solved by merely increasing coaches and locomotives, this is not the case even in respect of the traffic now offering. Moreover, it must be borne in mind that the Railway administration cannot confine their attention only to present needs. They have got to look ahead. This will be clear from a perusal of the following table which shows the anticipated increase in traffic during the next 15 years.

| Period. | Estimated total number of passengers to be carried daily. | Per two hour rush periods. | Train miles. | Trains per hour. |
|-------------------------|---|----------------------------|--------------|------------------|
| 5 years hence | 74,853 | 16,467 | 1,646,332 | 10 |
| 10 " " | 103,388 | 22,745 | 2,121,015 | 15 |
| 15 " " | 144,478 | 31,785 | 2,758,487 | 20 |

This estimate is based on the normal increase *plus* traffic which will be created on completion of the various development schemes at present in progress in and around Bombay, but it takes no account of traffic which will be dealt with on the Harbour Branch when this line is open to traffic.

So much for the problem, there still remains the solution. Obviously the first thing to be done is to increase the capacity of the line from Byculla to Victoria Terminus and increase the terminal facilities at Victoria Terminus itself. Arrangements are well in hand for the accomplishment of this object. Mazagaon is being remodelled, and preliminary arrangements in respect of Victoria Terminus are in hand. The completion of these projects will increase the capacity of the section from Byculla to Victoria Terminus to the full extent of the traffic which can be dealt with on two pairs of tracks (this excludes lines which will be specially set aside for traffic from the Harbour Branch). In the remodelled terminal the platform accommodation will be increased from 7 to 12 and suburban traffic entirely separated from through and long distance traffic, six platforms (two of which are for the Harbour Branch) will be set aside for the suburban services. Further in order to improve the suburban service by providing quicker and more comfortable transportation and to increase the capacity of the terminus in the most economical way it is proposed to electrify the suburban lines. Proposals for electrification have been formulated, and funds have been provided for this work during the next five years.

The above deals with the traffic on the existing suburban lines. During the next two years, it is hoped to open the Harbour Branch from Kurla to Victoria Terminus, and arrangements have been made to deal with this traffic on a special set of tracks and two platform faces in Victoria Terminus, this line will also be worked under electrified conditions and will

connect with Bandra on the Bombay, Baroda and Central India Railway *viâ* the Mahim Chord.

It is anticipated with the opening of the new Cotton Green at Sewri and the completion of the various development schemes in the areas served by the Harbour Branch, that it will be necessary to run a service of 20 trains per hour during the morning and evening rush periods to meet the needs of traffic within the next 10 years.

The present capacity of Victoria Terminus under steam conditions is 8 trains per hour in each direction the actual train density, as limited by existing locomotive power, is 6 trains per hour in each direction, this capacity under the remodelling scheme and electrified conditions will be increased to 45 trains per hour in each direction. The electrification of the suburban lines from Kalyan to Bombay and Harbour Branch will allow of an increase in train density equivalent to the capacity of the Terminus, or a total increase of 650 per cent. over present conditions.

The position on the other line entering Bombay—the Bombay, Baroda and Central India Railway—is in some respects very similar. This line deals at present with a very much larger suburban traffic than the Great Indian Peninsula Railway. The average daily number of passengers on the local section between Virar and Colaba which in 1913-14, was 74,487 has risen in 1921-22 to 113,914. The rush occurs between 8 and 11 in the morning and between 5 and 7 in the evening. Quadrupling is being vigorously pushed on, and ultimately it is intended to have four tracks as far as Borivli. Even under present conditions it has been found possible to run 8 trains an hour each way during the busy periods. With the help of various improvements and the addition of 5 additional rakes of carriages, which have been recently added to the stock, it is hoped to raise the capacity to 10 trains an hour very shortly. Even this will admittedly be insufficient for present needs. Eventually as in case of the Great Indian Peninsula Railway it is intended to work this section electrically, and provision has been made in the five years' programme for this purpose. Before, however, the capacity of this section of line can be raised to the extent necessary, a great deal of heavy work will have to be done apart from the actual quadrupling including very large alterations and improvements at Bandra and other intermediate stations. Intimately connected with these improvements is the provision of corresponding terminal facilities. The building of the terminal station in Bombay to take the place of the old Colaba Terminus is an event of great interest to the public of Bombay. Land is now being acquired for this large work, which is estimated to cost more than Rs. 3 crores. The new terminal station will be situated between Bellasis Road Overbridge and Mahalakshmi station. The change from Colaba to this site is in part due to Government's requirements in connection with their development scheme and also to the fact that it would not be possible, without undue disturbance of property, to find sufficient room near Colaba for a large up-to-date terminal station.

71. Outside the Bombay area there are a great many improvements on both lines contemplated which are urgently required to bring them up to a more modern standard. On the Bombay, Baroda and Central India Railway the relaying of the track with 90-lb. rails and the widening of the distance between the double tracks in some portions of the line where accidents have

**Bombay,
Baroda and
Central
India
Railway.
Programme
of works.**

occurred between Bombay and Ahmedabad, the section on which the traffic is heaviest, is being pushed on and the long bridges over the two Bassein Creeks are being rebuilt, the estimated cost of the latter being 79 lakhs of rupees.

There is a programme costing Rs. 50 lakhs and extending over 6 years for the strengthening of all the other major bridges between Bombay and Kharagoda. This, when completed, will allow of the running of heavier engines, thus reducing the running time of the mail and express trains which at present have to slow down over all these bridges, of which there are a large number. Further, an increased passenger train service will be made possible by the addition of more crossing stations between Baroda and Ahmedabad. All these works are being undertaken to secure greater speed of transit which means an increase in the capacity of the line and to obtain a better duty from the engines and rolling-stock already in use.

The workshops at Parel are no longer capable of meeting the demands made on them for the repairs of engines and rolling-stock and an extensive scheme for the establishment of engine repair and wagon building shops at Dohad is on the eve of being commenced; this will permit of the work connected with these operations being removed from Parel, thus providing more room for the extension of the other branches of work that will remain there. If Dohad should prove to be a suitable location for large railway shops, it is possible that further transfers from Parel may be made.

Apart from these works which are in the general interests of both passenger and goods traffic, a large number of smaller works are contemplated in the interests of passengers alone and especially third class passengers. A considerable number of third class waiting sheds and refreshment rooms and better watering arrangements are being provided for especially on the metre gauge where the necessity is more urgent. The arrangements for pilgrim traffic at Muttra are being improved and an Indian refreshment room is to be erected at Kasganj.

**Great Indian
Peninsula
Railway.
Programme
of works.**

72. On the Great Indian Peninsula Railway also there are a large number of schemes in hand designed to improve the capacity of the line and the comfort of travellers. The Nagpur remodelling scheme among others is well on the way to completion; work on Poona remodelling has been commenced; the provision of additional station offices and waiting accommodation at Jhansi has recently been sanctioned, and arrangements are being made to make an immediate start on the work; remodelling schemes for Gwalior, Dhond, and Bhusaval are under consideration. In all these projects additional facilities and comforts for third class passengers receive full attention.

In addition to the money to be spent on large station remodellings, funds have been specially set aside for providing extra facilities at the smaller stations in the way of waiting shed accommodation and also in improving water supplies for passengers all along the line. These needs are now being examined in detail by officers specially deputed for the work.

Although special attention will be paid to the movement of passenger traffic, the improvement of goods services is also receiving adequate attention. Nearly all the schemes above mentioned include the remodelling of goods yards and provision of additional facilities for the quicker movement

of goods traffic. There are also many other projects in contemplation, the chief of which are a new marshalling yard near Igatpuri, a new yard on the Itarsi Jubbulpore branch, and a tranship yard at Ghorpuri, close to Poona, for interchange of traffic between the standard gauge Great Indian Peninsula Railway and the metre gauge Madras and Southern Marhatta Railway which connect at Poona. The heavier goods engines which are being put on the line involve in their turn reconstruction of many bridges and the strengthening of the track on long lengths of the line. These works are also receiving the attention of the administration.

There are many other works which although not so important as the remodelling of large stations and the construction of up-to-date termini, are yet in themselves quite as essential to the efficient working of a railway. These include the regrading of portions of the line with the object of increasing the loads on goods trains thus expediting the movement of traffic, the construction and reconstruction of locomotive yards, *e.g.*, Dhond, Shahaabad, Itarsi, and Gadarwada, increasing the capacity of running shed and workshops, *e.g.*, Bhusaval and Jhansi, provision of up-to-date machinery at railway workshops, the improvement of water supplies for locomotive purposes, the provision of train controls, the interlocking of points and signals at stations, and many other unobtrusive works all calling for heavy expenditure.

The programme on this line makes special provision for the wants of third class passengers. The principal items are as follows:—

Nagpur.—The remodelling scheme specially provides for waiting accommodation and booking facilities on an appreciable scale for third class passengers. In addition retiring rooms with bath rooms and refreshment rooms for Hindu and Mahomedan passengers, respectively, are provided for, the retiring rooms for women being separate.

Murtajapur.—Separate waiting accommodation with booking facilities is provided. In the re-arrangement of the present station building provision is made for retiring rooms for Indian passengers. Refreshment arrangements are also being considered.

Poona and Jhansi.—The remodelling schemes specially provide for facilities for Indian passengers.

Victoria Terminus.—The scheme provides for third class waiting accommodation with booking facilities, water, refreshments, etc. In addition retiring room for Hindus and Mahomedan passengers (separately for women), respectively, with bath rooms, refreshment rooms, etc., are provided for.

In addition to these special works, a sum of Rs. 1,00,000 has been provided in each year for improvements to waiting rooms, booking halls, water supply and other amenities for third class passengers at the smaller stations. This provision will be utilised generally for improvements the needs for which are now being investigated.

73. Madras has also like Bombay its suburban problems though perhaps they are less urgent and the remedies less expensive than Bombay. On the South Indian Railway, the most important item of this nature is the doubling of the present congested single line between Madras Beach and Tambaram thereby affording additional facilities to the public who would prefer to live out of the city in healthy country surroundings, and yet get to and from their business easily and quickly.

South Indian
Railway.
Programme
of works.

Outside the suburbs a number of disconnected works associated with providing facilities for traffic are in hand and contemplated. In order to facilitate the easier handling of trains the following broad gauge and metre gauge station yards which are inadequate for present day traffic will be completely remodelled:—Trichinopoly Junction, Trichinopoly Fort, Madura, Nidamangalam, Tinnevely, Madras Beach, Tiruvallur, Erode, Shoranur, Salem and Coimbatore.

A number of bridges on the metre gauge main line had been strengthened before the outbreak of war in order to permit of the use of the heaviest class of engines and consequent increased train loads, but unfortunately the Vellar bridge (4 spans of 150 feet) and the Coleroon bridge (14 spans of 150 feet) had to be held in abeyance. These bridges have now been regirdered in order that heavy engines can run from end to end of the metre gauge main line. A considerable amount of regirdering has also been carried out on the broad gauge and the only bridges which have now to be reconstructed are the Ferok bridge (6 spans of 121 feet) and Kallayi bridge (3 spans of 121 feet) near Calicut, work on which will be commenced in 1923-24.

The main line track both broad and metre gauge will also be improved and strengthened. In the case of the broad gauge the existing 75-lb. rails will be replaced by 90-lb. rails for a length of 133 miles and the remainder of the track will be strengthened, and in the case of the metre gauge the existing 50-lb. rails will be replaced on a regular programme basis by 60-lb. rails. The first consignments of 90-lb. and 60-lb. rails have been received and are now being placed in the line.

The workshop for the metre gauge portion of the system is located at Negapatam and the workshop for the broad gauge portion at Podanur. Neither of these shops is well equipped or capable of expansion, and it has been decided to build a new workshop at Trichinopoly at an approximate cost of 3½ crores to serve both the broad and metre gauges. Owing to the extensive nature of the work it is not expected, however, that the transfer will be completed for another 5 years. The amalgamation of the shops now at Negapatam and Podanur into Trichinopoly also necessitates the conversion of the present metre gauge line between Trichinopoly and Erode into a broad gauge line, so as to bring broad gauge engines and stock into Trichinopoly. This conversion will be completed simultaneously with the new workshop.

In the interests of third class passengers Indian refreshment rooms are to be provided at 12 stations and waiting rooms at 14 stations. Thirty stations are to be provided with waiting sheds and sanitary conveniences, while at 20 stations additional arrangements for supply of drinking water have been provided for.

**Madras and
Southern
Mahratta
Railway.
Programme
of works.**

74. On the Madras and Southern Mahratta Railway the most important works are connected with the strengthening of track and bridges. In this latter respect provision has been made for relaying with heavy rails several hundreds of miles of broad and metre gauge track, the most important sections being given priority.

In regard to station improvements, a large new goods yard is contemplated near Madras in which the work at present done at a number of points can be concentrated, thereby expediting the handling of traffic. Important schemes for yard remodelling are also being prepared for Arkonam, Jalarpet, Ghorpuri and a number of other stations. Improvements in passenger

accommodation are proposed at Madras Central, Katpadi, Hubli, Belgaum, Tirupati East, and additions to waiting room accommodation, and Indian refreshment rooms at a large number of other stations are also contemplated. On many sections of this railway system water supply is a matter of great difficulty but it is hoped to provide material improvement in the main supplies. The lighting of stations is also to be improved. A scheme is well in hand by which Madras Central, Rayapuram and Salt Cottours are being connected with the railway's own power station at Perambur and all these will be equipped with electric light. For the electric lighting of the more important wayside stations such as Bezwada and Arkonam investigations are being made as to the most satisfactory plant to use.

To ensure safe working, provision is being made for improvements to signalling and interlocking, a work which involves minor alterations to a number of yards.

A large number of new crossing stations will be made on sections where the distance between stations at present causes delays.

Provision for the railway staff has not been forgotten and the proposed expenditure includes a scheme for additional quarters to certain classes of railway staff. An allotment has been made also for the improvement of certain railway schools.

The shops at Perambur and Hubli are rapidly becoming too small to deal with the ordinary repairs of the existing stock and for some years it has been found increasingly difficult to meet all requirements. The railway administration has had the advantage of the advice of an expert brought out from England and on his advice it is proposed to replace a number of old machines by up-to-date machinery with a very much larger output. In addition to this a general reconstruction and rearrangement is being investigated with a view to adapt the works to the most up-to-date and economical shop practice.

The needs of the third class passengers have been amply provided for. In respect to water supply, there are at present 106 stations fitted with platform taps, and at 49 there are pandals for keeping water cool.

It is proposed to provide taps at 23 additional stations, pandals at 39, and to put in extra taps at 67 of the stations already provided with taps.

This line runs through long tracts of country with a poor water supply and receives little assistance from local municipalities as regards water; in many cases it is a matter of great difficulty to arrange an adequate supply of reasonably good water; there are large schemes at 15 stations for improved sources of supply.

There are 11 large remodelling projects which will include improved station accommodation for third class passengers. At 49 other stations extensions to third class waiting halls or new third class waiting halls are proposed.

There are Indian refreshment rooms at 27 stations; it is proposed to add 5 more and the question of further provision is under consideration.

There are at present fruit stalls at 58 stations; it is proposed to construct 20 more.

Latrines are being added at 22 stations. There are 13 uncovered overbridges; it is proposed to cover all these.

The question of providing electric lighting at the more important stations is under investigation. It is proposed to introduce it at 9 stations and there is a further list of about a dozen stations which will be taken up if the trial ones prove successful.

Proposals for additional booking offices and ticket windows for third class passengers are being investigated. About 20 stations are likely to be taken in hand.

**Burma
Railway.
Programme
of works.**

75. On the Burma Railway there is also a comprehensive programme of work in contemplation. The Mandalay line is to be doubled from Pyuntaza to Kyungon (87½ miles) and from Myohaung to Myitnge (5¼ miles), and the Prome line from Wanetchannga to Letpadan (47½ miles) making a total of 141 miles of new doubled track.

16 crossing stations are to be built on the main line, 3 on the Lashio Branch and 2 on the Mu Valley section making in all 21 new crossing stations.

Telephonic train control is to be installed on the section Toungoo to Yamethin.

The following station yards are to be remodelled to enable heavy rushes of traffic to be rapidly and efficiently dealt with, *viz.*, Kemmendine, Prome, Maymyo, Thazi, Mandalay, Martaban.

All stations between Prome and Mandalay are to be lengthened so as to be able to accommodate the longest train that the engines can economically pull.

The locomotive yards and sheds at Pyuntaza, Toungoo, Yamethin, Mandalay and Maymyo are to be remodelled.

Insein and Myitnge workshops are to be remodelled.

All weak type girders between Prome and Mandalay are to be replaced by girders of modern design so as to enable a 10-ton axle load to be introduced, thereby increasing the carrying capacity of the goods stock by 25 per cent.

All the 50-lb. track between Prome and Mandalay and Myohaung to Maymyo is to be relaid with 60-lb. rails, total length to be relaid being 478 miles.

Insein and Thingangyun stations are to be remodelled.

Facilities for third class passengers such as waiting rooms, booking halls and food and water supplies are reported to be adequate on this railway, and this statement was supported by the Government Inspector of Railways who made special enquiries on the subject. As regards waiting rooms and booking halls, the claims of third class passengers will be fully considered, however, when remodelling the old and constructing the new stations for which provision has been made in the five years' programme.

**Oudh and
Rohilkhand
Railway.
Programme
of works.**

76. On the Oudh and Rohilkhand Railway the most important work of a general character is the doubling of the section Saharanpur to Lhaksar which under present arrangements is often badly congested with consequent delay to traffic. Apart from this the most important individual work contemplated is the entire remodelling of Lucknow traffic yard. The proposals include an entirely new station building which will be designed to provide for the needs of the travelling public and with the usual offices for administration; an increase in the platform accommodation, and ample accommodation for the handling of parcel traffic is a necessary complement, and in

addition to this, as Lucknow is an important junction, a large goods yard capable of dealing with the maximum number of goods train is provided for.

Over and above these important large works, there are a number of small works such as increasing the length of passenger platforms and raising those that are low, better drinking water supply and improving accommodation for *mela* passenger at Sitapur and Hardwar.

Additions to the carriage and wagon repair shops at Lucknow are to be made so as to cope with the increased stock.

As regards the permanent-way the whole of the main line from Moghalserai to Saharanpur will by the end of 1926 be laid with the heavy 90-lb. British standard rail and be capable of carrying the heavier locomotives on the line. The Cawnpore branch will similarly be renewed and other branches brought up to a better standard than at present.

There are a certain number of girders that are not up to modern requirements and these are either being renewed or strengthened and they include the large girder bridges over the Ganges at Balawali and over the Banganga and Sai Nullahs.

In respect to passenger traffic the proposed programme includes waiting accommodation for zenana ladies at Akbarpur, Shahjahanpur, Kashi, Nagina, Roorkee and Dibai; Hindu refreshment room at Benares; additional water taps on platforms at Kashi, Hapur, Partabgarh, Fyzabad, Badshapur and Gajroula; third class waiting sheds at Janghai, Asafpur, Hardoi, Nagina, Roorkee, Dibai and Safdarganj; covered way from waiting shed to booking office at Fyzabad; extra third class waiting accommodation for *mela* passengers at Sitapur Cantonment; covering island platform at Balamau and Moradabad; improving the *mela* accommodation at Hardwar and other minor facilities; also improved accommodation at Moradabad.

77. On the North Western Railway, the main requirements come under the head of traffic facilities and are spread over a very large number of works which are not individually impressive, but none the less of very great urgency. The main difficulties on the northern section of this line are due to want of capacity of the single track to take a heavier traffic. Doubling would be a very expensive expedient and the alternative takes the form of putting in a large number of sidings, loops and crossings. Individually these works are small but in the aggregate they will cost a considerable amount and will add to the capacity of the line.

North-
Western
Railway.
Programme
of works.

Doubling is mostly being deferred to 1924-25, but a small piece, Rawalpindi to Chaklala, which is urgently required is provided for in 1922-23. The other pieces to be doubled are Deona to Chakpirana, Dina to Domeli, Mandra to Gujarkhan and Ferozepur City to Cantonment.

Under remodelling of yards provision has been made for work at Lahore, Sibi, Amritsar, Saharanpur, Bhatinda and other stations and also at Karachi where existing arrangements are very inadequate.

The provision for staff quarters is unavoidably large. It includes quarters long overdue at Lahore, Karachi, Ludhiana, Amritsar, Bhatinda and at various other stations on the line in many cases to provide accommodation for the new train control staff and labour in locomotive shops.

Workshops and store buildings include a new locomotive shop near Karachi and various improvements and extensions to the existing shops at Moghalpura necessary to deal more expeditiously with the additional stock.

Water supply includes provision of better arrangements at Karachi, Sibi, Amritsar, Ludhiana and various smaller stations. In many cases these arrangements are necessary for providing water for passengers as well as the staff.

Plant and machinery is a heavy item. It includes besides plant for the shops a creosoting plant for sleeper treatment which is already in hand and train control instruments. An important improvement from the point of view of working and safety of the public is the provision for electric lighting of important yards and stations.

The wants of the third class passenger have been given special attention. New third class waiting shed and booking office (130 ft. × 160 ft.) and six units vendor's shops have already been completed at the important station of Amritsar. For the important matter of water supply Rs. 2½ lakhs have been provided which will cover substantial improvements at a very large number of stations. In addition the programme provides for a considerable increase to the stall and refreshment room accommodation designed specially for Indian requirements. For additional waiting shed and shelter accommodation about 60,000 rupees are to be spent in each year and a further sum to cover improved booking office facilities.

Assam
Bengal
Railway.
Programme
of works.

78. On the Assam-Bengal Railway, there are no large works which would justify special mention. This line is singular in that it serves for the most part a tract of country which is only partially developed, and the line does not consequently feel in the same measure the pressure of traffic apparent elsewhere. It may be mentioned, however, that the needs of the third class passengers have not been overlooked as the following improvements testify.

Waiting Rooms.—Provision is made for zenana and third class waiting halls or sheds at 30 wayside stations, as also special waiting sheds for pilgrim traffic at 2 stations.

Booking hall.—Third class waiting and booking hall with food stalls is to be provided at Chittagong.

Water supply.—Improved water supply at 25 roadside stations.

Overbridge and platform, etc.—To better the conditions at Sitakund where pilgrims congregate it is intended to provide an overbridge and also a raised platform, this having been asked for by the public for some years. Arrangements will also be made for electric light poles, etc.; for which power will specially be provided at pilgrim festival time by a travelling generating plant.

An open shed covering is also to be provided for the island platform at Laksam.

Magnitude
of task of
development.

79. It is obviously difficult to invest with any particular interest to the general reader a list of works on all lines such as that given above. It is hoped, however, that the details of what is being done on each line may at least be of local interest to the residents of the areas served and in the aggregate may help to give some conception of the magnitude of the task to be accomplished and to dispel any idea that railway administrations are apathetic towards the urgent need for improvement.

Replacement
of lines
dismantled
during war.

80. Before leaving this subject mention must be made of a matter in which considerable local interest has been displayed, *viz.*, the replacement of lines dismantled during the war. Mention was made of this matter in the

last Administration Report, and it is satisfactory to be able to record that of the lines there referred to the following have since been relaid and opened for traffic :—

| | Miles. |
|---|--------|
| (i) Guntur Tenali section of the Madras and Southern Mahratta Railway | 15·68 |
| (ii) Sambhal Hatim Serai section of the Oudh and Rohilkhand Railway | 14·64 |
| (iii) Hyderabad Badin section of the North Western Railway | 62·09 |

The work of relaying the Sutlej Valley Railway has been commenced, and is being pushed on. The relaying of the Bhagalpur Bausi line has had to be held over, owing partially to the recent strike on the East Indian Railway, and partially to the non-receipt of materials indented from England. Every effort will, however, be made to take the work in hand as soon as possible.

81. With the very heavy programme of work in connection with open lines to which India is now committed, it will be evident that programmes for still further extension of railway communication have of necessity to take second place. In fact so far as Government resources are concerned, it was specifically provided in the recommendations of the Railway Finance Committee which were subsequently ratified by the Legislature that the sum to be provided in the programme should be devoted primarily to the rehabilitation of existing lines. Still it is obviously necessary to complete lines which have been partially constructed and it would be unwise to defer further extensions where these are really a matter of great urgency for the development of the country.

Extension of railway communication.

82. During the year under review 125·14 miles of new lines were opened for public traffic, about one-third of which represented mileage built by Indian States, and about half by private Companies. Government lines opened during the year were 25·64 miles in length and were intended chiefly for military purposes.

Lines opened during 1921-22.

The following is the list of the new lines opened during the year 1921-22 :—

| Name of Line. | Gauge. | Length. | Owner. | Working Agency. | Date of opening. |
|--------------------------------------|--------|---------|--|-----------------------------------|------------------|
| Choranda-Koral | 2' 6" | 11·62 | Baroda State . . | Baroda State . . | 18-11-21 |
| Futwah-Islampur Light Railway. | 2' 6" | 26·68 | Branch Line Co. . | Messrs. Martin & Company. | 24-1-22 |
| Larkana-Shahdadkot | 2' 6" | 31·53 | Branch Line Co. . | North Western Ry. | 16-2-22 |
| Botad-Tagdi Section | 3' 3½" | 22·84 | Bhavnagar State . | Bhavnagar Ry. . . | 16-3-22 |
| Wanaparti Road-Shriramnagar Section. | 3' 3½" | 6·83 | His Exalted Highness the Nizam of Hyderabad. | Nizam's Guaranteed State Railway. | 1-2-22 |
| Tank-Kaur | 2' 6" | 11·78 | Government . . . | North Western Ry. | 13-2-22 |
| Kaur-Khirgi | 2' 6" | 13·86 | Ditto | Ditto | 15-5-21 |

Lines in progress.

83. Besides these a number of other lines many of which are short lengths of only very local interest were under construction. The full list is given below :—

| Name of line. | Gauge | Length. | Constructing Agency | Progress of work on 31st March 1922. Proportion completed. |
|--|--------|---------|--|--|
| Khyber Railway | 5' 6" | 26-00 | Government | .40 |
| Harbour Branch Extension (overhead connection.) | 5' 6" | 2-12 | Great Indian Peninsula Railway. | .68 |
| Amla to Nagpur | 5' 6" | 103-74 | Ditto | .79 |
| Majri-Rajur | 5' 6" | 13-22 | Ditto | .20 |
| Bokharo-Ramgarh | 5' 6" | 40-62 | Bengal Nagpur Railway Co. | *.50 †.25 ‡.01 |
| Amda-Jamda | 5' 6" | 65-60 | Ditto | .66 |
| Onlajori-Badampahar | 5' 6" | 21-21 | Ditto | .75 |
| Kasta Coal-fields | 5' 6" | 17-05 | East Indian Railway Co. . . . | .94 |
| Balharshah-Warangal | 5' 6" | 140-50 | Nizam's Railways Co. . . . | .60 |
| Alon-Sa Ingbyin | 3' 3½" | 26-51 | } Burma Railways Co. } | .90 |
| Moulmein-Yo | 3' 3½" | 88-71 | | .22 |
| Pyinmana-Taungdwinggyi | 3' 3½" | 67-25 | | .43 |
| Katakhal-Lalabazar | 3' 3½" | 23-63 | Assam Bengal Railway Co. | .36 |
| Hanumangarh-Sisla | 3' 3½" | 120-00 | } Jodhpur Bikaner Railway. } | .06 |
| Bikaner-Kolayat | 3' 3½" | 28-70 | | .23 |
| Murwar-Jijawar | 3' 3½" | 21-50 | | .46 |
| Dholka-Dhanduka | 3' 3½" | 38-27 | Bombay, Baroda and Central India Railway Co. | .51 |
| Okhamandal | 3' 3½" | 37-02 | Baroda Durbar | .90 |
| Gudhakda-Mahuva with a branch to Port Albert Victor. | 3' 3½" | 43-32 | Bhavnagar State | .53 |
| Tagdi-Dhanduka | 3' 3½" | 6-14 | Ditto | .52 |
| Motipura-Tankbala | 2' 6" | 25-50 | Baroda Durbar | .99 |
| Potlad-Bhadran | 2' 6" | 13-41 | Ditto | .95 |
| TOTAL | | 970-20 | | |

Special mention is perhaps due in respect to the following of these railways.

Khyber Railway.—The whole of this line from Jamrud to Landi Khana lies in independent territory in the Khyber agency of the North-West Frontier Province, and it is contemplated to carry the formation up to the boundary with Afghanistan. It is an expensive line; the tunnels alone, which are expected to be altogether 2.55 miles in length, will cost more than half a crore of rupees. The gradients are heavy and there will be three or four reversing stations. The progress in construction is consequently slow.

* Represents work on Borno-Swang Section (6 miles).
 † Represents work on Swang-Duneya Section (12.75 miles).
 ‡ Represents work on South Karpura Extension (21.87 miles).

Itarsi-Nagpur Railway.—More than half of this line has already been completed and opened for traffic. The work on the remaining sections is well in hand. The linking from Nagpur end is proceeding, the necessary permanent-way material having arrived, and it is hoped that the Nagpur-Pandhurna section will be ready for opening by the middle of next year. The entire line is expected to be completed in 1924.

The Amda-Jamda Railway will give access to valuable iron ore deposit. The last few miles have proved most difficult owing to labour troubles, but arrangements have now been made to employ Sappers and Miners.

The Onlajori-Badampahar Extension will also serve iron ore deposits and is 21 miles long. The work is in progress and the line will be opened for traffic shortly.

Burma Provincial Railways (Alon-Saingbyin, Pyinmana-Taungdwingyi and Moulmein-Ye).—The first 14 miles of the Alon-Saingbyin Railway were opened on 1st July and it is hoped that the rest will be finished early in 1923. The first 10 miles of Pyinmana-Taungdwingyi Railway were opened on 1st August 1922 and the entire length is expected to be ready early in 1924. As regards the Moulmein-Ye Railway, it is hoped to open the first 20 miles early next year and the whole branch in 1924.

The Balharshah-Warangal Railway will afford an important link between the broad gauge railways in the north and south of India. The line, about 150 miles in length, is being financed by His Exalted Highness the Nizam of Hyderabad.

Kasta Coalfields Railway.—This line will start from a point north of the Adjai bridge on the Ondal Sainthia chord line of the East Indian Railway and will terminate at Pariarpur, a distance of 17 miles. The railway is intended to serve the collieries in this area which are now being rapidly developed and are expected to give a good freight return.

84. From the point of view of the patriotic Indian who is anxious to see the advantages of railway communication extended to all parts of the country, this record of what has been accomplished in 1921-22 in the way of new construction does not make very exhilarating reading.

Future prospects of new construction.

In the twenty years preceding the war India increased her railway mileage by 15,756 miles and continued progress on this scale would have benefited the country. But times are changed. In the years before the war a broad gauge line could be constructed and equipped for about a lakh a mile. The average cost is now in the neighbourhood of Rs. 1½ lakhs. The financial aspects of railway working in these days have already been discussed in a previous chapter, and the combined effect of high capital cost and dwindling net earnings has removed many possible and desirable lines from the category of attractive financial propositions. It may be argued that Government must take account of the indirect benefits apart from the direct return in the shape of surplus earnings. Doubtless this is true; but Government resources available for direct construction are at present very limited. Money is expensive and only in exceptional cases it is justifiable to raise money at 6 per cent. or to give corresponding guarantees to private enterprise for the construction of lines which do not offer some reasonable prospect of a corresponding return.

CHAPTER VIII.

TRAFFIC PROBLEMS AND REMEDIES.

85. As stated in the preface to this volume, this chapter of the report has been introduced in pursuance of the idea of affording to the public such further information in respect to important traffic facilities as cannot be gathered from the ordinary survey of the events of the year under review.

Overcrowding.

Taking the passenger service, most of the complaints put forward by the public relate to third class passengers and the substance of all the most important of these is concisely stated in paragraph 168 of the Acworth Committee's Report. As a result of this report a special investigation has been made by Government Inspectors, and their recommendations are being dealt with. Of the matters referred to, by far the most important is overcrowding which has been and still is the subject of much correspondence and misrepresentation in the public press. In considering this subject it is from the nature of the case a matter of very great difficulty to define the extent of the trouble or to support any line of argument or explanation by means of figures. In fact a reference to such figures as are exhibited in Appendix 12 of volume II of this Report will show that the average load of a train varies from a maximum of just over 300 passengers from which it might appear that no general overcrowding occurs at all. The result of the investigation above referred to serves however to confirm the opinion expressed by the Acworth Committee in this matter that overcrowding does occur at present to a more or less serious extent on all lines; but all the evidence shows that trouble is in all cases local and is due to a variety of causes. No one single panacea is possible to meet all cases.

Difficulties in surmounting the problem.

86. Speaking generally the difficulties fall into certain well defined categories. Firstly, there is the question of stock. Railways are admittedly in nearly all cases insufficiently equipped in this respect to enable them to deal satisfactorily with all the passenger traffic to be carried. The direct remedy to this is obviously to construct more. But quite apart from the fact that, as will be shown hereafter, this would not solve the difficulty, it must not be overlooked that there are in present circumstances very strict limits to the speed at which passenger stock can be turned out in India. A great many of the essential parts have to be imported, and the construction and fitting of the bodies has to be carried out almost wholly in railway shops since there are at present practically no firms in India who have hitherto undertaken this work except to a very limited extent. The speed of improvement in respect of numbers of stock is therefore dependent firstly on supply of English materials, and secondly on Indian capacity to construct. After taking all these factors into consideration the maximum provision has been made as explained in chapter VI when dealing with the question of rolling stock.

The second point to be taken into consideration in this question is the capacity to handle. It is obviously useless to equip railways with a liberal supply of stock unless provision is simultaneously made for increased engine power and improved capacity of the lines to enable extra trains to be run.

And it is in this latter respect that the most formidable difficulties are encountered which are probably overlooked or insufficiently appreciated by many of those who criticise the present conditions of travel. It is a matter of some difficulty within the limited scope of this report to give an adequate explanation of this rather intricate subject. But there are certain simple facts which will perhaps serve to explain a few of the main difficulties. Wherever a railway line is single, the number of trains which can be passed along it is strictly limited. Wherever gradients are heavy the loads of trains must be limited. Where platforms are short and yards inadequate, trains longer than those at present running cannot be accommodated. In such cases it is useless to increase the number of third class carriages until there is more capacity to enable these to be utilised. It will be seen, therefore, that suggestions such as those generally put forward to meet the want of accommodation by the simple process of adding more carriages to trains are not a solution of the problem. The remedies for these difficulties take the form of double or quadruple lines, more crossing stations, bigger yards and longer platforms. Such works are very expensive and unavoidably take time to construct. On every line in India this difficulty is being dealt with as will be seen from the details given in chapter VII of this volume.

87. Special mention may, however, be made of the case of suburban lines as the difficulty in these areas has perhaps attracted more attention than elsewhere. It must not be overlooked that in these cases the trouble is usually confined to certain particular periods in the morning and evening, and does not exist during the rest of the day. It is probably often forgotten that a similar state of affairs exists in the vicinity of most large towns all over the world, and is to a great extent unavoidable. It is not intended, however, to contend that improvements are not possible and necessary. But it is important in this as in all other cases that the difficulties should not be underestimated, and the complicated nature of the remedy will be amply evident from the details of what is being done in the vicinity of Bombay as described in chapter VII of this volume. There is one interesting fact in this connection which may be mentioned. From the evidence collected it appears that improvement in many cases is retarded by the conservative habits of the third class passenger in India who will often insist on overcrowding a particular train in which he is accustomed to travel in preference to using a relief train leaving a few minutes later.

**Suburban
trains.**

88. Before leaving this subject of overcrowding the much discussed subject of *mela* traffic must be mentioned. On these occasions as the Acworth Committee recognised in their report some degree of overcrowding is usually unavoidable. The practice of utilising goods stock for this purpose has been severely criticised in the Legislature, and instructions have been issued that this shall as far as practicable be discontinued. The general increase in third class stock will improve matters in this respect in time. As however it is impossible to expect that railways will ever keep sufficient passenger stock to provide for these isolated special occasions and as goods stock has in fact never been used except as a last resort when passenger stock could not be procured, it is obvious that the effect of the well intentioned agitation in this matter must be a restriction in the service with results perhaps rather more unpleasant to the pilgrims than those it is hoped to avoid.

**Overcrowding
in *mela*
trains.**

Food supply.

89. Of the remaining grievances of the third class passenger referred to by the Acworth Committee, those relating to insufficiency of waiting accommodation, booking facilities, water supply, and conveniences in the carriages themselves have been dealt with in the chapters on Development and Rolling Stock. The Committee also mentioned the inadequacy of existing arrangements for supply of food to passengers, and this difficult subject has been given special attention in the investigation by Government Inspectors already referred to. On most lines the practice is to employ suitable vendors who are bound by the terms of their agreement to sell food to passengers subject to strict conditions as to price and quality. They are also in the interests of health required to protect the food so supplied from contamination by flies or otherwise. The supplies are subjected to periodical inspection by railway officers, and the arrangements generally by the Government Inspectors and the Railway Medical Officers. The complaints generally are directed against the quality and price. On some lines special food inspectors have been appointed, and one line—the Bengal Nagpur Railway—has taken over the supply and arranges for it by means of its Catering Department. The expedient of third class restaurant cars has been tried on several lines, but except possibly in southern India these have not proved a success. The reasons for this are to be found in the caste difficulty and in the fact that



Hindu Tea Stall, platform 6 and 7, Railway Station, Delhi.

a third class passenger is usually unwilling to leave his seat and go to a restaurant car. Moreover supplies provided in this way are unavoidably expensive quite apart from the fact that the haulage of the car is costly and in practice reduces the available ordinary accommodation on the train. A good deal has been done to improve matters in this respect by means of providing greatly improved station stalls for tea and refreshments, and it is probably on these lines that the solution of the trouble is to be sought. The illustration given which represents one of the new type of stalls in Delhi station will show what an immense improvement has been effected over the old régime in this respect.

90. Another subject mentioned by the Railway Committee is the uncivil treatment of passengers by the railway staff. It will be recognised that the indefinite nature of this grievance makes it an exceedingly difficult matter to deal with. General instructions have, however, been sent to all lines who have in all cases issued special warnings to their staff that prompt notice will be taken of every proved incivility or want of attention. Beyond this a number of special Indian Passenger Superintendents have been appointed whose sole duty is to look after third class passengers and to give them information and assistance. These men are stationed at large centres and especially junctions where the need for this form of assistance is felt. It has been suggested that they should travel in the trains, but the proposal would obviously if generally adopted be exceedingly expensive and would reduce the value of the services rendered, since it is before arrival and after departure of the trains that assistance and advice is principally necessary for the illiterate passenger who does not know how to proceed.

**Uncivil
treatment of
passengers
by railway
staff.**

91. Apart from the grievances of passengers complaint is made in respect of various matters relating to the goods traffic. The subject of bribery in connection with the allotment of wagons acquired special prominence from the indictment contained in paragraphs 164, 165 and 166 of the Acworth Committee's Report and it is perhaps necessary to refer to certain conditions which are essential to a proper understanding of this matter. The paragraphs referred to bring out, firstly, the Committee's unreserved acceptance of the existence of the bribery evil in the form and to the extent represented by commercial opinion, and, secondly, the Committee's belief that the subject had not in the past received the attention it deserved from the Railway Board and Railway Administrations generally. The Acworth Committee's enquiry was undertaken at a time when the country had barely started to recover from the chaotic economic conditions which obtained during the war and its immediate aftermath. The restrictions imposed by various forms of Government control on the normal trend of trade were fresh in the minds of persons who were called to give evidence on behalf of the commercial community, and the part played by railways in putting these restrictions into effect, and the dislocation they entailed in accepted transportation practice, were imperfectly understood. The atmosphere was favourable to the formation and expression of opinion directed against persons or methods having to do with artificial restraints of trade. Under the instructions of the Railway Board particular attention is being paid to this subject and particularly to the supervision of the system in force on each railway for registering indents for wagons. With the greater freedom of movement and closer supervision of traffic that has taken place during

**Bribery in
connection
with wagon
supply.**

the past 18 months, causes for complaint in regard to bribery and corruption have been very greatly reduced.

Claims for compensation for goods lost or damaged.

92. Much has, and is being done to prevent the occasion for claim payments which of late years have formed such a formidable bill against railway revenues. The watch and ward staff of railways is being reorganised, better lighting in station yards is being provided, and more efficient measures for securing the contents of wagons in transit are being investigated.

The result of the deliberations of a Committee appointed, as the result of a resolution in the Legislative Assembly, to report on the revision of the risk note forms, is at present under consideration.

It is obviously not possible in this report to refer to all the multifarious problems which traffic officers at present are striving to deal with and which in many cases are peculiar to particular administrations. Those mentioned represent, however, the larger and more general difficulties, and it is hoped that the short explanation now afforded may serve in some measure to assure the public that every effort is being made, so far as means to do so admit, to get rid of legitimate cause for complaint in respect of transport arrangements.

CHAPTER IX.

ACCIDENTS.

(See Appendices 26, 27 and 28 of Volume II.)

93. The total number of persons who lost their lives as a result of accidents during the year under review showed a very slight increase being 3,121 against 3,016 in the previous year. In addition, the number of persons injured was 3,069 in 1921-22 against 3,039 in 1920-21. These fatalities may seem large, but it must be borne in mind that the number of passengers carried was 561,329,000. Moreover most of the fatalities which occurred were due mainly to rash or negligent action of the persons killed, only 227 out of 3,121 having lost their lives as a result of circumstances beyond their control. Of these 28 were railway servants. Of those who were killed in accidents due to their own action more than half, *viz.*, 1,676 were trespassers on railway property and 280 lost their lives by falling or jumping from trains in motion.

Total
fatalities
and injuries.

Of the total number of persons (3,069) injured, 1,527 were passengers, 873 railway servants and 568 trespassers. Of the passengers only 228 were injured as a result of accidents to trains and the rest by jumping from moving trains or other action due to their own fault.

94. The total number of serious accidents to trains during the year under review was 539 against 469 in the previous year. A serious feature in this year's record is the occurrence of a number of accidents due to deliberate train wrecking of which the perpetrators were not discovered. A brief account of the more serious accidents is given below :—

Serious
accidents.

(a) On the 11th May 1921 at 23-5 hours a collision occurred between 29 Up and 32 Down (metre gauge) fast passenger trains at Rutlam Junction station. One passenger was killed and 10 persons injured. The damage to permanent-way and rolling stock was estimated at Rs. 17,200. The accident is considered to have been caused by the gross inattention of the Rutlam Station staff to certain standing orders relating to the admittance of trains into the station yard. The Station Master, Rutlam, was held to be principally responsible for the accident and was dealt with departmentally. A Points Jemadar, whose negligence contributed considerably to the accident, was dismissed.

Bombay,
Baroda and
Central India
Railway.

(b) On the 4th December 1921 at 3-35 hours No. 76 Up goods train was derailed at Bajranggarh Station on the Bombay, Baroda and Central India Railway. Of the stock 4 wagons and one brakevan were derailed and 11 wagons and one brakevan capsized. One travelling watchman was killed. The damage to permanent-way and rolling stock is estimated at Rs. 52,500. The accident appears to have been caused by the flooring of a wagon, loaded with bullocks, giving way.

**Great Indian
Peninsula
Railway.**

(c) On the morning of the 11th May 1921 a collision occurred between 654 Up and 653 Down passenger trains at Mataundh Station on the Jhansi-Manikpur Section of the Great Indian Peninsula Railway. The accident is considered to have been caused by the driver of the 654 Up passing the outer signal at danger. The leading brakevan and the postal 3rd of the 654 Up were completely smashed, and some carriages of 653 Down wrecked. About 10 minutes after the collision, due to the ignition of gas the wrecked carriages of 653 Down caught fire and the leading 2 vans and 4 carriages nearest to the engine were burned. It is estimated that 15 persons were killed, including 4 railway servants, and some 50 injured most slightly. The chief responsibility for the disaster lies with the driver of 654 Up for running against signals. The guard of the train has also been held to blame for not keeping a proper look out and stopping the train by applying the automatic brake. The contravention of certain rules, by the station staff at Mataundh also contributed considerably to the accident. All these were punished departmentally as it was held that none of them could be prosecuted criminally except the driver who perished in the disaster. The damage to permanent-way and rolling-stock was estimated at Rs. 79,900.

(d) On the 9th November 1921, a collision occurred, between No. 322 Up tranship and S/30 Up passenger trains, at Sheogon station on the Bhusawal Nagpur section of the Great Indian Peninsula Railway. One servant of a railway employé was killed. The damage to permanent-way and rolling stock was estimated at Rs. 60,673. The cause of the accident was attributed to defective traffic supervision and steps to prevent recurrence have been taken by the Railway Administration.

**Burma
Railways.**

(e) On the 25th July 1921, at about 22-35 hours, No. 3 Up Mail and 364 Down goods trains collided with each other between Tawwi and Peinzalok stations on the Burma Railways. The occurrence of the accident was attributed to a breakdown of the block system of train signalling resulting in two tokens being taken out at the same time for the one section. Of the passengers of No. 3 Up mail about 100 persons were killed and 54 injured. Drivers of both the trains and their first firemen were amongst the killed. The 2nd firemen of both trains and the brakesman of the 3 Up mail sustained injuries. The damage caused to permanent-way and rolling stock was estimated at Rs. 1,00,400. Remedial measures for the better maintenance of wires near stations have been taken by the Railway Administrations concerned.

**East Indian
Railway.**

(f) On the 9th May 1921, at 0-50 hours, whilst No. 54 Down was approaching Tildanga station, the engine was derailed and capsized. Part of the train was also derailed but did not capsize. There was no loss of life or injuries to passengers. The engine crew escaped with slight injuries. Damage to permanent-way and rolling stock is estimated at Rs. 5,000. The accident is

considered to have been caused by the malicious removal of a rail by some person or persons unknown.

- (g) On the 13th August 1921 at about 3-35 hours at a distance of about three quarters of a mile south of the up outer signal of Gangasagar Station on the Akhaura Sub-Division, of the Assam Bengal Railway an attempt at train wrecking resulted in 7 Up mixed train being derailed. The engine capsized and fell down the bank and 14 other vehicles were badly derailed and bunched together. Six people, including four railway servants sustained injuries, but no deaths occurred. The damage caused to the permanent-way and rolling stock was estimated at Rs. 30,886. The accident was considered to have been caused by the malicious removal of a pair of rails by some person or persons unknown. **Assam Bengal Railway.**
- (h) Another attempt at train wrecking, on the Assam Bengal Railway, occurred on the 17th August 1921 at about 21-10 hours at miles 4-20, between Pahartali and Bhatiyari, when No. 3 Up passenger train was derailed with the result that the engine and tender capsized and the four leading coaches derailed and telescoped. One passenger was killed and 3 injured. The damage to permanent-way and rolling stock was estimated at Rs. 53,450. Evidence of enquiry into the accident proved conclusively that the line was rendered unsafe by the malicious removal of the fish plates at one pair of joints by some person or persons unknown.
- (i) A serious accident occurred on the morning of the 25th June 1921 when the engine and 6 leading carriages of No. 7 Up passenger train from Moradabad to Gaziabad fell into the Sot Nuddi owing to the collapse of bridge No. 36 west of Amroha station on the Oudh and Rohilkhand Railway. The accident was caused by an unprecedented flood occasioned by very heavy rainfall on the catchment area during the previous three days. It is estimated that 39 passengers were killed and 30 injured of whom one subsequently died. The total damage to the bridge, permanent-way and rolling stock was estimated at Rs. 99,318. The Committee of Enquiry that assembled to investigate into the reasons leading up to the accident were satisfied that the line was properly patrolled on the night of the accident and that those whose duty it was to carry out this patrol were fully aware of their duties, and that the bridge had been thoroughly inspected by an officer the month previous to the accident. **Oudh and Rohilkhand Railway.**

CHAPTER X.

GENERAL.

Technical.

95. A reference was made in last report to the important work carried out in the Technical Section of the Railway Board's office and in particular to the investigations being made by the Indian Bridge Committee. This Committee which owes its inception to the Inchcape Conference of 1912 held its fifth meeting in October 1921 and discussed the merits of the different methods of allowing for impact placed before it and also considered the impact experiments conducted by Mr. H. S. Sales, their Investigating Officer during the months of January to April 1921. The Committee came to the conclusion that many more tests were required to be made before a scientific formula covering all sources of impact could be evolved which would take the place of the Pencoyd formula in the rules for the design and inspection of railway bridges. The Committee also made certain recommendations in regard to the question of the revision of Indian Railway Bridge rules. It was decided that having regard to the fact that the conditions laid down at the Inchcape Conference had been practically fulfilled in so far that the Committee had completed its preliminary part of the investigation, the Railway Board might safely dissolve it after the 5th meeting; but it was resolved that, as the continuation of investigation would lead to valuable results, railway administrations should be asked to afford all reasonable facilities to their Bridge Engineers to carry on this work. The Committee was also unanimously of opinion that there should be an annual meeting, under the chairmanship of the Chief Engineer with the Railway Board, of Bridge Engineers and any others interested in bridgework who may be invited by the chairman to attend the meeting and that the results of investigations should be collected in the Railway Board's office. Investigations on standards of loading and impact are being continued by the British Engineering Standards Committee in England and it is hoped that satisfactory results will be arrived at in the course of a year or two.

The Technical section of the Railway Board's office published the following papers during the year :—

- No. 213.—A substitute for track circuit between stations with supplementary notes on other expedients for preventing a driver from entering a block section without authority.
- No. 217.—Notes on concrete railway sleepers.
- No. 219.—Technical education in relation to railways in America.
- No. 220.—Steam *versus* electric locomotives for heavy grades.
- No. 221.—Further notes on steam *versus* electric traction.
- No. 222.—American Railway motive power department and fuel organisations.
- No. 223.—Minor equipment of locomotive repair shops.
- No. 224.—Volume I of the fourth report of the Indian Railway Bridge Committee.

No. 225.—Volume II of the Fourth Report of the Indian Railway Bridge Committee.

No. 226.—Track stresses.

No. 227.—Reversing of double headed rails—deductions from experiments on the East Indian Railway.

No. 228.—Fifth Report of the Indian Railway Bridge Committee.

96. Mention must be made of the question of railway statistics which in their present form are recognised to be unsatisfactory and were rather unfavourably commented upon by the Acworth Committee. The present form of statistics was introduced as long ago as 1880 and though certain changes have from time to time been made, no great alteration has so far been attempted. In these days when economy has assumed a position of the first importance it is possible that what was justifiable years ago may now be unduly elaborate. Moreover great improvements in method have been made in other countries. Calculating machinery has taken the place of human agency in the process of compilation, and it is important that Indian railways shall take every advantage of experience of other countries in this matter. The question of the general overhaul of statistics was taken up in 1913, but further consideration had to be deferred owing to the outbreak of the war. An experienced officer has now been placed on special duty and has collected information in regard to up-to-date procedure in England and America. It is now proposed to employ him in association with an officer of the Audit Department to make a complete overhaul of the existing methods and policy in this matter, and it is hoped that very substantial economy besides increase in efficiency will result.

Railway
Statistics
and accounts.

As regards the improvement in the form of railway accounts which are closely connected with statistics, a committee of senior accounts officers was appointed in 1920 with a view to improving the systems of account, audit and apportionment of railway receipts. The Committee studied the various systems of station accounts and audit procedure in force on railways in England and America, and considered the question of adoption of some of the more useful suggestions on Indian railways. They also looked into the question of establishing a clearing house in India. Their report was received in 1921. The recommendations made by the Committee are being considered by the Railway Board in consultation with the Railway Administrations and the Accountant General, Railways.

97. The Administration Report of the Railway Department for 1921-22 would be incomplete without some reference to certain large questions affecting the future administration of railways which could not appropriately be referred to in the chapters dealing with the review of year's working.

Central
Advisory
Council.

In paragraphs 139-141 of their report the Acworth Committee recommended the appointment of a Central Advisory Council for Railways which would perform the functions of an advisory body to the Government of India and would provide for the representation of public opinion in the deliberations of Government in respect of larger matters of railway policy. The Government of India were in entire agreement with the Committee in respect of the necessity of such a body and decided that it would be convenient to give this proposal priority over other proposals of the Committee and to use the Council when formed for the purpose of considering the remaining

larger issues raised in the report. It was, however, found to be impracticable to constitute the Council exactly as recommended, and it was accordingly decided to give effect to the principle of the proposal by forming the Council from selected members drawn from the Legislative Assembly and the Council of State. This decision was given effect to in March 1922 and the first meeting of this Council took place at Delhi on 25th March 1922 at which a preliminary discussion of the question of State *versus* Company management took place. A second meeting of the Council has since been convened at which this same subject has again been discussed together with a number of other important matters of railway policy.

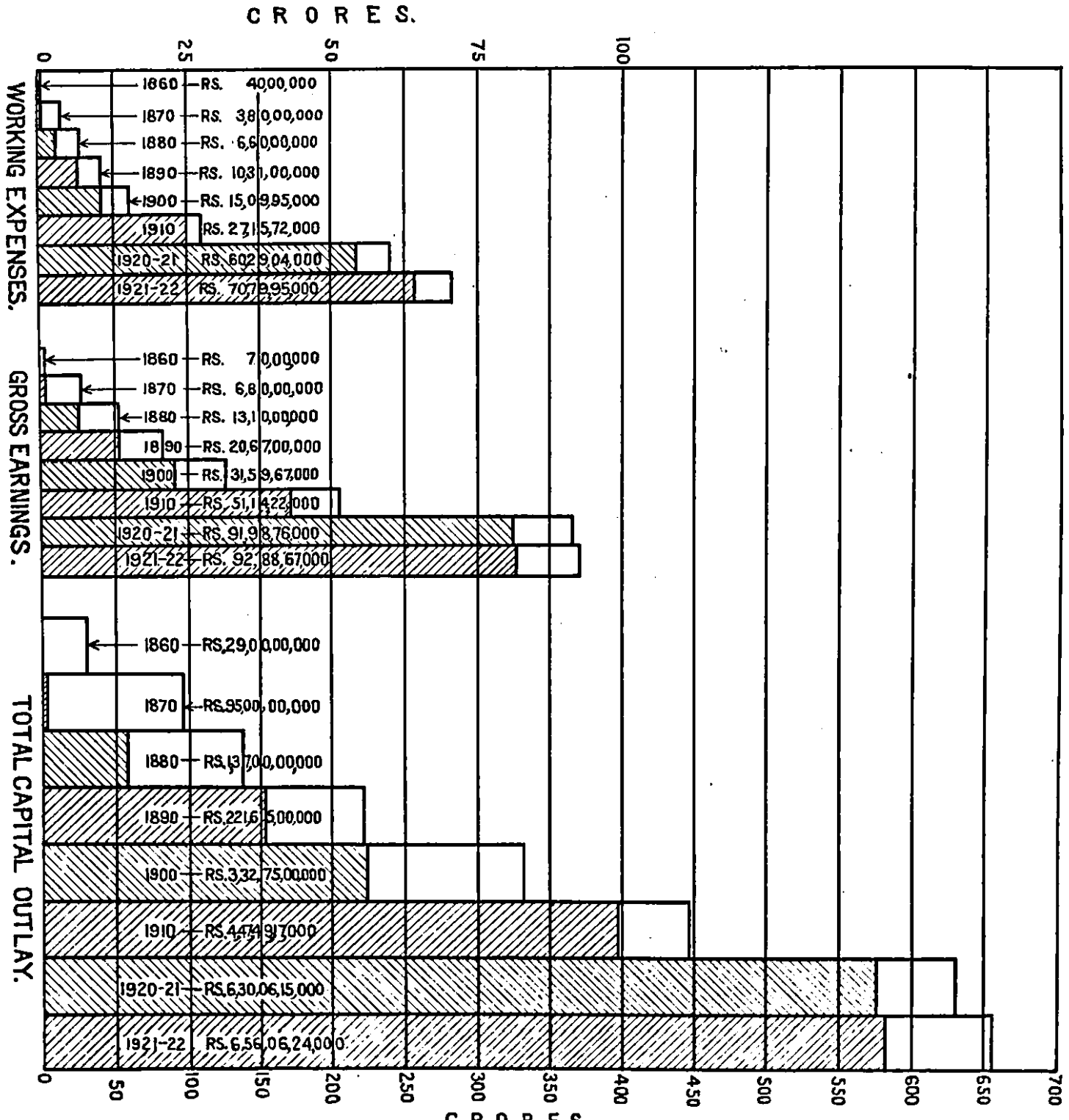
**Local
Advisory
Committees.**

98. Of the matters already so discussed by the Council there is one which merits special mention. The Acworth Committee recommended in para. 142 of their report the constitution of Local Advisory Councils in connection with each large administration. Something on these lines was of course already in existence on two railways—the East Indian Railway and the Eastern Bengal Railway—but the purpose of the Committee involved some extension of the scope of usefulness hitherto assigned to those bodies and the adoption of similar measures in respect of all other railways. This is a matter in regard to which the public are naturally very directly interested, and the Government of India considered that the proposal should be acted upon with the least possible delay. Preliminary consideration of the measures necessary to give effect to the proposal were therefore taken at once and the plan of action as provisionally drawn up has been considered by the Central Advisory Council and approved by the Government of India, and will, it is hoped, shortly come into force.

**Branch Line
Policy.**

99. Another matter of importance which has also been considered by the Advisory Council is the policy of construction by means of Branch Line Companies. The existing terms of Government assistance to Branch Line Companies are now out of date and ineffective for practical purposes and the question of their revision has been under consideration for some time. The Acworth Committee were not in favour of any very extended use of this expedient for securing railway extension in India. They considered that it was expensive and tended to create a multiplicity of minor owners with embarrassing possibilities for the future. The Railway Finance Committee who also gave this matter some consideration were inclined to the opinion that its use should be restricted to certain particular lines and then only subject to certain conditions which would ensure the Indian domicile and character of the company. Apart, however, from all other considerations it is obviously impracticable that any permanent revision of the Branch Line Terms can be carried out at present while the value of money is still in an unstable condition. Since the close of the year under review the matter has again been considered by the Central Advisory Council who have advised some relaxation in favour of urgent projects, and their proposals are now under the consideration of Government.

RAILWAY DEVELOPMENT IN INDIA.



1. Review of 1910
 2. 1911-12
 3. 1912-13
 4. 1913-14
 5. 1914-15
 6. 1915-16
 7. 1916-17
 8. 1917-18
 9. 1918-19
 10. 1919-20
 11. 1920-21
 12. 1921-22

APPENDIX A.

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

(Reprinted from the Report for 1914-15.)

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, three (the North Western, Eastern Bengal and Oudh and Rohilkhand Railways) are owned and worked by the State; eight (the East Indian, Great Indian Peninsula, 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 the chief 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.

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 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.

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.

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

**Early Attempts to Secure Funds
for Railway Construction
without a Guarantee.**

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 disliked 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 chief 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 Irrawaddy Valley, and Tirhoot.

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

Progress in the Construction of Railways.

and South-Eastern and Nalhati 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.

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:

Introduction of Modified Guarantee Terms.

“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 of 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 $3\frac{1}{2}$ 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 $3\frac{1}{2}$ 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 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 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.

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 all other cases (East Indian, South-Indian, Great Indian Peninsula, 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.

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 (except in the case of the East Indian Railway Company, which is for special reasons to receive a terminable annuity instead of a cash payment).

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 rail-

ways 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.

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.

The greater number of the powers for the detailed control of railways as described in the foregoing paragraphs are vested in the **Controlling Authority.** The Board consists of a President and two Members with a Secretariat establishment.

APPENDIX B.

Resolution No. 457-R.P., dated the 14th November 1913, as modified by letter No. 969-R.P.-14, dated the 13th March 1914.

Terms on which the Government of India are prepared to consider offers for the construction by the agency of private companies of branch lines forming feeders either to State lines worked by the State or to railways worked by companies.

RESOLUTION.—In supersession of all previous orders on the subject, the following information is published detailing the conditions on which the Government of India will be prepared to receive applications for the grant of financial assistance to companies formed to provide capital for the construction of such branch railways as Government may be prepared to entrust to companies. The terms offered have been made considerably more liberal in several respects.

2. No concession can be granted for the construction of a branch line until the line has been surveyed and detailed estimates of its cost and an adequate report on its traffic prospects have been prepared by an agency approved by the Government of India. When promoters are desirous that such a survey should be made an application should be submitted to the Railway Board in the form prescribed in memorandum B, attached.

3. The conditions on which concessions for the construction of branch lines will be granted are as follows:—

- (i) The prospectus of the company to be formed for the purpose of providing capital for the line must be submitted to, and approved by, the Government of India before issue. The capital of the company must be expressed in rupees, and subscription must be invited only in India. The amount of capital to be raised will be subject to the approval of the Government of India and the construction of the line will not be begun until the Government of India are satisfied that capital sufficient to meet the estimated expenditure has been subscribed.
- (ii) The railway shall be built according to plans and estimates approved by the Government of India, and must conform to the fixed and moving dimensions for the time being prescribed. The gauge of the line, the route followed, the situation of stations, and details of a similar character shall be subject to the approval of the Government.
- (iii) All land in British Territory, which is, in the opinion of the Government of India, required for the construction of the line, will be provided free of charge, including land permanently or temporarily required for quarrying ballast, for brick-fields, and similar purposes.
- (iv) The results of existing surveys will be made available to persons applying for concession under these rules. In cases where this is considered advisable by the Railway Board, fresh surveys will be made at the request of promoters enquiring into the probable prospects of any projected line, on the understanding that no preferential claim to a concession for the construction of the line is thereby established. If permission be eventually given for the construction of any line the cost of all surveys, whether special surveys or surveys previously made at the cost of, or with the approval of Government, shall be included in the capital cost of the railway. The Government of India expressly disclaim all responsibility for the accuracy of any survey, plan, estimate, or other information supplied by them.

- (v) Electric telegraphs and telegraphic appliances will be supplied and maintained by the Government of India at the charges and on the conditions in force for the time being for similar services on State railways.
- (vi) Railway materials for the construction of the branch line will be carried over railways owned and worked by the State at the special rates charged for similar materials belonging to State railways.
- (vii) The Government of India will grant financial assistance to approved companies either in the shape of a guarantee of interest, or of a rebate to the branch line company from the net earnings of the main line from traffic interchanged with the branch. Assistance in the latter form can only be promised where the main line is worked by the State; but the Government of India will, in other cases, endeavour to arrange on behalf of the branch line company a similar agreement with the company working the parent line. "A rebate and a guarantee of interest cannot be granted simultaneously in respect of the same capital; but capital may be raised for the same branch line, partly under the guarantee system and partly under the rebate system." In cases where the entire capital is raised by the issue of shares the following terms will apply:—
- (a) *Guarantee of interest.*—The Government of India will be prepared to guarantee from the close of the period during which interest is payable out of capital interest at the rate of $3\frac{1}{2}$ per cent. per annum on the approved paid-up share capital of the company to the end of the financial year in respect of which the dividend is declared, subject to the condition that all surplus profits which may be earned by the company after paying interest on the paid-up share capital at the rate of 5 per cent. shall be equally divided between the Government and the company. This guarantee, where given, will remain in force until the line is purchased by the Government. Any sums payable by the Government under the guarantee shall be payable in rupees.
- (b) *Rebate.*—When the branch line connects with a railway owned and worked by the State, the Government of India will be prepared to allow the company in respect of, and, at the end of each financial year, by way of rebate, such a sum, not exceeding in any year the net earnings (exclusive of earnings derived from the carriage of revenue stores) from traffic interchanged between such State railway and the branch line as shall, together with the net earnings of the branch line, make up an amount equal to interest at the rate of 5 per cent. per annum on the approved paid-up share capital of the company. This undertaking will be subject to the proviso that, when the net earnings of the company, without the assistance of a rebate, suffice to pay interest at a rate exceeding 5 per cent. on the paid-up share capital, the surplus shall be divided equally between the Government and the company. The payment of rebate shall commence at the close of the period during which interest is payable from capital. Payments on account will, subject to subsequent adjustment, be permissible at the end of each half-year. For the purpose of calculating the rebate, the net earnings of the main line from traffic interchanged with the branch, will be assumed to bear the same proportion to the gross earnings of the main line from such traffic as the net earnings of the whole main line system, including the branch, bear to the gross earnings of the whole system.
- (c) *Combination guarantee and rebate terms.*—When the capital of a branch line has been raised partly on guarantee and partly on rebate terms, the Government of India will allow in respect of the share capital issued on the $\frac{\text{Guarantee}}{\text{Rebate}}$ system the amount (if any) which would have been due on

such share capital from time to time had the entire capital been raised on $\frac{\text{Guarantee}}{\text{Rebate}}$ terms.

- (viii) (a) If, in the case of a concession granted under either of the conditions of the foregoing paragraph, it be intended by the branch line company to construct and work the branch line itself, the amount to be spent each year on working expenses will be subject to the approval and sanction of the Government of India.
- (b) In such cases the Government of India may, from time to time, appoint any one person to be a Director of the branch line company who shall be *ex-officio* a member of all Committees appointed by the Board of Directors of the company or by the company in relation to the undertaking or any other matter connected therewith, and shall have power to exercise at his discretion an absolute veto in all proceedings of the Board of Directors and shall not be removable except by the Government of India, and may act by a Deputy appointed by the Government of India.
- (c) If a branch line company, which has been granted financial assistance under clause vii (a) above and permitted to work the railway by its own agency, be guilty of any breach of contract or of gross mismanagement, or if the working expenses of the railway exceed the gross earnings for six consecutive half-years, the Government of India may at any time, after giving six months' notice, assume the working of the railway by the State or any other agency. If the working of the line is so assumed, the terms of working will be fixed by Government.
- (ix) Where the main line is a railway owned and worked by the State, the main line administration will, if it is so desired, work the branch line for a percentage of the gross earnings of the branch. When the branch and main line are of the same gauge this percentage will usually be that obtaining on the whole system, including the branch, from time to time, but will not in any case exceed 50 per cent. of the gross earnings of the branch from all sources, and will include all charges on account of the use of the main line rolling-stocks, subject to the condition that the company shall, if and when required to do so during the continuance of the working contract, bear the capital portion of the cost as stated by Government of strengthening the permanent-way and bridges of the branch line to enable the rolling-stock for the time being of the working railway to be used on it without restriction. Where the gauges are not the same, special working terms will be fixed in each case. When the main line is not worked by State agency, the Government of India, if desired to do so by the branch line company, will endeavour to negotiate similar terms for working with the main line administration.
- (x) No capital expenditure by the branch line company shall be recognised, as between the Government of India and the company, unless the prior sanction of the Government of India to that expenditure has been obtained. The company shall have no power to increase its share or stock capital without the sanction of the Government of India or the Secretary of State, or to borrow money, otherwise than for purely temporary purposes, except on conditions to be specified by these authorities.
- (xi) Any unexpended capital, which the company may have, shall be invested or deposited at interest in a manner to be approved by the Government of India and in the name of the company, not in that of the Managing Agents, and the return therefrom shall be treated as net earnings of the railway.
- (xii) The branch line company, if so required, shall keep accounts in forms approved by the Government of India, and they shall supply, free of charge, all accounts required by the Government. The accounts will be subject to audit by officers appointed by the Government.

(xiii) Funds for the execution of new works chargeable to capital, which may be found to be necessary for the safety, economy, or efficiency of working after the branch railway has been opened to public traffic, shall be provided by the branch line company. Such works and their cost shall, when the branch railway is worked by the main line administration be agreed upon between the branch line company and the main line administration before they are undertaken; in the event of any difference of opinion as to the necessity for, or the cost of any such work, the matter shall be referred to the Railway Board, whose decision shall be final.

In the event of the branch line company failing to provide, after six months' notice, any additional capital for work required under this condition or conditions (ii) and (iv) above, the Government of India shall be at liberty to supply the necessary funds, and to carry out the work, and shall be entitled to receive from the sums payable to the branch line company, by way of net earnings or rebate, interest at 5 per cent. (or any lower rate that it may in special cases agree to accept) on funds so applied.

(xiv) Subject to the law for the time being in force, payment out of capital will be sanctioned, during a period which may extend to the close of the half-year in which the railway shall have been opened throughout for public traffic, of such sums as, with the interim net earnings, shall be required to pay interest at a rate to be agreed upon on the paid-up capital of the company.

(xv) Such expenses on account of administration of the branch line company as the Government of India may sanction may be charged during construction to the capital account of the company, and with effect from the date on which the line is opened for traffic throughout will be charged as follows:—

(a) if the branch line company works its own line, as part of the working expenses of the line;

(b) if the company's line is worked by the main line administration;

(1) when the net earnings do not suffice to pay interest at 5 per cent. (or suffice to pay only 5 per cent.) on the paid-up share capital of the company, as part of the working expenses to be met out of the stipulated percentage of the earnings of the branch taken by the working agency:

(2) when the net earnings exceed 5 per cent. on the paid-up share capital of the company, as a first charge on surplus profits before division; provided that, if the surplus profits are insufficient to meet the administration charges, the balance will be paid by the working agency out of the stipulated percentage of the earnings of the branch taken by it.

(xvi) The rates and arrangements in force on State railways as regards services rendered to other departments of State shall apply to the branch line. The branch line company shall also be liable when called on to provide, at such stations as may be ordered by Government, buildings for post office and quarters for post office staff at a charge not exceeding $7\frac{1}{2}$ per cent. per annum on the capital cost of the said buildings and quarters.

(xvii) The Government of India reserve the right to fix and vary from time to time the classification of goods for tariff purposes and the maximum and minimum rates of each class of goods and for passengers. They also reserve a general right of control in respect of the number and timing of trains.

(xviii) During the first year after opening of the branch line or part thereof, expenditure incurred on the maintenance of the line, may be charged to capital.

(xix) Notwithstanding anything in the preceding clauses, expenditure due to extraordinary accidents and casualties, or to defects and their consequence in the construction of the line or in any part thereof shall be met by the branch line company, in addition to the percentage of earnings payable to the main line as working expenses, and shall be charged against the branch

line net earnings, or against capital, according to circumstances, in accordance with the general usage on Indian railways.

- (xx) All agreements for lines constructed under these terms shall include a special purchase clause permitting the Government of India to purchase the lines at any time, after giving one year's notice, in the following cases:—
- (1) When the Government of India consider it desirable that the gauge of the branch line should be altered.
 - (2) When it is desired to convert the branch line into a line of through communication.
 - (3) When the Government of India desire to extend the branch line (without altering the gauge or making the line part of a through route), and the branch line company is unable or unwilling to supply the necessary capital for such extension.

In the event of a line being purchased under this clause, the price payable shall be 25 times the average net earnings (excluding payments on account of guarantee or rebate) during the three years preceding the purchase, or 115 per cent. of the capital expenditure on the line, whichever may be the greater. All payments shall be made on a rupee basis.

- (xxi) The agreements shall also include an ordinary purchase clause permitting the Government of India to purchase the lines at the expiry of 30 years from the date on which the railway was declared open for traffic or at subsequent intervals of 10 years, subject to the condition that at least one year's previous notice of the intention to purchase has been given. The price payable on purchase under this clause shall be 25 times the average net annual earnings (excluding payments on account of guarantee or rebate) during the three years preceding the purchase, subject to a maximum of 120 per cent. and a minimum of 100 per cent. of the capital expenditure on the line at the time of purchase. All payments shall be made on a rupee basis.

4. Applications for concessions under these orders should be submitted in the forms prescribed by Memorandum A, attached to this Resolution. Copies of the forms may be obtained on application to the Secretary to the Railway Board. Requests from promoters for information as regards existing surveys, or for new surveys—*vide* paragraph 3 (iv)—should be addressed to the Secretary to the Railway Board. Applications for new surveys should contain the information required by Memorandum B hereto attached.

Resolution No. $\frac{1894}{36}$, P., dated the 7th January 1915.

Grant of special concessions to Branch Line Companies formed for the construction of Railways in Assam.

Observations.—The Government of India have recently had under their consideration the question of adopting further means to encourage the construction of feeder railways in the Province of Assam. It has been recognised that improved means of communication are essential if the material development of which that Province is capable, is to be brought about, but that, in the present partially developed state of large tracts, the immediate financial prospects of branch railways constructed in those tracts are less favourable than are the prospects of similar railways in other Provinces of India. In these circumstances, the Government of India consider that in order to encourage the formation of companies for the construction of feeder railways in partially developed tracts in Assam, some increased measure of financial assistance is required during the early years after the opening of such railways and before the country traversed has attained to that state of development to which the existence of a railway may be expected to conduce. The Government of India have therefore decided with the approval of His Majesty's Secretary of State in Council of India that the Assam Administration may in approved cases supplement the financial assistance by way of

guarantee the grant of which at the charge of Imperial revenues is contemplated by the Government of India Resolution No. 457-R. P., dated 14th November 1913.

Resolution.—In the case of branch line companies formed for the construction of railways in partially developed tracts in Assam the Government of India will be prepared, provided the conditions implied in the foregoing Observations are fulfilled, to sanction an arrangement by which, in addition to the Imperial guarantee of 3½ per cent. contemplated in clause 3 (VII) (a) of their Resolution No. 457-R. P., dated 14th November 1913, the Assam Administration shall undertake for a fixed term of years to make good to the branch line company the sum necessary to increase the rate of dividend to 4½ per cent. on the paid-up capital of the company when its net earnings are insufficient to admit of the payment of a dividend at this rate. The period during which the Assam Administration will undertake this liability must depend on the circumstances of each individual case and the prospects of early development which it presents. In all other respects the orders for the time being in force regarding the formation of companies for the construction of feeder railways in other parts of India will apply to the formation of companies for a like purpose in the province of Assam.

MEMORANDUM A.

For the guidance of persons or syndicates desirous of submitting proposals for the construction of branch railways in India forming feeders either to State lines worked by State or to railways worked by Companies.

1. All applications for leave to construct a branch or feeder railway in any part of British India are to be addressed to the Secretary to the Railway Board.

2. All such applications shall be printed, and shall be drawn up, as far as may be in Form A attached hereto, and shall specify:—

- (a) the company, person, or syndicate by whom the application is preferred; the proposed amount of capital, the number of shares and the amount of each share;
- (b) all the termini, together with the names of all the principal towns from, through, into, or near which the railway is intended to be constructed, as well as the names of each civil division and district to be traversed by the proposed alignment;
- (c) the length, so far as known, of the proposed railway;
- (d) the gauge, the weight of rails, etc.;
- (e) motive power to be employed;
- (f) the maximum tolls, rates and fares proposed to be charged on the projected railway;
- (g) the proposals for working the railway when constructed; and if any agreement is under contemplation, or has been provisionally arranged with any existing Railway Administration, under which the proposed line, when constructed, is to be leased out for working by such Railway Administration, the exact nature and terms of such agreement;
- (h) the charges proposed by the applicants for floating the branch company;
- (i) the charges proposed on account of the general administration of the branch company's affairs;
- (j) any further information that may be required to enable Government to thoroughly understand the scope of the proposals.

3. Every such application shall be accompanied by a map to a scale of one mile to one inch, with the line of the proposed railway delineated thereon, so as to show its general course and direction, and also by an estimate, as correct as may be, of the work proposed to be authorised.

4. When the applicants draw up their own detailed plans and estimates, these documents are invariably to be prepared in strict accordance with the rules for the preparation of railway projects issued under the authority of the Government of India, of

which copies may be obtained on payment from the Superintendent of Government Printing, Calcutta.

5. If Government are prepared to entertain an application put forward in respect of a line that has already been surveyed, permission will be accorded on application to the Secretary to the Railway Board, to inspect at all reasonable hours, the detailed plans, sections and estimates at the disposal of Government; and copies of such plans, sections and estimates will be furnished on payment of the cost of copying.

6. But in regard to all such information, statistics, plans, sections, or estimates, which may be furnished, it is to be recognised that the information thus offered to any person interested in the matter, is simply the best information of the kind at the disposal of Government and that Government cannot accept any responsibility whatever in regard to the accuracy of any of the documents.

Form A.

To accompany all applications for leave to construct a branch or feeder railway in any part of British India.

| | Nature of particulars to be specified. | Particulars. |
|----|---|--|
| 1 | The name of the company, person or persons by whom the application is preferred; the proposed amount of capital, the number of shares and the amount of each share. | |
| 2 | The termini, together with the names of all the principal towns from, in, through or into or near which the railway is intended to be constructed. | |
| 3 | The length, as far as known, of the proposed railway. | |
| 4 | The gauge proposed and weight of rails, etc. | |
| 5 | The motive power to be employed. | |
| 6 | The maximum tolls, rates and fares intended to be charged on the proposed railway. | <i>Reference to an appendix (vide next page) may be here given if necessary.</i> |
| 7 | Details of any agreement which may have been provisionally arranged, or which it is desired to enter into, under which the proposed line, when constructed, is to be leased out for working to any existing Railway Administration. | |
| 8 | The charges proposed by the applicants for floating the branch company. | |
| 9 | The charges proposed on account of the general administration of the branch company's affairs. | |
| 10 | Any further information that may be required to enable the Government of India to thoroughly understand the scope of the proposals. | |

Schedule of maximum and minimum rates and fares intended to be charged on the proposed branch railway.

| | Maximum. Pies per mile. | Minimum. Pies per mile. |
|--|---|---|
| <i>Passengers fares—</i> | | |
| 1st class | ... | ... |
| 2nd class | ... | ... |
| Intermediate class | ... | ... |
| 3rd or lowest class | ... | ... |
| | Maximum. Pies per mile. | Minimum. Pies per mile. |
| <i>Carriages—</i> | | |
| Single carriage | ... | ... |
| | Maximum. Pies per truck. | Minimum. Pies per truck. |
| Two or more carriages on one truck | ... | ... |
| | Maximum. Pies per mile. | Minimum. Pies per mile. |
| <i>Horses—</i> | | |
| Single horse | ... | ... |
| | Maximum. Pies per 50 miles or portion thereof. | Minimum. Pies per 50 miles or portion thereof. |
| <i>Dogs—</i> | | |
| Each | ... | ... |
| <i>Parcels and luggage—</i> | | |
| If it is proposed to adopt the rates approved by the Indian Railway Conference Association, it will be sufficient to state this fact; otherwise the rates proposed should be stated. | | |
| | Maximum. Pies per maund per mile. | Minimum. Pies per maund per mile. |
| <i>Goods rates—</i> | | |
| 5th class | ... | ... |
| 4th „ | ... | ... |
| 3rd „ | ... | ... |
| 2nd „ | ... | ... |
| 1st „ | ... | ... |
| Special class | ... | ... |
| X class (Explosives including dangerous goods) | ... | ... |

MEMORANDUM B.

Information to be supplied by persons or syndicates desirous of having surveys, for branch or feeder lines of railway in India carried out at the cost of Government.

1. All such applications shall specify—

- (a) the company, person or syndicate by whom the application is preferred;
- (b) all the termini, together with the names of all the principal towns from, through, into, or near which the survey is intended to be carried, as well as the names of each civil division and district to be traversed by the proposed alignment;
- (c) the length, so far as known, of the proposed railway;
- (d) the gauge and the motive power to be employed;
- (e) the intentions of the applicants as to the construction and working of the railway. If it is intended that the working shall be leased to any existing Railway Administration, the nature of the contemplated agreement shall be specified.

2. Every such application shall be accompanied by a map to a scale of one mile to one inch, with the line of the proposed survey delineated thereon, so as to show the general course and direction.