RAILWAY DEPARTMENT

GOVERNMENT OF INDIA

RAILWAY BOARD

Railways in India

Administration Report for the year

1918-19

In Two Volumes -

with 3 Maps -

VOLUME I

(REPORT)

SIMLA

GOVERNMENT CENTRAL PRESS

1919

Price Rs. 1/8/- or 2s. 3d.

Agents for the sale of books published by The Superintendent of Government Printing, India, Calcutta.

In Europe–

CONSTABLE & Co., 10 Orange Street, Leicester Square, London, W.C.

KEGAN PAUL, TRENCH, TRUBNER & Co., 68-74, Carter Lane, E. C., and 25, Museum Street, London, W.C.

BERNARD QUARITCH, 11, Grafton Street, New Bond Street, London, W.

P. S. KING & SONS, 2 and 4, Great Smith Street, Westminster, London, S.W.

H. S. KING & Co., 65, Cornhill, E. C., and 9, Pall Mall, London, W.

GRINDLAY & Co., 54, Parliament Street, London, S.W.

LUZAC & Co., 46, Great Russell Street, London, W.C.

W. THACKER & Co., 2, Creed Lane, London, E.C.

T. FISHER UNWIN, LTD., 1, Adelphi Terrace, London, W.C.

WM. WESLEY & SON, 28, Essex Street, Strand, London.

B. H. BLACKWELL, 50 and 51, Broad Street, Oxford.

DEIGHTON, BELL, & Co., LTD., Cambridge.

OLIVER AND BOYD, Tweeddale Court, Edinburgh.

E. PONSONBY, LTD., 116, Grafton Street, Dublin.

ERNEST LEROUX, 28, Rue Bonaparte, Paris.

MARTINUS NIJHOFF, The Hague, Holland.

In India and Ceylon–

THACKER SPINK & Co., Calcutta and Simla.

NEWMAN & Co., Calcutta.

R. CAMBRAY & Co., Calcutta.

S. K. LAHIRI & Co., Calcutta.

B. BANERJEE & Co., Calcutta.

THE INDIAN SCHOOL SUPPLY DEPOT, 309, Bow Bazar Street, Calcutta, and 226, Nawabpur, Dacca.

BUTTERWORTH & Co. (INDIA), LTD., Calcutta.

RAI M. C. SARKAR BAHADUR & SONS, 90-2-A., Harrison Road, Calcutta.

THE WELDON LIBRARY, 18-5, Chowringhee Road, Calcutta.

STANDARD LITERATURE COMPANY, LTD., Calcutta.

LAL CHAND & SONS, Calcutta.

HIGGINBOTHAM & Co., Madras.

V. KALYANARAMA IYER & Co., Madras.

G. A. NATESAN & Co., Madras.

S. MURTHY & Co., Madras.

THOMPSON & Co., Madras.

TEMPLE & Co., Madras.

P. R. RAMA IYER & Co., Madras.

VAS & Co., Madras.

E. M. GOPALAKRISHNA KONA, Madura.

THACKER & Co., LTD., Bombay.

A. J. COMBRIDGE & Co., Bombay.

D. B. TARAPOREVALA, SONS & Co., Bombay.

MRS. RADHABAI ATMARAM SAGOON, Bombay.

SUNDER PANDURANG, Bombay.

GOPAL NARAYAN & Co., Bombay.

RAMCHANDRA GOVIND & SON, Kalbadevi, Bombay.
A. H. WHEELER & Co., Allahabad, Calcutta and Bombay.
N. B. MATHUR, SUPDT., Nazir Kanun Hind Press, Allahabad.
RAI SAHIB M. GULAB SINGH & SONS, Mufid-i-Am Press, Lahore and Allahabad.
RAMA KISHAN & SONS, Lahore.
SUPDT., American Baptist Mission Press, Rangoon.
MANAGER, the "Hitavada," Nagpur.
S. C. TALUKDAR, Proprietor, Students and Company, Cooch Behar.
A. M. and J. FERGUSON, Ceylon.
MANAGER, Educational Book Depots, Nagpur and Jubbulpore.*
MANAGER of the Imperial Book Depot, 63, Chandney Chauk Street, Delhi.*
MANAGER, "The Agra Medical Hall and Co-operative Association, Ltd." (Successors to A. JOHN & Co., Agra).
SUPDT., Basel Mission Book and Tract Depository, Mangalore.
P. VARADACHARY & Co., Madras.*
H. LIDDELL, Printer, etc., 23, Canning Road, Allahabad.*
RAM DAYAL AGARWALA, 184, Katra, Allahabad.*
D. C. ANAND & SONS, Peshawar.
MANAGER, Newal Kishore Press, Lucknow.

Books and Technical Papers published by the Railway Board.

BOOKS.

(1) Administration Report on the Railways in India. Published yearly. Price—Vol. I, Report Rs. 1-8 or 2*s*. 3*d*. Volume II, Appendices Rs. 1-8 or 2*s*. 3*d*.

(2) Classified List and Distribution Return of Officers of all Indian Railways. Published half-yearly. Price Re. 1 or 1*s*. 6*d*.

(3) History of Indian Railways, constructed and in progress corrected up to 31st March 1918. Published quinquennially. Price Rs. 1-8 or 2*s*. 3*d*.

(4) History of Services of the Officers of the Engineer and Superior Revenue Establishment of State Railways. Published yearly. Price Rs. 2-8 or 3*s*. 9*d*.

TECHNICAL PAPERS.

(5) Over 200 papers have been published by the Technical Section of the Railway Board's office. The papers comprise—

(*a*) Original descriptions of Railway Works in India and elsewhere.

(*b*) Reprints of articles from foreign Engineering Magazines.

(*c*) Reprints or abstracts of reports received by the Government of India on subjects connected with Railways.

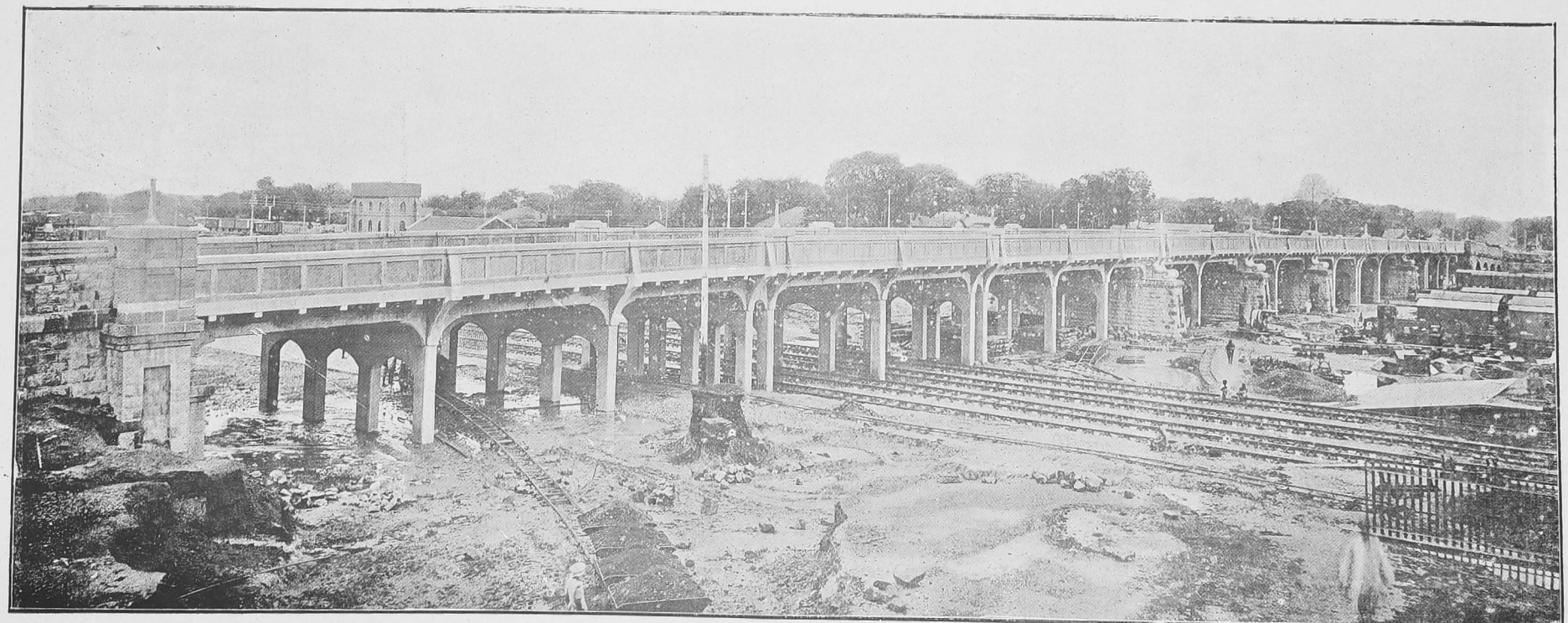
A complete list of the papers can be obtained *gratis* from the Chief Engineer with the Railway Board, Simla.

The books and papers can be bought from the Superintendent, Government Printing, 8, Hastings Street, Calcutta.

The prices of the papers vary from Annas Four to Rs. Eight.

---

* Agents for the sale of Legislative Department publications only.



General view of the Reinforced Concrete Overbridge at Nagpur, Great Indian Peninsula Railway.

RAILWAY DEPARTMENT

GOVERNMENT OF INDIA

RAILWAY BOARD

Railways in India

Administration Report for the year

1918-19

VOLUME I

(REPORT)

SIMLA
GOVERNMENT CENTRAL PRESS
1919

CONTENTS.

CHAPTER I.

CHAPTER II.

CHAPTER III.

CHAPTER IV.

CHAPTER V.

CHAPTER VI.

CHAPTER VII.

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, a "lakh" of rupees, is the equivalent, at the normal rate of Rs. 15 to the pound sterling, of £6,666. A "crore" of rupees is 100 lakhs, Rs. 1,00,00,000, and is therefore equal to £666,666, or £$\frac{2}{3}$ million sterling. An anna is one-sixteenth part of a rupee, equal to one penny; and a pie is one-twelfth part of an anna and is thus the equivalent of one-third of a farthing.

INDIAN RAILWAYS.

Diagram showing for each year the total Capital Outlay, Gross Earnings, Working Expenses, and length in Miles Open; also Percentage of Net Earnings on Capital Outlay and Percentage of Working Expenses to Gross Earnings.

NOTE.—The figures on this scale represent lakhs for the Capital Outlay, tens of thousands for Gross Earnings and Working Expenses and Miles for length open.
In the case of Percentage of Net Earnings on Capital Outlay, and Percentage of Working Expenses to Gross Earnings, each division represents one per cent.
The decrease in the Total Capital Outlay in 1903 is due to revision of the outlay adopted for lines purchased by the State from Guaranteed Railway Companies.

86·29 crores.

555·22 crores.

48·45 per cent.

41·80 crores.

36,617 miles.

8·09 per cent.

Percentage of Working Expenses to Gross Earnings.

Total Gross Earnings of all lines.

Total Capital Outlay on all lines.

Total Miles Open.

Total Working Expenses of all lines.

Percentage of Net Earnings on Capital Outlay on Open lines.

YEARS 1853 4 5 6 7 8 9 1860 1 2 3 4 5 6 7 8 9 1870 1 2 3 4 5 6 7 8 9 1880 1 2 3 4 5 6 7 8 9 1890 1 2 3 4 5 6 7 8 9 1900 1 2 3 4 5 6 7 8 9 1910 11 12 13-14 14-15 15-16 16-17 17-18 18-19 19-20 20-21 21-22 22-23 23-24 24-25 25-26 26-27 27-28 28-29 29-30 30-31

Reg. No. 2082. E 18

Heliozincographed at the Survey of India Offices, Calcutta.

ADMINISTRATION REPORT

ON THE

RAILWAYS IN INDIA

FOR THE YEAR

1918-19

CHAPTER I.

GENERAL.

Introductory.

The period covered by this report has witnessed an inevitable progressive increase in the difficulties of railway administration, to which reference was made in the Reports of the last two years. The stock of materials on which railways depend for their existence has been gradually exhausted, and if the war had continued for another year, the effect on the general standard of our railway service would have been serious. Happily, however, with the cessation of hostilities, we can look forward to relief, though it is probable that with the heavy demand in all parts of the world, and the labour troubles which have come as a sequel to world-wide unrest, the process of reconstruction and improvement may be slower than we could wish.

In spite of the difficulties of operation, it is very satisfactory to be able to record that the gross earnings of the State Railways for the year have again established a record, having reached a figure of Rs. 76,35,00,000 or more than $5\frac{3}{4}$ crores beyond the Budget estimate and 7·34 crores more than the actuals of 1917-18 which was itself a record.

Since 1914-15 the annual increase in gross earnings of all railways has been continuous and marked ; and these gross figures are some measure of the work which has been performed by railways with depleted resources and staff. Many restrictions on railway traffic and travel have perforce been imposed during the war; but it is claimed that the services essential to the economic life of the country have been maintained in spite of great difficulties. To insure this the call on the railway community has been severe and constant. They have responded with a loyalty and devotion to duty, which the Railway Board are glad to have this opportunity of appreciating.

Important Changes in Railway Administration.

In January 1919, Sir A. R. Anderson, Kt., C.I.E., C.B E., returned to the Railway Board from the Indian Munitions Board and took over the Presidentship of the Railway Board from Sir R. W. Gillan, K.C.S.I., who proceeded on long leave towards the close of the term of his appointment. Major-General H. F. E. Freeland, C.B., D.S.O., M.V.O., was appointed in July 1918 an additional member of the Railway Board for the period of the war in view of the special transportation difficulties existing and foreseen.

Mr. G. C. Godfrey, Member, Railway Board, continued during the year to perform the duties of Coal Controller, Calcutta. He received the honour of Knighthood on the 1st January 1919.

In the pocket inside the back cover of this Volume will be found, in addition to the special map referred to on page 19 under the head "Open Line Improvement," a general map of India showing railways open and under construction on the 31st March 1919; also one prepared by Mr. J. H. Trott.*

* *Map of Railway Systems, by Mr. J. H. Trott.*—This additional map is 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, The War Hospital, Moradabad, United Provinces, who holds the copyright.

CHAPTER II.

FINANCIAL RESULTS OF THE YEAR.

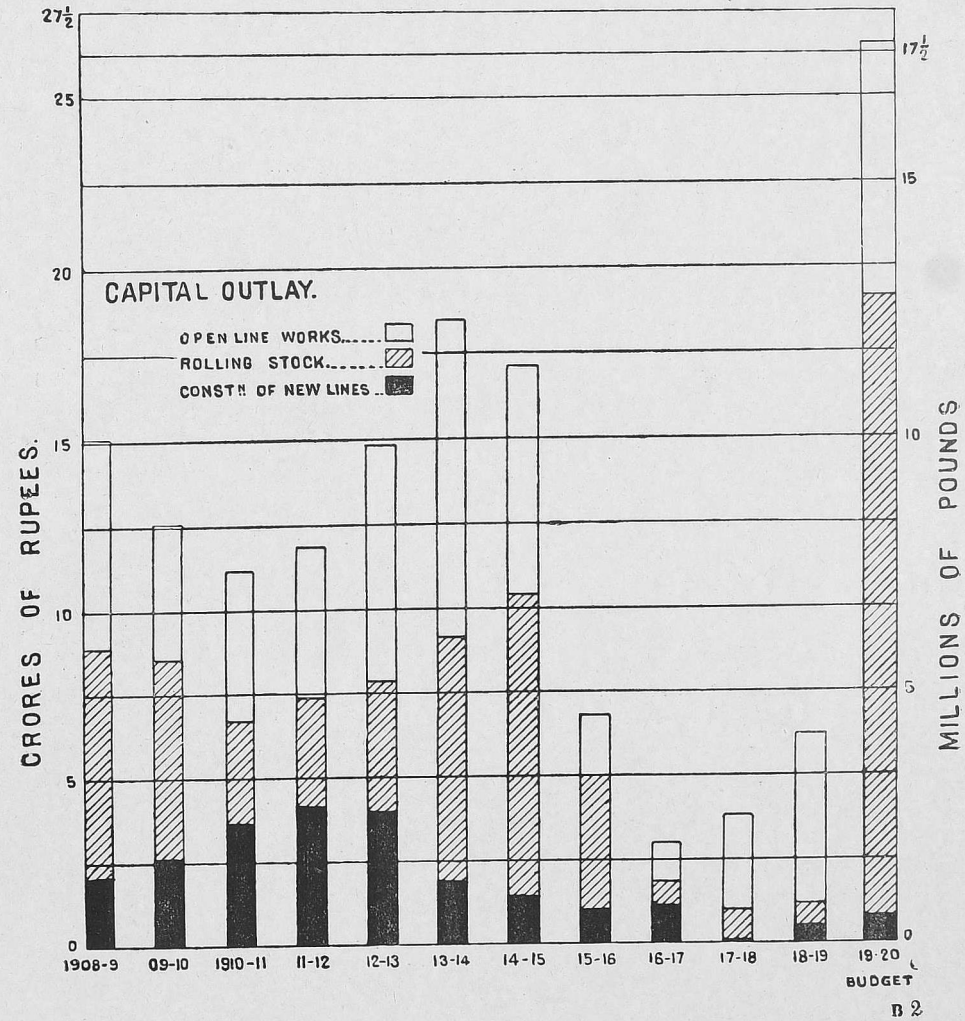
Capital.

The capital outlay incurred by the Government in the purchase and construction of its railways, including the liability which remains to be discharged by means of Annuity and Sinking Fund payments, amounted at the end of 1918-19 to £370,180,560.

2. The outlay incurred during 1918-19 was £4,159,870, distributed as follows:—

	Rs.
Open Line Works including suspense	5,02,45,046
Rolling-stock	70,69,000
New Lines	50,84,000
Total ...	6,23,98,046
Equivalent at Rs. 15 = £1 to	£4,159.870

The following diagram shows graphically how these figures compare with those of past years. The distribution of the grant of £17·7 millions (Rs. 2,655 lakhs) which has been sanctioned for the financial year 1919-20 is also added for purposes of comparison—



During the year under review, the actual capital expenditure fell short of the sanctioned grant for the year by Rs. 45 lakhs. This lapse was due mainly to the difficulties attendant on the supply of railway materials from England.

The capital expenditure sanctioned for 1919-20 is £17·7 millions. This is the largest amount that has ever been allotted to railways in any one year. During the period of the war, the expenditure had to be reduced to the minimum not only for financial reasons, but also because of the difficulty in obtaining the necessary supply of materials. The result has been that the provision of transportation facilities has been unable to keep pace with the growth of traffic, and arrears have now to be made good. In view of the urgent demand, it was considered that rolling-stock equipment should take precedence over other requirements and orders for a large number of engines, coaching stock and goods vehicles have, accordingly, been placed. This stock, when received, will sensibly relieve the situation. In view of the heavy expenditure involved in this portion of the programme, it has not been found possible to provide in this year very liberally for works and this feature of our requirements will receive special attention next year. For the same reason, it has not been found possible to provide for any new line, though a small provision has been allowed for lines already in progress.

The actual capital outlay on railways which have been financed by private enterprise, such as Branch Lines promoted by Companies, District Board Lines, Indian State Lines, etc., amounted at the end of 1918-19 to Rs. 69,01,14,000. The capital expenditure on such lines during the year was as follows :—

	Rs.
Branch Line Companies' Railways	27,72,000
District Board Lines	25,000
Indian State Lines	34,48,000
Total ...	62,45,000

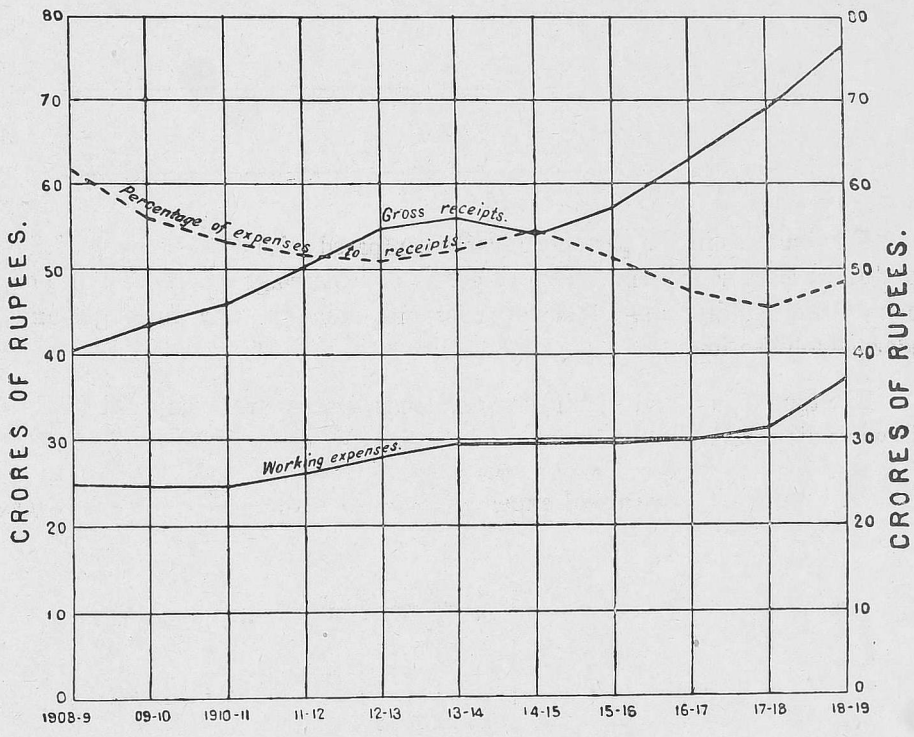
Results of Working.

The following table compares the financial results attained in the working of the State Railways during the year 1918-19 with those of previous years (in the case of money the figures are shown in thousands) :—

	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.	1918-19.
	£	£	£	£	£	£
Capital at charge at end of each year...	351,302	361,560	364,858	365,483	366,463	369,213
Revenue.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Gross traffic receipts.—State Railways	56,31,92	54,15,78	57,26,43	62,94,69	68,92,13	76,25,70
Deduct.—Working Expenses ...	29,35,91	29,52,87	29,53,00	29,96,86	31,35,81	37,07,67
NET RECEIPTS ...	26,96,01	24,62,91	27,73,43	32,97,83	37,56,32	39,18,03
	£	£	£	£	£	£
Equivalent in sterling Rs. 15=£1 ...	17,973	16,419	18,489	21,986	25,042	26,120
Percentage of return on capital at charge.	5·12	4·54	5 06	6·02	6·83	7·07

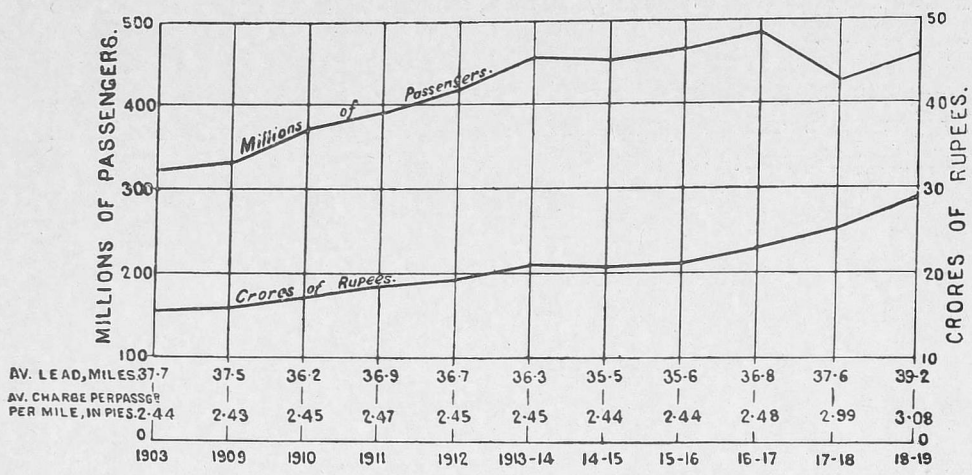
The net working profit from State Railways, after meeting interest and other miscellaneous charges, and certain Annuity and Sinking Fund payments which go to the discharge of debt, amounted in the year 1918-19 to £10,858,379.

The gross receipts and revenue expenditure of the State lines worked by the State and Companies for the past eleven years are compared in the following diagram:—



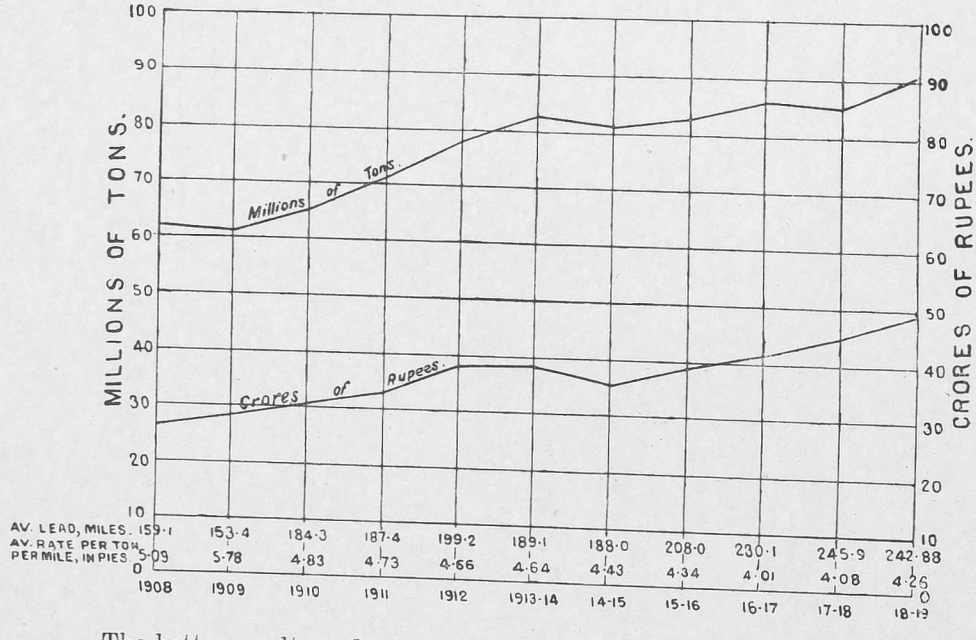
The receipts during the year 1918-19 amounted to Rs. 76·26 crores or Rs. 7·34 crores more than the actuals of 1917-18. This substantial improvement was attributable mainly to the increase in railway coal traffic, to larger receipts from the carriage of troops and military stores, and to increases in the ordinary passenger and general merchandise traffic. The working expenses of the year exceeded those of 1917-18 by Rs. 5·72 crores. The increase was due to a larger programme of special repairs and renewals, to payment to subordinate staff of railways of temporary increases of pay, to the enhanced scales of pay of officers and subordinates sanctioned generally on railways and to the large increase in the train mileage run.

The numbers of passengers carried and the earnings therefrom on all Indian railways are compared below :—



The increase in the passenger traffic compared with 1917-18 was chiefly due to the larger movements of pilgrims and marriage parties and also of troops, especially drafts and labour parties, and men on war furlough and under demobilisation.

The tonnage of, and earnings from, goods traffic are compared in the following diagram :—



The better results under goods traffic compared with 1917-18 are attributable to the abnormally heavy traffic in rice and other foodgrains to the

famine-affected areas. The larger movements of coal also account for a substantial increase.

The gross earnings of railways other than State lines, such as District Boards' lines, Indian State lines, etc., during 1918-19 amounted to Rs. 993·37 lakhs, as compared with Rs. 835·24 lakhs in 1917-18, being an increase of Rs. 158·13 lakhs, and as the working expenses were more by Rs. 77·13 lakhs than the previous year, the net earnings showed an improvement of Rs. 81·00 lakhs having risen from Rs. 414·63 lakhs in 1917-18 to Rs. 495·63 lakhs in 1918-19. These net earnings yielded a return on the Capital outlay (Rs. 67,31,76 lakhs) on open lines, that is on mileage earning revenue, of 7·36 per cent. as against 6·28 per cent. in 1917-18.

CHAPTER III.

TRAFFIC WORKING AND CONTROL.

The pressure on railways due to heavy movements of military traffic, coal, foodgrains and famine fodder, continued for the greater portion of the year and the cessation of hostilities brought no immediate relief. The ton mileage of coal increased from 9,836,175,000 in 1917-18 to 10,114,493,000 in 1918-19, and of other goods traffic from 11,178,951,000 to 12,026,313,000.

In last year's report it was shown how, in the early part of the year, the Central Priority Committee, with its power to order special preference for certain commodities; the classification of goods traffic into (*i*) Urgent, (*ii*) Preferential and (*iii*) Ordinary traffic; the appointment of Directors of Civil Supplies; and the introduction of the Priority Certificate System, combined to reduce the movements of urgent and essential traffic to a minimum, thus enlarging the margin of capacity available for ordinary traffic. It was also found necessary during the year to appoint Controllers of Despatches at certain centres to keep officers authorised to issue certificates in close touch with the general position on railways.

Train Control.

Owing to the difficulty of obtaining wire and instruments, progress in the provision of the telephone system of train control on railways has necessarily been slow; but sufficient material was available for work to be taken in hand over about 600 miles of the North Western, the Bengal Nagpur and the Great Indian Peninsula Railways.

Passenger Train Services.

Consequent on the continued shortage of equipment, and the heavy military traffic which had still to be carried, railways were able to do little towards increasing their passenger train services. During the period, December 1918 to March 1919, 200,000 military passengers proceeding on demobilisation furlough were carried in addition to ordinary troop movements.

Magh Mela at Allahabad.

Owing to the heavy demands on railways in connection with military movements and demobilisation it was again found necessary to take steps to discourage a large attendance at the Magh Mela held at Allahabad in January and February 1919, and Railway Administrations and Local Governments were invited to co-operate in making known to the public generally, the difficulties of railway transport and the inconveniences the intending Pilgrims were likely to suffer.

Accidents.

The number of persons killed and injured in the working of Indian Railways during 1918-19, as compared with previous years, was as follows :—

Particulars.			1914-15.	1915-16.	1916-17.	1917-18.	1918-19.
Passengers ...	Killed	By accidents to trains, rolling-stock, permanent-way, etc.	16	4	15	54	12
		By accidents from other causes, including accidents from their own want of caution or misconduct.	217	243	229	214	331
		Total killed ...	233	247	244	268	343
,,	Injured	By accidents to trains, rolling-stock, permanent-way, etc.	140	81	241	237	131
		By accidents from other causes, including accidents from their own want of caution or misconduct.	731	740	858	792	988
		Total injured ...	871	821	1,099	1,029	1,119
Railway Servants.	Killed	By accidents to trains, rolling-stock, permanent-way, etc.	36	19	22	40	23
		By accidents from other causes, including accidents from their own want of caution or misconduct.	407	414	403	368	433
		Total killed ...	443	433	425	408	456
,,	Injured	By accidents to trains, rolling-stock, permanent-way, etc.	160	109	138	206	150
		By accidents from other causes, including accidents from their own want of caution or misconduct.	699	687	659	686	692
		Total injured ...	859	796	797	892	842
Other persons...	Killed	At level crossings	52	40	48	44	53
		Trespassers	1,327	1,315	1,363	1,350	1,335
		Suicides	245	256	239	235	274
		Miscellaneous	67	127	81	89	102
		Total killed ...	1,691	1,738	1,731	1,718	1,764
,,	Injured	At level crossings	37	35	39	55	45
		Trespassers	361	425	454	453	433
		Suicides, attempted	9	8	9	8	24
		Miscellaneous	39	68	38	52	72
		Total injured ...	446	536	540	568	624
Total of all classes.	Killed	.....	2,367	2,418	2,400	2,394	2,563
,,	Injured	.....	2,176	2,153	2,436	2,489	2,585

The total number of persons of all classes killed by causes beyond their control was 66 against 110 and the number injured 332 against 490 in the previous year.

Out of a total of 460 millions passengers travelling 343 were killed and 1,119 injured, while of the former only 12 were killed through causes beyond their own control.

The following are particulars of the more important train accidents :—

East Indian Railway.

Two accidents of an almost identical nature took place in April and May 1918 to two goods trains, on the heavy grade between Gujhandi and Gurpa stations on the East Indian Railway. There was no loss of life in either case, but the damage to rolling-stock amounted, in the two accidents, to over Rs. 48,000. In both cases the trains parted, the front part left the rear part behind, and the rear part subsequently caught up and collided with the front part. Both accidents were due to the same cause, *viz.*, the occurrence of a small length of adverse grade on a heavy falling grade, combined with the fact that the front portion of the trains was vacuum braked while the rear portion was hand braked. On arriving at the adverse grade the driver has to release the vacuum brake or open his regulator, thus placing a heavy strain on defective or loose couplings. The administration has under consideration a scheme for regrading this part of the up line so as to eliminate the adverse grade.

A suggestion made in connection with these accidents to introduce an electrical method to indicate to the train staff when a train has parted is also being examined.

On the 1st September 1918, while a goods train was being shunted from the down main line to the up main line at Karchana station on the East Indian Railway, a passenger train ran into the yard against signals and collided with it, resulting in considerable damage to the rolling-stock and in the death of one passenger and injuries to 14 people. The accident happened at night and was due to the driver of the passenger train having lost his bearings, owing to the bad weather.

The driver at fault was prosecuted ; but was subsequently acquitted.

South Behar Railway.

On the 7th September 1918, a passenger train left Sirari station on the South Behar line, and was proceeding slowly between the down home and outer signals, when the East abutment of a bridge collapsed, owing to the foundations under the abutment and wing walls having been scoured by flood water. Two passengers were killed and three injured and the rolling-stock and permanent-way badly damaged.

The evidence shows that no one was responsible for the accident as the line was patrolled from the morning of the 7th until the accident occurred and that all reasonable precautions were taken for the safety of trains.

Eastern Bengal Railway.

On the 27th November 1918, a passenger train ran into a rake of 11 wagons and a brake-van, at Tangra Cabin station on the Eastern Bengal Railway, which had parted from a train on a rising gradient of 1 in 150 between Tiljala and Tangra Cabin stations and rolled back and come to a stand at Tangra Cabin fouling the crossing points.

The rolling-stock was badly damaged and 11 passengers and a railway servant were injured. The latter and one of the passengers subsequently succumbed to their injuries.

The cabin assistant who was responsible for the collision by failing to observe certain rules and to satisfy himself that the wagons were clear of the down line where the passenger train was expected, was prosecuted, but was subsequently acquitted.

North Western Railway.

On the morning of the 30th January 1919, owing to shortage of water, the engine of a camel special was cut off between Spintangi and Sunari stations on the North Western Railway, and proceeded to Sunari station for water. The guard in charge of the train omitted to secure the train before this was done, with the result that after the vacuum leaked off, the train rolled back through Spintangi station into a slip siding, and after crashing through the buffer stop, the brake-van and six wagons next to it were derailed and smashed and piled on each other down the adjoining bank. Four other wagons were also slightly damaged. Four camel men were killed and eight injured. Thirty-eight camels were also killed and thirteen injured. The guard at fault was prosecuted, but was subsequently acquitted. As he was, however, departmentally grossly to blame, his services were dispensed with.

CHAPTER IV.

NEW CONSTRUCTION AND ENGINEERING WORKS.

Mileage.

During the year 1918-19, 335·28 miles of railway were opened to traffic bringing the total mileage open (after allowing for dismantlements, and minor corrections due to realignments, etc.) up to 36,616 miles. The additional mileage was made up as follows :—

	5′ 6″ gauge.	3′ 3½″ gauge.	2′ 6″ gauge.	2′ 0″ gauge.	Total.
	Miles.	Miles.	Miles.	Miles.	Miles.
State lines worked by the State ...	115·00	...	...	...	115·00
State lines worked by Companies ...	12·32	40·78	...	...	53·10
Branch line Companies' railways under guarantee terms, worked by the Branch line Companies.	...	...	18·25	...	18·25
Branch line Companies' railways under rebate terms, worked by the main line.	...	...	54·37	...	54·37
Branch line Companies' railways under guarantee and rebate terms.	...	13·07	...	...	13·07
Companies' lines subsidized by the Government of India.	...	5·24	...	...	5·24
Unassisted Companies' lines	...	...	...	14·00	14·00
Indian State lines worked by Indian States.	...	14·70	...	...	14·70
Indian State lines worked by the main line.	...	14·17	33·38	...	47·55
TOTAL ...	127·32	87·96	106·00	14·00	335·28

The progress made during the past ten years is summarised in the following table :—

Gauge.	MILEAGE OPEN AT THE END OF									
	1909.	1910.	1911.	1912.	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.	1918-19.
5′ 6″ ...	16,309	16,701	17,016	17,189	17,641	17,827	18,060	18,182	17,876	17,994
3′ 3½″ ...	13,323	13,530	13,759	14,165	14,389	14,552	14,671	14,806	14,989	15,078
2′ 6″ ...	1,443	1,436	1,632	1,692	2,174	2,402	2,539	2,683	2,839	2,906
2′ 0″ ...	415	432	432	438	452	504	563	615	629	638
TOTAL ...	31,490	32,099	32,839	33,484	34,656	35,285	35,833	36,286	36,333	36,616

The decrease in the 5′ 6″ gauge mileage during the year 1917-18 is due to the dismantling of the whole of the Sutlej Valley railway and small portions of the North Western, East Indian, Madras and Southern Mahratta and Oudh and Rohilkhand Railways, the materials of which were required by Government in connection with the prosecution of the war.

The total mileage under construction, or sanctioned for construction, at the close of the year was:—

	5′ 6″ gauge.	3′ 3¾″ gauge.	2′ 6″ gauge.	2′ 0″ gauge.	Total.
	Miles.	Miles.	Miles.	Miles.	Miles.
State lines worked by the State ...	200·13	...	21·99	...	222·12
State lines worked by Companies ...	403·31	79·10	8·43	...	490·84
Branch line Companies' railways under guarantee terms, worked by the Branch line Companies.	...	...	27·00	...	27·00
Branch line Companies' railways under guarantee terms, worked by the main line.	...	76·10	...	...	76·10
Branch line Companies' railways under rebate terms, worked by the main line.	14·30	...	114·16	...	128·46
Unassisted Companies' lines	...	...	20·50	...	20·50
District Board lines	...	91·69	...	...	91·69
Indian State lines worked by Indian States.	...	390·96	46·09	57·28	494·33
Indian State lines worked by the main line.	...	153·81	98·45	...	252·26
TOTAL ...	617·74	791·66	336·62	57·28	1,803·30

Work on most of the new lines comprised in this statement was either held entirely in abeyance or could only be proceeded with very slowly as financial considerations and the limitations in the supply of essential materials permitted; in fact the principal activity (and that was very limited) was under lines financed by Branch Line Companies and Indian States. The following paragraphs show the position on some of the more important projects.

Lines Opened During the Year.

Khulna-Bagerhat Railway.

This railway, 19·75 miles in length, on the 2′ 6″ gauge, commences at Rupsa East, on the left bank of the Rupsa river about two miles below Khulna railway station on the Eastern Bengal Railway, from which point it follows the left bank of the Bhyrab river in an easterly direction until Bagerhat is reached.

The river Bhyrab was formerly the chief means of transport between Khulna, Bagerhat, and Barisal; but it is now silting up and is navigable only at high tide by small boats. The railway will take the place of the river for the transport of goods and passengers between the first mentioned two stations. Steamers make connections with the railway at Rupsa East and Bagerhat. The railway was opened for public traffic on the 10th June 1918.

Samlaya-Timba Railway.

This line, 33·38 miles in length, is an extension of the Dabhoi-Samlaya Railway of His Highness the Gaekwar's Dabhoi Railway System, and was constructed to further the development of the Savli Taluka of the Baroda State. It was opened for public traffic on the 1st February 1919 and is being worked by the Bombay, Baroda and Central India Railway Administration.

Arakan Light Railway.

This railway, which is on the 2′ 6″ gauge and 18·25 miles in length, commences at Buthidaung, on the Kalapanzin river, 65 miles north by river of the Port of Akyab, and runs in a westerly direction crossing the Lewedet Pass at mile 8 by means of a tunnel 645 feet long; from which point it descends till Maungdaw is reached at the 16th mile, the terminus on the Naaf River being $2\frac{1}{8}$ miles further on. It has been constructed with the object, chiefly, of serving the through traffic passing between the steamer services on the two rivers.

The line was opened for public traffic on the 15th February 1919.

Pachora-Jamner Railway.

This line, 34·62 miles in length, on the 2′ 6″ gauge, has been built and will be worked by the Great Indian Peninsula Railway Company for the Pachora-Jamner Railway Company, under the rebate terms of the Branch Line Terms Resolution. The line was opened throughout for public traffic on 24th March 1919.

New Construction Financed by Private Enterprise and District Boards.

The construction of branch lines with capital provided by companies floated in India and by District Boards or other local bodies is governed by the terms of the Resolutions reproduced as appendices Nos. 32 to 34 of Volume II of this report. The Branch line terms, as they are now generally called, have undergone no change during the year under review, but the question of their revision is now receiving consideration.

In view of the altered financial conditions which have followed the war, it is possible that an entire reconsideration of the methods hitherto followed for attracting Indian capital may be necessary.

No concessions were granted during the year under review either to Companies or to local bodies for the construction of new railways; but following the policy which they had framed before restrictions were imposed, the Railway Board, in order that there might be no undue delay in resuming a full programme of new construction on the return of more normal conditions, have carried on negotiations with Branch Line promoters, as far as possible short of actual flotation, in regard to projects which were already under consideration before the war or have since been put forward. In accordance with this policy, the Railway Board had under their consideration when the year closed, proposals for the construction of a number of branch railways in all parts of India covering an aggregate mileage of 3,761 and involving a total expenditure of about 14½ millions sterling.

Important Lines Under Construction.

Itarsi-Nagpur Railway with a branch to the Pench Valley Coal-Fields.

The whole project, 238 miles in length, will, when completed, form part of a direct through North and South broad gauge connection, but as so far constructed it furnishes an additional outlet for the traffic of the Pench Valley Coal-Fields, an important source of coal supply in the difficulties caused by the war.

The project is divided into three sections, *viz.*, Northern, from Itarsi to Amla; Southern, from Amla to Nagpur; and Eastern, from Amla to Parasia (Pench Valley Branch).

The Northern Section, Itarsi to Amla (80·56 miles), was completed and opened for traffic in September 1914.

The Eastern Section, Amla to Parasia (53·86 miles), was opened on the 1st November 1915.

On the Southern Section, Amla to Nagpur (103·74 miles), the work on tunnels and earthwork is in hand only on Division No. 3 (Amla to Pandhurna), the remaining work on this Division and all works on Division No. 4 (Pandhurna to Nagpur) having been postponed till the end of the war.

Great Indian Peninsula Railway Overhead Connection at Bombay.

The construction of the Bombay Overhead Connection involves much heavy work in the heart of the city and will provide an easy rapid communication for traders, passing between the business centre of Bombay in the vicinity of Victoria Terminus across the Great Indian Peninsula Railway Goods Yard at Wadi Bunder to the grain warehouses and cotton market near Mazagaon on the Harbour Branch Railway.

Owing to the difficulty of obtaining girder work it is not possible to say when this line will be opened.

Secunderabad-Gadwal Railway.

The Secunderabad-Gadwal Railway which is being constructed by the Nizam's Guaranteed State Railways Company, is the property of His Exalted Highness the Nizam's Government. When completed, it will afford an outlet to the port of Mormugao from the southern parts of the Hyderabad State, and will link up the metre gauge system of that State with the metre gauge sections of the Madras and Southern Mahratta and South Indian Railways.

The first section from Secunderabad to Mahbubnagar, 70·20 miles, was opened throughout to passenger traffic on the 1st October 1916; and the second section Mahbubnagar to Wanaparti Road, 33·10 miles, on the 1st April 1917. Owing to the non-delivery of permanent-way material the construction of the remaining section was suspended till the end of the war.

The open sections are being worked by the Nizam's Guaranteed State Railways Company under the terms of an agreement between His Exalted Highness the Nizam's Government and the Company.

Nushki Extension Railway.

This extension of the Quetta-Nushki Railway was started in September 1916. The country passed through is desert but topographically easy, being a series of gentle undulations of sand and shingle merging into stone covered with clay and salty conglomerate.

The first 13 miles of the line, from Nushki to Ahmedwal, was handed over for passenger traffic in April 1919, and the portion from Ahmedwal to Dalbandin, 102 miles, is expected to be opened for passenger traffic during the cold weather of 1919. A further length of 185 miles up to Mirjawa is under construction, railhead having reached that point. There are no works or features of special interest.

Shimoga-Arasalu Railway.

This is a metre gauge line, 26·80 miles in length. It is an extension of the Birur-Shimoga Branch of the Mysore State Railways and is the first section of the lines that will be constructed to open up the western portion of the Shimoga District and possibly to connect with a port on the West Coast. Construction was started during February 1919.

New Construction in Indian States.

The progress of new construction in Indian States has also slackened owing partly to the difficulty in obtaining permanent-way materials and rolling-stock, and partly to lack of funds caused by the further large contributions, direct and indirect, which the Indian States have made to the

Imperial resources for the conduct of the war. The following new lines were, however, sanctioned during the year under review.

Mysore.

Railways.	Length in miles.
1. Shimoga-Arasalu (metre gauge)	26·80
2. Kammangundi-Benkipur (2′ 0″ gauge)	22·96
3. Agasanhadlu-Benkipur (2′ 0″ gauge)	24·74

Dholpur.

Dholpur-Rajkhera (2′ 6″ gauge)	22·34

The following table gives a complete list of railways which were under construction in Indian States during the year :—

Baroda State.

Railways.	Length in miles.
1. Choranda-Koral (2′ 6″ gauge)	11·68
2. Bhoyani Road-Bechraji (metre gauge)	22·12
3. Motipura-Tankhala (2′ 6″ gauge)	26·29
4. Okhamandal (metre gauge)	37·02

Bhavnagar.

Savar Kundla-Mahuva with branch to Port Albert Victor (metre gauge)	54·30

Cutch.

Anjar-Bachan (2′ 6″ gauge)	23·75

Hyderabad.

Wanaparty Road-Gadwal (metre gauge)	13·45

Jaipur.

1. Palsana-Sikar (metre gauge)	16·80
2. Sikar-Jhunjnu (metre gauge)	39·85

Jodhpur.

Marwar-Sanderao (metre gauge)	77·83

Junagad.

Talala-Una (metre gauge)	42·08

Mysore.

1. Tadasa-Hebbe (2′ 0″ gauge)	9·58
2. Chickjajur-Chitaldrug (metre gauge)	20·90
3. Shimoga-Arasalu (metre gauge)	26·80
4. Kammangundi-Benkipur (2′ 0″ gauge)	22·96
5. Agasanhadlu-Benkipur (2′ 0″ gauge)	24·74

Amongst the Indian States which now own property in the shape of railways are :—

Baroda, Hyderabad, Bhavnagar, Gondal, Porbandar, Jodhpur, Bhopal, Patiala, Morvi, Junagad, Kashmir, Kolhapur, Rajkot, Jetpur, Mysore, Cooch Behar, Gwalior, Mewar, Kotah, Navanagar, Rajpipla, Bikaner, Dhrangadra, Parlakimedi, Cambay, Malerkotla, Jind, Cochin, Travancore, Cutch, Jaipur, Mourbhanj, Sangli, Dholpur, and Bahawalpur. The order in which these names are given represents approximately the sequence in which the different States first began to interest themselves in schemes of railway extension.

The total mileage of railways in Indian States open to traffic at the close of the year was 5,090 miles, distributed between the various gauges as under :—

	Miles.
5′ 6″ gauge	962
3′ 3⅜″ gauge	3,230
2′ 6″ gauge	596
2′ 0″ gauge	302

Open Line Improvements.

Remodelling of Stations and Yards.

No large new scheme was sanctioned during the year, but, in addition to progress being maintained on the schemes mentioned in the last report, certain works which could immediately and effectively be brought into use to relieve the congestion of traffic brought about by the War were executed.

Collieries.

Experience during the war had shown that it was necessary to diminish the call for rail transport of coal from Bengal to Baluchistan and Sind. It was therefore decided to meet all requirements as far as possible from the local sources of supply and steps were taken to open out, as a part of the North Western Railway undertaking, the Sor coal-field near Quetta. The cost of the whole scheme including a branch line is very roughly estimated at Rs. 32½ lakhs of rupees. Although the scheme in its entirety will take time to mature and complete, it is hoped that a sufficient area will, in the course of a few months, be opened out so as to yield enough coal to cover the local requirements, both civil and military, in addition to the demands of the North Western Railway, thus dispensing with the necessity for the importation of coal from Bengal.

Burma Railways.

On the Burma Railways, the construction of the loop line from Togyaungalle to the Dawhon Lift Bridge, which was put in hand last year to provide against the possible failure of the existing Pazundaung Creek Bridge, is in progress.

It has also been found necessary to put in hand work on a permanent retirement of the Pegu Moulmein Branch for a length of about 4 miles, which was in very serious danger of being washed away owing to the rapid encroachment of the Sittang River near Royaggi. The work is estimated to cost nearly a lakh of rupees.

Earthquake.

The railway lines in Bengal and Assam were subjected to a severe shock of earthquake on the 8th July 1918, causing considerable damage to buildings and bridging, and derangement of permanent-way, particularly on 200 miles of the main line of the Assam-Bengal Railway and about 100 miles of the Mymensingh-Bhairab Bazar Railway and branches and on the Dacca section of the Eastern Bengal Railway. Traffic had to be suspended during restoration of the sections affected.

The earthquake was followed by abnormal floods which intensified the damage especially on the Mymensingh-Bhairab Bazar Railway. The cost of damages was estimated at about Rs. 70,000 on the Eastern Bengal Railway, Rs. $3\frac{1}{4}$ lakhs on the Assam-Bengal Railway, and nearly 2 lakhs on the Mymensingh-Bhairab Bazar Railway.

Kalabagh-Bannu Railway.

The provision of additional waterways to render this line immune from floods was pushed on as rapidly as possible and was well advanced before the end of the year. It is expected that the entire work will be finished shortly.

Great Indian Peninsula Railway.

The necessity for regrading the main line of the Great Indian Peninsula Railway between Bhusaval and Igatpuri so as to obtain a ruling grade of 1 in 200 and to allow of a uniform through up load of 1,450 tons being run, had been recognized for some time, but as the project in the aggregate was estimated to cost about 27 lakhs of rupees and was not of immediate urgency, no steps were taken to put it in hand. During the year, however, the need for improving facilities for larger train loads became one of urgency and estimates for the scheme were sanctioned and work put in hand. It had the further object of affording employment to the local inhabitants, who under the influence of famine resorted to the expedient of attacking goods trains while travelling up the gradients.

The special map which accompanies this report shows where the more important open line works were in progress during the year.

CHAPTER V.

ROLLING-STOCK AND MATERIALS.

Construction of Rolling-stock in India.

Of the 1,500 broad gauge covered goods wagons with wooden bodies for which orders were placed in India during 1917-18, 500 were brought into use by February 1919, and orders for 1,000 additional wagons of the same type were placed in India during the year.

The East Indian Railway built 500 high sided open wagons with wooden bodies for coal traffic.

Guarantee of Purchase of Wagons in India.

To further India's industrial development with a view of making India more independent of outside sources in the supply of railway materials and also to nurture the wagon building industry, the Government of India have undertaken to purchase in India at least 3,000 wagons annually for ten years provided that the price is not higher than the price at which wagons can be imported and subject to conditions which will ensure that the materials and workmanship are satisfactory.

Thefts of Railway Fittings.

The difficulties in maintaining rolling-stock and track at a time of shortage of materials have been referred to in previous reports. They were aggravated latterly by widespread thefts of detachable parts particularly the bolts and nuts which secure the axle-box covers and axle-box guards to the wagon frame and rubber fittings and steel keys. This pilfering not only hampered the movement of rolling-stock, but was also a source of considerable danger to the travelling public, several accidents having been directly attributable to it. The difficulty of establishing absolute identification renders convictions difficult to obtain, even when there is practically no doubt that materials, found in the possession of persons at the time of arrest, have been stolen from a railway. Matters were improving towards the end of the year.

Distribution of Material for Wagon Repairs.

To facilitate the repair of wagons at outstations, the North Western Railway have instituted a service of special vans for the distribution of spare parts and materials. This system has proved successful and the Railway Administration proposes to extend it.

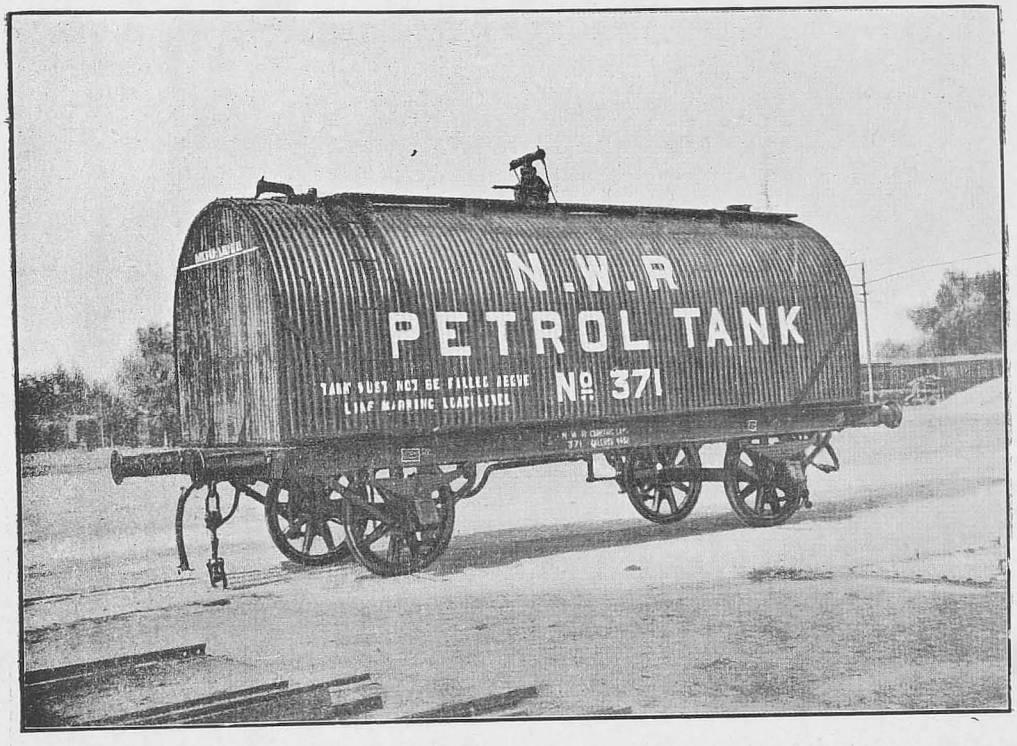
Mobile Recharging Sets.

For recharging train cells, the Great Indian Peninsula Railway have fitted small charging sets in wagons; and, as these can be moved to any station to suit the traffic, they have proved of great service, eliminating the

light running of stock to stationary recharging depots, which was previously necessary.

Carriage of Liquids in Bulk.

To meet military needs, the provision of 33 tank wagons for the carriage of petrol in bulk was undertaken by the North Western Railway. Time did not permit of the construction of new vehicles, so existing travelling kerosine oil tank wagons with electrically welded tanks were selected for conversion. Suitable filling arrangements were provided, and, as a protection against heat, the tanks were covered with two layers of asbestos, having an air space between, protected by a covering of corrugated iron. A photo of one of these petrol tanks is reproduced.

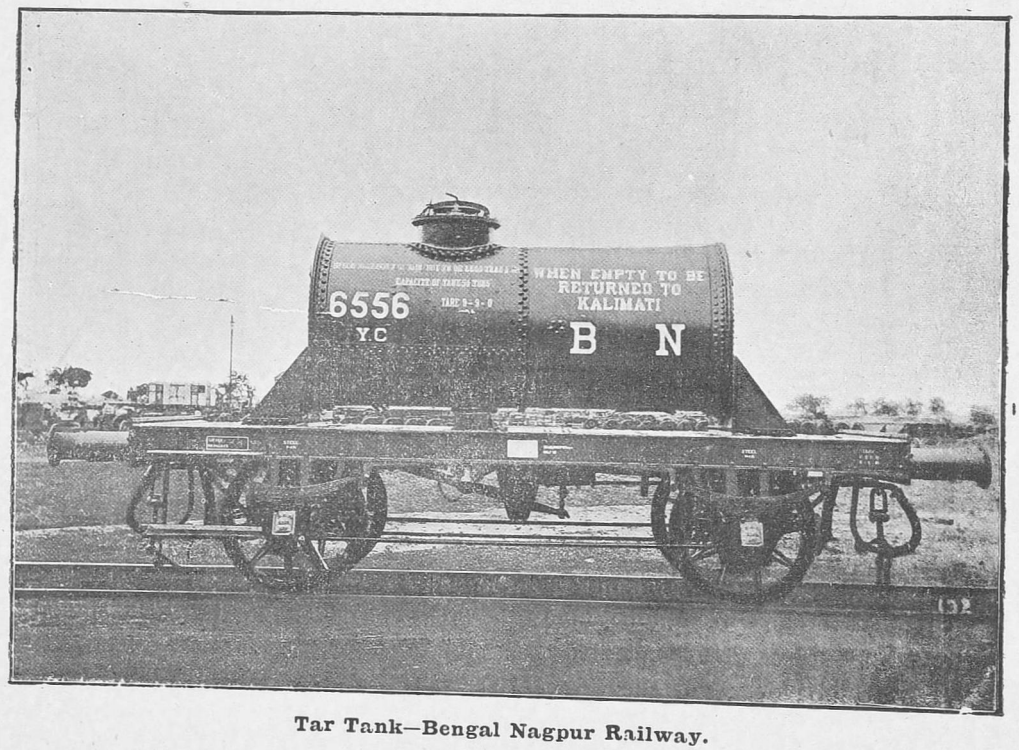


The Bengal-Nagpur Railway found it necessary to provide for the transport in bulk of sulphuric acid and tar. The types of special vehicles built are similar in appearance, and a photo of the tar tank wagon is reproduced. On the sulphuric acid tanks, a syphon discharge, which can be started by a manually operated air pump, is provided. As new materials were unobtainable, condemned locomotive boiler barrels were utilised for the tanks.

Scarcity of steel plates led to the adoption by the North Western Railway of wood for water tanks, which were urgently required for the Nushki Extension Railway, and these are reported to have proved satisfactory.

Standardization of Rolling-stock.

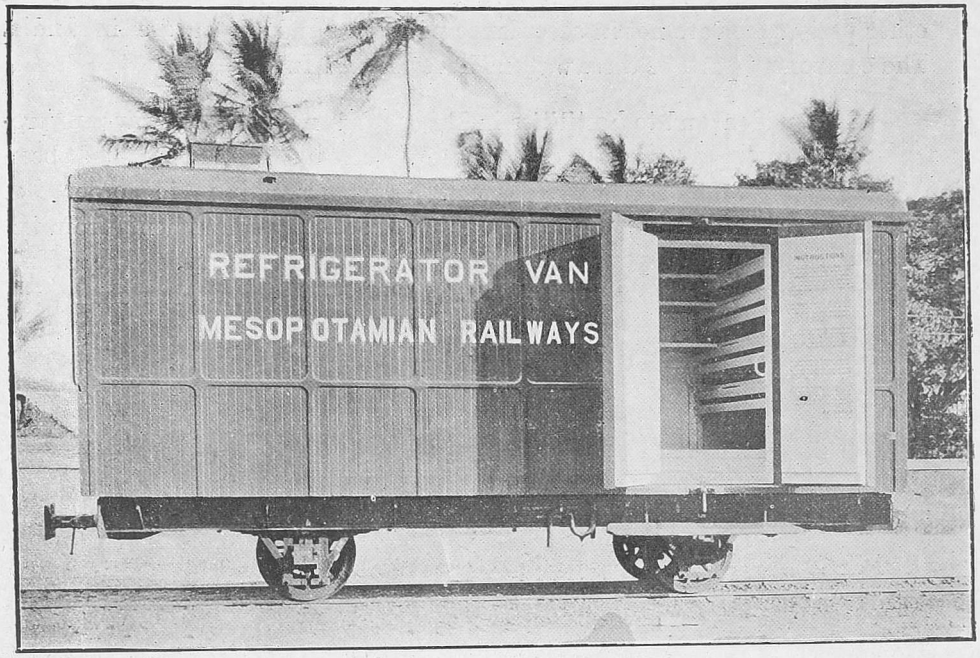
The limiting leading dimensions within which all rolling-stock for use on railways in India must be designed and built, have been prescribed from time to time by the Government of India since railways were first introduced into India. The desirability of further steps towards standardization, not only of the leading dimensions within the prescribed limits, but also of general details and more especially of fittings which may be termed "renewable," has long been recognised. The adoption of the principle of "Common user of wagons" emphasised the disadvantages of non-interchangeability. Since 1908, the Indian Railway Conference Association had agreed on standards for certain details of carriage and wagon stock, such as axles, axle-boxes, axle-guards, etc., and the number was being added to yearly. In 1914, designs for certain types of wagons, standard in all particulars, were adopted for two State-worked railways. These designs were reconsidered every third year, and revised as experience showed to be necessary. Towards the end of 1917, while means of hastening the placing and execution of orders immediately after the war were under consideration, it was thought that it might be necessary for some time to consolidate the demands of all Indian railways and to distribute the available supplies in accordance with



Tar Tank—Bengal Nagpur Railway.

the needs of the various administrations. To this end, it was necessary that standard types for the more ordinary classes of rolling-stock should be agreed upon, which would be acceptable to all Indian railways of the same

gauge. The Railway Board, therefore, requested the Indian Railway Conference Association to proceed at once with the preparation of designs for standard vehicles,—a matter which was already before the Association—and in connection with which, sub-committees had already been appointed to make recommendations as regards broad gauge and metre gauge stock, respectively. Eventually, the completion of the designs was entrusted to a special committee of Carriage and Wagon Superintendents and drawings were under preparation at the close of the year 1918-19.



Standardization of Permanent way.

Also, to make reserves of permanent way which railways accumulate completely interchangeable the Railway Board directed attention to the apparently unnecessary variety of sections of rails, of the same type and of the same weight, in use; and, after consultation with all the railway administrations, it was decided that, except with the special permission of the Government of India, only British Standard rail sections should be used in future for new lines and for extensive renewals when new rails were provided.

The standardization of fishplates, as far as may be practically desirable, is also under discussion.

Special Order for 100 Locomotives and 5,000 Wagons.

From the commencement of the war, it has been the endeavour of our railways to carry on without making demands on the United Kingdom likely to cause embarrassment in munitions manufacture, but early in 1918, it became imperative

to urge the supply of 100 locomotives and 5,000 wagons for broad gauge railways. The necessity for this supply was accepted by the Army Council, and the Secretary of State was able to place orders for the 100 locomotives in the United Kingdom. The 5,000 wagons presented considerable difficulty. The order was eventually placed in America with firms which had materials available for wagons ordered for the Russian railways, but of which supply had been suspended. It was possible to adapt these materials to a design which would comply with the running dimensions in India. It was, however, necessary to accept wheels and certain other parts which are not in accordance with the standards in use in India. The component parts of these wagons have reached India.

Post War Indents.

The sudden end to hostilities in Europe did not find railways unprepared. From 1916, they had been compiling, arranging in order of urgency, and correcting up-to-date, indents for their requirements from the United Kingdom for a period of three years after the war. The Home authorities were thus enabled to take action at once towards securing the supplies of which railways were most in need.

CHAPTER VI.

FUEL.

Coal mined in India.

In 1918, 20,721,543 tons of coal were mined in India, an increase of 2,508,625 tons on the preceding year. Despatches of coal by the East Indian and Bengal-Nagpur Railways from the coal-fields of Bengal and Bihar and Orissa amounted to 15,521,911 tons in the year 1918-19, as compared with 14,486,980 tons for 1917-18.

Including bunker coal, shipments from the Port of Calcutta to Indian and foreign ports in 1918-19 amounted to 1,632,916 tons as compared with 901,125 tons in 1917-18 and 1,999,657 tons in 1916-17.

Tonnage of Coal Inspected by the Coal Department.

The State Railways Coal Department inspected 7,857,485 tons of coal in 1918-19 as compared with 6,912,013 tons in 1917-18. The quantity of coal shipped from Calcutta by the department was 667,551 tons, the greater portion of which was for Admiralty requirements.

Labour in the Coal-fields.

Labour was plentiful in the coal-fields in the early part of the year, but an outbreak of cholera in July and a very serious epidemic of pneumonic influenza seriously affected raisings during the four months, August to November, and this, coupled with heavy Admiralty demands in Calcutta, Bombay, and Karachi, caused some little anxiety, but at no period was the position critical.

Owing to crop failures in 1918 in the Districts from which colliery labour is recruited, there was a large influx of workers into the coal-fields towards the end of the financial year and colliery raisings during the last three months were exceptionally heavy.

Government Requisition of Coal.

The requisition on all 1st class coals and a certain quantity of 2nd class remained in operation during the whole of the year.

The requisitioned prices of coals were raised in April—as mentioned in the Report for 1917-18—and again in August. The rates fixed in the latter month will remain in force until the 31st March 1920.

In the month of November 1918 at the request of the Coal Controller, the department took over the bunkering of all steamers—British and

non-British—in the port of Calcutta and in the month of March also took over the loading of all coal cargoes in the port. The reason for the latter was that the Coal Controller wished to ensure that nothing but the very best of Indian coal was despatched to foreign markets.

The profits made were distributed monthly amongst the requisitioned collieries in the form of a bonus which varied from annas 12 to Re. 1 per ton during the last four months of the year.

The Mining Engineer continued to be the officer authorised under the Defence of India Act to requisition coal for Government purposes.

Control of Coal.

Mr. G. C. Godfrey (now Sir George Godfrey) continued to act as Coal Controller, with headquarters in Calcutta, throughout the year.

The restriction imposed in January 1918 on the output of small collieries working inferior coals, with the object of preventing labour being diverted from collieries producing the better class coals, had the desired effect, and although Railway and Admiralty demands for first class coals were exceptionally heavy, it was only towards the end of 1918 that there was even the slightest shortage of coal, and this was due not to labour not being available, but to the two serious epidemics already referred to. By the month of December, both had died out and the outputs of collieries working first class coals for the last four months of the year were in many cases record ones.

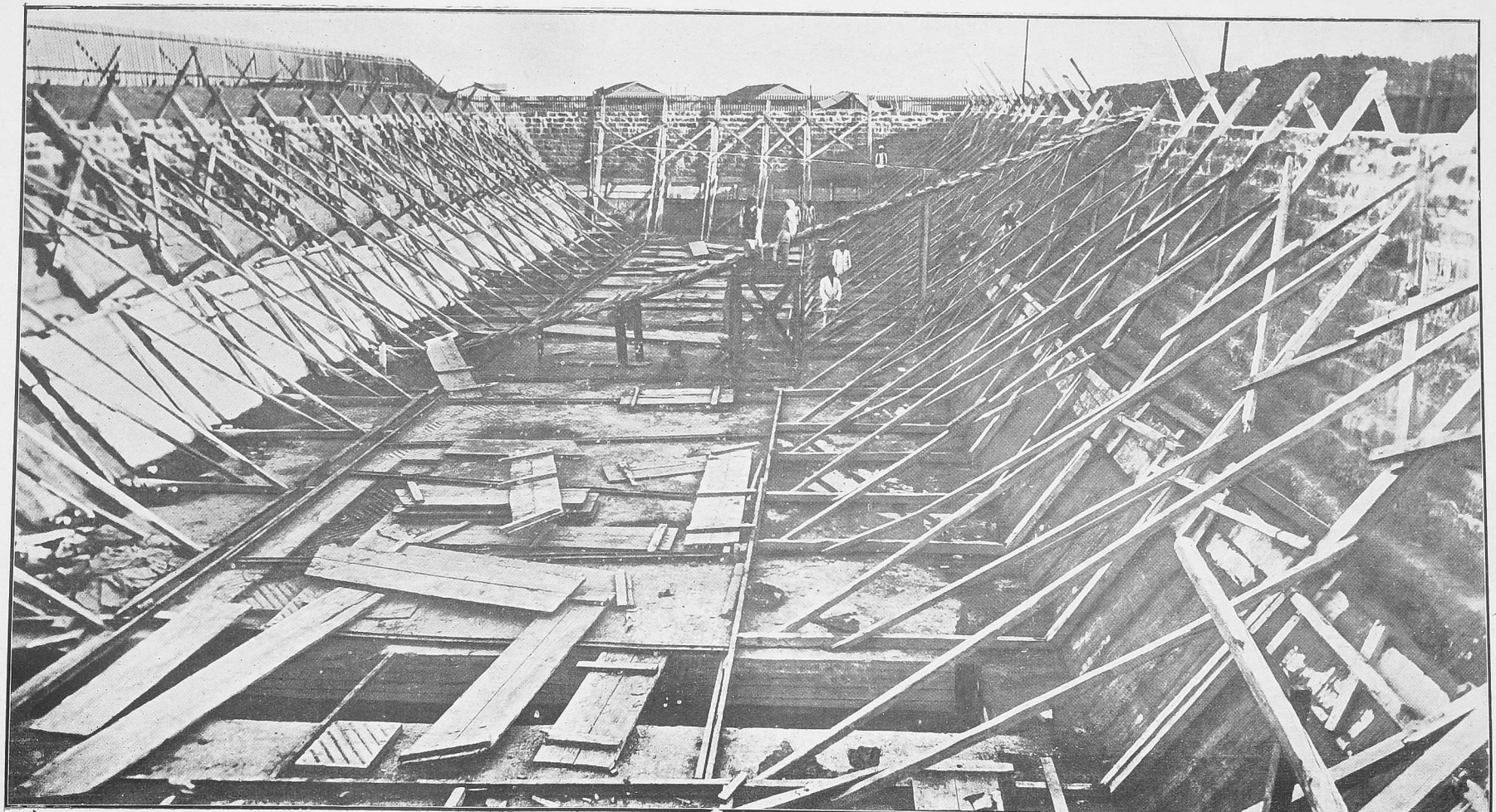
Stocks of requisitioned coal at collieries rose from 200,000 tons on the 1st January 1919 to nearly 500,000 tons at the end of March 1919.

During the latter part of the year, Admiralty demands fell off considerably; sea-freight was not available for coal shipments to foreign markets and it was only by despatching large extra quantities of coal to railways that a restriction on the output of collieries working first class coals was avoided.

The requisition on all 1st class coal remains in force until the 31st March 1920, but in January 1919 the Coal Controller commenced to withdraw gradually the orders and restrictions on the control of coal and at the end of the year under review the only two portions of the coal control left were (1) the allotment and disposal of requisitioned coal and (2) the regulation of the distribution of wagons.

Utilisation of Inferior Coal.

The possibility that the quantity of 1st class coal in India may prove to be limited has caused the Railway Board to institute investigations regarding the more extensive use of 2nd class coal by railways. Mr. A. J. Chase was placed on special duty for this purpose and his report is under consideration.



Concrete Lined Tank for Liquid Fuel at Karachi—North Western Railway.

Pulverised Coal.

The developments in the use of pulverised coal in locomotives are being watched attentively. The possibility of burning powdered coal under Indian conditions has already been established; and the preliminary trials made in India by the Great Indian Peninsula Railway mentioned in the last report indicate that, when the proper degrees of pulverisation and dryness have been attained, it will be possible to utilise the lowest grades of Indian coal in this manner.

Oil-fuel.

At the close of the year under review the North Western Railway had altogether 112 locomotives burning oil-fuel. Good progress has been made with the permanent arrangements necessitated by the adoption of oil-fuel on the Karachi District. A pipe line has been laid which will enable the storage tanks in Karachi to be filled direct from the tank steamers at Kiamari $6\frac{1}{2}$ miles distant.

CHAPTER VII.

MISCELLANEOUS.

Management of Indian Railways.

In the concluding paragraphs of the last report, it was stated that the question of the future system of management of railways in India had been reported on to the Secretary of State and that the matter was under his consideration. The Secretary of State has since proposed, as announced in the Imperial Legislative Council of the 7th March 1919, that as soon as convenient after the termination of the war, an enquiry should be instituted into the desirability or otherwise, on financial and administrative grounds, of modifying the present management of Indian State-owned Railways either by substitution of management by companies domiciled in India or by extension of one or other of the existing systems. A special Committee will investigate and report on the subject during the winter of 1920-21.

Indian Railway Bridge Committee.

As stated in last year's report, the Indian Railway Bridge Committee, which owes its inception to the Inchcape Conference of 1912, and which issued its first report in August 1917, held a second meeting in November 1918, as the result of which its second report has been published.

The object of the Committee is the revision of the Bridge Rules.

The first report was devoted to a consideration of the subject under two main heads, (*i*) standards of loading, (*ii*) permissible stresses and methods of calculating them, chiefly with reference to "impact." It was resolved that under (*i*) the views of various administrations should be obtained, and that under (*ii*) systematic investigations should be carried out, before final recommendations could be made under either head.

These resolutions have been given effect to, and the object of the second meeting was to review the position and report progress. The results are embodied in the second report.

Briefly, the report records the appointment of an Investigating Officer, Mr. Sales, and the instructions issued to him for carrying out experiments. It also records *inter alia* the views of various railway authorities regarding standards of loading, and the decision of the Railway Board that (subject to particular cases being considered on their own merits) the present standards should be adhered to, pending the final revision of Bridge Rules, which cannot be accomplished until the experiments now in hand have been completed and the results examined.

While retaining the present standards of loading in accordance with the orders of the Railway Board, the Committee present, and invite criticism on, a draft series of revised rules, which cover more ground than the original rules, in that they now include in their scope masonry arches, ferro-concrete bridges, timber girders and trestles.

Regarding the method of conducting experiments for "impact" and "earth pressure" the suggestions made by Mr. Lloyd-Jones, Superintendent of Way and Works (now Agent and Chief Engineer) of His Exalted Highness the Nizam's Guaranteed State Railways, have been adopted by the Committee as a basis.

Since the meeting, much valuable preliminary work has already been done by Mr. Lloyd-Jones and Mr. Sales in collaboration, and it is hoped that this may be followed up by deputing a special officer to consult the highest British and American authorities on the subject of these experiments and the best instruments required to carry them out.

Purchase of the Mymensingh-Jamalpur-Jagannathganj Railway.

During the year, the Government of India decided, with the approval of the Secretary of State, to purchase the Mymensingh-Jamalpur-Jagannathganj Railway which is owned by the India General Navigation and Railway Company. This line is 56·05 miles in length and serves a considerable jute area. Under the terms of the Company's contract the line is worked by the Eastern Bengal Railway for 45 per cent of gross earnings. The actual expenses incurred are somewhat in excess of this figure and the purchase will have the effect of saving the recurring loss that has to be borne from year to year. Further, certain new lines are contemplated in this area and the continuance of the Company's tenure would undoubtedly have been accompanied by complications in respect of spheres of influence and competing traffic. The purchase was thus considered advisable from financial and administrative standpoints, and the first opportunity was taken to terminate the Company's contract. The purchase price is estimated at a little over 32 lakhs of rupees.

Dissolution of partnership between the Gondal and Porbandar States in the Gondal-Porbandar Railway.

In May 1917, an Advisory Tribunal was appointed by the Government of India to prepare a scheme of dissolution for consideration by them and ultimately by the Secretary of State. The Tribunal's report was received in August 1917. The Government of India accepted the unanimous conclusions of the Tribunal, but as regards the point at which the line between Porbandar

and Jetalsar should be divided between Gondal and Porbandar, they considered that the point of division should be at Jam Jodhpur and not at Khaki Jalia, thereby leaving in Gondal territory no part of the line that would be owned by Porbandar, and that the latter State should be compensated by cash payment for the loss of 18 miles of line between Jam Jodhpur and Khaki Jalia. Their recommendations were submitted to the Secretary of State in July 1918 and on receipt of the latter's approval in January 1919, the Bombay Government was asked to take action to bring the approved scheme into effect from the 1st April 1919 (*i.e.*, the commencement of the next official year) from which date the separation has taken place.

Sleeper Supply.

The supply of wooden sleepers of durable timbers, which can be used untreated, has been gradually increasing in difficulty. The position was made more difficult, by demands for railways in theatres of war having to be met from such stocks as railways had on hand and from current supplies. The practical impossibility of obtaining pressed steel sleepers and the shortage of pig iron and steel sections for the manufacture of cast iron sleepers, added to the obstacles which railways had to surmount in maintaining their track under a greatly increased traffic. It is entirely creditable to the engineering staff, that this was successfully accomplished and the necessity of imposing widespread speed restrictions avoided.

Utilization of Indian soft Woods.

Vast quantities of softer woods exist in India; but, so long as the supply of the more durable woods was sufficient, the added cost of the treatment required to render the former suitable as sleepers, made their use economically unattractive. The constantly increasing cost of sal and deodar sleepers has now reached a level, at which it is reckoned that treated sleepers can compete; and, as a start, arrangements are now in hand for the installation by the North Western Railway of a creosoting plant, capable of treating 300,000 sleepers per annum. It is hoped that the plant will be received during 1919-20.

Supply of sleepers by Nepal Government.

In April 1918, the Nepal Government tendered help by the supply, free of royalty, of 200,000 broad gauge sal sleepers, from their forests in the Sarda Valley. This generous offer was most gratefully accepted. The arrangements for the extraction of these sleepers are in the hands of the Chief Conservator of Forests, United Provinces. Much preliminary work had to be done in opening out communications, which it was not possible to complete before the felling season in 1918-19; but everything is now ready and operations will commence in October 1919.

Concrete Sleepers.

Several railways are making trials with various types of concrete sleepers, but it is too early yet, to express any opinion as to the future for these in India.

Aerial Ropeways.

Government have, for some time past, had under consideration, certain schemes for the construction of aerial ropeways for the carriage of public traffic. This form of transport is already well established in this country, in connection with mining and other private industrial undertakings, but so far it has not been used for the carriage of public traffic. Experience in other countries has, however, proved that it is eminently suited for the opening up of mountainous tracts, where the cost of construction of railways, or of roads suitable for vehicular traffic, would be prohibitive; and there is undoubtedly ample scope for its employment for this purpose in India, as well as for the replacement of cooly transport to and from the Hill Stations in Northern and Southern India, which are not at present served by railways.

The difficulty, in obtaining the services of engineers having the requisite technical knowledge and experience to act as inspectors, was mentioned in last year's report and the Railway Board are now taking steps to have an officer specially trained in the subject.

Grain Shops.

In view of the high prices prevailing throughout the year under review, considerable difficulty was experienced by the railway staff in obtaining food grains at reasonable prices. To help the railway employees, it was found necessary to open grain shops temporarily on several railways for the sale of food grains at reasonable rates, the initial expenses being met from Railway Revenues.

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

(Reprinted from the Report for 1914-15.)

Diversity of relations between the State and Railways.

One of the special features of the Indian Railway system is the diversity of conditions that prevails in the relation of the State to the various lines in respect of ownership and control. Of the important lines situated in British India or in which the Government of India is interested, 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 Native 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 those which are of the first importance.

History of relations of the Government and Companies.

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

The first proposals for the construction of railways in India were submitted in 1844 to the East India Company in England by Mr. R. M. Stephenson, afterwards Chief Engineer of the East Indian Railway, and others; they included the construction of lines by railway companies to be incorporated for the purpose and the guarantee by the East India Company of

a specified return. A contract for the construction by the East Indian Railway Company of an experimental line of 100 miles from Calcutta towards Mirzapore or Rajmehal at an estimated cost of 1,000,000*l.* was made in 1849, and a return of 5 per cent. was guaranteed by the East India Company on the capital; and a similar contract was made in the same year with the Great Indian Peninsula Railway Company for a line from Bombay to Kalyan at an estimated cost of 500,000*l.* But the policy of entrusting generally the construction of Indian railways to guaranteed companies was not adopted until 1854 on the recommendation of Lord Dalhousie, who, in a minute, dated 20th April 1853, explained his reasons for preferring the agency of companies, under the supervision and control of the Government, to the construction of lines on behalf of the Government by its own officers. He held that the State Engineer officers would make railways as well, and possibly as cheaply, and as expeditiously as companies; but that the withdrawal from other duties of the large number of officers required would be detrimental to the public interest, that the conduct of commercial undertakings did not fall within the proper functions of any Government and least of all within the functions of the Government of India, since the dependence of the population on the Government was, in India, one of the greatest drawbacks to the advance of the country, and that the country would therefore benefit by the introduction of English energy and English capital for railway purposes, with the possibility that such energy and capital would in due course be encouraged to assist in the development of India in other directions.

Old Guaranteed Railways.

The policy supported by Lord Dalhousie was adopted, and between 1854 and 1860 contracts for the construction of Railways in India were made by the East India Company, or (after 1858) by the Secretary of State for India with the East Indian, Great Indian Peninsula, Madras, Bombay, Baroda and Central India, Scinde (afterwards the Scinde, Punjab and Delhi), Eastern Bengal, Great Southern of India (afterwards, when amalgamated with the Carnatic Railway Company—see below—the South Indian) and Calcutta and South-Eastern Railway Companies. Under these contracts the railway companies undertook to construct and manage specified lines, while the East India Company (or the Secretary of State for India) agreed to provide land and guaranteed interest on the capital, the rate fixed being in various cases 5, 4¾ and 4½ per cent. according to the market rates prevailing when the various contracts were made. Half of any surplus profits earned was to be used towards repaying to the Government any sums by which it had been called upon to supplement the net earnings of any previous period in order to make good the guarantee of interest; and the remainder was to belong to the shareholders. In practically all matters of importance, except the choice of staff, the companies were placed by the contracts under the supervision and control of the Government, which had power to decide on the standard and details of construction; the rolling-stock to be provided, the number, time and speed of trains; the rates and fares to be charged; the expenditure to be incurred; the standard of maintenance; and the form of accounts. The railways were to be held by the companies on leases terminating at the end of 99 years, and on such termination the fair value of their rolling-stock, plant and machinery was to be paid to them. But provision was also made to enable the Government to purchase the lines after 25 or 50 years on terms calculated to be the equivalent of the companies' interests therein, and also to enable the companies to surrender their lines to the Government and to receive in return their capital at par.

Early attempts to secure funds for railway construction without a guarantee.

An attempt to secure the construction of railways in India, on terms more favourable to the Government than those of the contracts with the original guaranteed companies, was first made in 1862, when a subsidy, but not a guarantee, was granted to the Indian Branch Railway Company which proposed to make feeders to the trunk lines in Northern India, and did actually make one such line. Similar assistance was granted later to the Indian Tramway Company, which made a

short line in Madras. In 1864, the terms granted to the two companies mentioned were taken as a standard for general adoption with a view to the encouragement of similar companies. The chief provisions were that the Government, besides giving the necessary land free of cost, would grant an annual subsidy for 20 years at a rate not exceeding 100*l.* per mile of line, with an addition in respect of large bridges costing more than 10,000*l.* 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 the 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 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.

Progress in the construction of railways.

By the end of 1879, in about 25 years from the introduction of railways in India, 6,128 miles of railway had been constructed by companies which had expended, approximately, 97,872,000*l*. (These figures include the Calcutta 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*l*.

Introduction of modified guarantee terms.

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

Action in the direction suggested by the Commission was taken by the formation of three companies without a guarantee (the Bengal Central in 1881 and the Bengal and North-Western and Rohilkund and Kumaon in 1882) and three new guaranteed companies (Southern Mahratta in 1882, the Indian Midland in 1885, and the Bengal-Nagpur in 1887). The Bengal and North Western and the Rohilkund and Kumaon Railway Companies are referred to more fully in a later paragraph. The Bengal Central Railway Company's operations were not successful at the outset, and a revised contract was entered into with the company, with effect from the 1st July 1885, under which the Secretary of State guaranteed interest at 3½ per cent. on the company's capital, the balance of net earnings remaining after payment of interest on advances by the Secretary of State and debenture capital (but not the share capital) being divided between the Secretary of State and the company in the proportions of three-quarters to the former and one-quarter to the latter. The new contract gave the Secretary of State the right to take possession of the line on the 30th June 1905, or subsequently at intervals of 10 years, on repaying the company's capital at par. The rate of interest guaranteed to the Southern Mahratta Railway Company was also 3½ per cent. ; in this case the balance of net earnings remaining after payment of interest on advances by the Secretary of State (but not on share or debenture capital) was divisible in the same way as in the case of the Bengal Central Railway Company. The guarantee to the Indian Midland and 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 3½ 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 2½ 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.

Termination of contracts of the old guaranteed companies.

In dealing with the guaranteed companies formed before 1869 and with those formed in 1881 and subsequently, it has been the practice (except in the cases mentioned above, when the purchase of some of the old guaranteed lines was postponed in order to secure to the Government a share in surplus profits) to use in some way or other at the earliest possible date the right reserved by the Government of terminating the contracts of the various companies. The method of making use of this right has differed in different cases. The Eastern Bengal, Oudh and Rohilkhand, and Scinde, Punjab and Delhi lines were purchased and transferred to State management, the last named now forming part of the North Western Railway. Similarly, the Bengal Central line was purchased and made part of the Eastern Bengal Railway. The Madras and the Indian Midland lines were acquired but left, after acquisition, under the management of companies working other lines with which it was advantageous to amalgamate them. In 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 are 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 railways for the exercise of running powers, for the supply to one another of surplus rolling-stock, for the interchange of traffic and rolling-stock and the settlement of through rates, and for additions and alterations to or the redistribution of existing accommodation in junctions or other stations in view to their convenient mutual use.

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

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

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

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

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

right of taking possession of the lines at specified times on repayment at par of the capital of the companies.

Other lines worked by companies.

In addition to the lines referred to above, and apart from lines constructed by branch line companies, District Boards and Native 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.

Controlling Authority.

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

36RAR—1,554—31-12-19—GCPS