AN ANALYSIS OF THE FINANCIAL AND OPERATING STATISTICS OF THE GREAT SOUTHERN RAILWAYS CO. AND GREAT NORTHERN RAILWAY CO., 1938-44.

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In May, 1938, I read a paper before this Society on the published accounts and operating statistics of the G. S. Rlys. Co. from its formation in 1925 to 1937. The present paper is much wider in scope: it is an attempt to make a somewhat similar survey of the G. S. Rlys. Co. and G. N. R. Co. for 1938-44. In making a contrast between the two companies it must be recognised that they are different in capital structure, in the amount and maintenance of their plant, rolling stock, etc., in their route mileage, and in the density of population and extent of the territory for which they provide transport facilities. The beginning of this period, and especially the end of 1938, found both companies in a condition of utter financial embarrassment; during 1942-44, in sharp contrast, they enjoyed an unprecedented degree of financial prosperity. In spite of this, it is manifest that vast and well directed expenditure will have to be incurred on the reconstruction of the G. S. Rlys. section of Córas Iompair Éireann, before it can play an adequate part in serving to the best advantage the economic interests of the country, by means of inexpensive, efficient and rapid transit of passengers and goods.

In 1938, following a strong appeal from the Board of Directors of the G. S. Rlys. Co. to the Government that its financial position was so serious that it was doubtful if it could continue to provide adequate transport facilities, and that it was impossible to raise much-needed new capital, the Tribunal of Inquiry on Public Transport was appointed. This Tribunal made, in 1939, a detailed report on the finances and operating efficiency of the Company, and presented valuable recommendations in respect to its directorial control and management. With the outbreak of war in September, 1939, the country was confronted with a serious position. The Company, in its railway and road transport arms, controlled a vital artery in the movements of passenger and goods traffic. It became evident that Government decrees, through Emergency Orders, would affect the normal operations of the Company, especially in questions of essential and non-essential traffic. Eventually, the Government made an Order under the Emergency Powers Act providing that, as from February 24, 1942, the Board of Directors of the Company should consist of a chairman with special powers, appointed by the Government, and four directors representing the stockholders. This Order enabled the Government, through its nominated chairman, to exercise control of the management and general direction of the Company during the period of the Emergency.

The analysis of the financial and operating data of the two Companies will include the following: capital expenditure; net revenue;

receipts and expenditure of rail and road transport; volume of rail passenger traffic; tonnage and ton-miles of rail borne goods; average wagon load of goods trains; and internal road passenger services.

Division of the main heads of Capital Expenditure ended December, 1944.

	G.S. Rlys.		G.N. Rly.	
	£ million	%	£ million	%
Lines open for traffic (including lines jointly owned)	23·80	76·0	8·34	77·9
Rolling Stock	3·76	12·0	1·54	14·4
Manufacturing & Repairing Works and Plant	·65	2·1	·18	1·7
	28·21	90·1	10·05	94·0
Road Transport (vehicles, horses, garages, etc.)	1·39	4·4	·47	4·4
Canal	·32	1·0	—	—
Docks, etc.	·10	·3	—	—
Hotels, etc.	·29	·9	·08	·7
Land, etc., not part of the Railway	·44	1·4	·10	·9
Subs. to other companies	·55	1·8	—	—
Miscellaneous	·03	·1	—	—
Total	31·33	100·0	10·70	100·0

Since 1938 there was an increase of £284,000 in capital expenditure incurred by the G. S. Rlys., largely due to additional expenditure for road transport, £228,000 and rolling stock £75,000; while in the case of the G. N. Rly. the increased capital expenditure for the corresponding items, omitting that on road transport, which is not included in the Capital Account for 1938-43 inclusive, is £175,000; chiefly as a result of increased capital expenditure on rolling stock, £104,000. The proportion of the accumulated capital expenditure of the G. S. Rlys. and G. N. Rly. for railway purposes works out at 90.1 per cent. and 94 per cent. respectively, while for road transport it is 4·4 per cent. for each company.

As the account stands, it does not help one to draw sure conclusions: for instance, in the case of G. S. Rlys., it consists of the accumulated capital expenditure since their formation of the 26 different railway companies, amalgamated and absorbed as a result of the Railways Act, 1924, and of the new feature of road transport since that date. There is no allowance in this account for depreciation or the removal of assets no longer used, except they are sold, nor is there any attempt at their periodical valuation. In fact, it has no meaning, it is misleading from the accountancy standpoint, and should be scrapped. The new Company, Córas Iompair Éireann, should resort to a new and better system of presenting this aspect of its published accounts.

The Regulation of Railways Act, 1868, stipulating this Double Account system was an invention, not of accountants but of legal draftsmen, whose accountancy vision was limited to a receipts and payments account. It was considered that fixed assets and liabilities

in the form of a Receipts and Payments Account should be kept separate from the amounts of floating assets and liabilities, which should be placed in a general balance sheet. The result is that large sums are represented as fixed assets at the totals originally expended on them, although such assets have ceased to exist, for example, railway lines that function no longer.

Net Revenue (in £ thousands) of G.S. Rlys Co. and G.N.R. Co.

Year	Railway	Road Transport	Canal	Docks, etc.	Hotels, etc.	Other	Total
	G. S. Rlys. Co.						
1938 .	250·0	61·6	—6·0	—1·0	10·6	36·0	351·1
1939 .	353·1	39·7	—5·6	—3·4	6·7	37·2	427·7
1940 . .	335·8	6·2	—6·5	—2·7	·2	25·9	358·9
1941 .	354·0	181·6	—6·8	—7·1	6·8	*38·4	566·9
1942 .	206·9	336·3	—7·2	—5·5	6·2	30·5	567·2
1943 .	355·4	244·4	—8·1	—9·2	25·3	34·1	641·8
1944 . ..	356·6	406·8	—7·9	—9·1	6·7	35·6	788·7
	G. N. Rly. Co.						
1938 .	29·5	9·7	—	—	2·6	28·8	70·6
1939 . ..	104·4	11·0	—	—	2·8	30·8	148·9
1940 .	110·3	7·1	—	—	2·4	34·2	154·1
1941 . .	602·9	33·6	—	—	14·4	38·2	689·1
1942 . .	638·2	36·9	—	—	22·3	49·1	746·5
1943 . .	586·9	33·8	—	—	28·7	60·8	710·3
1944	626·2	49·3	—	—	20·3	68·9	764·7

The aggregate of the net revenue of the G. S. Rlys. for 1938 was the lowest in the 20 years of its existence, and required with the balance, £36,910, brought from the preceding year, a transfer of £6,101 from the Compensation Fund to pay the amounts due for interest on debentures and other fixed charges.

The G. N. R., at the end of 1938, was similarly financially embarrassed, in fact, in a more unfortunate position, and was forced to transfer £25,000 from the General Reserve for a like purpose, leaving a debit balance of £34,000 to be carried forward. At the end of 1944, a vast change had taken place in the financial position of the two companies: the net revenue of the G. S. Rlys. for this year being 2¼ times that of 1938, while the G. N. R. showed for the same year a net revenue of more than 10 times that of 1938. The year 1941 marked a distinct improvement in the net receipts of both companies compared with preceding years, which was largely accounted for by increased net returns for road transport on the G. S. Rlys., while the jump of over £500,000 over 1940 for the G. N. R. was mainly due to increased net receipts from railway services. The total of the net receipts of the G. S. Rlys. for 1942-44 exceeded that for 1938-41 by £293,000 or 17 per cent., while the corresponding increase in the case of the same periods on the G. N. R. was slightly over £1,000,000 or 100 per cent.

The G. N. R. was able to take advantage of the unprecedented degree of prosperity in the northern part of the system, as a result

of the varied classes of war work and ancillary industries and the influx of armed forces, of its increase in engine mileage in 1944 by 33 per cent. on that of 1938; the G. S. Rlys., on the other hand, enjoyed a more or less monopoly position from 1942 for the carriage of passengers and goods in a part of the country in which there was an increasing intensification of tillage and turf production and large quantities of money in the hands of traders, farmers, industrialists and the general public, but was hampered, as a result of limited and poor fuel supplies, by a reduction of total engine mileage of 11.6 million miles in 1938 to 7.5 million, or about 36 per cent., in 1944.

One fact that is evident from the above figures, so far as the G. S. Rlys. Co. is concerned, is the greater relative financial importance of road transport services, and the comparative decline in the net returns from the railway. Although the net revenue for the railway showed an increase of over £100,000 between 1938/44, it formed 71 per cent. of the net revenue of the Company in the former year compared with only 45 per cent. in the latter; while the percentages for road transport were 17.5 per cent. and 52 per cent. respectively. Taking the combined net income of rail and road transport for 1942-44, we find that 46 per cent. of the total net revenue of the company is the outcome of rail transport, and 49.4 per cent. of road services.

It is an interesting fact that, in respect to the gross receipts and expenditure of canals in the accounts of the G. S. Rlys., which show a deficit each year, the Company earned revenue as a freight carrier in 1943 and 1944. No income was earned in this regard in any previous year dating from 1925. The net surplus thus received, without allowing for establishment expenses, in 1943 was £55, and in 1944, £443.

The figures for net revenue of the G. N. R. are not complete as they do not include those for its road services in Northern Ireland, acquired by the Northern Ireland Road Transport Board, pursuant to the Road and Transport Act (N.I.), 1935, under a pooling agreement, in which the different railway companies operating in that region were to participate. As the figures stand, the total net revenue of the G. N. R. depends in a large measure, over 80 per cent. in each year from 1941 to 1944, on the net income from rail services.

An analysis of the gross receipts and expenditure of the two companies will next be made—see table opposite.

The total railway receipts for the G. S. Rlys. in 1944 show an increase of 53 per cent. over those of 1938; the corresponding percentage increase in the case of the G. N. R. being 175 on lower initial figures. Both companies present a continuous upward movement in the total annual traffic revenue, interrupted slightly in the G. S. Rlys. returns for 1942, due to reduced income from passenger fares. This upward movement on the G. S. Rlys. is for the most part made up from increases in freight traffic, while in the case of the G. N. R. the increases are divided between passenger and goods trains, with larger balances in favour of the former in 1942-44. As a result of truncated passenger services on the G. S. Rlys. during 1942-44, the receipts from goods trains became more and more predominant, constituting almost 70 per cent. of the total railway income in 1944; while the revenue

from passenger fares assumes a more important rôle on the G. N. R., with an increase of about £1,000,000 in 1944 over that of 1938.

Gross Railway Receipts in £ million.

Year	Passenger Train				Goods Train					Other Receipts	Total
	Passengers	Mails	Parcels, etc.	Total	Merchandise	Livestock	Coal, etc.	Other Minerals	Total		
						G. S. Rlys.					
1938	·84	·16	·28	1·29	1·28	·28	·17	·12	1·86	·02	3·17
1939	·82	·16	29	1·28	1·44	·30	·19	·12	2·05	·02	3·35
1940	·73	·16	·30	1·20	1·55	·31	·20	·15	2·22	·02	3·44
1941	·87	·16	·40	1 43	1·74	·30	·21	·29	2·53	·02	3·98
1942	·76	·16	·34	1·27	1·63	·42	·16	·45	2·65	·01	3·93
1943	1·19	·13	·43	1·75	1·86	·41	·20	·56	3 03	·02	4·79
1944	·95	·13	·38	1·46	2·09	·41	·25	·61	3·36	·02	4·85
						G.N.R					
1938	·45	·04	·08	·57	·36	·07	·04	·02	·49	·04	1·10
1939	·46	·04	·09	·59	·44	·08	·04	·02	·58	·05	1·22
1940	·52	·04	·08	·64	·53	·11	·05	·03	·71	·05	1·41
1941	·95	·04	·11	1·10	·82	·08	·09	·06	1·05	·06	2·20
1942	1 18	·04	12	1·35	·86	·14	·09	·11	1·20	·07	2·61
1943	1·35	·04	·13	1·52	·89	·12	·11	·09	1·21	·07	2·80
1944	1·42	·04	·14	1·60	·98	14	·10	·12	1·34	·08	3·02

Increased revenue from passenger fares may be the result of more people travelling the same or longer distances, assuming no change in the fares, or an increase in the number of first and second-class compared with third-class passengers, each class paying the same or higher fares or an increase in fares generally either in single fares or by the abolition of return tickets, even with a smaller number of people travelling, or a combination of any two or more of these factors. From statistics of the number of, and receipts from, passengers, to be given later, it will be noted that, comparing the returns of 1944 with those of 1938 on the G. S. Rlys., there was a reduction of from about 11,500,000 passengers to about 8,750,000, the number of first-class passengers had increased over 100 per cent., the number of third-class passengers was about one-third less, and the increase in the average receipts per first and third-class passenger was 6 per cent. and 43 per cent. respectively. The position of the G. N. R. in 1944, compared with 1938, in respect to passengers was somewhat different: there was an increase of from about 8,000,000 to about 18,000,000 passengers; the number of first-class passengers had increased five-fold; the increase in the number of second and of third-class passengers was more than 100 per cent.; there was an increase of over 20 per cent. and 37 per cent. in the average receipts from ordinary second and third-class passengers.

Consequent on the limited passenger services on the G. S. Rlys. during 1943-44, due to fuel difficulties, amounting during a period to one train a day each way for two days per week, the reasons for the decline in their relative importance compared with goods services are obvious. The financial situation was somewhat relieved by the increased numbers electing to travel first-class, the uncomfortable

overcrowding of third-class compartments on the available train services and the abolition of the concession of return fares, equivalent to increased fares—all helped to increase the gross revenue in spite of the lessened number of passengers.

The income from the carriage of parcels and sundry goods on the passenger trains of both systems was well maintained during the period under consideration, and disclosed an increase of about £90,000 for the G. S. Rlys. in 1944 over 1938, and of £60,000 for the G. N. Rly., thus testifying to the fact that, where greater speed and better services can be afforded on passenger trains than those by goods trains, the railways can retain no insignificant part of this traffic.

From the above figures, a distinct upward movement in revenue from goods train services of the two systems may be noted: a rise in the G. S. Rlys. from 59 per cent. of the total traffic receipts in 1938 to 69 per cent. of a much higher total in 1944; the corresponding percentages of the respective totals for the G. N. R. being 44. Any comparison between the revenue from goods train traffic on the G. S. Rlys. in 1943 and 1944 and that in previous years must take into account the fact that very many of the exceptional rates were abolished as a result of an Emergency Decree in June, 1943, which allowed the Company to charge the higher standard rates.

The items showing the most remarkable increases for goods traffic in the returns 1938/44 on the G. S. Rlys. are merchandise about £1,000,000 (including expenses of collection and delivery), and other minerals about £.5 million. The number of tons of merchandise carried in 1938 was 1.48 million tons at an average of 17/3¾ per ton, compared with 1.71 million tons in 1944 at an average rate of 24/4½ per ton or an increased rate of over 40 per cent., the expenses of collection and delivery being excluded in each case. As the weights given are independent of the distance of haulage, the ton-miles are a better criterion. The ton-mileage for merchandise in 1938 was 119,000,000, or an average rate of 2.96d. per ton-mile compared with 136,000,000 ton-miles in 1944, or an average rate of 4.37d. per ton-mile, showing an average increase of about 48 per cent. in rates, assuming the same proportion of the many articles under the heading, merchandise, was carried in the years under comparison. In other words, the gross receipts for merchandise in 1944 showed an increase of about 70 per cent. on the 1938 figures, while the increased percentage for ton-miles was only 14. The receipts for the carriage of live stock for 1938 and 1944 were 2.71d. and 4.12d. respectively, per ton-mile, equivalent to an increase of 52 per cent. The receipts for coal, coke and patent fuel per ton-mile in the two years do not admit of comparison, as the carriage of coal was relatively small in 1944. Turning to the ton-mileage of other minerals, which was mostly sugar-beet in the two years under comparison and also turf in 1944, we find that the ton-mileage in 1938 was 19.8 million or, at the rate of 1.56d. per ton-mile compared with 81,000,000 ton-miles, or an average of 1.84d. per ton-mile in 1944, equivalent to an increase of 18 per cent. The percentage increase of the receipts from all goods carried per ton-mile in 1944 was 25 per cent. over the 1938 figures.

The item in the gross receipts from goods train traffic on the G. N. R. showing the largest increase in 1944 over 1938 is merchandise, £.62 million, out of a total increase of £.85 million. The number of

tons of merchandise carried in 1938 was .6 million tons at an average rate of 11/10¾ per ton, and in 1944, 1.18 million tons at 16/7 per ton, or an average increase in rates of about 40 per cent. As in the case of the G. S. Rlys., it is more desirable to take the ton-mileage. The ton-mileage of merchandise for 1938 and 1944 was 34.56 and 67 million ton-miles respectively, or an average rate per ton-mile of 2.84d. and 3.95d. for the two years, or an average increase of 39 per cent. in 1944 on the 1938 figures. In the ton-mileage receipts for live stock and other minerals, the percentage increases were 17 and 35 respectively, while the average increase for all freight was 24 per cent.

A short table setting forth the increases in gross receipts and ton-miles in 1944 over those in 1938, as percentages of the latter, will throw into relief some of the figures just referred to, and will demonstrate the extent to which the percentage increases in gross receipts exceeded those of ton-miles, the work done.

Comparison of the extent to which the gross receipts and ton-miles of rail borne traffic in 1944 *exceeded those of* 1938.

	G.S. Rlys.		G.N.R.	
	Gross Receipts	Ton-miles	Gross Receipts	Ton-miles
	%	%	%	%
Merchandise	70	14	170	91
Live Stock	46	−4	100	57
Coal, Coke and Patent Fuel	47	18	150	125
Other Minerals	408	305	500	467
Total Goods	62	49	173	112

From the above figures the increases in the relative gross receipts, as percentages, outpace those of ton-miles on both railway systems, especially in merchandise, which is the largest item in the total gross receipts and ton-miles. The disparity is also great for live stock and coal, etc., in the case of the G. S. Rlys., and for live stock on the G. N. R. To make an exact comparison between the ton-miles of any of these grouped items for two years, it would be necessary to have in each year about the same proportion of the commodities which make up the grouped item.

A general examination of the above figures as they stand, without any adjustment in the case of ways and works and rolling stock, will show that there was a vast increase in expenditure on both systems in 1944 over that in 1938: the increased expenditure for the G. S. Rlys. being slightly over £1½ million, and for the G.N.R. £1⅓ million. The increase in locomotive running expenses of the G. S. Rlys. is £·78 million or 105 per cent., and of the G. N. R. £·46 million or 177 per cent. on lower basic figures When consideration is given to the fact that the total engine mileage of the G. S. Rlys. in 1944 was only 64 per cent. of that in 1938, while the G. N. R. showed an increased percentage of 32 per cent., a more detailed analysis of this item is required and will be undertaken later in this paper. In the other items the increases between 1938 and 1944 are very large, the percentage increases being higher in the case of the G. N. R. on account of the lower figures in 1938.

Expenditure in respect of Railway Working (£ million).

Year	Ways and Works	Rolling Stock	Locomotive Running	Traffic	Other Expenses	Total
			G. S. Rlys.			
1938	·52	·54	·74	·72	·40	2·92
1939	·52	·57	·77	·72	·42	3·00
1940	·56	·58	·88	·75	·33	3·10
1941	·66	·73	1·11	·79	·33	3·62
1942	·51	·55	1·48	·83	·35	3·72
1943	·87	·89	1·45	·90	·33	4·44
1944	·86	·81	1·52	·94	·36	4·49
			G.N.R.			
1938	·19	·21	·26	·30	·10	1·07
1939	·20	·23	·26	·30	·12	1·12
1940	·23	·27	·33	·34	·13	1·30
1941	·27	·28	·48	·42	·16	1·60
1942	·31	·38	·58	·52	·18	1·97
1943	·35	·41	·63	·61	·20	2·21
1944	·37	·44	·72	·67	·20	2·40

As the total expenditure of the G. N. R. for each year, and of the G. S. Rlys. for 1941, 1943 and 1944 includes provisions for renewals, maintenance, etc., the latter must be deducted from the totals of ways and works and rolling stock to ascertain the actual working expenditure on these items for each year. The totals of such transfers for the G. S. Rlys. for the years, 1941, 1943 and 1944 amounted to ·29, ·55 and ·45 million pounds respectively. In none of the other years in question was any such provision allowed; in fact, no transfer was made between 1932 and 1941, and in 1932, over £15,000 was taken from this reserve account to swell the net revenue necessary to meet the debenture interest and other fixed charges. Between 1925 and 1931 the total amount placed to this reserve account, allowing for transfers to net revenue account, was only £84,000 compared with £1 million for 1943 and 1944. Deducting the reserve provision for renewals, etc., and the increased amounts for locomotive fuel in 1944 compared with 1938, we find that the increased expenditure in other respects was £·48 million or 18 per cent. above that of 1938. The transfers to reserve by the G. N. R. on account of ways and works and rolling stock were regularly made during the period under consideration and amounted to over £743,000.

The item showing the largest increase in expenditure on the G. S. Rlys. was locomotive running, due mainly to the very heavy fuel costs which rose from £318,000 in 1938, or 10·9 per cent. of the total railway working expenses to almost £966,000 or 28·9 per cent. of the total in 1944. In other words, out of every £ incurred in working expenditure in 1938, 2/2 was spent on fuel, and in 1944, the sum was 4/9. When consideration is given to the number of engine miles run in these two years, the cost of fuel per engine mile in 1938 was 6·38d., and in 1944, 2/5·65d., an increase of 362 per cent. These higher costs were dependent partly on the higher fuel prices per ton, and partly on the fuel consumption per engine mile. The latter in 1938 was

42·92 lbs., whereas in 1944 it was 80·06 lbs. or an increase of almost 87 per cent. During 1942-44 the locomotive fuel costs amounted to £2·8 million, and their costs per engine mile in 1942 and 1943 were about 2/2 and 2/-. Were it not for the reduction in engine mileage, itself a product of the limited and very poor fuel, the additional costs of the fuel used in 1944 for steam raising purposes would be about £·5 million for 1944 on the 1938 mileage. The locomotive fuel costs of the G. N. R. in 1938 and 1944 constituted 12 per cent. and 18·8 per cent. respectively, of the aggregate rail expenditure for these years. In this item there was an increase in expenditure of 250 per cent. for 1944 on the 1938 figures, whereas the corresponding increase for the G. S. Rlys. was 204 per cent. This is no criterion as costs must be related to the work done. Fuel costs on the G. N. R. for 1938 worked out at 6d. per engine mile, about the same as that of the G. S. Rlys., and at about 1/4 in 1944, a little more than half the rate for the G. S. Rlys. for the same year. The fuel consumption per engine mile in the latter year on the G. N. R. was 55·35 lbs. or an increase of about 19 per cent. on that for 1938. It must be remembered, in comparing the costs and consumption of fuel per engine mile on the G. N. R. with those on the G. S. Rlys., that the coal used by the former was vastly superior to the highly expensive and very troublesome fuel employed on the G. S. Rlys.

The only other important item under running expenses is the amount paid in wages, which totalled £479,600 in 1944 on the G. S. Rlys. and exceeded the sum paid in 1938 by £93,000. In relation to engine mileage this wages bill works out at 7¾d. per mile in 1938 compared with 1/2¾ in 1944. The corresponding rates on the G. N. R. were about 5½d. and 8¾d. per engine mile. Combining the costs of fuel and locomotive wages per engine mile on the two systems for 1944, the total for the G. S. Rlys. is about 3/8½, or about 80 per cent. more than 2/0¾, the amount for the G. N. R.

As regards the other headings of expenditure in respect of railway working of the G. S. Rlys., there were increases in ways and works, rolling stock and traffic expenses, and a reduction in "other expenses" in 1944 compared with 1938. To ascertain actual expenditure in the former year, deductions of the transfers to depreciation, deferred renewals, etc., of £·24 million and ·21 million must be made from £·86 million and £·81 million respectively for ways and works and rolling stock. The net amounts show an increase of £·10 million in ways and works and of about £60,000 or 11 per cent. in maintenance and renewal of rolling stock on the 1938 figures, a relatively small amount, considering the increased costs of wages and materials. This may be partly accounted for by the shortage of materials in recent years, and possibly to the decision of the management that it would be inexpedient to spend much money in the repair and renewal of obsolete and antiquated plant and equipment: The increase in expenditure for these two items is much greater on the G. N. R.: the actual expenses for maintaining ways and works are about double those in 1938, and for rolling stock the increase is about 100 per cent.

The increase in the totals for salaries and wages paid to station-masters, clerks, signalmen, ticket collectors, porters, etc., for 1938, amounting to 32 per cent. on the 1938 figures, absorbed most of the increase of £212,000 in traffic expenses, notwithstanding a reduction in the number and frequency of trains on the system, a decrease of about 35 per cent. in engine mileage and of 24 per cent. in the number

of passengers; while the tonnage of goods carried and ton-miles showed increases of about 33 per cent. and 49 per cent. respectively. By way of contrast with the G. S. Rlys., the G. N. R. services show an all-round upward movement when comparing 1944 with 1938. The increase in traffic expenses, £366,000, was mainly due to increased salaries and wages which exceeded the amounts in 1938 by 127 per cent. There was an increase of 33 per cent. in engine mileage, or 120 per cent. in the number of passengers, of 112 per cent. in ton-miles, and of 123 per cent. in tonnage of goods carried.

Volume of Rail Passenger Traffic (in millions).

Year	G.S. Rlys.			G.N.R.				
		Class				Class		
	1st	3rd	Total	1st	2nd	3rd	Work-men	Total
1938	·64	10·94	11·58	·09	·78	7·15	·21	8·23
1941	·97	8·86	9·83	·23	·96	13·37	·99	15·55
1944	1·39	7·36	8·75	·57	1·68	14·98	·91	18·14

In comparing the total volume of passenger traffic, the number of journeys of season ticket holders is taken into account on the assumption that each holder makes, on the average, about 600 journeys in the year.

It may be noted that, in a comparison of the total number of passengers in 1944 with 1938, there has been a reduction of 24 per cent. on the G. S. Rlys., and an increase of 119 per cent. on the G. N. R. The diminution in the total number travelling on the G. S. Rlys. has been due to a decrease in third-class passengers on the limited train services. Otherwise there has been a substantial increase in the totals for the various classes on the two systems.

Mr. Reynolds, Chairman of Córas Iompair Éireann, has kindly furnished me with statistics of passenger journeys on the Dublin-Greystones section of the G. S. Rlys. in 1938 and 1944. The total number of passengers in 1938 on the Dublin-Greystones section was 6·44 millions and in 1944, 4·96 millions, leaving 5·14 millions in 1938 and 3·79 millions in 1944 for the remainder of the system. These figures prove that in respect of the volume of passenger traffic the Dublin-Greystones section formed an appreciable part (about 56 per cent. in the two years in question) of that of the entire system. They also indirectly demonstrate, in view of the depleted volume of passenger traffic for the rest of the line in 1944, and the total number of passengers, who travelled in the same year in "internal" road passenger services, that the long distance road passenger services played an important rôle in the emergency.

In 1944, there was one first-class passenger in every six travelling on the G. S. Rlys. compared with one in every eighteen and ten in 1938 and 1941 respectively. If the number of season ticket holders were omitted, there was one first-class passenger in every seven travellers by ordinary tickets in 1944, and one in every twenty-seven in 1938. On the Dublin-Greystones section in 1944, the proportion

of first-class passengers to the total number of travellers was one to every five and for the rest of the system one in every nine. The relatively large number of first-class passengers and the reduction in the total of third-class passengers in 1944 were due to the limited train services, in which the number of loaded passenger train miles was only 29 per cent. of that in 1938, the overcrowding of third-class coaches, as a result of which large numbers, who would ordinarily travel by rail, travelled in buses, the rationing of the use of private motor cars to essential services, and the more abundant supplies of ready cash throughout the country. The proportion of first-class and second-class passengers to the total number on the G. N. R. was one in every eight in 1944 and one in every nine in 1938. The total number of loaded passenger miles on the G. N. R. in 1944 showed an increase of 10 per cent. on the figures for 1938.

It must be understood that for a fuller understanding of the volume of passenger traffic, regard must be had to the passenger miles as in the case of ton-miles in goods traffic.

Volume and Average Receipts per Ton of Goods Traffic by Rail.

Year	G.S. Rlys.					G.N R.				
		Million Tons					Million Tons			
	No. of Live-stock in millions	Mer-chan-dise	Coal, Coke and Patent Fuel	Other Miner-als	Total	No. of Live-stock in millions	Mer-chan-dise	Coal, Coke, and Patent Fuel	Other Miner-als	Total
1938 ...	1·39	1·48	·45	·42	2·35	·53	·60	·11	·06	·78
1941 ...	1·31	1·66	·42	·71	2·80	·57	1·06	·21	·18	1·46
1944 ...	1·41	1·71	·31	1·10	3·12	·64	1·18	·26	·30	1·74
	Average Receipts per ton									
		s. d.	s. d.	s. d.	s. d.		s. d.	s. d.	s. d.	s. d.
1938 ...	—	17 3¾	7 5¾	6 0	13 5	—	11 10¾	6 6	5 6¼	10 7
1941 ...	—	20 10¼	9 9¾	8 2¼	16 0	—	15 5	7 11	6 6¾	13 2¼
1944 ...	—	24 4¼	16 3¼	11 2¼	18 11¼	—	16 7	7 10¾	7 11¾	13 10

The total tonnage of all freight on the G. S. Rlys. in 1944 was the highest in any year of the Company. Apart from live-stock the volume of the total rail borne goods traffic on the G. S. Rlys. shows an increase for 1944 of ·77 million tons or almost 33 per cent. over that for 1938, while the average annual number of live-stock carried during 1938-44 was 1·44 million compared with the averages of 2·46 and 1·56 millions for 1925-31 and 1932-37 respectively. There were increases in tonnage freights in 1944 over 1938 in merchandise and in other minerals, especially in the latter in which the increase was over 180 per cent., due chiefly to the carriage of much larger quantities of sugar beet and turf, which amounted to ·47 and ·49 millions respectively in 1944. There is no reference to either of these items in the published returns by the Company for 1938 and 1941 of "the tonnage of the principal classes of minerals and merchandise carried by goods trains." The reduction of the tonnage of coal, etc., by 31 per cent. is to be expected on account of the reduced supplies available towards the end of this period.

The tonnage of coal, etc., in 1938, ·45 million tons, looks small, considering that the import of coal for this year amounted to 2·48 million tons. It must, however, be noted that according to the Irish Census of Distribution for 1933 the retail trade in coal in Dublin accounted for 51·4 per cent. of the aggregate for the Twenty-Six Counties, that it was imported directly into the ports of Dublin, Cork, Limerick, Waterford, Sligo, Dundalk and Drogheda, which supplied districts close at hand, that some part of the coal trade from Dublin for a radius of from 50 to 60 miles could be transacted by road, and that outside most of the towns turf was extensively used.

Comparing 1944 with 1938 the receipts per ton of goods carried by rail on the G. S. Rlys. show an increase under the different headings, the increases being 41 per cent. for merchandise, 117 per cent. for coal, etc., and 86 per cent. for other minerals.

The tonnage freight of the G. N. R. for the various items in the years mentioned is smaller in quantity and shows a lower revenue per ton than the G. S. Rlys. Further, when the figures of 1944 in the above tables are compared with those of 1938 on the two systems, we find that there is a smaller increased percentage in receipts per ton and a larger increased percentage in quantities in the case of the G. N. R. The average receipts per ton of the various items have been already referred to.

The number of tons of the various classifications of freight traffic conveyed on a railway affords no indication of the total work performed by the goods traffic department, as the different items of freight may be carried varying distances. Consequently, a better criterion of work done in respect of traffic is ton-miles, i.e., the number of tons of freight traffic multiplied by the miles hauled in each case.

Ton-Miles (million) of Rail Borne Traffic.

Year	G.S. Rlys.					G N.R.				
	Live-stock	Mer-chan-dise	Coal, Coke, and Patent Fuel	Other Miner-als	Total	Live-stock	Mer-chan-dise	Coal, Coke, and Patent Fuel	Other Miner-als	Total
1938 ..	25	119	28	20	192	7	35	4	3	49
1941 ..	21	142	38	42	243	7	63	9	10	88
1944 ..	24	136	46	81	286	11	67	9	17	104
	AVERAGE RECEIPTS PER TON-MILE									
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
1938 ...	2·71	2·96	1·73	1·56	2·63	2·60	2·84	2·05	1·21	2·63
1941 ..	3·46	3·27	1·56	1·67	2·77	2·89	3·44	2·40	1·48	3·08
1944 ...	4·12	4·37	1·83	1·84	3·30	3·04	3·95	2·67	1·63	3·36

As the ton mileage is partly dependent on the route mileage of a railway, the much longer route mileage, first track, 1,930 miles, of the G. S. Rlys. than that of the G. N. R., 543 miles, will have a greater influence on the ton-mile traffic of the different headings, and will render it difficult to compare the ton-mile statistics of the two systems. It may, however, be noted that the total figures of the G. S. Rlys. for

1944 show an increase of 49 per cent. on those of 1938, while the corresponding increase for the G. N. R. is 121 per cent. on a much lower initial figure. In the case of the G. S. Rlys., the aggregate of 286 million ton-miles in 1944 is much higher than in any year prior to the recent world war, and is largely accounted for by the vast increase in other minerals, mainly sugar beet and turf, the latter being conveyed fairly long distances to places like Dublin, to the relatively great increase under the heading, coal, etc., due in some measure to the opening up and development of the Irish mines during the Emergency and to the increase in merchandise. All these items were influenced, so far as rail carriage is concerned, by the great reduction in private and public road haulage resulting from the scarcity of petrol supplies. The ton-mileage of live-stock has altered but little; in fact, it has decreased, consequent on the lower exports during the war period. The above table and the previous one, particularly the statistics relating to 1944, show that the work of the goods traffic department of the G. S. Rlys. is of immense importance to the general welfare of the country, and has had imposed on it grave responsibilities in a time of stress and difficulty.

The ton-mileage of the G. N. R. was similarly affected by the removal of many private and public motor lorries from the roads and showed a distinct upward movement during this period. This was accounted for by the increased traffic in general merchandise, due in no small measure to war work and the consequent improved economic conditions in the Northern part of the country, and to the exceptionally high percentage increase in other minerals. The ton-mileage, 1938 and 1944, points to a relatively small increase for live-stock and coal, etc. It is an interesting fact that in spite of the large increases in ton-miles of merchandise on the two systems, the percentages of the total freight for this item in 1944 for the G. S. Rlys. and G. N. R. are lower than those for 1938, viz., 48 per cent. and 64 per cent. respectively compared with 62 per cent. and 71 per cent. in the latter year.

It may also be observed that the average receipts per ton-mile of all freight are the same on the two systems for 1938, higher on the G. N. R. for 1941, and almost the same for 1944, probably due to the removal of the exceptional rates in 1943 on the G. S. Rlys. Comparing the percentage increases in the receipts per ton-mile in 1944 over those in 1938, the advantage is in favour of the G. S. Rlys. in live-stock and merchandise, while the percentage increases are higher on the G. N. R. in coal, etc., and other minerals.

It must be noted that the figures in the above table and in the preceding one are totals and average receipts of totals in each case, and although the average freight charges per ton-mile have increased for all headings, there is no attempt to show there has been an increase in the freight charges per ton-mile for any particular commodity within a group heading.

As an index of efficiency, wagon miles, which are not furnished in the returns to stockholders, but are included in the Government statistics relating to the operation of the railways, are useful. In 1944, the loaded wagon mileage of the G. S. Rlys. was 61·4 million miles or 71·0 per cent. of the total wagon miles, while the corresponding figures for 1938 were 55·4 million or 69·4 per cent of the total. Similar statistics of loaded wagon mileage of the G. N. R. for 1944 were 25·6 million miles or 72·4 per cent. of the total wagon miles, and

for 1938, the corresponding figures were 16·0 million miles or 70·1 per cent of the total wagon mileage. On both systems there have been increases in the number of loaded wagon miles and in their percentages of the total wagon miles.

Average Wagon Load in Tons.

Year	G.S. Rlys.	G.N.R.
1938	3·46	3·10
1941	3·89	3·72
1944	4·66	4·08

The average wagon load may be regarded as a criterion of economical loading and of the general efficiency of the goods department, provided that there is a large degree of co-operation on the part of consignors, inasmuch as a smaller number of wagons would be required to haul a definite amount of traffic if the average load could be increased. It may be observed that alterations in the proportions of the main classifications of freight and in the size of wagons in the various years may lead to somewhat unreal conclusions for comparative purposes. As the figures stand, the results for the two systems are satisfactory: the increase on the G. S. Rlys. in 1944 is about 35 per cent. over that of 1938, while the corresponding increase for the G. N. R. is 32 per cent.

As regards the loading weight of freight trains, there has been an average increase on the G. S. Rlys. from 56·6 tons in 1938 to 79·9 tons in 1944, while the corresponding average figures for the G. N. R. in 1938 and 1944 were 63·5 tons and 79·1 tons respectively.

Road Transport (£ *million*)—*G.S. Rlys.*

Year	Receipts			Expenditure			Bal.
	Passenger Services	Goods Services	Total	Actual Expenditure	Renewals A/c.	Total	
1938	·62	·33	·96	·82	·09	·90	·062
1939	·64	·35	·99	·86	·09	·95	·040
1940	·64	·37	1·01	·92	·08	1·01	·006
1941	·65	·42	1·07	·80	·09	·89	·182
1942	·74	·54	1·29	·86	·09	·96	·336
1943	·72	·55	1·28	·95	·09	1·04	·244
1944	·97	·89	1·87	1·37	·09	1·46	·407

The receipts from passenger services consist of revenue from passenger fares and other receipts, some part of which would include charges for luggage, small parcels, etc., and from hired buses. The total gross receipts from road transport on the G. N. R. from passenger services only, according to the published returns, varied from £·16 million in 1938 to £·20 million in 1944, and the annual expenditure, including provision for renewals, was more or less stationary, about £·15 million. As already mentioned, no statistics relating to the road transport vehicles, owned by the G. N. R. and taken over by the Northern Ireland Transport Board, are available.

As there are no published statistics for the road services of the G. S. Rlys. under the heading of vehicle miles, passenger miles, num-

bers of passengers, etc., the figures in the next table for " internal " road passenger services will help to throw some light on the above figures.

The receipts for road passenger and goods services on the G. S. Rlys. for 1944 show abnormal increases of £·25 million and £·34 million respectively over those for 1943, and of £·35 million and £·56 million respectively over the corresponding totals for 1938. The increased receipts from passenger services in 1944 over 1943 may to a large extent be attributed to the increased vehicle mileage run, and the larger number of passengers, as may be inferred from the statistics of other " internal " passenger services in the two years: vehicle miles in 1943, 5·7 millions; in 1944, 7·3 millions; number of passengers in 1943, 11·2 millions, and in 1944, 13·6 millions, consequent on the diversion of traffic from rail to road. As a result of reduced and poor supplies of locomotive fuel, long distance rail passenger services were run only two days per week between April and July, 1944, after which the services were increased to four days per week, while rail passenger services on a number of branch lines were discontinued, to be replaced as far as possible by road services. The increased receipts in 1944 over 1938 were mainly due to the increased fares imposed by the G. S. Rlys. in March, 1941, when they were raised to the statutory maxima and large numbers travelling longer distances. A note in the *Irish Trade Journal*, March, 1945, p. 34, stated that " the extent of these increases varied widely, but reached 95 per cent. in some cases."

The increase in receipts from the carriage of goods was the result of a number of factors: better services to consignors than those afforded by goods trains; a certain encouragement to the use of road transport, consequent on the heavy costs and difficulties of the poor locomotive fuel of goods trains; the lack of any real opposition from private and other public carriers; and the operation of a large number of road vehicles, hired from motor lorry owners. The cost of hiring these vehicles in 1944 amounted to £240,000 compared with £2,500, £36,000 and £42,000 in 1938, 1942 and 1943 respectively. These costs for 1944 account for no small part of the increased expenditure in this year compared with previous years, to which must be added the additional wages costs and incidental expenses incurred.

From 1941 an appreciable net revenue from road transport services accrued to the Company, with net receipts in 1942 and 1944 higher than those from the total train services.

Internal Road Passenger Services other than the Cities and Suburbs of Dublin and Cork.

Year	Vehicle Miles. Million.	No. of passengers. Million.	Gross Receipts from passenger fares— £ million.	Average passenger receipts per vehicle mile. d.
1938	11·60	13·60	·52	10·74
1939	11·81	13·76	·53	10·75
1940	11·69	13·13	·52	10·68
1941	8·49	12·11	·60	17·06
1942	6·63	10·90	·71	25·60
1943	5·73	11·22	·70	29·52
1944	7·33	13·57	·94	30·82

The gross receipts from passenger fares do not include receipts from traffic conveyed by passenger-carrying vehicles, e.g., luggage, parcels, etc. The above figures are taken from the statistics of road passenger services published in the March issues of the *Irish Trade Journal*. They cover the combined data for the road passenger services of the G. S. Rlys. and G. N. R., except that the Cork City and suburban services are excluded.

Comparing 1944 with 1938, it may be noted that in 1944, there was a reduction of 37 per cent. in vehicle miles; the number of passengers was almost the same in the two years; on account of the increase in fares and in the average distance of travel and more crowded buses, the gross receipts from passenger fares increased 81 per cent., and there was an increase of 187 per cent. in the average passenger receipts per vehicle mile.

There was not much change in the vehicle mileage from 1938 to 1940, after which a heavy fall took place in 1941, 1942 and 1943, and a considerable rise in 1944 on the figures for 1943. The reductions in mileage after 1940 were due to the rationing of supplies of motor spirit and diesel oil to operators of licensed road passenger services. In 1941, the motor spirit allowances to these operators were reduced by amounts varying from 15 per cent. to 33⅓ per cent. A further all-round reduction of 25 per cent. in supplies was made in May, 1942, with the corresponding reduction in vehicle mileage. These reductions were effected by the suspension of some services, the elimination of Sunday services by the G. S. Rlys., and to a great extent by the G. N. R., and the operation of less frequent services on most routes. A further worsening of the supplies situation led to a reduction in March, 1943, of from 10 per cent. to 15 per cent. in the allowance of diesel oil to the G. N. R. A curfew of about 9.30 p.m. was introduced by the G. S. Rlys. in the cities of Dublin, Cork, Limerick and Galway. A temporary reduction of 50 per cent. in the bus services of the G. S. Rlys. from the 3rd to the 13th May, 1943, was rendered necessary by a serious depletion of petrol stocks.

For the reasons already mentioned, the number of passengers for each year follows the same trend as vehicle miles, except in 1943, when there was an increase on the 1942 figures. The variation are not as large in the case of the number of passengers as in vehicle miles, due to the more crowded buses, chiefly in 1943 and 1944, caused by the reduction in rail services and the restrictions on private motoring. The conveyance of a larger number of passengers in buses than the seating accommodation would allow was permitted by the Large Public Service Vehicles (Amendment) Regulations, 1942, made on the 25th March, 1942, by the Minister for Local Government and Public Health under the Road Traffic Act, 1933, by which the number of standing passengers to be carried in a single-deck bus or the lower-deck of a double-deck bus could be increased to eight or one-third of the seating capacity of such deck, whichever is the less.

The difference between the gross receipts from internal road passenger services, as defined above, in 1938 and 1944, £·42 million agrees largely with the increases from road passenger services, inclusive of parcels, etc., of the G. S. Rlys. £·35 million and G. N. R. £·04 million. The continuous rise in the gross receipts from 1941 reaching a peak in 1944 was mainly due to the increase of passenger fares to the

statutory maxima in March, 1941, and in addition, to the greater number of passengers in 1944.

The jump from 1941 to 1944 in the average road passenger receipts per vehicle mile may be attributed to two main causes: the rise in fares and the more crowded buses, especially in long distance traffic. The figures, which show an extraordinary upward trend, afford some indication of the earning power of road passenger services. If the separate statistics, 1941-44, for the G. S. Rlys. and the corresponding expenditure on the same basis were available, it would probably demonstrate that the road passenger services are a most profitable asset to the Company.

I am indebted to Mr. S. Leydon, Secretary, Department of Industry and Commerce, and to the Director of Statistics, for furnishing certain operating statistics for 1941 and 1944, not contained in the published returns by the two railway companies to their stockholders, and to Mr. A. P. Reynolds, Chairman, Córas Iompair Éireann, for data of rail passenger services on the Dublin-Greystones section of the G. S. Rlys. I am grateful to my colleague, Dr. J. P. Beddy, for his useful advice on reading the original draft of this paper.

SUMMARY.

The exceptionally weak financial position of the G. S. Rlys. and G. N. R. at the end of 1938 forced both companies to make transfers from their reserves to supplement their net incomes so as to pay the interest on their debentures and other fixed charges. Their net revenues at the end of 1944 were such that they could pay dividends on their guaranteed, preference and ordinary stocks, after making large transfers to reserves.

An examination of their net revenues for 1944 shows that road transport in the case of the G. S. Rlys. was more profitable than the railway, the difference in net revenue being £50,000, due mainly to immense difficulties of railway operation, while the railway plays the important part on the G. N. R. system, road transport acting as a minor subsidiary to the amount of £49,000.

The total rail receipts and expenditure in 1944 of the G. S. Rlys. show an increase of £1·68 million and £1·57 million respectively over those of 1938, and for road transport £·91 and £·56 millions, while the corresponding surpluses from rail services of the G. N. R. were £1·87 and £1·46 millions.

Nearly 29 per cent. of the working rail expenses of the G. S. Rlys. in 1944 was spent on locomotive fuel, the amount being £966,000, compared with £318,000 or 11 per cent. of such expenses in 1938. The cost of fuel per engine mile in 1938 was 6d. per engine mile, and 2/6 in 1944, the corresponding figures for the G. N. R. were 6d. and 1/4 respectively. The increase in the fuel consumption per engine mile on the G. S. Rlys. was almost 87 per cent. The average expenditure on locomotive wages and fuel per engine mile for 1944 on the G. S. Rlys. was 3/8½, and for the G. N. R. 2/1.

Rail passengers: there was a reduction on the G. S. Rlys. from 11½ millions in 1938 to about 8¾ millions in 1944, the loaded passenger train mileage in the latter being only 29 per cent. of the former year; the number of first-class passengers increased by 100 per cent., and of third-class passengers was about one-third less; one passenger out of every six travelled first-class in 1944 compared with one in every eighteen in 1938. The large increase in the number of first-class and

the reduction in the total of third-class passengers were due to the limited train services, the crowding of third-class coaches, on account of which many travelled first-class, the rationing of the use of private motor cars to essential services, and the more abundant supplies of ready cash in the country. The corresponding figures for combined first- and second-class passengers on the G. N. R. was one in every eight passengers in 1944 against one in every nine in 1938.

In a table showing the extent, in percentages, to which the gross receipts and ton-mile of rail borne traffic in 1944 exceeded those of 1938, the following results were disclosed (the percentage increases for gross receipts and ton-miles are given in successive figures for each item):—G. S. Rlys.: merchandise, 70 and 14; live-stock, 46 and −4; coal, etc., 47 and 18; all goods, 62 and 49; G. N. R.: merchandise, 170 and 91; live-stock, 100 and 57; coal, etc., 150 and 125; all goods, 173 and 112. The ton-mileage of rail borne goods on the G. S. Rlys. in 1944 was much higher than in any year prior to the recent world war. The average wagon load on the G. S. Rlys. in 1944 showed an increase of 35 per cent. on that of 1938, and for the G. N. R. the increase was 32 per cent.

Road transport on the G. S. Rlys.: The gross receipts in 1944 were fairly evenly divided between passenger and goods services, with a much larger increase over the 1938 figures in the latter than in the former. The increased receipts from passengers were the result of higher fares which were raised to their statutory maxima in 1941 and the large numbers travelling on the overcrowded buses. Increased receipts from carriage of goods in 1944 were due to more direct service than that afforded by goods trains, diversion of traffic to road transport, lack of any real opposition from private and public lorries, and the operation of a large number of road vehicles hired from motor lorry owners.

Comparison of all internal road passenger services, other than Dublin and Cork City and suburban, in 1944 with 1938: There was a reduction of 37 per cent. in vehicle miles; the number of passengers was almost the same; on account of the increase of fares and in the average distance of travel the gross receipts from fares increased 81 per cent.; and there was an increase of 187 per cent. in the average receipts per vehicle mile.

APPENDIX I.

Issued Capital, etc., of G. S. Rys. Co. on which interest or dividends were payable.

	1938	1944	% in 1944
	£	£	
(*a*) 4% Debenture Stocks	7,845,094	7,114,872	61·24
4% Guaranteed Preference Stock	1,943,122	1,943,122	16·72
4% Preference Stock	1,776,224	1,768,792	15·22
Ordinary Stock	777,927	777,858	6·69
(*b*) North Wall Extension—£100 shares	126,800	—	—
(*c*) 4% New Ross and Waterford Guaranteed Stock	100,000	500	—
(*d*) 4% City of Dublin Junction Railways Preference Stock	50,000	3,500	·03
(*e*) 4% City of Dublin Guaranteed Stock	225,000	9,899	·09
TOTAL	12,844,167	11,618,543	100·00

The Capital was highly geared inasmuch as 78% of the Issued Capital consisted of Debenture and Guaranteed Stocks. Prior to the Railways Act, 1933, these stocks formed about 50% of the issued capital of the Company. The entire Capital was reduced in 1942 and 1944 by £1,225,624.

(*a*) 4% Debenture Stocks were reduced by £730,222, viz. :—
In 1942—£292,961.
In 1944—£437,261.
(*b*) Paid off in 1944 —£126,800.
(*c*) Do. Do. 99,500.
(*d*) Do. Do. 46,500.
(*e*) Do. Do. 215,101.

ISSUED CAPITAL OF G.N.R. Co., 1944

	£	%
4% Debenture Stock	2,324,881	25·18
4% Guaranteed Stock	869,270	9·41
4% Preference Stock	1,990,180	21·55
Ordinary Stock	4,050,689	43·86
	9,235,020	100·00

The Capital is much less highly geared than that of the G. S. Railways, as Debenture and Guaranteed Stocks form only 34½% of the total, compared with 78% in the case of the G. S. Railways.

APPENDIX II.

Notes on Dividends declared and paid.

	4% GUARANTEED PREFERENCE OR GUARANTEED STOCKS		4% PREFERENCE STOCKS		ORDINARY STOCKS	
Amount of dividend	G. S. Rys. £77,727	G. N. R. £34,771	G. S. Rys. £71,049	G. N. R. £79,967	G.S. Rys. 1% = £7,779	G. N. R. 1% = £40,507
Year						
1938	Nil (*a*)	Nil (*b*)	Nil	Nil	Nil	Nil
1939	Nil (*c*)	Nil (*d*)	Nil	Nil	Nil	Nil
1940	Nil (*e*)	4% for 1938	Nil	Nil	Nil	Nil
1941	4% for 1938-40 (*f*)	4% for 1939-41	Nil	4% (*g*)	Nil	1% (*h*)
1942	Nil	4%	Nil	4%	Nil	1½%
1943	4% for 1941-43	4%	4% (*i*)	4%	3% (*i*)	2½%
1944	4%	4%	4%	4%	3%	2½% and a bonus of 1%

(*a*) £6,101 was transferred from the Compensation Fund to pay Debenture Interest and other fixed charges. No. Bal. c/f.
(*b*) £25,000 was transferred from the General Reserve to pay Debenture Interest and other fixed charges. Dr. Bal. c/f. £34,269.
(*c*) Cr. Bal. c/f £37,000.
(*d*) Dr. Bal. c/f £26,694.
(*e*) £7,701 from the Compensation Fund for the same purpose as in (*a*). No. Bal. c/f.
(*f*) As a result of refund of overpaid rates to local authorities.
(*g*) The year for which the last dividend, 4%, was declared and paid was 1931.
(*h*) No dividend was declared since 1931 when ½% was paid.
(*i*) No dividend has been paid on Preference or Ordinary Stocks since 1931 when £50,000 was transferred from the Compensation Fund and 4% was paid on Preference Stocks and ½% on Ordinary Stocks.

DISCUSSION ON PROFESSOR SHIELDS' PAPER

In moving a vote of thanks to Professor Shields, **Lord Glenavy** thought that the Society would consider it well deserved for the pioneer work which he had done by this paper, and the one read by him in 1938, towards the interpretation of transport statistics. Comment would only suggest certain adjustments in some of the figures used which could not have been within Professor Shields' information, and underline certain inferences to be drawn from the figures.

Both the G. S. R. and G. N. R. increased their charges during the war years, and allowance for the increases should be made in analysing changes in Gross Receipts. In the case of the G. S. R. the abolition of exceptional rates in 1943 had clearly had a very substantial effect, as the table on page 5 indicated, but he had not seen any precise measurement of it. The G. N. R. increases took the form of three additions of 5 per cent. each to passenger fares, two of 5 per cent., and one of 15 per cent. to goods rates. Comparing Gross Receipts in 1938 and 1944 on the G. N. R., those for 1944 contained an element of approximately 15½ per cent. over all, due to these increases.

The paper fully confirmed the contention of railwaymen that the troubles of the Companies before the war were due essentially to under-use of the facilities they provided. The necessary capital investment in a railway was such as to establish an economic minimum below which traffics could not be allowed to fall if the railway was to be self-supporting. The table on page 7 showed that during the busy war years Gross Receipts had risen in a much higher proportion than the necessary work done, as measured in ton-miles. That on page 14 showed how the average wagon load had improved, so that receipts per ton as shown in the table on page 11 had improved. Incidentally it might be noted that while the paper was correct in suggesting wagon loads as a measure of the degree of economical working traffic managers considered the quick release of wagons by consignees of goods an even more important factor.

Some other figures would support the conclusion that railway troubles before 1939 were largely due to under-use. For instance, if 1944 results on the G. N. R. be compared with those for 1938 there had been an increase of 115 per cent. in the volume of traffic with an increase of only 22 per cent. in train-miles run. Again Gross Receipts increased by 174 per cent. with an increase in working expenditure of only 45 per cent., assuming the cost of staff and of supplies to have remained constant.

He agreed with the view implied in the paper that the available statistics relating to road transport were regrettably insufficient. The future of public transport was a question of vital importance, and it was desirable that partisan advocates of road or rail interests should be subject to the check of dependable comparative statistics. He thought that for true comparisons more accurate values would have to be put on certain items. Railways provided their own segregated tracks at their own expense; road transport had its permanent way provided for it at a cost represented by the payments it made in licence duties towards road construction and maintenance. He had seen no authoritative calculations which would show whether those payments were sufficient or not. Railways provided their own signalling systems, but road transport was not specifically charged with the cost of police regulation on the roads, traffic lights and other comparable expenses. Much accommodation in the nature of stations, goods yards, stores, etc.,

was found free, or virtually free, of cost for road services. Road transport was not charged with the mounting losses through death and injuries caused by its operations; the asset of "door to door convenience" was not balanced by the liability for those killed or maimed in the getting from door to door. Time would prove the fenced-off private tracks which railway investors had provided to be an asset as valuable to public transport as all others combined, but might prove it too late if public opinion was not given now the facts requisite for a proper judgment.

Dr. Beddy—I have much pleasure in seconding the vote of thanks proposed by Lord Glenavy. The importance of Professor Shield's paper is that it examines the achievements of our two principal transport organisations during a most significant period. In the past the main contention of the Railway Companies was that they maintained an essential organisation which was only partly used but, if fully used, would be economic. With the war they had an opportunity of proving their contention as, despite increased expenditure and in the case of the G. S. R., great difficulties in regard to the quality and the availability of fuel, the other conditions under which the Companies operated were most favourable, and it is, therefore, of the greatest interest and value to see the results which followed.

As Professor Shields has pointed out, the statutory accounts are in a form which makes it very difficult to obtain a clear picture without a great deal of hard work, and, even then, the accounts do not contain the operating statistics relating to road transport. It is hoped that the statutory form will change so as to bring the accounts well into line with up-to-date accountancy procedure and thereby assist stockholders and others in ascertaining, without undue difficulty, the main facts for which one looks in a set of accounts. In any change it should be an essential aim to maintain comparability with previous figures. What is wanted is, not a cutting down of existing information, but an enlargement and a re-arrangement of it.

In judging the progress of the Companies, 1938 is a poor year for comparison purposes as it represented a low water-mark for both Companies; 1939 is, therefore, a better year to take. Furthermore, one obtains an entirely erroneous impression if one works on the net revenue figures without making adjustments for reserves. As Professor Shields has shown, the G. S. R. transferred over £1¼ m. to reserve in the three years 1941, 1943 and 1944. No doubt this was a most prudent step, particularly as the Company's reserve provisions for the 20 previous years were trivial. Nevertheless, in judging profit these allocations to reserve should be written back. A similar adjustment is necessary in the case of the G. N. R. which annually places about £100,000 to reserve.

Comparing 1939 and 1944 (after reserve adjustments) it is clear that, so far as rail transport is concerned, the G. N. R. fared better than the G. S. R.—obviously because of the much more favourable circumstances under which their organisation was operating. The G. N. R. rail profit went up by over £500,000 as compared with an increase of £450,000 for the G. S. R. Whereas in 1939 the G. N. R. profit was 57 per cent. of that of the G. S. R., in 1944 it was just over 90 per cent. of the G. S. R. profit. If rail and road are bulked, then the G. S. R. profits work out at £821,000 in comparison with the G. N. R. profit of £564,000, mainly because of the additional revenue of the G. S. R. from road services. Nevertheless, the G. N. R. did relatively better since its total rail and

road profit was 54 per cent. of the G. S. R. figure in 1939 but was 64 per cent. in 1944.

The improvement in the G. N. R. results was attributable to developments on the railway side of the undertaking, and both passengers and goods contributed towards it—passengers accounting for 55 per cent. of the increase in gross receipts and goods for 45 per cent. On the railway side of the G. S. R., however, the improvement was almost wholly in goods, the gross receipts from which increased by 60 per cent. and accounted for nearly nine-tenths of the increased gross receipts. The G. S. R. was helped considerably by road services which added over £400,000 to the net profit. Here again goods were more important than passengers, since they accounted for 60 per cent. of the increased gross receipts. The growing importance of the road services is borne out by the fact that, whereas they were responsible for only one-tenth of the total net revenue in 1939, they accounted for one-third of it in 1944. The importance of goods traffic can be seen from the fact that of the total increase in receipts from all sources they accounted for 78 per cent. as against the figure of 44 per cent. for the G. N. R.

As to the profit of the Companies, the relatively more advantageous circumstances under which the G. N. R. worked are reflected in the figures for 1941-4, these being the years during which the Companies really benefited. Again, adjusting for reserves, the gross railway receipts of the G. S. R. were nearly 70 per cent. greater than those of the G. N. R., but the net revenue (or profit) of the latter Company was greater than that of the G. S. R., the average profit being £770,000 as against the G. S. R. profit of £641,000.

Both Companies increased the rate which they earned on their gross receipts. The G. S. R.'s profit was over 14½ per cent. on gross receipts as against 11 per cent. in 1935-7. The G. N. R. profit was 27 per cent. as against 16½ per cent. in 1939. It will be noticed that the G. N. R. rate was nearly double that of the G. S. R.

Taking the total revenues of both Companies from all sources, the average annual profit of the G. S. R. in the years 1941-4 exceeded that of the G. N. R. by over £250,000 because of the additional profit made on the road services. Within the G. S. R. system, road was more profitable than the railway since it gave rise to a net profit of 21 per cent. on gross receipts as against 15 per cent. on the railway gross receipts. It is important, however, to draw attention to the fact that, even this high profit on road services fell short of the 27 per cent. profit rate of the G. N. R. on rail services. This is interesting in the light of Professor Shields' remark that it was, perhaps, considered inexpedient to spend much money on the G. S. R. system in the repair and renewal of obsolete plant and equipment. The G. N. R. figure certainly shows that we are still far from the stage at which railways can be regarded as obsolete.

Finally, as regards the average profit of the years 1941-4, the G. S. R. works out at 8·3 per cent. on the issued capital and the G. N. R. figure at 9·2 per cent. These figures represent the high water-mark of both Companies. They suffice to pay interest and dividends at 4 per cent. on the capital and to leave something between 4¼ per cent. and 5¼ per cent. for reserves. When Income Tax is deducted from this latter figure there remains (say) 3 per cent. net which, by any standards, cannot be considered to be an excessive amount to cover contingencies of all kinds. The figures serve to emphasise that there is no great margin of profit to act as a buffer against less favourable conditions—for example, a

decline in the numbers of passengers or in the volumeof goods or an increase in expenditure.

I had intended dealing with the operating results, but time does not permit. They are of the utmost importance in answering the question: how were the extra profits made? It is clear that the G.N.R. experienced an enormous increase in traffic, both passenger and goods; in tonnage and ton-miles. There was also a substantial increase in engine mileage, a great improvement in wagon loading—and there is the further important factor of increased charges. The G. S. R., operating under much more difficult conditions, experienced declines in engine mileage and numbers of passengers, and had not the same increase as the G. N. R. in tonnage and ton-miles. Hence, even with increased charges, the Company did not do as well relatively as the G. N. R. The absence of operating statistics for road services makes it impossible to get a clear picture of the physical background to the profits. I leave it to others to explain how far the profits of both Companies arose from increased work, from loading and other conditions making for greater efficiency, and finally from increased charges. All these factors contributed to the profits and even if some may feel aggrieved by increased charges during difficult times the most grudging critic cannot deny that the Companies and in particular, the G. S. R. rendered a service of the highest importance to the community and that the profit from doing so is not an excessive profit, and makes only partial recompense for the lean years during which the Companies survived and thereby enabled us to survive in the years through which we have just passed.

Finally, I have again to congratulate Professor Shields on a paper which is a mine of information. The more one examines it the more information one obtains from it. It is, therefore, a document of permanent value, and it gives me great pleasure to join Lord Glenavy in expressing the Society's thanks to the lecturer.

Professor Shields said that his paper provoked an interesting discussion on transport problems, so much so that those present were treated to excellent lectures on the economics of transport, especially by Lord Glenavy and Dr. Beddy. Public transport organisations in this country enjoy an unique position, as the services which they render and the charges which they impose affect the general welfare of almost every member of the community. The more people know about the results of their varied activities, the better will they be able to judge their work and its reactions on the economic and social well-being of the country. Consequently, the analysis in this paper possesses more than a theoretical interest for a more adequate understanding of some important economic tendencies during the recent war period.

The paper provides, *inter alia*, a continuous link with a previous one read before this Society in May, 1938; so the two papers afford a statistical analysis from the published accounts of the operations of the G. S. Rlys. Co during its brief existence of twenty years. The years 1938 and 1939 were both exceptionally bad years so far as the finances of the two Companies were concerned, as may be noted from the accounts and also Appendix II in the paper. It did not seem desirable when one wanted to trace the effects of the circumstances arising from the recent war on public transport, and compare them with those existing in the pre-war period to use as a basis a year part of which was influenced even to a limited extent by Emergency conditions.

I agree with the remarks of Lord Glenavy and Mr. O'Farrell on the

public services rendered by the railway, but its operations have been handicapped in competition with the road motor vehicles on account of the more direct services of the latter and the fact that railway stations are located in many instances some distance from the centre of urban areas which the railway is expected to serve. The main defect in our public transport is the limited statistical information on road transport, which if brought to the same level as that for the railway, would lead to a better appreciation of the relative merits of the two systems.

Colonel O'Brien (in a written communication): There are several points of great interest in this analysis: the ratio of net receipts to capital expenditure for road as against rail transport is noteworthy. Neither railway company seems to make adequate provision for renewals. Unless a proper provision is made, the average age of engines, boilers, carriages and wagons will steadily increase, the result being that eventually the rolling stock will be antiquated, costly to repair and incapable of properly meeting traffic demands. On the old Lancashire and Yorkshire Railway, which operated the most dense traffic in Europe, new rolling stock was built annually both on capital account and from the large renewal fund. Building on capital account can of course only be justified on the basis of such increased traffic demands which are not of a temporary nature.

A renewal fund for plant and machinery is also essential to sound finance. In or about 1903 the increasing use of high-speed tool steel, the development of grinding and other machining methods made most existing machine tools obsolete, and heavy renewals became necessary. Fortunately in this case the savings effected were so great that the new and expensive tools paid for themselves in a few years. Such a fortunate issue cannot be expected in regard to rolling stock. Little progress has been made in reducing fuel consumption since superheating was introduced about 1910, and the same remark applies to some extent to design and material. As the total rolling stock of a railway, under such conditions as prevail in Ireland or England, increases very slowly, if at all, then if adequate renewal building is undertaken and design and material constantly improved the total expenditure on repairs should steadily decrease.

It is also interesting to note the rather obvious fact that, whatever other effects may be produced, the less time trains spend on their journey the lower the cost of train crew wages per train mile.

The 5 or 6 million passenger journeys on the Dublin-Greystones section, curiously enough, is approximately the same as on the Liverpool-Southport branch of the L. & Y. Rly. prior to electrification in 1905. After electrification this figure rose in a few years to nearly 20 millions to the best of my recollection, mainly due to the greater frequency of service, though the transit time from Liverpool to Southport was also substantially reduced. This electrified service was in competition with road and train services, and the towns served were rich and populous, and the amount of residential building which took place was very large.

Given a sufficient density of traffic, a not unreasonably high schedule speed, and cheap current, the cost of operating a railway by electrification is substantially lower than by steam locomotives, and where such conditions exist, investigation is worth while. The jump in gross receipts which took place on both railways after 1942 must have been to some extent due to the withdrawal of traffic from the roads owing to scarcity of petrol. It will be interesting to see what effect the resumption of road traffic will have.