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BRITISH RAILWAYS

A FINANCIAL AND COMMERCIAL
SURVEY

BY

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"AMERICAN INDUSTRIAL PROBLEMS," "BRITISH ECONOMICS," "MODERN WARS
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AND HIS SCHOOLS," ETC.



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INTRODUCTION

THE day of the steam traction railway is nearly over. Already electric traction has superseded steam in many branches of transportation, and the transition may be completed within the lifetime of the present generation. This may therefore be a suitable occasion for reviewing the work of the steam railway. No better field for such a review could be desired than the country which was the pioneer of railway builders.

The British railway system is not only the oldest of all, but it is in many ways the most interesting. Though it has been by no means the most enterprising, it has had the greatest influence on the development of railways throughout the world. Although now a small system compared with that of the United States, there is more to be learned from it not only by the railway engineer, but by the traffic manager, the trader and the law-maker. Its very faults and shortcomings are instructive.

A retrospect of British railways carries us back very nearly a whole century. It calls up before us a long procession of famous railway builders, administrators and financial organisers. Stephenson, Brunel, Brassey, Peto, the railway kings of their day, pass before us in imagination as we try to estimate the permanent value of the gigantic task which they accomplished. In the long roll of railway chairmen and managers many brilliant though half-forgotten names stand out pre-eminently. Moon, Finlay, Grierson, Watkin, Gooch, have all left their mark on the British railway of to-day. Not the least distinguished of them was the late Lord Salisbury, who in the railway crisis of 1866 was called in as a *deus ex machina* to rescue one of the most hopeless of the many railways then in bankruptcy.

If we could imagine one of our railway pioneers alive to-day, and familiar with the whole century of evolution and development that lies behind us, what, we wonder, would be his verdict upon it? How many mistakes might he point out to us in the original planning of our railways, especially the trunk lines? How many obstacles and hindrances to their progress might he disclose to us? How many instances might he give us of foolish and wasteful expenditure?—how many of extortion and blackmailing?—how many of bad policy and false enterprise?—how many of ruinous competition and destructive hostility?

The railway managers of the nineteenth century were continually raising new problems which became more and more difficult as the traffic increased in complexity. As a rule they were much easier to raise than to settle. Very few of them were ever met in a broad, comprehensive spirit and finally disposed of. They were temporised with and bandied about from one Select Committee to another, or from one Royal Commission to another. So they passed on from generation to generation, and some of them are as much alive to-day as they were seventy years ago. Our parliamentary debates on railway questions are crowded with the ghosts of last-century problems still unsolved. The railwaymen of to-day have these problems to wrestle with as well as their own.

In other respects railway debates in the House of Commons are rather melancholy reading. They reveal much that is not either flattering or encouraging to railway shareholders. No subject that our law-makers have to deal with excites so much prejudice or provokes such a variety of hostile criticism. Tariff Reform and Home Rule are non-controversial subjects compared with the most innocent kind of a railway Bill. The acrimonious discussions which took place over the one-clause Bill for redeeming the pledge which the Government gave to the railway companies in August 1911 are still fresh in the public memory. Glancing through them we find in almost every speech, except those of the railway directors themselves, indications of anti-railway sentiment. Re-

proaches, condemnation and censure follow each other so monotonously that at last we wonder how any one institution could have drawn down on itself such a variety of ill-will.

After all the railways are not so very much worse than their neighbours. Their misfortune is that they come in contact with the public at so many different points, and they tread unavoidably on so many people's toes, that popularity is as impossible for them as for mosquitoes or rate collectors. The utmost they can expect from the public is some approach to fair play, and even that they have not been able to count upon of late. A little less sweeping censure and a little more consideration might be wiser as well as more merciful. It might, for instance, be remembered that railway managers are responsible for the largest and most important public service in the country; that they have to conduct it under the most difficult conditions and restrictions; that they are never free as other directors and managers are to act on their own judgment, and that, notwithstanding all sorts of official interference and control, they are held answerable for the lives, limbs and property of the millions of railway users.

Our railway companies have never been their own masters, and are becoming less so every year. Recent events have made clear and unmistakable the dilemma to which they are being reduced. On the one hand, they cannot satisfy the traders without materially reducing freight rates, which involves wholesale reduction of working expenses, wages included. On the other hand, they cannot satisfy their servants without frequent advances in wages as per the trade union programme. To this has lately been added a second dilemma. They have to conduct an enormous volume of railway traffic and be responsible for everything that happens to it, while at every turn they are subject to the dictation of their employees.

We are living in an age of railway crises and controversies. Railway managers seem to spend the greater

part of their lives in hot water, either parliamentary, disciplinary or financial. The halcyon days when modest dividends could be earned quietly, when there were few complaints either in the goods or passenger department, and when railway labour was the most contented of any—these days have gone for ever. In their place we have got the survival of the fittest. The shareholder, the worker, the trader, the nationaliser and the confiscator are all in bad humour. Each of them has his own idea of how a railway should be managed, and the one point they agree upon is condemnation of the present methods.

Doubtless these have their faults, and may be capable of improvement in many directions. But how much progress can be expected where the team are all pulling in different directions? What chance would the most skilful general have of victory if his troops were all fighting for their own hand, and quarrelling over his orders instead of obeying them? That is the condition to which our railway service may, unknown to ourselves, be rapidly drifting. It may have more to fear from internal disorganisation than from national strikes or any other bogey with which socialists and syndicalists can threaten it.

The vital question of the day for British and possibly also for American railways is how long they can be expected to do their work properly under existing conditions? Sooner or later the discontent of their servants, the grumbling of their customers, the persistent obstruction of the Legislature, and State interference in a multitude of forms must impair their efficiency. If unchecked these evils can have only one end—chaos and heavy loss. In a recent debate in the House of Commons¹ it was said by one speaker that the traders were going to demand an inquiry into the whole question of railway management. It really looks as if it would have to come to that, and the sooner perhaps the better. Mr. Bonar Law gave a certain

¹ Railways (No. 2) Bill, March 6, 1913.

amount of countenance to the suggestion by hoping that "if the Government carry out their promise to have a real inquiry into this matter, and if as a result there was to be any preference, it should be given to home produce and not to produce from abroad."

While this Introduction was going through the press, the Royal Commission thus foreshadowed was appointed and is already at work. Both the names of the commissioners and the terms of their instructions indicate that the inquiry is intended to be as neutral and colourless as possible, which may in the circumstances be the safest policy. Though at first glance a Railway Commission with only one practical railway man upon it, and he all the way from India, may seem strange, the arrangement has some countervailing advantages. It will be less aggressive and more open-minded than if two sets of militant experts had been arrayed against each other and left to fight it out, as they usually do, with little satisfaction to either side.

The Royal Commission is presided over by a distinguished lawyer of an eminently conciliatory disposition. Under the suave guidance of Lord Loreburn the railway companies and the traders are more likely to be drawn closer together than to be driven farther apart. The financial side of the railway question should be well represented by Mr. Huth Jackson and Sir William Plender. The official side will be equally safe in the hands of Sir Henry Primrose and Mr. Shackleton. Lord Derby, Mr. Arthur Balfour and Mr. Prothero may be expected to look after the general interests of the traders and the public. Altogether the Commission may be welcomed as a fairly impartial and judicial body. It is at least more likely to spread oil on the troubled waters than vinegar.

The result of the inquiry would appear to depend chiefly on the action of the traders. The railway companies are at present in a very chastened mood. Owing to recent events they are rather under a cloud, and the chief danger in their case is that they may overdo the pacific mood.

For a long while they have anticipated the present ordeal and prepared themselves for the worst. Some of them are said to have even resigned themselves to nationalisation. But on that point the shareholders must now speak for themselves. They have been dumb quite long enough, and this may be their last chance to put their case before a tribunal not actually and openly biased against them. Especially on the ultimate question of nationalisation they should be prepared to speak and act on their own behalf. While this and other vital questions affecting their property have been bandied about among politicians and faddists of all sorts, they alone have been silent. But the time has passed for masterly inactivity and stolidity.

Railway shareholders are now up against the problem of nationalisation, and they will have to consider as business men how they should meet it. If it is going to be fairly and squarely put to them as a business proposition, then it will be only a question of terms. These have been already outlined in the Act of 1844, which for railways with good net earnings should ensure a liberal valuation. It is the undeveloped lines and non-dividend-payers that have most to fear, but even in their case it is too early to speak of confiscation either partial or complete. Shareholders may further console themselves with the thought that nationalisation cannot come all at once. No Government could be so mad as to attempt to take over twenty-two thousand miles of railway at a stroke. The operation will have to be carried through by instalments.

Fortunately for the commissioners as well as for the public, Labour questions are expressly excluded from the inquiry, but efforts will probably be made to drag them in by side doors. In view of this and for other obvious reasons it may be advisable to recall the declarations of the Labour leaders in the House of Commons on the latest railway debate—that on the Railway (No. 2) Bill of last session. It is only too possible that Mr. Jowett has not yet got over his horror at the thought of the Government “by statute declaring that for all time the railways

should be indemnified against the risk of increasing wages.”

Mr. Walsh, a Lancashire Labour member, delivered the most sweeping indictment against the Bill. He charged the railway companies with having obtained the promise of it by false pretences. They had pleaded *in forma pauperis* when in fact they had been saving money and increasing profits. The Government also had been inconsistent. In passing the Minimum Wage Act they had insisted on putting in a three-year limit, but in dealing with the railway companies they said it was unfair to insert a limit. Like all the preceding speakers on the Labour benches, Mr. Walsh declared for the periodical review of railway affairs in Parliament. This is evidently a new development of the Labour programme, and as such it merits the early attention of the railway companies.

The last private member to join in the discussion was Mr. Rutherford, a Liverpool man and a Unionist. He was willing to support the Government against his own views as a trader if they would promise to deal next session with the two principal grievances of the traders, namely, owners' risk rates and the withdrawal of facilities. This may be accepted as an authoritative statement of the Lancashire position in the railway controversy. It is confirmed by reports of the discussions that have taken place in Lancashire Chambers of Commerce on the subject. The Oldham and the Ossett chambers in particular have been protesting strenuously against railway delays and demurrage grievances. Incidentally they objected to the No. 2 Bill.

These brief reflections from the mirror of Parliament will be more illuminating as to the attitude of public opinion toward the railways than any amount of general description. The speakers in the debate referred to were all representative in a way, and every speech indicated some particular interest or sentiment. One might gather from them a catalogue of the prevailing objections and prejudices which the railways are having to contend with.

In the course of the debate it was alleged—

That an early inquiry into railway rates might be held (Mr. Bonar Law)

That the railway companies had not scrupulously fulfilled their pledges to the men (Mr. Wardle).

That the farmers and small traders were being sacrificed to the railway companies (Mr. Bathurst).

That all parliamentary arrangements with the railway companies should be subject to periodical review. In practice this might be applied to all railway legislation whatever (supported by nearly all the Radical and Labour speakers).

That there should be a Royal Commission on railway management (Mr. Rowlands).

That in national strikes the Government should take charge of the railways (Mr. Wedgwood).

That in view of nationalisation, everything likely to add to the value of the railways should be opposed (Mr. Keir Hardie).

That there must soon be a complete overhaul of the relations between the railway companies and the trading community (Mr. Peto).

That in the bargain of August 1911 the price paid by the Government was too high (Mr. Lough).

That the grievances of the agricultural and trading communities would be intensified by the proposed increase of rates (Mr. G. Roberts).

That it was a new constitutional principle for the railway companies to be indemnified for all time against the risk of increasing wages (Mr. Jowett).

That the railway companies were obtaining the right to increase wages on false pretences, as they were saving money and increasing their profits (Mr. S. Walsh).

In one debate, and not a very long one at that, a dozen different criticisms all more or less unfavourable were passed on the railway companies. Hardly a single word was said in their defence even on the Unionist benches.

Could there be a more conclusive proof that somehow or another they have lost favour with the House of Commons, and must henceforth regard it as a hostile tribunal? If this attitude of the House of Commons correctly expresses

the sentiments of the community, the railway companies have need to bestir themselves. Either the public are under a serious delusion as to the character and conduct of our railway administrators, or there is urgent need for drastic reforms. Among so many grounds of dissatisfaction as have been of late expressed there is likely to be a good deal of misapprehension, also not a little exaggeration, but even if only a small residue of truth remains in them, they will deserve thorough investigation.

So much for the political aspect of our railway system, which is only one of many. In addition there are financial, technical, commercial and administrative questions to examine. Exaggerated ideas prevail as to the capitalisation of our railways, their fixed charges, their freight rates and their working expenses. The one point on which they are not envied is their dividends. No one can say that these are either inflated or unearned. The condition of home railway securities is about as puzzling as that of the railways themselves. It is by no means altogether unsatisfactory, but the good and the bad points—the wheat and the tares—are mixed up in a very exceptional way. Nothing short of severely scientific inquiry can strike a balance between them.

Inside the main problem of British railway policy there are one or two minor ones like wheels within wheels. The chief problem is national, but branching from it are a number of local ones. At the head of this supplementary list the chronic problem of London traffic still holds its place. It was here that our railway pioneers had their finest opportunity and that they have achieved their worst failures. Whether we regard London as the world's premier port or as its most populous city, it has from a railway point of view been exceedingly unfortunate. Both its street and its river traffic have become a byword for congestion and overcrowding.

The most far-sighted of our early railway builders had no conception of the future possibilities of our commercial ports generally. They erred grievously with regard to London. When they had connected it in a round-about way with the provinces they imagined that that was all

they had to do. They overlooked the Thames, which threw open to them the trade of the world at large. And to this day not one of them has river or dock terminals worthy of a fifth-rate port, to say nothing of a commercial metropolis. Only one of half-a-dozen trunk lines entering London from the North has direct connection with the principal docks. The others are content with running powers over that one, and even these are used sparingly. Careful managers prefer to cart all they possibly can across London.

Fortunately for British trade the huge blunder committed on the Thames has not been frequently repeated at the out-ports. They have been rather inclined to the opposite extreme, and during the past quarter of a century there has been somewhat of a craze among our trunk railways for having water terminals of their own. Special harbours have been created at various points on the coast where the need for them was certainly not too obvious. Several of them have been formed to serve cross-channel routes and short sea routes to the Continent. These routes are all violently competitive; so much so that few of them pay, and all the excuse the railway directors can make for them is that they are necessary feeders to the main lines.

Thus we find two extremes exhibited by British railways in the interchange of land and water traffic. Either the facilities provided are excessive, as at certain of the Channel ports, or they are glaringly defective, as in the Thames. But that is only one of the railway problems as to which London has been singularly unfortunate. Its urban lines of communication, both for goods and passengers, appear to have been deliberately planned so as to produce a maximum of crossing and re-crossing. Any metropolitan map you pick up shows at a glance how the whole network of tubes, subways, street railways and overhead lines has been muddled up. A very ironical but appropriate sequel to this accumulative chaos is that until lately the whole of the urban traffic of London—rail, train and omnibus—was being carried on at a loss. The latest competitor in this crowded field of enterprise—the motor

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BRITISH RAILWAYS

BOOK FIRST—FINANCIAL

CHAPTER I

WHAT THEY HAVE COST

IN 1911 there were, according to the annual report of the Board of Trade, 23,417 miles of railways in the United Kingdom. They were worked by two hundred and fifty different companies which had a paid-up capital of 1324 millions sterling. Fully one-seventh of that amount (198 millions) was, however, nominal, having been added to counterbalance reductions in the rates of interest or dividend. Nearly all the principal railway companies have, at one time or another, reorganised or consolidated parts of their capital. In doing so Debentures and Preference stock carrying high rates of interest have been converted into new stocks bearing lower rates of interest. In order to equalise the income of the holders with what they previously received the nominal capital has been increased. Thus when a six per cent. Debenture yielding £6 per annum was converted into a new four per cent., £150 of the new stock had to be given for each £100 of the old.

About 105 millions sterling of nominal additions to the Debenture and Preference stocks have been made in that way. Nearly 93 millions (£92,700,000) more have resulted from the process known as "stock-splitting." When the market prices of Ordinary stocks become too large to be easily dealt in they may be divided into Preferred and Deferred halves, or they may be duplicated. The former is the older practice, and the chief examples

of it are the Brighton and South-Eastern splits. In these cases £100 of Ordinary stock is divided into £50 Preferred and £50 Deferred Ordinary. Of late years splitting has taken the Irish form of duplication. For instance, when Midland Ordinary, London and South-Western and North British stocks were split, £100 of Preferred and £100 of Deferred were issued for every £100 of the Ordinary. This process has been carried to the extent of creating about 93 millions of nominal stock.

Up to the end of 1911 the creations of Debenture, Preference and Ordinary stock in connection with conversions and reorganisations totalled £198,100,000. Politicians with strong prejudices and loose ideas of finance sometimes declaim against these nominal additions to our railway capital as "watered" stock. That is not true of them in any invidious sense: such, for instance, as it would be understood in by American stock-holders. They are not "water," but rather book entries. No one need be misled by them, as every railway company distinguishes them in its accounts from capital actually paid up. They are also stated separately in the annual returns of the Board of Trade.

The only occasion on which they may have a misleading effect is when the cost per mile of British railways is being compared with the cost per mile of foreign railways. In this case the nominal additions that have been made to our railway capital raise the capitalisation per mile a good deal higher than it actually is. But the persons who make such comparisons can easily guard themselves against that mistake by deducting the nominal additions. Also in making adjustments there are others on the opposite side to be remembered. A considerable set-off to the so-called "water" would result if we could ascertain the total amount of capital that has been written down or written off altogether as lost. In drastic reorganisations such as the Great Eastern and the London, Chatham and Dover railways underwent, large amounts of original capital were wiped out.

Before we could ascertain the actual effective cost of our railways, many adjustments and qualifications would

have to be made in the official figures of the Board of Trade. The nominal additions and reductions in their capital accounts are only first steps in a prolonged inquiry. Apart from the official values there are market variations to consider. Some railway stocks command high premiums, while many more have fallen to heavy discounts. Would the market valuations of to-day not be a safer guide for us than the par values of the original stocks? This is an interesting question awaiting the attention of statisticians.

In judging the actual cost of a given railway as it stands to-day attention has to be paid to its past history. Nothing could be more illogical than to estimate two such widely different properties as the London and North-Western and the London, Chatham and Dover at the par values of their stocks. Not only are they miles apart in their market prices, but one of them has a mountain of unearned interest standing against it, while the other has a long unbroken record of substantial dividends. Every £100 put into Chatham Ordinary stock sixty years ago would now amount at compound interest to nearly £1000. But the unfortunate owner could get only £20 for it.

There is a case of a railway stock which has cost about ten times its nominal amount. Happily there are equally remarkable examples of an opposite sort. Every £100 invested sixty years ago in London and North-Western stock has yielded enough in dividends to repay the whole of the capital with four per cent. interest. The good stock has redeemed its original cost, while the bad one has multiplied its original cost tenfold. The necessary adjustments to cover these two opposite changes would require a large addition to be made for the one and a large reduction for the other. London and North-Western stock would have more than repaid itself and fair interest as well, while Chatham Ordinary would have to be debited with an impossible accumulation of arrears.

But the Board of Trade has to take the nominal capitals as furnished by the railway companies and treat them as all of equal value. It can pay no regard to the *reductio*

ad absurdum of placing on the same statistical level a huge plus and a huge minus quantity. One day perhaps we may obtain from it detailed calculations of the market values of our railway stocks at the end of each year. These would be a novel and useful addition to its annual reports. With their help all persons interested in railway stocks, whether as dealers or holders, could obtain comprehensive views of the railway situation as a whole.

If existing statistics of railway capitalisation be very imperfect from a general point of view, they are much more so in their individual parts. They are virtually useless with reference to such essential questions as cost per mile of railway. All comparisons of that sort are utterly misleading. They put one-horse, single-track lines on a par with trunk lines having many miles of four- and six-track road. Of late railway statisticians have got over this difficulty to some extent by adopting single-track mileage as the basis of their comparisons. What a difference this makes may be seen in the subjoined table of line miles and single-track miles for the railways of the three kingdoms :—

LINE AND SINGLE-TRACK MILEAGES COMPARED.

	Miles of Line.	Miles of Single Track.	Single Track for each mile of Line.
England and Wales	16,200	42,212	2·6
Scotland	3,815	7,773	2·0
Ireland	3,402	4,591	1·35
	23,417	54,576	2·33

It is obvious from the above that comparisons between the English, Scottish and Irish railways in respect of capitalisation will be much more just as between the three countries, as well as more instructive, if the mile of single track be adopted as our unit of measurement in place of the mile of line. This consideration applies still more strongly to comparisons between British and foreign railways. In the case of American railways it is

particularly important, such a large proportion of their mileage being single track, and very indifferent at that.

It may be observed here that in our comparisons all mileage will be reduced to single track, and in calculating capitalisation per mile all nominal additions will be excluded. Only actual cash capital will be regarded. On this basis the railway systems of the three kingdoms compare as under :—

BRITISH RAILWAY CAPITAL LESS NOMINAL ADDITIONS, 1911.

	Total Capital. (Millions.)	Nominal Portion. (Millions.)	Net Cash Capital. (Millions.)
England and Wales	£ 1,093·2	£ 148·5	£ 944·7
Scotland	185·8	49·3	136·5
Ireland	43·8	0·2	43·6
	1,322·8	198·0	1,124·8

BRITISH RAILWAY CAPITAL PER MILE OF SINGLE TRACK, 1911.

	Cash Capital. (Millions.)	Miles. (Single Track.)	Per Mile.
England and Wales	£ 944·7	42,212	£ 22,380
Scotland	136·5	7,773	17,600
Ireland	43·6	4,591	9,500
	1,124·8	54,576	20,600

Writers who indulge in sweeping generalisations as to the excessive capitalisation of British railways can, by taking the total capital inclusive of nominal additions (£1,322,800,000) and dividing it by the number of miles of line (23,417), produce a very high average cost per mile. It is, in short, close on £60,000. That is the round figure usually adopted by severe critics, especially foreigners. But when we eliminate the nominal additions and the large proportion of two-, three- and four-track lines, a much less formidable amount will be arrived at. For Ireland the average is little more than £9000

per mile of single track, and for Scotland it is £17,000, and even for England it is only a trifle above £22,000.

These widely divergent averages for the three kingdoms are in themselves another warning against hasty generalisations. Even in such a comparatively small section of the globe as the United Kingdom general averages may be very misleading. It should be obvious at a glance that a railway system like the Irish, which has cost only £9500 per mile of single track, must have been built under very different conditions and for a very different class of traffic from one like the English, which has cost nearly three times as much.

In England itself a great diversity of railway building may be found. Small an area as it is geographically, seven or eight distinct groups of railways flourish in it. The trunk lines running north and west form the main group, and we deal with these by themselves. They are distinguished by their combination of goods and passenger traffic, the goods predominating. The southern lines are sometimes spoken of as passenger lines, their passenger traffic being the most important. In other districts of England and Wales mineral traffic predominates, and we have consequently a special group of mineral lines. London itself has four different railway services—trunk lines, suburban lines, street railways, and undergrounds.

When we inquire into the capitalisation of these various systems the utmost diversity comes to light. In order to do justice to each group it must be taken separately, and its distinctive conditions carefully analysed. At every turn the widest diversities will be found among them, and the more they are studied the more striking will be the absurdity of lumping them together in statistical comparisons. Beginning with the trunk line group, which embraces nine of our largest and most successful railways—the London and North-Western, Midland, Great Western, North-Eastern, Lancashire and Yorkshire, Great Northern, Great Eastern, Great Central, and London and South-Western—a most interesting study in the science of capitalisation presents itself. These nine systems have to account for a good deal more

than one-half of the railway capital of the country. With their respective shares of the nominal additions they aggregate 791 millions sterling, but without these they only amount to 658 millions.

The nominal additions to their various classes of capital—Debenture stock, Preference and Ordinary—must thus have been about 133 millions sterling. The following table indicates how they are distributed among the various lines. The Midland Railway, it will be seen, has much the largest share of super capital—73½ millions sterling—and the Great Western has the smallest. To be strictly accurate the Great Western capital is not higher, but lower, than the actual money paid in, £742,000 having been written off. The cash capital of the whole group was 658 millions, and the nominal additions made at various times aggregated 132½ millions. This raised the total to its existing figure of 791 millions.

TRUNK LINES, 1911. THEIR TOTAL CAPITALS LESS NOMINAL ADDITIONS.

	Total Capital. (000's)	Nominal. Portions. (000's)	Cash Capital. (000's)
	£	£	£
London and North-Western	125,052	18,678	106,374
Midland	193,524	73,788	119,736
Great Western	99,028	742*	99,770
North-Eastern	80,589	7,018	73,571
Lancashire and Yorkshire .	70,349	11,473	58,876
Great Central	52,898	478	52,420
Great Eastern	54,405	2,581	51,824
Great Northern	59,640	8,589	51,051
London and South-Western	55,430	10,904	44,526
	790,915	132,767	658,148

* Capital written down.

Thus it appears that 17 per cent. of the capitalisation of our trunk railways is purely nominal. It is not "water" in the American sense, but rather a book-keeping adjustment. In scientific comparisons of cost of construction it must be eliminated, and this preliminary reduction is alone sufficient to set our railway capital-

isation in a much more favourable light than it is generally presented in. Its significance becomes much more apparent when expressed in mileage averages, as will be seen in the next table. Spread over 12,533 miles of railway, £132,767,000 represents £10,600 per mile, and reduces the average cost of our trunk lines from £63,000 to £52,500 per mile.

TRUNK LINES, 1911. NOMINAL AND CASH CAPITALS REDUCED TO MILEAGE AVERAGES (12,533 MILES).

	Nominal Capital. (000's)	Per Mile.	Cash Capital (less nomi- nal portion). (000's)	Per Mile.
	£	£	£	£
London and North-Western	125,102	63,600	106,374	54,100
Midland	193,524	126,300	119,736	78,100
Great Western	99,028	32,900	99,770	33,200
North-Eastern	80,589	46,600	73,571	42,600
Lancashire and Yorkshire	70,349	119,000	58,876	99,600
Great Central	52,898	70,000	52,420	69,200
Great Eastern	54,405	48,000	51,824	45,800
Great Northern	59,640	69,600	51,051	59,600
London and South-Western	55,430	57,500	44,526	46,200
	790,965	63,100	658,148	52,500

It is not alone the capitalisation of our railways that has to be adjusted in order to admit of fair and equal comparisons with other railway systems; the mileage has also to be reduced to a common level. Fully 90 per cent. of the railway lines in the United States are single track as compared with 45 per cent. of the British lines. In other words, 55 per cent. of our lines have two or more tracks, and some parts of them as much as eight or ten tracks. On the Prussian lines the proportion of the mileage with two or more tracks is 42·3 per cent., and in France it is 43 per cent. All these are so much under the British average as to preclude fair comparison. The only alternative is to reduce all the line miles to single-track miles as under :—

TRUNK LINES, 1911. CASH CAPITAL PER MILE OF LINE AND PER MILE OF SINGLE TRACK.

	Cash Capital. (000's)	Miles of Line.	Per Mile.	Miles of Single Track.	Per Mile.
	£		£		£
London and North-Western	106,374	1,966	54,100	5,502	19,300
Midland	119,736	1,532	78,100	4,852	24,700
Great Western	99,770	3,006	33,200	6,645	15,000
North-Eastern	73,571	1,728	42,600	4,842	15,000
Lancashire and Yorkshire	58,876	591	99,600	2,194	26,800
Great Central	52,420	757	69,200	2,252	23,300
Great Eastern	51,824	1,133	45,800	2,540	20,400
Great Northern	51,051	856	59,600	2,655	19,200
London and South-Western	44,526	964	46,200	2,218	20,000
	658,148	12,533	52,500	33,700	19,500

A simple indication of the comparative density of traffic on a railway is the proportion of single track to miles of line which it exhibits. In this respect the Lancashire and Yorkshire stands highest, its proportion being 3·7 miles of track for every mile of line. The Midland is second, with 3·2 miles of track for every mile of line; the Great Northern third, with 3·1, and the Great Central fourth, with 3. Strange as it may seem, the London and North-Western has a small proportion of multiple tracks—only 2·8 per each mile of line. The North-Eastern proportion is the same as the North-Western's, and the smallest of all is the Great Western's, 2·17 of single track for every mile of line.

The trunk-line group of railways whose capitalisation we have been analysing is by far the most important in the United Kingdom. It is also the most typical of our railway traffic as a whole. All the other groups are much smaller and more specialised, but they are no less worthy of investigation. They are not only interesting in themselves, but they throw light on each other. Let us take as our next group three typical passenger lines—those of the south coast. As regards capitalisation, their chief peculiarity is that the nominal additions have been very few, and such as they are they were not made voluntarily.

The Brighton and the South-Eastern Ordinary stocks have both been subjected to splitting schemes, but they were genuine splits and not duplications, as in the later cases of the Midland, the Great Northern and the North British. The Chatham capital has had nominal additions made to it of another kind, in the shape of stock issues at a discount. Its disastrous history has inflicted on it the invidious distinction of being the most heavily capitalised steam railway in the United Kingdom. But all three of the southern lines, it will be observed, have cost their shareholders a good deal more per mile than most of the trunk lines did. The totals and averages in 1911 were :—

SOUTHERN LINES, 1911. THEIR AVERAGE COST PER MILE OF LINE.

	Miles.	Total Capital. (000's)	Per Mile.
South-Eastern	444	£ 32,485·0	£ 73,100
Chatham	185	29,629·0	160,000
	629	62,114·0	98,700
London and Brighton . . .	454	29,115·0	64,000
	1,083	91,229·0	84,200

THEIR AVERAGE COST PER MILE OF SINGLE TRACK.

	Miles.	Cash Capital. (000's)	Per Mile.
South-Eastern and Chatham	1,588	£ 62,114·0	£ 39,000
London and Brighton . . .	1,234	29,115·0	23,600
	2,822	91,229·0	32,300

For their excessive cost these southern lines have not the excuse that the trunk lines can plead, of dense traffic necessitating a large amount of multiple track. Their 1,083 miles of line reduced to single track make only 2,822 miles, or 2·6 miles for every mile of line. The Brighton average (2·7) is a shade better than that of

the South-Eastern and Chatham system, which is only 2·5. Consequently all the southern capitalisations are high even when reduced to terms of single track. Not one of them in the above list but is well above the average of the trunk lines, namely, £19,500 per mile.

From the southern passenger lines we turn now to an entirely different class, the mineral lines. Nine of them have been selected to form a typical group, and they are as representative in their way as the nine trunk lines. They will be put through a similar process of comparative analysis, beginning with the disentanglement of their actual from their nominal capitals :—

MINERAL LINES, 1911. THEIR NOMINAL AND CASH CAPITALS.

	Total Capital. (000's)	Nominal Portion. (000's)	Cash Capital. (000's)
	£	£	£
North Staffordshire	10,693	1,891	8,802
Taff Vale	9,821	3,754	6,067
Hull and Barnsley	8,322	—	8,322
Cardiff	6,333	383	5,950
Barry	6,283	1,458	4,825
Rhymney	2,766	631	2,135
Furness	2,818	1,044	1,774
Brecon and Merthyr	2,085	—	2,085
Neath and Brecon	1,337	331*	1,668
	50,458	8,830	41,628

* Capital written off.

Having ascertained the cash capital that has been put into these mineral lines, and shown how it compares with the nominal capital charged against them in the companies' accounts, we can now carry the comparison a step further and work out the mileage averages. These have to be taken first on the nominal capital, and secondly on the actual capital. The results are surprisingly similar to those obtained from the trunk-line figures. In this case the average cost per mile is £11,000 lower on the actual than on the nominal capital :—

MINERAL LINES, 1911. NOMINAL AND CASH CAPITALS REDUCED TO MILEAGE AVERAGES (795 MILES).

	Nominal Capital. (000's)	Per Mile.	Cash Capital. (Less Nominal Additions.) (000's)	Per Mile.
	£	£	£	£
North Staffordshire . . .	10,693	49,500	8,802	40,700
Taff Vale	9,821	79,200	6,067	49,000
Hull and Barnsley . . .	8,322	91,450	8,322	91,450
Cardiff	6,333*	—	5,950*	—
Barry	6,283*	—	4,825*	—
Rhymney	2,766	54,200	2,135	41,860
Furness	2,818	21,000	1,774	13,240
Brecon and Merthyr . . .	2,085	35,340	2,085	35,340
Neath and Brecon . . .	1,337	33,400	1,668†	41,700
	50,458	63,500	41,628	52,360

* Chiefly docks.

† £330,000 written off.

Still pursuing the same analytic method that was applied to the trunk-line group, we have now to distinguish the cost per mile of single track from the cost per mile of line. For the sake of extra clearness two sub-groups have been made—one English and the other

MINERAL LINES, 1911. CASH CAPITAL PER MILE OF LINE AND PER MILE OF SINGLE TRACK.

	Cash Capital. (000's)	Miles of Line.	Capital per Mile.	Miles of Single Track.	Capital per Mile of Track.
	£		£		£
North Staffordshire . . .	8,802	216	40,700	501	17,570
Hull and Barnsley . . .	8,322	91	91,450	295	28,200
Furness	1,774	134	13,240	369	48,000
	18,898	441	42,800	1,165	16,200
Taff Vale	6,067	124	49,000	387	15,670
Cardiff	5,950*	14	—	129	—
Barry	4,825*	66	—	287	—
Rhymney	2,135	51	41,860	162	13,200
Brecon and Merthyr . . .	2,085	59	35,340	107	19,500
Neath and Brecon . . .	1,668	40	41,700	54	30,900
	22,730	354	64,200	1,126	20,200

* Including docks.

Welsh. The former includes three of the best-known mineral lines in England, and the second embraces half-a-dozen typical Welsh lines. In both sets of averages the Welsh appear to be much higher than the English, an anomaly which explains itself when we remember that a number of the Welsh lines, such as Cardiff and Barry, are dock as well as railway undertakings.

The metropolitan railway service is a vast and unwieldy subject which had best be dealt with by itself. Most of the metropolitan lines being now electrified, their methods and results cannot be closely compared with those of steam railways—another reason for separate treatment. We pass on, therefore, to the Scottish railways, of which half-a-dozen may be selected as a typical group. Their nominal capital, as shown below, amounts to 176 millions, of which fully 49 millions, or 28 per cent., is due to duplication of stocks. This is nearly double the English percentage (17), and when eliminated it leaves only 127 millions of actual cash capital:—

SCOTTISH LINES, 1911. THEIR NOMINAL AND CASH CAPITALS.

	Total Capital. (000's)	Nominal Portion.	Cash Capital. (000's)
	£	£	£
Caledonian	70,578·2	20,518·8	50,059·4
Glasgow and South-Western	24,873·7	7,270·0	17,603·7
Highland	6,871·1	—	6,871·1
North British	66,387·0	19,418·0	46,969·0
Great North of Scotland .	7,638·6	2,110·6	5,528·0
	176,348·6	49,317·4	127,031·2

As with the preceding groups, we have next to ascertain the mileage averages of both classes of capital—the nominal and the actual.

In Scotland the expansion of railway capital by nominal additions for financial reasons has been carried much further than in England. It appears to have been the headquarters of the stock splitters and duplicators. Their additions to cash capital averaged £13,300 for every mile

SCOTTISH LINES, 1911. NOMINAL AND CASH CAPITALS REDUCED TO MILEAGE AVERAGES (3,695 MILES).

	Nominal Capital (000's)	Per Mile.	Cash Capital (000's)	Per Mile.
	£	£	£	£
Caledonian	70,578	65,800	50,059·4	46,700
Glasgow and South-Western	24,874	53,400	17,603·7	37,700
Great North of Scotland . .	7,638	23,000	5,528·0	16,600
Highland	6,871	14,100	6,871·1	14,170
North British	66,337	50,000	46,969·0	35,100
	176,348	47,700	127,031·2	34,400

of line as against £10,500 per mile on the trunk lines and £11,000 per mile on the mineral lines. So far these calculations have referred to line miles, but the more correct basis of single-track miles has now to be substituted. It furnishes the following averages :—

SCOTTISH LINES, 1911. CASH CAPITAL PER MILE OF LINE AND PER MILE OF SINGLE TRACK.

	Cash Capital. (000's)	Miles of Line.	Per Mile.	Miles of Single Track.	Per Mile.
	£		£		£
Caledonian	50,059	1,072	46,700	2,713	18,450
Glasgow and South Western	17,604	466	37,700	1,104	15,940
Great North of Scotland . .	5,528	333	16,600	523	10,570
Highland	6,871	485	14,170	636	10,800
North British	46,969	1,339	35,100	2,652	17,700
	127,031	3,695	34,400	7,628	16,650

These various eliminations and adjustments have brought us down at last to a comparatively reasonable level of actual cost. It is one on which we may take our stand and face comparison in this respect with the railways of most other countries. Undoubtedly there has been a great deal of unwise and unprofitable expenditure in the building up of every railway system—of which more hereafter—but it has been by no means so prodigal as is generally assumed, and when spread over a large mileage

it shrinks rapidly in importance. In the Irish lines, which come next under review, there is little or no trace of it. Their capital is almost entirely free from duplication and nominal additions. The half-dozen lines which are to serve us as representative examples of Irish railway finance have, as will be seen below, an aggregate capital of 40½ millions sterling, and all the water to it is under a quarter of a million. Nominal and actual capital are so nearly alike that it is hardly necessary to distinguish their respective mileage averages.

IRISH LINES, 1911. NOMINAL AND CASH CAPITALS REDUCED TO AVERAGES PER MILE OF LINE.

	Nominal Capital. (000's)	Per Mile of Line.	Cash Capital. (000's)	Per Mile of Line.
	£	£	£	£
Belfast and County Down .	1,336·9	16,700	1,336·9	16,700
Dublin and South-Eastern .	3,403·3	21,110	3,464·9	21,500
Great Northern of Ireland .	8,726·8	15,560	8,458·3	15,000
Great Southern and Western	13,986·0	12,500	13,986·0	12,500
Midland Great Western . .	6,544·8	12,100	6,544·8	12,100
Midland (Irish Section)* .	6,654·4	25,300	6,654·4	25,300
	40,652·2	14,800	40,445·3	14,800

IRISH LINES, 1911. THEIR CASH CAPITALS PER MILE OF LINE AND PER MILE OF SINGLE TRACK.

	Cash Capital (000's)	Miles' of Line.	Per Mile.	Miles of Single Track.	Per Mile.
	£		£		£
Belfast and County Down .	1,337	80	16,700	124	10,800
Dublin and South-Eastern .	3,465	161	21,500	217	16,000
Great Northern of Ireland .	8,458	561	15,000	827	10,260
Great Southern and Western	13,986	1,121	12,500	1,537	9,000
Midland Great Western . .	6,545	538	12,100	785	8,330
Midland (Irish Section)* .	6,654	263	25,300	364	18,280
	40,445	2,724	14,800	3,854	10,500

* The English Midland Railway.

The above five typical groups of British railways may now be brought into one general view in order to show their range of capitalisation, their various proportions of nominal and actual capital, and their average cost per mile of line and of single track. As a rule they differ widely in each of these respects. The only two groups that approximate as regards cost are the trunk and the mineral lines. These it will be seen are very similar in their average cost per mile both of line and of single track. (Trunk lines £63,100 per mile of line and £19,500 per mile of track and Mineral lines £63,500 and £21,100 respectively.)—

FIVE REPRESENTATIVE GROUPS OF BRITISH RAILWAYS, 1911.
THEIR CAPITALS ANALYSED.

	Miles.	Cash Capital.	Nominal Additions.	Total Capital.
		£	£	£
Trunk Lines (9)		658,148,000	132,767,000	790,915,200
Per mile of line	12,533	52,500	10,500	63,100
Per mile of single track.	33,700	19,500	4,000	23,500
Southern Passenger Lines		91,027,000	202,000*	91,229,000
Per mile of line	1,083	84,000	—	84,000
Per mile of single track.	2,822	32,300	—	32,300
Mineral Lines		41,628,000	8,830,000	50,458,000
Per mile of line	795	52,360	11,100	63,000
Per mile of single track.	2,291	18,200	3,800	22,000
Scottish Lines		127,031,200	49,317,400	176,348,600
Per mile of line	3,695	34,400	13,300	47,700
Per mile of single track.	7,628	16,650	6,500	23,150
Irish Lines		40,445,300	206,900*	40,652,200
Per mile of line	2,724	14,800	—	14,900
Per mile of single track.	3,854	10,550	—	10,550

* Written down.

CHAPTER II

WHY THEY HAVE COST SO MUCH

THE appearance of excessive cost from which the credit of British railways has so long suffered is, we have seen, not altogether well grounded. By adopting proper methods of comparison with other railway systems it has been considerably reduced. Nevertheless, enough remains to justify to a certain extent the charge so often made against our railways of having been extravagantly built and financed. This charge does not lie so much against individual railways—though there is much more ground for it in some cases than in others—as against the system and the general policy which has characterised them from the outset.

The specific causes of excess in capitalisation are varied as well as numerous. They have sprung from many different sources, and many different factors in the railway world are responsible for them. From the Imperial Parliament which sits in judgment on every railway bill down to the latest labour agitator, all who have had to do with our railways have helped consciously or otherwise to render them costly. Often as much has had to be spent on obtaining parliamentary powers as in less lawyer-ridden regions would build and equip a railway. Several years ago (1904) Mr. Acworth calculated that the cost of preliminary surveys and parliamentary expenses had averaged £4,000 per mile on the then existing 22,000 miles of railway in the United Kingdom. At that rate nearly 90 millions sterling would have been swallowed up in preparatory work before a sod had been turned in actual construction.

Road-bed, terminals and buildings Mr. Acworth

estimated at 800 millions sterling, or £36,500 per mile, and rolling stock at 150 millions, or £7,000 per mile. In addition there had been a large expenditure on docks, steamboats, hotels and other undertakings outside of proper railway business. The rather melancholy conclusion to which these figures lead us is that not more than two-thirds of the capital expenditure on our railway system "went into the road," as the Americans say. And what did go in was not always well or wisely spent. In human affairs it would be more than any one could expect that hundreds of millions of money could be spent by an excited crowd of railway promoters without a good many mistakes, to say nothing of frauds and swindles.

The railway pioneers of eighty years ago—say from 1832 to 1846—were boomers who had to pay boom prices for everything they bought. Their surveyors, their engineers, their solicitors, their parliamentary counsel had all to be highly fed. Every foot of land they needed had to be bought at penal prices. All the materials they used went steadily up in value as the demand for them increased. Everybody who had a chance to fleece them did it without compunction. They had always the convenient excuse that the railways fleeced them in return. The first generation of railway builders and users were continually recriminating thus on each other.

The Royal Commission of 1865-6 had among its members the parent of the penny post, Sir Rowland Hill. He sympathised strongly with the railways and held that they had been very shabbily treated. In a Minority Report which he submitted he deplored the very poor financial results they had so far achieved, and thus enumerated some of the principal causes:—

"Neither can it be said that railway proprietors have been consoled under their grievous disappointment by public gratitude, their services being little commended, while their failures are visited with severe animadversion and made the ground of a heavy penalty. It should not be forgotten that the very permission to construct a railway is bought at a high price, parliamentary expenses

being heavy, the demand for land and buildings often exorbitant. Agricultural land in Mr. Bidder's opinion is paid for on the average at four times its agricultural value. Again, while, in common with the owners of other public vehicles, railway companies are taxed by the State, their lines, unlike the old roads, are heavily rated by every parish they traverse, so that in some rural districts a railway company, though perhaps on the one hand relieving the parish of much pauperism by giving profitable employment to the peasantry, and on the other hand lightening the pressure on the rates by increasing the value of the property on which they are levied, is yet made to defray in a direct form half the parochial expenditure. In fine, railway companies have been made to feel in the severest manner that the justice which society observes towards individuals is seldom shown towards a corporation, a loss distributed amongst many being too often regarded as in effect no loss at all."

Sir Rowland was not a believer in joint stock ownership of railways. He advocated a policy, which was then being applied to the Indian railways, of Government ownership combined with joint stock administration. He also favoured the Prussian system of dividing the country into railway districts, each district to have its own administration and rate schedules. Sir Edward Watkin and Mr. Allport, the then General Manager of the Midland, shared his views as to "districting," and quite recently they have found an echo among the railway authorities of to-day.

On another point Sir Rowland Hill was an outspoken champion of the early railways. He maintained that many of their mistakes and the consequent losses were due to bad law-making. In his separate report for the Select Committee of 1865-6 the following strong passage occurs :—

"That while railways have notoriously conferred enormous benefits on the public, at the same time greatly enhancing the value of the land and other fixed property, the general result to those whose capital and energy have produced this beneficial change has been unsatisfactory

and too often disastrous. Further, that with every allowance for bad management in the companies themselves, much of this loss must be attributed to erroneous legislation."

When this was written, nearly half a century ago, many flagrant examples of the bad effects of over legislation for railways had already come to light. The muddle produced at London Bridge by two distinct railways being tied up together in one terminal station was entirely due to the over caution of the Select Committees who sat on the various schemes for lines to the south coast. The promoters of the Brighton Railway proposed to have their terminus where the Oval is now, but the Select Committee insisted on their coming up to London Bridge and sharing the station already established there by the Blackwall and the Dover lines. Not only so, but they had to make joint use of the Dover Company's rails all the way down to Redhill. Every one knows what a legacy of conflict and confusion this arbitrary arrangement produced. It must have cost the Brighton and South-Eastern companies millions each.

The continual fear of the Parliamentary Committees who had the virtual planning of our railway system was that there would not be traffic enough to go round. Their first thought, when a new scheme came before them, was that it might not be able to earn decent dividends, and the poor shareholders might consequently be left in the lurch. In order to guard against such risks, neighbouring railways were required to work together as far as possible. Joint stations were always recommended in populous districts where sites were expensive. Joint ownership of urban lines was encouraged, as in the case of the Metropolitan and Great Western railways. Most of the trunk lines had to give each other running powers over their suburban sections.

Twenty years ago it was a common thing to find a South Eastern train picking up stray passengers at Highgate or Enfield. Great Northern trains returned the compliment by wandering in some mysterious way on to the South-Eastern main line. Similar reciprocity was

practised by the Brighton Company with the Great Northern and the Midland. Running powers were exercised so freely in the metropolitan area that locomotives were as frequently on foreign lines as on their own. All this, instead of being economical, as the Parliamentary Committees thought it would be, proved wasteful and obstructive. It has happily now been given up, but while it lasted it was a fine example of railway economies and reciprocities that went wrong.

It must, however, be said for the Parliamentary Committees that they were not the only short-sighted people who assisted at the birth of our British railways. The professional railway men were not much wider in their outlook than the political amateurs. Short-sightedness was an almost universal misfortune of the pioneer railways, and no one would acknowledge that more readily than the railway managers of to-day, whose life is often a long struggle to make up for the omissions of years ago. Their heaviest and most costly work is doing things which could have been much easier and more cheaply done by predecessors long dead and forgotten.

The truth is, that not one of our railway pioneers had the faintest conception of the ultimate possibilities of the new method of transportation. It only dawned on them gradually, and in looking back at lost opportunities. They regarded the steam road from a narrow point of view. It was the passenger business they coveted most. All the long-distance lines were specially designed for passenger traffic. Merchandise, minerals and live stock were after-thoughts. In order to provide for them the original plans had to be recast, additional rails to be laid, stations to be enlarged, and the way and works to be strengthened. Much of the early work had consequently to be done twice or three times over.

Short-sightedness is a negative fault not to be too severely judged in a new industry of such tremendous magnitude as railway transportation. But there may have been others of a positive kind. The policy pursued by our railway managers may have tended to aggravate capital expenditure. It had for many years been their

proud boast that they never competed in rates, but only in "public facilities." This is a very pretty phrase which sounds well and looks innocent, but it may cover any amount of foolish expenditure. A London manager, Sir J. C. Owen of the London and South-Western Railway, has given the following pithy summary of its effects in practice :—

"Competition as to service takes the form of :—

1. An unnecessary number of trains.
2. The provision of expensive and luxurious rolling stock, more particularly as regards sleeping cars, for which in this country no adequate charge has ever been made.
3. An unnecessary acceleration of trains—
 - (a) By the elimination of stops at non-competitive stations.
 - (b) The costly process of making duplicate lines to cut across country with the sole object of reducing the through distance as compared with the competing line.
 - (c) The construction of more powerful engines which often involves the relaying of the line with heavier material and the reconstruction of bridges.
 - (d) The widening of existing lines with alteration of alignment, and the construction and manning of additional signal-boxes.

Thus competition in "public facilities," or as it is sometimes called, "superiority of service," involves a large amount of capital expenditure as well as of revenue expenditure. The first three paragraphs in the above summary relate, it will be seen, to working expenses, but the last three, which are the most important of all, describe how capital may be wasted on so-called improvements and accelerations.

In one of the academic but interesting discussions on railway statistics which are provided at long intervals by the Royal Statistical Society the writer ventured to express what was then considered a very heretical opinion on this subject. Mr. C. L. Edwards, the chief accoun-

tant of the Great Northern Railway, had presented a very strong plea for the railways, contrasting their great services to the community with the scant consideration which they received on all hands. The writer, in reply, pointed out that in one respect the community had treated the railways only too generously. It had always been too ready to lend them money for capital expenditure which often proved unprofitable.

"In 1860," he said, "when the main lines of the country had been nearly all built, the average capitalisation was about £33,000 per mile. In 1906, when practically nothing had been added except feeders and the little spur lines which railway companies were so fond of running into each other, the average had been raised to £55,800 per mile. Twenty thousand pounds per mile had been added to the capitalisation of the main lines. How did that come about? It was simply because the railway companies had found it so easy to borrow money. Their largest expenditure of capital did not occur when they were building the greatest amount of new mileage; it always happened when they could borrow money cheaply. The expenditure was not so much on extensions as on so-called improvements. This evil, be believed, was largely due to the fallacy with which they started in early days, when their motto was that English railways did not compete in rates but in facilities. When he first began to study railway questions he always heard that the English railways were much more sensible than the American ones in religiously avoiding rate wars, but it now seemed to him that it might have been better for the shareholders to have competed in rates rather than in facilities. Our railway managers would then have had to rack their brains a little in order to conduct their traffic as cheaply as possible, whereas competing in facilities simply gave them a free hand to spend money."

The law of diminishing return on new capital invested in railways can be traced back to an early period in their history. From 1873 onward it became very pronounced in its effects. In that year the aggregate capital expenditure was £569,047,000, and the average return obtained

was 4.59, or practically 5 per cent. In the succeeding fifteen years fresh capital expenditure was made to the amount of £276,375,000. If that money had been invested otherwise it might have earned at least 4 per cent., or £11,055,000 a year. But the actual increase in the net receipts of the railways was only £8,143,000. Some allowance may have to be made for nominal additions to capital during the period, but the bulk of the new expenditure was in "improvements."

"Public facilities" and "universal providing" have been the special stumbling-blocks of the British railway manager. Instead of concentrating all his attention and his energy on his proper business—rapid and economical transportation—he has encumbered himself with accessories which were either unnecessary or better adapted for separate treatment. He has disdained the help of express companies for his parcel traffic, of Pullman companies for his sleeping and dining cars, and of private builders for his rolling stock. Latterly he has begun to take the station book-stalls and the advertising into his own hands. Such an omnivorous policy of course involves proportionate expenditure of capital.

First-class American roads seldom encumber themselves with "side shows." These are all farmed out to companies like the Pullman and the Adams express, which specialise in such undertakings. Neither is it the custom in America to have immense engine works and car-building shops. Most kinds of rolling stock can be bought cheaper from outside makers than they can be built on the premises. Not only is there a great saving in money by this means, but costly failure and needless anxieties are avoided. The head of the locomotive department stipulates for engines to do each particular class of work, and does not certify for them until he has satisfied himself that they can do it.

Apart from their natural advantages of cheaper land, simpler permanent way and less costly terminals, the Americans have had the advantage of us in confining themselves to a much more limited range of service. This is one of the secrets of their much lighter capitalisa-

tion per mile. The extent of the saving would be difficult indeed to calculate. It has been, however, an important factor in keeping down the average cost per mile of American roads. With the Canadian roads it has been somewhat different. They follow the British practice, and aim at being universal providers for their passengers. But some of them have had other advantages which enabled them to keep down their capitalisation and show correspondingly larger returns on their stocks.

The annual report of the Canadian Pacific Railway for 1911-12 has been issued while this chapter was being written. It shows gross earnings of \$123,319,000 on a total capital of \$440,000,000 (common stock \$180,000,000, debenture and preference stocks \$260,000,000). This gives an average of 28 per cent. of gross earnings to total capital. The net was \$44,402,000, or fully 10 per cent. on the whole 440 millions of stock and bonds. After deducting \$10,525,000 for prior charges and \$2,400,000 for preference dividends, there remained \$31,477,000 for the \$180,000,000 of common, equal to nearly 17½ per cent.

Obviously this is not a proper comparison with our own railway results: it is rather a contrast. Its real object is to illustrate the vast variations that are possible in the working conditions of railways in different countries, especially where they are in different stages of economic development. Canada at present is in a state of economic flux, while the United Kingdom has settled down into stereotyped grooves. The movements both of passengers and goods are proportionately much greater in the new country than in the old one. The Canadian Pacific has thus two immense advantages over any British and even over any European railway. One is a relatively low capitalisation, and the other is a large proportion of long-distance traffic.

Its 10,500 miles of line,¹ carrying 260 million dollars of bonds and preference stock and 180 million dollars of common stock, averages only \$42,000, or £8,400 per mile, against the British £52,400 per mile. But here again the comparison is hardly on all fours. While the

¹ 1911.

Canadian Pacific is, with the exception of its busiest sections, a single-track road, the English railway system is practically all double, and much of it triple track. Its 16,200 miles of line represent fully 42,000 miles of single track, the average capitalisation of which would be, instead of £52,400 only £22,500 per mile. *Per contra*, the Canadian Pacific had in 1911 only 553 miles of double track. Reduced to single track its total mileage was 11,034 miles, and on this—the true basis—its average capitalisation would be \$40,000, or £8,000 per mile against an English average of £22,500 per mile.

Even so, \$40,000 per mile does not represent anything like the real amount of money that has gone into the Canadian Pacific. The Canadian Government had built 600 or 700 miles of it before the company took it over, and the company not only got that as a free gift, but had a money subsidy of twenty-five million dollars as well. Moreover, for the first ten or fifteen years of its operation large amounts of current revenue had to be capitalised instead of being distributed in dividends. If a complete account could be made up of the money that went into the Canadian Pacific from special sources, quite apart from the shareholders, it would probably increase the existing ordinary capital by one-fourth.

Its true average may be about \$50,000 per mile as compared with the English £22,500 per mile of single track. The same amount of revenue would therefore go fully twice as far on the Canadian Pacific capital as on the English. This remark will apply also to many of the United States roads which show large percentages of gross and net revenue on comparatively small capitals. Even the Union Pacific, though it is no longer very lightly capitalised, its average being \$70,000 per mile, might in two recent years have paid 20 per cent. dividends. Its surplus available for the common stock ranged lately from 19·1 per cent. down to 13·8 per cent.

Broadly put, British railways have had to pay top prices for their charters, their land, their materials, and nearly everything that has gone into them, whereas American and Canadian lines have had the advantage

of free charters, cheap land and cheap building. In addition they obtained large subsidies from public authorities which do not appear in their capital accounts. At the outset they were much more roughly built than the typical British railway. They had to spend much less money on stations, fencing and bridges. American engineering is altogether of a plainer and more severely practical sort than British. There is nothing in it of what American engineers contemptuously call filagree work.

The most curious contrast between the two systems arises out of their widely different methods of finance. Reorganisations and reconstructions have been common to both, but they have been carried out on opposite lines. "Scaling down" stocks has been a favourite American practice, and a countless amount of capital has been wiped out in that way. On the other hand, British manipulation of stocks has generally taken the form of nominal additions to them, as explained in the preceding chapter. While these have tended to exaggerate the capitalisation of British railways, American "scaling down" has had the reverse effect. Hence average cost per mile is no longer an equitable basis of comparison.

CHAPTER III

THE WORK THEY DO

THE highest and most conclusive test of the efficiency of a railway system is the value of the work it does for the community. This should take precedence of all questions of dividends, wages and labour conditions. Even the burning question of nationalisation should be subordinate to it. A railway in private hands may be a national boon; there are, in fact, many such examples. On the other hand, a state-owned and managed railway may be a national evil. Everything depends on the railway itself and the character of its work. If it ably and honestly serves the district it occupies it will be not only a great public convenience, but a source of prosperity and an incentive to progress of all kinds.

One of the best possible illustrations of this economic truth is to be found in the history of British railways. The contrast between the England of to-day and the England of eighty years ago is to a large extent their doing. If they had never paid a dividend to their proprietors they would still have been a good investment for the country. In order to realise this one has only to glance at the official records of the work they do, and which but for them could never have been done. A few details of the goods and passenger movements of 1911 will probably amaze the reader.

In that year 1,325 millions of passengers, 113½ million tons of merchandise and 407¾ million tons of minerals were carried on the railways of the United Kingdom. The passenger trains ran an aggregate distance of 270 million miles, and the goods trains an aggregate of 156½ million miles. Passenger earnings amounted to 38 millions

sterling plus nearly 6 millions for parcels, mails excess, luggage, etc. The total revenue of the passenger trains was therefore about 44 millions sterling. The cost to the community of a passenger service consisting of thousands of trains per day and covering the whole kingdom from Thurso to Bantry Bay is less than a pound per head per annum. There has been more new taxation levied in the past half-dozen years than would provide free railway travelling for the whole forty-five millions of our population.

But vast as that service is, it is not the greatest that our railways have rendered to us. The 400 million tons of minerals they carry every year are the basis of our national industries and our domestic comforts. Without them there could be no gigantic ship-yards on the Clyde and no huge factories in Lancashire and Yorkshire. London itself would be an impossibility, though that is perhaps a not wholly regrettable alternative. For every man, woman and child in the United Kingdom 9 tons of minerals and $2\frac{1}{2}$ tons of merchandise have to be transported annually by rail. That means employment for millions who would otherwise have had to emigrate or starve.

Wherever railways are most active and enterprising there we find the greatest prosperity and the best conditions of human life. Conversely, sleepy railways are a sure sign of stagnant communities. Compare the Canadian North-West with the Province of Quebec, or the railway areas of China with the still undeveloped provinces, if you would estimate the wealth-creating power of the locomotive. On a smaller scale we can see it in the commercial relations of the three kingdoms. Their respective degrees of economic progress are most correctly indicated by their railway operations. England and Wales have 80 per cent. of the population, Scotland $10\frac{1}{2}$ per cent., and Ireland $9\frac{1}{2}$ per cent., but railway business is very differently distributed among them.

Of the 1,325 millions of passengers carried in 1911, England and Wales had 90 per cent., while Scotland had only 8 per cent., and Ireland barely $2\frac{1}{2}$ per cent. In the

tonnage of merchandise moved, Scotland made a better show and Ireland a worse one than in passenger traffic. The respective percentages in this case were—England and Wales 84, Scotland $12\frac{1}{2}$, Ireland $3\frac{1}{2}$. In passenger business England was 10 per cent. above its proportion of the population; Scotland 2 per cent. under it, and Ireland $7\frac{1}{2}$ per cent. under. On the other hand, in merchandise traffic Scotland was 2 per cent. above its population level, and England, instead of being 10 per cent. above hers, was only 4 per cent., while Ireland was 6 per cent. under hers.

But it is the mineral traffic that brings out the most remarkable diversity between the three branches of the United Kingdom. Here Ireland is practically nowhere. Her contribution of $2\frac{1}{4}$ million tons to an aggregate of $407\frac{3}{4}$ million tons is microscopic,—little more than one-half of one per cent. Scotland's $54\frac{1}{4}$ million tons form a respectable quota equal to $13\frac{1}{2}$ per cent. The lion's share, which falls to England and Wales, is $350\frac{1}{2}$ out of $407\frac{3}{4}$ million tons, equal to 86 per cent. of the whole.

These figures and percentages shed a flood of light on two anomalies in our railway system—first, the predominance of the mineral traffic, and secondly, the great disadvantage under which the Irish railways labour in this respect. Coal, iron and their products are undoubtedly the mainstay of British railways. The prehistoric railway director who, when it was proposed to carry coal, exclaimed, "What next! They will be asking us to carry manure by and by," would have had a fit at the sight of a 1300-ton coal train on the North-Eastern railway. A good many of his successors might have fits if the 1300-ton coal trains were to disappear.

As for Ireland, if she is severely handicapped by lack of coal, she has a valuable compensation in the abundance of her peat. For the poor it is on the whole better to have fuel at their own doors to which they can help themselves than down in the bowels of the earth which when raised they have to buy by the hundredweight at

the rate of 30s. per ton, as millions of Londoners must do every winter.

The respective amounts which the three kingdoms pay for their railway service is another instructive question. England and Wales contributed fully 38 millions of the 44 millions spent on passenger fares in 1911. That was a shade less than 86½ per cent. of the whole. Scotland's share was 4¼ millions, or nearly 9½ per cent., which exactly coincided with her proportion of the population. Ireland's £1,717,000 made up the remaining 4 per cent. Thus, notwithstanding the vigorous efforts of the railway companies, both British and Irish, to develop tourist traffic in Ireland, there is still a good deal of leeway to make up in passenger receipts.

The railway operations of the three kingdoms and their respective results may be most clearly illustrated by a few condensed tables. In the first (Table A) the passenger traffic is analysed so as to show (a) the total number of passengers carried in 1911, (b) the total number of train miles run, and (c) the average number of passengers per train mile.

BRITISH RAILWAYS, 1911.

A.—PASSENGERS GROSS AND PER TRAIN MILE.

	Passengers. (000's)	Train Miles. (000's)	Passengers per Train Mile.
England and Wales : Steam .	814,851	209,297	4·0
Electric	373,353	20,261	18·4
Scotland	107,298	28,972	3·7
Ireland	30,815	11,746	2·6
	1,326,317	270,276	4·9

Table B presents a corresponding analysis of passenger earnings in the three kingdoms: (a) total number of passengers carried in 1911; (b) total revenue from same; (c) average fare per passenger, and (d) average earnings per train mile run.

BRITISH RAILWAYS

B.—PASSENGER REVENUE PER TRAIN MILE.

	Passengers. (000's)	Revenue. (000's).	Average per Passenger.	Earnings per Train Mile.
England and Wales : Steam .	814,851	£ 43,332	s. d.	s. d.
" " Electric	373,353	2,976 }	0 9·3	4 0
Scotland	107,298	5,362	1 0	3 8
Ireland	30,815	2,284	1 6	3 11
	1,326,317	53,954	0 9·8	4 0

Table C gives a comparative view of the mineral and merchandise tonnage of 1911 in the three kingdoms, and shows also the total number of train miles run in each of them.

C.—MINERAL AND MERCHANDISE TONNAGE.

	Minerals. (000's)	Merchandise. (000's)	Total Tons. (000's)	Train Miles. (000's)
England and Wales . .	Tons. 352,650	Tons. 95,641	Tons. 448,291	130,867
Scotland	54,850	13,819	68,669	20,276
Ireland	2,312	4,305	6,617	5,357
	409,812	113,765	523,577	156,500

The gross receipts from minerals, merchandise and live stock in each of the three kingdoms will be next seen in Table D.

D.—MINERAL AND MERCHANDISE REVENUE.

	Minerals. (000's)	Merchandise. (000's)	Live Stock. (000's)	Total. (000's)
England and Wales . .	£ 25,974	£ 27,042	£ 906	£ 53,922
Scotland	3,465	3,564	252	7,281
Ireland	306	1,469	307	2,082
	29,745	32,075	1,465	63,285

Such huge amounts may not have much meaning for the general reader who will doubtless prefer them reduced to mileage averages. These are of two kinds—first, averages per mile of track, and secondly, averages per train mile run. Judged by this test the amount of work done

sounds disappointingly small compared with the enormous organisation employed in doling out the way trains of the United Kingdom average only 3½ tons for every mile the a startling announcement to make at a meeting of the shareholders, but here are the official figures for the year 1911, 1910, 1909, 1908, 1907, 1906, 1905, 1904, 1903, 1902, 1901, 1900.

E.—TRAIN MILEAGE OF MERCHANDISE AND MINERALS

	Total Train Miles. (000's)	Tons per Train Mile.	Tons per Train Mile.
England and Wales	130,867	3.40	10,620
Scotland	20,276	3.39	8,840
Ireland	5,357	1.23	1,440
	156,500	3.34	9,600

The comparatively small average quantity carried per train mile is matched by the comparatively small average amount earned. For England and Wales it is 8s. 3d. per train mile, for Scotland 7s. 2d., for Ireland 7s. 9d., and for the United Kingdom 8s. 1d. But poor as they look, these averages are handsome beside the passenger earnings per train mile. They were in 1911 4s. for England and Wales, 3s. 8d. for Scotland, 3s. 11d. for Ireland, and 4s. for the United Kingdom. Why should passenger trains earn less than half as much per train mile as goods trains do? Is the cause low fares, excessive mileage, or what? Will some railway manager kindly explain?

F.—GOODS AND MINERALS. AVERAGE RECEIPTS PER MILE OF TRACK AND PER TRAIN MILE.

	Total Receipts. (000's)	Average per Mile of Track.	Average per Train Mile.	Passenger Average per Train Mile.
England and Wales	£ 53,922	£ 1,280	s. d. 8 3	s. d. 4 0
Scotland	7,281	938	7 2	3 8
Ireland	2,082	450	7 9	3 11
	63,285	1,160	8 1	4 0

The analysis shown in the foregoing tables could be

D



B.—PASSENGER LIMITED extent. Every individual

might have its operating accounts here we must limit ourselves to the groups already selected for special trunk lines, southern passenger lines, English and Welsh, Scottish and Irish. The first group comprises nine of the principal railways—the Great Central, Great Eastern, Great Northern, Great Western, Lancashire and Yorkshire, London and North-Western, London and South-Western, Midland and North-Eastern.

This group, though only nine in number, and consequently a mere fraction numerically of the two hundred and fifty railway companies in the United Kingdom, commands 58 per cent. of the aggregate capital and 62 per cent. of the total mileage. It carries 40 per cent. of the total number of passengers and 63 per cent. of the merchandise and minerals. We may therefore expect to find in it the finest examples of British railway administration, the most up-to-date methods of working, and the best financial results both for traders and shareholders.

Beginning with a bird's-eye view of the operations of the trunk line group, the succeeding tables will analyse and compare the various branches of traffic—passenger, merchandise and mineral. They will also show the averages per mile of track and per train mile.

TRUNK LINES, 1911.

A.—A BIRD'S-EYE VIEW OF THEIR OPERATIONS.

	Mileage of Single Track.	Passenger Earnings. (000's)	Goods Earnings. (000's)
		£	£
Great Central	2,252	1,418·0	3,348·4
Great Eastern	2,540	3,156·0	2,646·2
Great Northern	2,655	2,420·0	3,347·9
Great Western	6,645	6,801·0	7,289·3
Lancashire and Yorkshire	2,194	2,591·0	3,495·3
London and North-Western	5,502	6,831·0	9,075·2
London and South-Western	2,218	3,502·0	1,601·6
Midland	4,852	4,158·0	8,681·3
North-Eastern	4,842	3,386·0	6,950·2
	3,3700	34,263·0	46,435·4

B.—AVERAGE NUMBER OF PASSENGERS PER MILE OF TRACK AND PER TRAIN MILE.

	Passengers. (000's)	Train Miles. (000's)	Number per Mile of Track	Number per Train Mile.
Great Central	25,015·6	8,790·1	11,100	2·8
Great Eastern	98,329·8	14,029·6	38,700	7·0
Great Northern	35,670·6	13,054·0	13,400	2·7
Great Western	102,523·2	32,760·5	15,400	3·1
Lancashire and Yorkshire	58,955·8	12,705·3	27,000	4·6
London and North-Western	74,552·4	30,705·2	13,500	2·4
London and South-Western	68,701·2	15,649·6	30,970	4·4
Midland	50,539·6	22,441·5	10,410	2·3
North-Eastern	60,973·2	17,418·5	12,600	3·5
	575,261·4	167,554·3	17,000	3·4

C.—PASSENGER RECEIPTS. AVERAGES PER MILE OF TRACK, PER TRAIN MILE AND PER PASSENGER.

	Passenger Receipts. (000's)	Per Mile of Track.	Per Train Mile.	Per Passenger.
	£	£	s. d.	s. d.
Great Central	1,418·0	630	3 3	1 1½
Great Eastern	3,156·0	1,240	4 6	0 7½
Great Northern	2,420·0	910	3 8	1 4
Great Western	6,801·0	1,023	4 2	1 4
Lancashire and Yorkshire	2,591·0	1,180	4 0	0 10½
London and North-Western	6,831·0	1,230	4 5	1 10
London and South-Western	3,502·0	1,580	4 6	1 0
Midland	4,158·0	860	3 9	1 8
North-Eastern	3,386·0	700	3 10	1 1

D.—TONNAGE OF MERCHANDISE AND MINERALS.

	Miles of Single Track.	Tons of Mer- chandise. (000's)	Tons of Minerals. (000's)	Total Tonnage. (000's)
Great Central	2,252	6,424·9	29,462·6	35,887·5
Great Eastern	2,540	6,067·0	7,366·1	13,433·1
Great Northern	2,655	5,363·5	16,557·7	21,921·2
Great Western	6,645	9,030·8	44,927·2	53,958·0
Lancashire and Yorkshire	2,194	7,462·2	18,930·4	26,392·6
London and North-Western	5,502	11,020·6	43,679·8	54,700·4
London and South-Western	2,218	2,682·0	4,341·8	7,023·8
Midland	4,852	9,481·0	41,780·5	51,261·5
North-Eastern	4,842	15,346·8	51,064·5	66,411·3
	33,700	72,878·8	258,110·6	330,989·4

E.—AVERAGE TONNAGE PER TRAIN MILE AND PER MILE OF TRACK.

	Total Tonnage. (000's)	Train Miles. (000's)	Tons per Train Mile.	Tons per Mile of Track.
Great Central	35,887·5	8,443·7	4,250	16,000
Great Eastern	13,433·1	8,306·8	1,617	5,310
Great Northern	21,921·2	10,107·9	2,169	8,260
Great Western	53,958·0	20,146·8	2,680	8,120
Lancashire and Yorkshire	26,392·6	5,096·3	5,180	12,030
London and North-Western	54,700·4	17,467·4	3,130	9,940
London and South-Western	7,023·8	4,429·9	1,585	3,170
Midland	51,261·5	26,394·9	1,940	10,570
North-Eastern	66,411·3	11,386·5	5,830	13,720
	330,989·4	111,780·2	2,960	9,820

Next we have a representative group of mineral lines, nine in number, like the trunk line group, but operating on a much smaller scale.

MINERAL LINES, 1911.

F.—AVERAGE NUMBER OF PASSENGERS PER MILE OF TRACK AND PER TRAIN MILE.

	Passengers (000's)	Train Miles (000's)	Number per Mile of Track.	Number per Train Mile.
Barry	2,722·1	586·6	9,485	4·6
Brecon and Merthyr	1,014·7	268·2	9,500	3·8
Cardiff	146·6	72·5	1,130	2·0
Furness	2,973·7	738·4	8,000	4·0
Hull and Barnsley	567·9	436·8	1,920	1·3
North Staffordshire	7,001·3	1,444·8	1,400	4·8
Neath and Brecon	441·5	52·5	820	8·4
Rhymney	3,722·1	407·3	23,000	9·1
Taff Vale	8,368·0	1,079·8	21,600	7·8
	26,957·9	5,086·9	11,770	5·3

G.—MERCHANDISE AND MINERAL TONNAGE COMPARED.

	Merchandise. Tons. (000's)	Mineral. Tons. (000's)	Total Tonnage. (000's)
Barry	644·6	9,430·0	10,074·6
Brecon and Merthyr	160·9	3,127·7	3,288·6
Cardiff	1,212·0	1,674·7	2,886·7
Furness	609·5	3,378·8	3,988·3
Hull and Barnsley	827·2	3,973·1	4,800·3
North Staffordshire	1,717·0	5,687·1	7,404·1
Neath and Brecon	67·8	1,360·1	1,427·9
Rhymney	251·4	9,822·6	10,074·0
Taff Vale	880·8	17,661·2	18,542·0
	6,371·2	56,115·3	62,486·5

H.—AVERAGE TONNAGE PER TRAIN MILE AND PER MILE OF TRACK.

	Total Tons (000's)	Train Miles.	Tons per Train Mile.	Tons per Mile of Track.
Barry	10,074·6	1,088·8	9,250	35,110
Brecon and Merthyr	3,288·6	320·0	10,280	30,750
Cardiff	2,886·7	652·8	4,420	22,380
Furness	3,988·3	627·5	6,350	10,800
Hull and Barnsley	4,800·3	1,611·4	2,980	16,270
North Staffordshire	7,404·1	1,165·6	6,350	14,780
Neath and Brecon	1,427·9	88·9	1,600	26,450
Rhymney	10,074·0	1,364·8	7,380	62,180
Taff Vale	18,542·0	1,554·6	1,190	48,000
	62,486·5	8,474·4	7,370	27,280

The Scottish group embraces four lines, two large and two small ones, with a moderate one between. The averages per mile of track and per train mile are worked out below uniformly with those of the trunk and the mineral groups.

In the Irish group we have half-a-dozen railways, but three of them are partly English. One of the principal lines in Ulster is now known as the Irish section of the Midland Railway. The Dublin and South-Eastern is closely affiliated with the London and North-Western, while the Great Southern and Western works in close alliance with the English Great Western. The effects of these Anglo-Irish combinations are more apparent in the passenger than in the goods traffic of the Irish lines. The following three tables exhibit, first, the aggregate passenger and goods movements, and secondly, the averages per mile of track and per train mile.

THE SCOTTISH GROUP.

I.—AVERAGE NUMBER OF PASSENGERS PER MILE OF TRACK AND PER TRAIN MILE.

	Passengers. (000's)	Train Miles. (000's)	Number per Mile of Track.	Number per Train Mile.
Caledonian	33,233·8	10,092·9	12,250	3·3
Glasgow and South-Western	16,741·1	4,568·3	15,100	3·7
Great North of Scotland	3,351·9	1,518·4	6,410	2·2
Highland	2,128·7	1,750·4	3,340	1·2
North British	35,676·5	9,496·5	13,450	3·7
	91,132·0	27,426·5	11,950	3·3

K.—MERCHANDISE AND MINERAL TONNAGE.

	Merchandise. 000 tons.	Minerals. 000 tons.	Total tonnage. (000's)
Caledonian	5,612·6	21,700·9	27,313·5
Glasgow and South-Western	1,836·7	7,106·9	8,943·6
Great North of Scotland	444·8	563·3	1,008·1
Highland	279·8	328·4	608·2
North British	5,575·0	24,991·4	30,566·4
	13,748·9	54,690·9	68,439·8

L.—AVERAGE TONNAGE PER MILE OF TRACK AND PER TRAIN MILE.

	Total Tonnage. (000's)	Total Train Miles. (000's)	Average per Mile of Track.	Average per Train Mile.
Caledonian	27,313·5	6,665·2	10,000	4·1
Glasgow and South-Western	8,943·6	2,835·1	8,100	3·1
Great North of Scotland	1,008·1	670·5	1,930	1·5
Highland	608·2	1,043·9	950	0·6
North British	30,566·4	8,911·7	11,520	3·4
	68,439·8	20,126·4	8,970	3·4

THE IRISH GROUP.

M.—AVERAGE NUMBER OF PASSENGERS PER MILE OF TRACK AND PER TRAIN MILE.

	Passengers. (000's)	Train Miles. (000's)	Number per Mile of Track.	Number per Train Mile.
Belfast and County Down .	3,196·0	714·3	25,800	4·5
Dublin and South-Eastern .	5,035·8	994·5	23,200	5·0
Great Northern of Ireland .	6,997·5	2,841·7	8,460	2·4
Great Southern and Western	6,073·2	3,735·3	3,950	1·6
Midland Great Western . .	1,754·8	1,602·1	2,230	1·1
Midland (Irish Section) .	3,669·3	1,298·2	10,000	2·8
	26,726·6	11,186·1	6,940	2·4

N.—MERCHANDISE AND MINERAL TONNAGE COMBINED.

	Goods. (000's)	Minerals. (000's)	Total Tonnage (000's)
Belfast and County Down .	145·4	140·5	285·9
Dublin and South-Eastern .	211·8	130·7	342·5
Great Northern of Ireland .	1,008·7	586·3	1,595·0
Great Southern and Western	1,415·4	627·2	2,042·6
Midland Great Western . .	535·4	133·2	668·6
Midland (Irish section) . .	486·7	414·7	901·4
	3,803·4	2,032·6	5,836·0

O.—AVERAGE TONNAGE PER MILE OF TRACK AND PER TRAIN MILE.

	Total Tonnage. (000's)	Total Train Miles. (000's)	Average per Mile of Track.	Average per Train Mile.
Belfast and County Down .	285·9	87·8	2,300	3·25
Dublin and South-Eastern .	342·5	270·6	1,580	1·27
Great Northern of Ireland .	1,595·0	1,221·0	1,930	1·3
Great Southern and Western	2,042·6	2,143·1	1,330	0·95
Midland Great Western . .	668·6	928·1	850	0·72
Midland (Irish Section) .	901·4	488·2	2,480	1·8
	5,836·0	5,138·8	1,500	1·1

CHAPTER IV

THEIR GROSS AND NET REVENUES

THE most practical answer to the question whether or not a railway is reasonably and safely capitalised is the return it makes on its capital expenditure. This inquiry divides itself into two stages. First we have to compare the gross annual receipts, and next the net receipts, with the capital on which interest and dividends have to be paid. On this line a series of interesting and valuable comparisons may be made, beginning with the railway systems of the three kingdoms, and proceeding through the various representative groups that were treated of in the previous chapter—the trunk lines, passenger lines, mineral, Scottish and Irish.

The 16,200 miles of railway in England and Wales showed in 1911 gross earnings of £109,910,000¹ and net £40,937,000. Their net capital, after the elimination of all paper stock and other nominal additions, was £944,700,000. On this the gross earnings represented a return of 11½ per cent., and the net 4·3 per cent. The 3,815 miles of Scottish railways, with a cash capitalisation of £136,500,000, earned in the same year £13,498,000 gross and £5,947,000 net, being 10 per cent. and 4·4 per cent. respectively. The 3,402 miles of Irish railways, capitalised at £43,600,000, earned £4,511,000, or 10·3 per cent. gross and 3·9 per cent. net. The totals for the United Kingdom were therefore £1,124,816,000 of cash capital, £127,199,000 of gross earnings, and £48,581,000 net, equal to 11·3 per cent. and 4·3 per cent. respectively.

¹ Including electric railways.

BRITISH RAILWAYS, 1911.

GROSS AND NET EARNINGS COMPARED WITH CAPITAL.

	Net Capital. (000's)	Gross Earnings. (000's)	Per- centage of Capital.	Net Earnings.	Per Cent. of Net
	£	£		£	
England and Wales	944,764	109,190	11·5	40,937	4·3
Scotland	136,461	13,498	10·0	5,947	4·4
Ireland	43,591	4,511	10·3	1,697	3·9
	1,124,816	127,199	11·3	48,581	4·3

The most noticeable feature in these averages is their unexpected uniformity. The last thing to be looked for in them was that the much-disparaged Irish railways should be yielding almost as good returns on their original cost as either the English or the Scottish lines. Of course they are much inferior lines both as regards construction and traffic. They cost much less to build than the English and Scottish lines did, and their traffics are much lighter, but their earning power in proportion to their capitalisation is not a great deal less. Our railway builders are entitled to some credit for this uniformity of return on capital cost. It shows that they worked on some general principle, and studied local conditions as well as the actual requirements of the traffic. In their preliminary estimates they seldom over-rated the prospective traffic. They were more liable to err on the short side. But the three systems—the English, Scottish and Irish—are surprisingly alike in their financial results.

Next to this uniformity of return on capital outlay as between the three kingdoms, the most striking feature is the contrast it offers to some foreign and colonial returns of a corresponding class. When we read of Canadian and American railways earning as much as 10, 15 and even 20 per cent. on their ordinary stock, it shows us how widely the methods and conditions of railway transport may differ in various countries. Such an anomaly is surely worth investigating, and it is strange that British railway experts should have given it so little attention. For their own professional credit it might have

been thought our railway administrators would have attempted an explanation of the puzzle. Can it be that they, in common with railway shareholders, traders and press critics, have failed to perceive the great importance of capitalisation as a factor in railway results? Did they not discover until it was too late that by not sticking to their proper work as railway carriers they have overloaded themselves with extraneous duties, and overloaded their capital accounts with extraneous expenditure?

The typical American railway receives goods at one station and conveys them to another station. It simply provides the wagons and does the hauling. It neither collects nor delivers. It has no parcel service—all that is turned over to the Express companies. It seldom runs a hotel or a line of steamers, though it frequently has its own shipping wharfs. Its capital account rarely includes more than the actual cost of the road and rolling stock. It is not, as in England, loaded down with outlays on outside services or "side shows." Millions of our railway capital have been sunk in a collection and delivery outfit which often contrives to be both expensive and unprofitable. Other millions are locked up in a parcel service which specially organised companies might have done much better. Still more millions have disappeared in the hotel, dining-car and sleeping-car business.

It is in England rather than in Scotland or Ireland that railway enterprise is most promiscuous, and more frequently overflows its proper channel. About $8\frac{1}{2}$ per cent. of the gross earnings of the English and Welsh lines is extraneous income. The aggregate receipts of the 16,060 miles of steam railway were £105,887,000, but they included £5,045,000 derived from steamers, canals and docks, as well as £3,696,000 of miscellaneous income from rents, tolls, hotels, etc. In order to ascertain the railway receipts proper, these two items, amounting together to £8,741,000, have to be deducted from the above total of £105,887,000. The traffic receipts of the 16,060 miles of railway will be thereby reduced to £97,146,000.

To that, however, there is a large set-off on the expenditure side. The outside undertakings cost very nearly as much to maintain as they bring in. In 1911 the

working expenses of the steamers, docks, canals, etc., amounted to £4,110,000, in addition to which there was £1,852,000 of miscellaneous outlay. The total cost of auxiliary services was £5,962,000, or close on six millions sterling. Assuming these to have been all *bona fide* trading operations, the excess of revenue over income would be £2,779,000. That looks at first sight like a good profit, but it represents, in fact, a very poor return on the huge amount of capital employed in earning it. One of the most successful railway ports in England was admitted a few years ago to be returning only 2 per cent. on its capital outlay. If that be all that the best of them can do, the worst must be poor investments. More than one still falls short of its working expenses.

As it is desirable here to concentrate attention on railway traffic pure and simple, these outside revenues and expenditures will have to be distinguished from the railway accounts proper. In future that distinction will be much easier to make than it is at present, as under the Railway Accounts and Returns Act, which came into operation on the 1st January, 1913, the companies will have to furnish separate accounts for their trading ventures—steamers, docks, hotels, etc. Even now the principal facts concerning them can be obtained by wading through the annual reports of the Board of Trade. By a laborious analysis of existing data it is possible to give the reader a general idea of these much-discussed trading operations, and also to foreshadow the nature of the additional information which the companies will have to supply hereafter.

The group of trunk lines which do three-fifths of the railway work of the United Kingdom will be the most suitable subjects to use in illustrating the tendency of our railway service to become needlessly and even wastefully complex. The up-to-date manager competes with the department stores as a “universal provider.” He is always discovering or inventing something which no well-equipped railway can do without. Some companies are more fortunate with their “universal providing” than others, but it will be seen that it does not contribute much to any of their dividends.

The following series of tables are intended to present in separate form and consecutive order abstracts of the various classes of railway revenue and expenditure which in the official accounts are all mixed up together. The first table shows the earnings of the passenger and goods services, which form the railway revenue proper. The second combines with these the results of the trading operations, and thereby arrives at the gross revenues of the various lines. The third summarises the receipts, expenses and net revenues of the railway department proper. The fourth does the same for the trading accounts. The fifth and last gives the averages per mile of the railway gross receipts, working expenses and net revenue for each of the nine trunk lines.

This differs from the usual averages based on the whole earnings and expenses of the railways, which are worse than useless for purposes of comparison, especially international comparisons. On one side we eliminate the trading receipts, and on the other the trading expenses, leaving only the railway results proper. Another important adjustment is the use of single-track mileage instead of miles of line. This remedies in some degree the anomaly of treating all railways alike, whether they have one, two, three or four tracks.

TRUNK LINES, 1911.

A.—THEIR TRAFFIC RECEIPTS CLASSIFIED (RAILWAY TRAFFIC PROPER).

	Mer- chandise. (000's)	Live Stock. (000's)	Minerals. (000's)	Total Goods. (000's)
	£	£	£	£
Great Central	1,291·0	24·7	2,032·7	3,348·4
Great Eastern	1,567·3	85·9	993·0	2,646·2
Great Northern	1,678·0	45·4	1,624·5	3,347·9
Great Western	3,510·2	158·2	3,621·0	7,289·4
Lancashire and Yorkshire	2,083·7	41·1	1,370·4	3,495·2
London and North-Western	5,278·3	197·1	3,599·8	90,875·2
London and South-Western	1,065·7	45·7	490·1	1,601·5
Midland	3,680·2	102·3	4,898·7	8,681·2
North-Eastern	3,332·4	106·4	3,511·4	6,950·2
	23,486·8	806·8	22,141·6	46,435·2

THEIR GROSS AND NET REVENUES . 45

B.—RAILWAY RECEIPTS PROPER AND TRADING RECEIPTS COMBINED.

	Total Goods.	Passengers.	Trading Receipts.	Gross Revenue.
	£	£	£	£
Great Central	3,348·4	1,417·7	509·5	5,275·6
Great Eastern	2,646·2	3,156·2	701·9	6,504·3
Great Northern	3,347·9	2,420·4	301·7	6,070·0
Great Western	7,289·3	6,801·1	522·8	14,613·2
Lancashire and Yorkshire	3,495·3	2,591·0	647·0	6,733·3
London and North-Western	9,075·2	6,831·1	542·3	16,448·7
London and South-Western	1,601·6	3,502·0	666·6	5,770·2
Midland	8,681·3	4,158·5	969·5	13,809·3
North-Eastern	6,950·2	3,386·3	425·5	10,762·0
	46,435·4	34,264·3	5,286·8	85,986·6

C.—THEIR RAILWAY RECEIPTS, EXPENSES AND NET REVENUE.

	Gross Receipts. (000's)	Expenses. (000's)	Net Revenue. (000's)
	£	£	£
Great Central	4,766·1	3,076·5	1,689·6
Great Eastern	5,802·4	3,653·7	2,148·7
Great Northern	5,768·4	3,696·4	2,072·0
Great Western	14,090·4	8,674·3	5,416·1
Lancashire and Yorkshire	6,086·3	3,600·3	2,486·0
London and North-Western	15,906·3	9,994·9	5,911·4
London and South-Western	5,103·6	3,140·8	1,962·8
Midland	12,839·9	7,892·2	4,947·7
North-Eastern	10,336·5	6,396·3	3,940·2
	80,699·9	50,125·4	30,574·5

D.—THEIR TRADING RECEIPTS—EXPENSES AND NET REVENUE.

	Receipts.	Expenses.	Net Revenue.
	£	£	£
Great Central	509,502	371,022	138,480
Great Eastern	701,922	513,581	188,341
Great Northern	301,263	196,730	104,533
Great Western	522,785	525,175	2,390 *
Lancashire and Yorkshire	642,033	529,625	112,408
London and North-Western	542,351	314,700	227,651
London and South-Western	766,571	541,690	224,881
Midland	969,543	773,006	196,537
North-Eastern	425,555	406,444	19,111
	5,381,525	4,171,973	1,209,552

* Loss.

E.—THEIR RAILWAY RECEIPTS, EXPENSES AND NET REVENUE
PER MILE (SINGLE TRACK).

	Miles.	Railway Receipts. (000's)	Expenses. (000's)	Net Revenue (000's)
		£	£	£
Great Central	2,252	2,116	1,367	749
Great Eastern	2,540	2,284	1,438	846
Great Northern	2,655	2,172	1,392	780
Great Western	6,645	2,120	1,305	815
Lancashire and Yorkshire	2,194	2,774	1,641	1,133
London and North-Western	5,502	2,890	1,816	1,074
London and South-Western	2,218	2,300	1,416	884
Midland	4,942	2,600	1,600	1,000
North-Eastern	4,852	2,130	1,320	818
	33,700	2,395	1,487	908

By tabulating on the same principle the railway and trading operations of the mineral group of lines we obtain the three following tables :—

MINERAL GROUP, 1911.

F.—THEIR RAILWAY RECEIPTS PROPER.

	Mer- chandise.	Live Stock.	Minerals.	Total Goods.
	£	£	£	£
Barry	41,524	568	261,581	303,673
Brecon and Merthyr	17,689	1,641	67,349	86,679
Cardiff	24,003	7	27,397	51,407
Furness	121,022	3,502	220,679	345,203
Hull and Barnsley	203,635	1,286	339,894	544,815
North Staffordshire	302,546	5,072	302,381	609,999
Rhymney	31,862	133	254,592	286,587
Taff Vale	86,583	1,149	562,692	650,424
	828,864	13,358	2,036,565	2,878,787

THEIR GROSS AND NET REVENUES 47

G.—THEIR RAILWAY RECEIPTS AND TRADING RECEIPTS COMBINED.

	Total Goods.	Passengers.	Trading Receipts.	Gross Revenue.
	£	£	£	£
Barry	303,673	49,217	370,158*	723,048
Brecon and Merthyr	86,679	32,796	5,626	125,101
Cardiff	51,407	2,511	460,005	513,923
Furness	345,203	140,409	68,975	554,587
Hull and Barnsley	544,815	27,438	127,884	700,137
North Staffordshire	669,999	283,739	99,467	1,053,205
Rhymney	286,587	85,822	1,890	374,299
Taff Vale	650,424	222,497	119,971	992,892
	2,938,787	844,429	1,253,976	5,037,192

* Dock Dues, etc.

H.—THEIR TRADING RECEIPTS EXPENSES AND NET REVENUE.

	Receipts.	Expenses.	Net Revenue.
	£	£	£
Barry	370,158	177,059	193,099
Brecon and Merthyr	5,626	—	5,626
Cardiff	460,005	238,299	221,706
Furness	68,975	26,707	42,268
Hull and Barnsley	127,884	51,334	76,550
North Staffordshire	99,467	69,545	29,922
Rhymney	1,890	—	1,890
Taff Vale	119,971	48,332	71,639
	1,253,976	611,276	642,700

Receipts from outside operations range in the United Kingdom from 5 to 10 per cent. of the aggregate revenues. The maximum appears where it would naturally be looked for—in the southern lines. The harbours, steamers and other appliances for carrying on their cross-channel traffic require to produce large returns in order merely to cover working expenses, let alone interest on capital outlay. The following condensed table gives, first, the three divisions of their traffic earnings proper—merchandise, minerals and live stock; next, the passenger receipts, and finally, the trading receipts. The last item is £890,000 out of a grand aggregate of £9,126,300, or very nearly one-tenth. In the new form of railway returns it will be

interesting to see a detailed profit and loss account for the hitherto mysterious cross-channel operations.

THE SOUTHERN PASSENGER LINES.
I.—THEIR RAILWAY RECEIPTS PROPER.

	Mer- chandise. (000's)	Live Stock. (000's)	Minerals. (000's)	Total Goods. (000's)
South-Eastern and Chatham.	£ 745·4	£ 20·6	£ 406·4	£ 1,172·4
London, Brighton and South Coast	517·3	12·5	393·3	923·1
	1,262·7	33·1	799·7	2,095·5

K.—THEIR RAILWAY AND TRADING RECEIPTS COMBINED.

	Goods. (000's)	Passengers. (000's)	Trading. (000's)	Gross Revenue. (000's)
South-Eastern and Chatham.	£ 1,172·4	£ 3,606·2	£ 607·5	£ 5,386·1
London, Brighton and South Coast	923·1	2,524·6	292·5	3,740·2
	2,095·5	6,130·8	900·0	9,126·3

The trading habit varies greatly among the Scottish railways, and produces correspondingly different results. It is largely developed on the Caledonian, but much less so on the North British. The subjoined tables show for the former trading receipts equal to fully 9 per cent. of gross revenue, but on the latter only about $7\frac{1}{4}$ per cent.

THE SCOTTISH GROUP, 1911.
L.—RAILWAY RECEIPTS PROPER.

	Mer- chandise. (000's)	Live Stock.	Minerals. (000's)	Total Goods. (000's)
Caledonian	£ 1,320·7	£ 78·9	£ 1,310·0	£ 2,709·6
Glasgow and South-Western	537·0	32·7	413·9	983·6
Great North of Scotland . .	141·8	16·7	68·0	226·5
Highland	125·1	25·4	49·8	200·3
North British	1,424·9	93·8	1,616·8	3,135·5
	3,549·5	247·5	3,458·5	7,255·5

M.—THEIR RAILWAY AND TRADING RECEIPTS COMBINED.

	Total Goods. (000's)	Passengers. (000's)	Trading Receipts. (000s)	Gross Revenue. (000's)
	£	£	£	£
Caledonian	2,709·6	1,958·6	471·2	5,139·4
Glasgow and South-Western	983·6	829·5	295·7	2,108·8
Great North of Scotland . .	226·5	263·5	28·1	518·1
Highland	200·3	350·8	15·6	566·7
North British	3,135·5	1,855·9	134·0	5,125·4
	7,255·5	5,258·3	944·6	13,458·4

N.—THEIR TRADING RECEIPTS, EXPENSES AND NET REVENUE.

	Receipts. (000's)	Expenses. (000's)	Net Revenue. (000's)
	£	£	£
Caledonian	471·2	243·2	228·0
Glasgow and South-Western.	295·7	135·9	159·8
Great North of Scotland . .	28·1	9·7	18·4
Highland	15·6	10·6	5·0
North British	134·0	99·3	34·7
	944·6	498·7	445·9

Finally, we come to the Irish railways, for which in these days few have a good word to say. But where depreciation becomes a fashion it is always liable to be overdone, and so it is in Ireland. Surprising as it may appear to glib parliamentary critics, there are some good points in the Irish railways. One of them is, that they stick closely to their proper business and do not waste their energy to any material extent on "side shows." Perhaps they are beginning to be bitten by the new universal providing policy, but the accounts of 1911 are comparatively free from symptoms of it. Except in one case, and that an English line—the Irish section of the Midland Railway—outside receipts are insignificant.

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BRITISH RAILWAYS

THE IRISH GROUP, 1911.

O.—THEIR RAILWAY RECEIPTS PROPER.

	Mer- chandise. (000's)	Live Stock. (000's)	Minerals. (000's)	Total Goods. (000's)
	£	£	£	£
Belfast and County Down .	28·7	2·1	10·6	41·4
Dublin and South-Eastern .	62·1	12·8	13·3	88·2
Great Northern of Ireland .	383·7	52·7	83·7	520·1
Great Southern and Western	518·0	132·6	99·4	750·0
Midland Great Western . .	228·1	78·4	24·4	330·9
Midland (Irish Section) . .	128·2	6·5	48·3	183·0
	1,348·8	285·1	279·7	1,913·6

P.—THEIR RAILWAY AND TRADING RECEIPTS COMBINED.

	Total Goods. (000's)	Passengers. (000's)	Trading Receipts. (000's)	Gross Revenue. (000's)
	£	£	£	£
Belfast and County Down .	41·4	121·6	16·1	179·0
Dublin and South-Eastern .	88·2	193·8	10·2	292·3
Great Northern of Ireland .	520·1	559·4	36·6	1,116·1
Great Southern and Western	750·0	738·3	13·5	1,501·8
Midland Great Western .	330·8	283·7	18·3	632·8
Midland (Irish Section) . .	183·1	199·5	34·7	417·3
	1,913·6	2,096·3	129·4	4,139·3

Q.—THEIR TRADING RECEIPTS, EXPENSES AND NET REVENUES.

	Receipts.	Expenses.	Net Revenue.
	£	£	£
Belfast and County Down .	16,067	17,367	1,300 *
Dublin and South-Eastern .	10,226	1,033	9,193
Great Northern of Ireland .	36,583	34,767	1,816
Great Southern and Western	13,466	3,278	10,188
Midland Great Western . .	18,290	7,248	11,042
Midland (Irish Section) . .	34,731	30,527	4,204
	129,363	94,220	35,143

* Deficit.

CHAPTER V

RAILWAY ACCOUNTS AND STATISTICS

NEXT to labour unrest the most vexed question which railway administrators have had to face in recent years has been the agitation for fuller and more instructive accounts. As to the necessity for these, all are agreed, and they could hardly be otherwise in view of the fact that the statutory forms in use up to the end of 1912 had been in force for about half a century. It stands to reason that they had after such a lapse of time become quite inadequate and out of date.

Had the agitation ended with a demand for the reform of this universally admitted evil it might have met with little resistance from the officials concerned. Important concessions might have been granted years ago and promptly brought into operation. But the reform party had an advance wing, the leaders of which aimed at much more than adequate accounts. They had worked out in their own heads ideal schemes of statistics in which every movement on the railways was to be reduced to abstract units. Passenger traffic was expressed in passenger units, and freight traffic in freight units. One passenger one mile, and one ton of goods one mile, were advocated as universal measures of transportation. How to arrive at these imaginary units was and still is the chief difficulty.

Sir George Paish and Mr. W. M. Acworth, the most zealous exponents of the ton mile unit, have read elaborate papers on the subject before the Royal Statistical Society. These made a sufficient impression on the Board of Trade to induce it to appoint a Departmental Committee of Inquiry. But it was cleverly arranged so as to avert any

danger of positive conclusions. The statistical reformers and their official opponents were evenly balanced on the committee, and on important points the result was generally a drawn battle. Large concessions were made by the railway managers with respect to the annual accounts, but the line was drawn at ton mile units. They were tabooed as a costly and, for all but statistical specialists, a useless luxury.

While sympathising with the statistical experts and appreciating their academic enthusiasm on behalf of ton miles we have to consider here only the practical merits of the proposal. The sole questions for us are: (1) if ton miles be the best possible test of efficiency, (2) if they are likely to be of great value to railway officials in working the traffic, and (3) if no simpler and more direct checks on wasteful or inefficient management are available. Confessedly ton mile calculations have to go a long way round to get at their result. When they do reach it they find that it is an unwieldy and not always a reliable result. If railway managers can suggest anything simpler and quicker of application, as I believe they can, we are entitled to hear it.

The reader may remember that a ton mile campaign was started years ago at Euston, and though it met with a large amount of support, the London and North-Western directors successfully opposed it. After that it became a purely theoretical movement, and even the theorists are much divided in opinion regarding it. As for the public, they cannot apparently be induced to make the slightest effort to understand it. To Mr. Acworth and Sir George Paish it seems, of course, perfectly simple, but their definitions of it are not always precise and unambiguous. A fair sample of them is to be found in the following extract from Mr. Acworth's handbook of railway economics:—

“The unit is one ton of goods or one passenger carried one mile, or shortly, the ton mile and the passenger mile. For many purposes, at least under English conditions, we may treat ton miles and passenger miles as equivalent, and add them together to produce traffic miles. Traffic

density is the number of traffic miles over each mile of line per annum. The figure is the quotient of the total traffic miles run on the railway divided by the length in miles of the railway. *These figures, practically universal in other countries, are never published, and only exceptionally calculated out in this country.*"

Sir George Gibb and Sir George Paish agree with Mr. Acworth that "English published reports contain no information whatever as to average receipts per passenger per mile and per ton of freight per mile; no particulars as to the ton or passenger mileage, the train load, the car load or the length of haul—all of which are essential to the administration on modern scientific principles." Sir George Gibb adds: "Not only is this information absent from the published reports *but it is known not to exist. It has not been the practice in England to compile such information.*"

Mr. Acworth, it will be noticed, is not argumentative. He leaves that part of their joint work to Sir George Gibb. From the former we simply learn what the ton mile is, or rather what it is meant to be. The latter sets forth what he deems to be irresistible and unanswerable reasons for adopting it. In his preface to *The British Railway Position*, he speaks of it as "the charging unit," and thus explains its function:—

"The mile as a unit is common both to train miles and ton miles, and no unit of distance can be better. But the train varies so widely in its composition that it is wholly unsuitable for the purposes of exact measurement of work done. The ton, on the other hand, is a unit of weight as constant and uniform as the mile. *It is, moreover, the unit habitually used for charging purposes.* Almost all railway rates for weight traffic are charged per ton mile. What reasonable objection can therefore exist to the use of the ton for statistical purposes in conjunction with the mile?"

"The inherent vice of the train mile unit is its uncertainty. As a standard of measurement a train is little better than the historical lump of chalk. One train may carry 600 tons, or in America perhaps 3,000 tons of paying

freight, while another train may consist of two small wagons with two tons in each wagon, run at a loss under the incentive of keen competition. In train mile statements each of these trains is treated as if they were identical. Hence while train mile figures are most useful—essential indeed for some purposes—they are for other purposes utterly unsound and worthless.”

There may be no difficulty in discovering weak points and anomalies in the train mile unit, but equal ingenuity exercised on the opposite side might be just as damaging to ton miles. In truth the same fundamental objection may be made against them both—namely, that in taking averages many different kinds of train miles and ton miles are lumped together. A hundred tons carried one mile, one ton carried a hundred miles, and five tons carried twenty miles all count the same in ton mile statistics, though they may have very different revenue values. All criticism of this sort cuts both ways.

The traffic unit at present in use, and which our railway administrators prefer to the ton mile, is the train mile. In their reports to the Board of Trade they give the aggregate train mileage and the total number of tons carried during the year. There they stop, but the statisticians wish them to go considerably further. It is a comparatively easy matter to take the train records and add up the mileage of all the trains run during a given period. It is quite another thing to record the mileage of every parcel, every bale of goods, every barrel of flour, and every wagon-load of coal that goes from one station to another in the course of a year. But all that would have to be done in order to obtain a complete record of the ton mileage.

In hundreds of thousands of cases the weight of a consignment, large or small, would have to be multiplied by the distance it was carried, and all these results would have to be added up at the year's end. In the case of a trunk line like the London and North-Western or the Midland, the annual aggregate might run into tens of thousands of millions. It becomes, in fact, an astronomical calculation. There is no insuperable difficulty about it,

however. Foreign railways do it, and in this country the North-Eastern Railway has the ton mileage worked out for the information of the management and their friends on the press. The shareholders, however, have expressed no strong curiosity regarding it, and so far they have been content with the meagre data furnished in the statutory accounts.

One can quite understand railway officials hanging back in a matter as to which no popular pressure is being applied to them, and the practical value of which they do not admit. Strictly speaking it is not a question for shareholders or the general public so much as for railway officials themselves. If the ton mileage data were collected and worked out as the scientific statisticians demand, they would never get beyond a select circle of readers. The various railways might exchange their figures with each other, and a certain number of copies might be supplied to the press.

In those various ways ton mile figures would be of technical and statistical value. At the very least they would be worth the cost of preparing and printing. But it cannot be fairly argued that they are a *sine qua non* of efficient and economical railway administration, and that no up-to-date railway can afford to be without them. They are more of the nature of a statistical luxury. Many interesting and by no means useless calculations could be made with them which hitherto we have had to do without. Sir George Paish, in his book on *The British Railway Position*, has shown that the ton mile formula admits of great variety of applications. Once the necessary data have been obtained, that is the weight of every consignment and the distance it is carried, the averages that can be worked out are legion. The following are a few examples of the sort of information that is being demanded by scientific statisticians. In the "Railway Accounts and Returns Act" they have obtained a considerable instalment of them, but the ton mile, which they consider the corner-stone of their scheme, is still denied them :—

Ton mileage is weight multiplied by distance.

The train load is obtained by dividing train mileage into ton mileage.

The car load is obtained by dividing car mileage into ton mileage.

For engine loads divide engine mileage into ton and passenger mileage.

For average lengths of haul divide tonnage into ton mileage.

For passenger coaches per train divide passenger train mileage into carriage mileage.

For goods wagons per train divide goods train mileage into wagon mileage.

For average rate per ton per mile divide goods ton mileage into goods receipts.¹

Examining these seriatim we find that they all hang upon the first—"Ton mileage is weight multiplied by distance." Neither of these essential factors is as yet within reach. All that the Board of Trade returns furnish is the aggregate tonnage and the aggregate train mileage of the year. What would be needed for a record of ton mileage is the total number of tons carried one mile, the number carried two miles, the number carried three miles, and so on to the longest haul on the railway. Existing information falls far short of that. It only tells us the aggregate weight carried during the year, and the aggregate distance run by goods trains. That teaches us virtually nothing.

Until we know the respective weights carried at each distance from one mile upwards, nearly all the rest of the averages which Sir George Paish considers so desirable will have a missing link. Train loads cannot be worked out without ton mileage (the weight of each item multiplied by the distance it travelled), neither can car loads or engine loads. So, too, without ton mileage there can be no reckoning of the average length of haul, or of the average number of coaches in a passenger train, or of wagons in a goods train. Without these details we cannot ascertain the average rate per ton per mile. It

¹ *The British Railway Position*, p. 71.

is not disputed that they would be scientifically valuable and in a round-about way useful. There are, however, a good many other reforms at once more practical and more urgent. To mention only one, a thorough analysis of working expenses is much to be desired.

Though there may be among statisticians and railway experts many different opinions, or rather many degrees of enthusiasm, on the subject of ton miles, absolute agreement exists as to the great improvement which the new railway accounts will be upon the old ones. This will be seen in the first of the annual reports based on the new schedules which will be due a year hence. But it will be more fully appreciated in the annual reports of the Railway Department of the Board of Trade, in which the extended statistics will be properly collated and tabulated. The first of these is not due, however, until the autumn of 1914, and it will cover the operations of 1913.

May we hope that the Board of Trade statisticians, when they are incorporating the results of the new schedules in their annual returns, will take the opportunity to revise the latter and modernise them? They contain masses of data as to railway capitals and dividends which may be usefully condensed. A good many of the tables are needlessly expanded and overloaded with details of small value. Much space is devoted to purely financial data which might be better occupied with operating results of the various railways. In a word, it is traffic rather than finance that the public are interested in. Even shareholders begin to feel a little curious as to how their dividends are earned.

It is to be hoped that hereafter operating results will be dealt with on modern lines, as in the United States and other countries where they are really believed in, and not merely published under compulsion. Though both the receipt and expenditure sides have hitherto been weak, the expenditure figures have been the most inadequate. Their analysis has not been carried far enough to admit of comparison with the corresponding results of other national railway systems. Distinction between goods and passenger traffic is practically limited

to gross train mileage and gross receipts. But much more than that is looked for now-a-days from railway statisticians.

It is true that receipts are elaborately subdivided. In the passenger department season tickets, excess luggage, parcels and mails are separately specified, while under goods receipts we have merchandise, live stock and minerals distinguished. Some interesting and instructive lessons might have been drawn from these, if in the working expenses an attempt had been made to allocate the proportions due to passenger and goods train mileage. A minute allocation is obviously impossible, but one sufficiently correct for comparative purposes should not be insuperably difficult.

An allocation of working expenses between passenger and goods mileage is the first requisite of scientific railway accounting. Every efficient railway staff may be assumed to already possess a considerable amount of the necessary data. The actual running cost of passenger and goods trains, the repairs and renewals for each class of rolling stock, and the shares of traffic expenses chargeable to passengers and goods respectively, should be all on record, or if not they should be easily estimated. The only difficulty would be with the three or four categories of common expenses—maintenance of way, general charges, law expenses, rates and taxes, etc. Those would have to be divided between the passenger and goods mileage on some definite principle as to which railway accountants might easily differ. In the end, however, a basis of agreement would evolve.

With separate expense accounts for passenger and goods traffic combined with systematic allocating of all common expenses, we should be able to form an idea of their comparative values. Train mileage figures would have some meaning when working expenses per mile could be calculated as well as receipts per mile. They are the complement of each other, and neither of them is of much practical value by itself.

In this as in other connections it is a question for our railway managers if they might not with advantage

adopt a few more American methods in our freight service. At least they might give them a closer and more systematic study than they have yet done. Even a railway manager cannot learn everything about American railroading on a flying trip of two or three weeks, most of which may be spent in festivity and sight-seeing. These holiday trips have generally been limited to high officials of British roads. So far as we have observed they have not included any of our railway accountants, the class who, next to engineers, have the best right to be consulted.

A few experts selected from the Clearing House staff and unbiased in favour of any individual railway, might learn a great deal from the statistical departments of the principal American roads. Give them six months to master the subject and to collect all the necessary data; then let them come home, and after full consideration report what they have seen. They will, we doubt not, be cordially received and have everything lucidly explained to them. They will see in the accountants' office how minutely every item of revenue and expenditure is recorded, how carefully it is analysed and tabulated, and how the results are passed on to the heads of the respective departments. They will find passenger and freight train accounts distinguished from each other, each being credited with its proper receipts and debited with its proper share of expenditure. The final result, as we have already indicated, is a profit and loss account for every train run. It may not be absolutely exact, but it is at least an honest approximation, and for comparative purposes it has great value. Controversy still exists as to various points in the operation, and roads may differ even considerably in their classification of receipts and expenses, but there is a definite standard recognised and being worked up to. On our own railways there is no standard of any kind or even an approach to it. Railway statistics are a still-born science in this country.

Having studied the report of their expert accountants, our railway managers might meet and confer with

each other as to what action, if any, it calls for. To a layman it seems that an immediate result of it should be the formation of a statistical department at the head office of every trunk line. Its duty would be to analyse and tabulate the whole of the accounts, both receipts and expenses. It might be possible to run them so fine that railway managers might be able to tell what every train earned and what it cost, how many miles it ran, and how much per mile were its earnings and expenses. This, carefully ascertained and verified, would be the train mile unit which the Americans are now preferring to the ton mile.

Many advantages might conceivably flow from such an improved system of accounting. The railway manager, knowing more or less precisely what a given train was earning, could consider ways and means to increase its earnings. Knowing what it cost to run, he could always be turning over in his mind how expenses were to be reduced. With all these data before him he would have a definite standard by which to determine his rates. He would see opportunities of putting on special rates to encourage traffic capable of large expansion; not necessarily foreign imports only, though they have been the chief objects of his solicitude hitherto. He might without injustice to the foreigner give the British producer a fair chance in his own markets.

BOOK SECOND—HISTORICAL

CHAPTER VI

THE TRANSITION FROM ROAD TO RAIL

It is one of the ironies of social and industrial progress that no sooner has it perfected one of its tools than it discovers some superior novelty. Then the old tool, on which generations of skill and outlay may have been spent, is thrown aside. The novelty absorbs all the thoughts and activities of the nation, and goes through all the usual stages of development, until it in turn reaches perfection and is ready to be superseded by another new discovery.

In complete accordance with this historical law of evolution and transformation, British road traffic had almost reached the limit of its capabilities when the new system of transportation was ushered in. Telford and Macadam, the great road-makers of the eighteenth century, retired from the scene of their triumphs as Stephenson, Brunel and the pioneer railway builders of the nineteenth century entered it. One after the other the pack-horse, the springless cart, the carrier's wagon and the stage coach had had their day. Each of them had done its work so well that the traffic outgrew their capacity, and they had to make way for larger and quicker means of transport.

This was pre-eminently the case in the second half of the eighteenth century, when the industrial development of England was quickened beyond precedent by the introduction of machinery and the growth of oversea trade. Even before the middle of the century road

transport had begun to assume an organised form, and the public carrier had become a public institution. The turnpike system was then nearly a century old, the first act authorising tolls having been passed in 1663—three years after the Restoration. Charles the Second gave it his hearty support, and it may be remembered to his credit as one of the unquestionable blessings of his reign. This important Act (15 Car. II. c. 1) was applied to the section of the Great North Road which runs through the counties of Hertford, Cambridge and Huntingdon, and its three toll-gates were placed at Wadesmill, Caston and Stilton.

According to John Ogilby, the Cosmographer Royal of that day, there were then eighty-five main roads in England and Wales, and he mapped the whole of them in his *Britannia*. At first the extension of the turnpike system was slow, but its marked effect on the growth of local trade and the value of property gradually excited the envy of even the least progressive parts of the country. In the reign of Queen Anne agriculture, industry and trade were still greatly localised, and consequently very restricted. In winter farmers could not travel to market, consequently corn was dear to the consumer and cheap to the producer. London was inaccessible even to districts as near as Horsham, where in winter a quarter of a fat ox was commonly sold for fifteen shillings and mutton could always be had at five farthings per pound.

But by the middle of the eighteenth century the turnpikes had begun to tell on the cost of transport. Postlethwayte's dictionary, published in 1745, has an interesting article on roads, from which we learn that the cost of carriage for goods and merchandise had of late years been greatly reduced. The number of wagons travelling regularly between London and Birmingham had increased to twenty-five or thirty per week, while the rate per cwt. had declined from 7s. to 3s. or 4s. Between London and Portsmouth the old rate had been 7s. per cwt., and the new one was 4s. or 5s. Much of the traffic on this road consisted of Government stores for the navy and the British forces abroad. The Admiralty

prided itself on the much cheaper transport it was now enjoying as compared with the corresponding charges during the wars of Queen Anne.

The western ports, Bristol, Exeter, Gloucester, etc., were also great gainers by the improved turnpikes. The carriage of wool from Exeter to London, which had previously cost 12s. per cwt., was now down to 8s., and other goods had been proportionately reduced. Such a wonderful transformation as this was not likely to escape the attention of so shrewd an observer as Adam Smith. In the eleventh chapter of his *Wealth of Nations* he thus eulogises it :—

“ Good roads, canals and navigable rivers, by diminishing the expense of carriage, put the remote parts of the country more nearly upon a level with those in the neighbourhood of the town. They are upon that account the greatest of all improvements. They encourage the cultivation of the remote, which must always be the most extensive circle of the country. They are advantageous to the town by breaking down the monopoly of the country in its neighbourhood. They are advantageous even to that part of the country. Though they introduce some rival commodities into the old market, they open many new markets to its produce. Monopoly, besides, is a great enemy to good management, which can never be universally established but in consequence of that free and universal competition which forces everybody to have recourse to it for the sake of self-defence.”

The culminating stage in the history of British roads was the first quarter of the nineteenth century. Then improvements followed each other rapidly, until the Telford and Macadam age was fully ushered in. The mere mention of a few significant dates may be more instructive to the reader than pages of elaborate description :—

In 1757 Thomas Telford, the greatest and most versatile engineer of his day, was born at Eskdale in Dumfriesshire. His chief rival as a road maker, John Loudon Macadam, was then a year old, he having been born in 1756.

From 1783 to 1810 Macadam carried on a systematic inspection of the roads in England and Scotland, covering about 30,000 miles of ground.

He then published his famous *Observations on the Highways of the Kingdom*.

In 1803 Commissioners were appointed to improve the roads in Scotland, and Telford was engaged as their engineer. He began in the Highlands, and built the splendid network of high-roads which ever since have been the joy of the southern tourist. His other great achievement in the north was the turnpike road between Glasgow and Carlisle.

In 1806 the first of a long series of Select Committees began to study the question of road reform, which our own local authorities are still working upon. In 1808, 1809 and 1811 the investigation was resumed, and occasionally it bore fruit in the shape of parliamentary grants for special roads. Such a grant was made in 1815 for the London to Holyhead road. The greater part of this was entrusted to Telford, but Macadam did a short piece of it between London and High Barnet. Their respective systems of road-making were to be seen together in that neighbourhood, and each had its partisans.

In 1819, 1820 and 1821 Select Committees continued to study the road problem, sometimes under Telford's and sometimes under Macadam's tuition. During this period grand schemes were started for widening and straightening the principal turnpikes, including the Great North Road and the Great Western. Frequently they needed financial help, and every session applications were made to Parliament to extend the term of their leases or to allow them to increase their tolls. As a rule such petitions were readily granted, for the value of good roads was becoming apparent in the rapid growth of traffic, both passenger and merchandise. The carrier's cart and the stage coach both flourished exceedingly. So little presentiment was there of the coming revolution in transport, that during the decade preceding the commencement of the railway era no less than a thousand miles of new road were built.

At the advent of the railway the roads were being

taxed to their full capacity, and the cost of maintaining them was becoming a serious burden on the ratepayers. Rates and tolls together rendered them costly to their users. Any scheme of extension or of new construction would have been very expensive. Thus the railway delivered the country from a grave dilemma in providing new channels for its growing commerce. It not only saved the people of that day a large expenditure on new roads, but it lessened to a great extent the cost of keeping up the existing main roads. These were the first of a long series of boons which it conferred on the nation.

A second set of advantages of almost incalculable value which we owe to the railway arose from the cheapening of transportation. If this blessing had been limited to the existing traffic it would still have been immense, but it multiplied itself over and over again by enlarging the area of profitable transportation. Distances which were impracticable to the carrier's cart could be easily covered by the railway. The nearer that markets were brought to each other, the more business they did with each other. The more they all prospered, the more people had to spend, the more they travelled, the farther they went afield, and the more active economic life became.

The effect of speed in enlarging the area of transportation was soon realised by the original railway builders. Ingenious calculations on the subject were indulged in by the writers of the early text-books, notably by Dr. Lardner. He became quite enthusiastic about the relation of speed to the radius of transportation, as the following passage shows. He may be partly responsible for the speed craze which developed among railway managers in a later age.

“It is evident that any improvement in transport which will double its speed will double the radius of this circle. An improvement which will treble its speed will increase the same radius in a threefold proportion. Now as the actual area or quantity of soil included within such a radius is augmented not in the simple ratio of the radius itself, but in the proportion of its square, it follows that a

double speed will give a fourfold area of supply, a triple speed a ninefold area of supply, and so on.’

The same idea has been expressed more neatly if less scientifically by an American economic writer. Speaking of the American railway rates of twenty or thirty years ago, Mr. Atkinson showed how the transportation charges had become an insignificant element in the price of products. The cost of delivering bread from the baker to his customers was a larger element in the price of the bread than the cost of getting the wheat from the farmer to the miller and the flour from the miller to the baker, though one distance was but a few hundred yards and the other as many hundred miles.

Unfortunately such feats of cheap transportation, though possible on prairie roads admitting of heavy trains and long hauls, were out of the question in an old country handicapped by heavy grades, over-capitalisation and primitive methods of working. It was a great advantage to the American railway pioneers to have a perfectly open country to operate in. The British pioneers, on the other hand, had all the limitations, restrictions and prejudices of an old country to contend with. They found it difficult to break away from existing ideas and habits. The first railway engineers had been chiefly trained as road surveyors, and they brought to their new work the minds of road surveyors.

Many of the original lines were laid out with the grades and curves of neighbouring roads. Their train loads were proportionately light, or if heavy they had to be divided when they came to a stiff incline. Some railways had more up and down hill than level road, and the “humps” were negotiated in a variety of ways: Sometimes by a stationary engine at the top of the incline and sometimes with the help of a “pusher” engine, but generally by splitting up the train and taking it over a few wagons at a time. Examples of all these methods are to be found in a description of the Bolton and Leigh Railway written in 1842.

“The speed of the luggage trains while moving on this line may be stated as varying from fifteen to twenty

miles per hour, but from the nature of the line it is exceedingly difficult to state the speed including stoppages. It is very usual for an engine bringing merchandise from Liverpool to have trains of thirty-four wagons in each. With these trains they commonly pass over the Kenyon line two and a quarter miles, and stop at Leigh station, where a portion of the load is detached on account of there being an inclined plane 1 in 82 a mile and a half long between that and the next station, two and a half miles distant. The engine has to return once or twice for the remainder of her load. From this second station (Bag lane) the goods are drawn up another inclined plane of 1 in 30 a mile and a quarter long by a stationary engine, and forwarded by another locomotive engine about two miles farther to the top of another inclined plane about three-quarters of a mile in length, worked by stationary power. After descending this latter incline by rope they are taken to the yard or warehouse by horses."

It was not local lines only that suffered from primitive engineering and rude construction. Even the main lines started with a great diversity of grades and curves. According to Sir George Findlay, while a coal engine could draw eight to ten times its own weight on easy grades, there were places on the London and North-Western where it could draw only two and a half tons to one of engine, while between Cromford and High Peak it could draw only its own weight. The average grade of the main line admitted of 5 tons weight to one of engine, but a passenger express running at forty-five to fifty miles an hour between London and Carlisle could not undertake more than $2\frac{1}{2}$ tons weight to every ton of engine.

The primitive railway of 1842 was very soon overtaken and in order to keep up with its work it had to be continually improving its road-bed and its rolling stock, rebuilding itself in fact. This was no doubt another of the causes which contributed to its high average cost per mile. Not only was its capitalisation swelled by continual extensions and improvements, but its working expenses must also have been exaggerated in consequence. The defects of its youth seem to have adhered to it long

after it had reached manhood, and it may be doubted if they are outlived even yet. The worst of them appears to have been excessive economy in engine power and train equipment. How this restricted and delayed the development of traffic Mr. Acworth has thus explained :—

“In the early days, with puny and extravagant engines, with no signalling systems, rudimentary hand-brakes and a considerable and profitable passenger traffic, the difficulty of working a line crowded with trains was so great that railway managers had no great temptation to try and attract low-class traffic from rival carriers by making low rates. What traffic they got was of small bulk and high class, to which speed was of more importance than cost. The exclamation of the London and Birmingham Railway director when it was suggested to him that his highly aristocratic line should carry coal to London in competition with the Grand Junction Canal and the Newcastle coal-brigs, ‘Coal! why they’ll be asking us to carry dung next!’ may or may not be apocryphal, but it represents a real and not unjustifiable attitude of mind. And indeed, had it been possible for the London and Birmingham to remain as it began, a great through line with no extensions and no branches to dilute its profits, it might well have gone on to this day untroubled with low-class innovations such as coal and third-class passengers, and yet have continued to pay without difficulty to its shareholders its original 10 per cent. dividends.”¹

One strong point in favour of railways which has never been adequately impressed on the public, and to which their critics never do justice, is the enormous effect they had in the way of cheapening transportation. To-day it costs just about as much to send a ton of goods by railway as it did a century ago to send a hundredweight. Twenty to one is about the usual proportion of the amount of transportation that can now be obtained for a given sum as compared with the old cartage rates. The complex schedules of railway rates prescribed by Parliament disguise this important fact almost beyond

¹ *Elements of Railway Economics*, p. 63.

recognition, but it is none the less true, and a few examples will demonstrate it.

In describing the evolution of the turnpike system in the eighteenth century, some of the standard cartage rates were incidentally mentioned. Between Birmingham and London, for instance, in the days of the pre-historic roads, 7*s.* per cwt. was the ordinary charge. The turnpike system and the improved cartage services which it introduced gradually reduced this to 3*s.* or 4*s.* per cwt. The distance by rail between the two cities is 113 miles, and the rate about three-fifths of a penny per ton per mile. On the 113 miles this would run to 5*s.* 9*d.* per ton as compared with 7*s.* per cwt. in the roadless age, and 4*s.* per cwt. in the turnpike days.

In the case of Bristol and London the distance by rail is 118 miles, and the rate again averages for general merchandise three-fifths of a penny per ton per mile, or 6*s.* per ton for the whole distance, as compared with 12*s.* per cwt. on the old roads and 8*s.* per cwt. on the new ones. The Portsmouth road was a very busy thoroughfare, especially in war-times. There were many regular carriers on it as well as army contractors and transport agents. Even here, though the traffic was heavy and the competition no doubt very keen, the cartage between London and Portsmouth seems never to have fallen below 4*s.* per cwt., and in the pre-turnpike age it had been as high as 7*s.* The distance is about 73 miles, which at 7*s.* per cwt. would work out at 1·15*d.* per mile, and at 4*s.* per cwt. would be 0·6*d.* per cwt. per mile.

Railway charges for a corresponding distance will begin at seven-tenths of a penny per ton per mile, or 5*s.* per ton for the whole distance. That is for haulage alone and excluding terminals. The old English carrier had no terminal troubles. He collected his goods at the sender's door and delivered them direct to the consignee. There was no demurrage of wagons, no warehousing, no terminal extras. The old English public carrier was self-contained, and his methods primitive. His scale of rates had been rough-and-ready, and his calculations had been made by rule of thumb. The refinements of mileage rates were

beyond him. They came in with the canal, and were invented by parliamentary lawyers.

To trace out all the intricacies of modern rates and classifications would be an almost endless job. The briefest and best way to explain them is to reproduce a few specimens from contemporary Acts of Parliament. These will indicate the origin of separate tolls and haulage rates, maximum and minimum schedules and other intricacies. The latter began with the canals, and were extended first to the early tramways and then to the pioneer railways. The earliest table of railway tolls appears to be that of the Croydon and Wandsworth Iron Road. It is dated 1801, and is based on mileage rates, but with a very limited classification. It reads as if it had been adapted from the canal tolls of the period:—

TOLLS ON THE SURREY IRON RAILWAY
(Croydon to Wandsworth), 1807.

	Per ton per mile
All dung carried on the railway	2 <i>d.</i>
All limestone, chalk, lime and other manure (except dung), clay, breeze ashes, sand and bricks	3 <i>d.</i>
Tin, lead, iron, copper, stone, flints, coal, charcoal, coke, culm, fuller's earth, corn and seeds, flour, malt and potatoes	4 <i>d.</i>
All other goods, wares and merchandise	6 <i>d.</i>

By placing these original railway tolls alongside of a contemporary canal tariff their parentage will be easily traced. The Glamorganshire Canal was operated in 1790 with two tonnage rates—2*d.* per mile for minerals and 5*d.* per mile for merchandise. But the Sheffield Canal tariff of 1815 shows some progress toward our modern classification. It contains half-a-dozen different grades of freight, beginning with coal, iron ore, manure, 2*d.* per ton per mile; advancing to limestone, lime, clay and bricks, 3*d.* per mile; then to lead, iron, corn, seeds, potatoes, etc., 4*d.*, and finishing with "all other goods, wares and merchandise," 6*d.* per ton per mile.

The so-called railways of the first quarter of the nineteenth century were mere tramways, differing from an ordinary road only in having metals for the vehicles to run upon. They were governed by the ordinary cartage rates of the district, which, like the Surrey Iron Railway

tariff, were in general force until the advent of the steam-engine. As late as 1825 one of the old canal classifications was in operation on a South Wales line—the Rhymney. But the natural effects of increasing traffic are revealed here in a substantial reduction of rates. Taking it all round, the Rhymney Railway tariff of 1825 is only 50 per cent. of that of the Croydon and Wandsworth line in 1801.

RHYMNEY RAILWAY TOLLS, 1825.

	Per ton per mile
For all limestone, lime, materials for roads, dung, compost and all sorts of manures	1d.
Coal, coke, culm, cinders, stone, marl, sand, clay, iron, ironstone, iron ore and other minerals, building stone, pitching and paving stone, bricks, tiles, slates and all gross and unmanufactured articles and building materials	1½d.
Manufactured or unmanufactured iron	2d.
Lead, timber, staves and deals, and all other goods, wares and merchandise	3d.

In 1826 we arrive at the first fully equipped steam railway—the Liverpool and Manchester, which was opened in that year. Previously interesting experiments had been made by George Stephenson and others with steam-engines for colliery and other special haulage. But this was the first scheme for a regular railway service for goods and passengers. Peculiar interest attaches to the tables of rates and fares with which it started. The freight rates are still those of the canal and the public carrier. Even its classification differs very little from what had been in use for years. The chief distinction is that a new class is introduced between the old third and fourth, and there are now five in all.

LIVERPOOL AND MANCHESTER RAILWAY TOLLS, 1826.

	Per ton per mile
For all limestone	1d.
Coal, lime, dung, compost and material for roads	1½d.
Coke, culm, charcoal, cinders, stone, sand, clay, building, paving and pitching stones, flags, bricks, tiles and slates	2d.
Sugar, corn, grain, flour, dyewoods, timber, staves, deals, lead, iron and other metals	2½d.
Cotton and other wool, hides, drugs, manufactured goods and all other wares, merchandise matters and other things	3d.

A specimen of one of the earliest tables of passenger fares will be as interesting a souvenir of the infancy of our railway system as any of the goods tariffs. Passengers had the option of travelling in their own carriages, which were fastened on a flat car, or in one of the rude vehicles provided by the railway company. On some lines no social distinctions were recognised, and the same fare was charged for all carriages. The people for whom luxurious first-class coaches, sleeping-cars, dining-cars and Pullmans had afterwards to be run at a substantial loss, sat in solitary state in their family chariots. Plebeian travellers were assessed as under for distances of ten, twenty and over twenty miles.

LIVERPOOL AND MANCHESTER PASSENGER RATES, 1825.

	<i>s.</i>	<i>d.</i>
For every person travelling thereon not more than 10 miles in any vehicle	1	6
Do. exceeding 10 miles, but not above 20	2	6
Do. above 20 miles	4	0

This triple scale was in fact a rudimentary zone system. The uniform charge for any distance up to ten miles, next for any distance in the second ten miles, and then for any distance over twenty miles, was an anticipation of the twopenny tube. Like the twopenny tube it was an unsuccessful experiment, and had to give place to mileage rates.

In those early days animals were regarded as passengers, and often travelled by passenger train. They had also to pay on the zone principle, but their sections were longer—fifteen miles instead of ten. On the Liverpool and Manchester line the first fifteen miles cost *2s. 6d.* for “every horse, mule, ass or other beast of draught or burden, and for every ox, cow, bull or neat cattle carried in or on such carriage.” For any distance in the next fifteen-mile zone the charge was *4s.* per head. Pigs, calves, sheep, lambs and small cattle generally were *9s.* per head for any distance.

Goods traffic was not conducted very long on the haulage principle. It was soon discovered to be impracticable as well as unprofitable, and arrangements were

begun for undertaking the entire goods service. Then we find tonnage rates coming in, and lump rates being charged without reference to mileage. The Liverpool and Manchester line at an early period of its history obtained powers "to raise a separate fund of £127,500 for forming an establishment for the carriage of goods." When that was done a new table was issued of inclusive rates, that is, tolls and haulage combined. There were only four classes in it, as under—

CARRIAGE RATES (TOLLS INCLUDED).

	Per ton
For all limestone, dung, compost, manure, materials for roads, stone, sand, clay, building, pitching and paving stones, tiles, slates, timber, slats and deals	8s.
Sugar, corn, grain, flour, dyewoods, lead, iron and other metals	9s.
Cotton and other wools, hides, drugs, groceries and manufactured goods	11s.
Wines, spirits, vitriol, glass and other hazardous goods	14s.

It was many years before an attempt was made to introduce method or science of any kind into railway rates. The pioneer lines being chiefly short and self-contained, each of them went its own way. Erratic rates and fares, as well as erratic methods of working, were the inevitable result. The long and the short haul difficulty soon made its appearance, but the terminal problem was of later origin. On one local line, the Leicester and Swannington, a twelve-mile zone was adopted. Merchandise carried more than twelve miles paid a flat rate of 4*d.* per mile, presumably including terminals. But for distances under twelve miles an extra 6*d.* per ton was levied, the total product of the short haul not being considered sufficient to cover the cost of loading and unloading. Here the question of terminals comes in.

Various other examples of the long and the short haul difficulty crop up in the primitive rate books. The St. Helens and Runcorn Gap line had a delightfully simple tariff with only two classes of freight—mineral and general merchandise. Coal carried the whole length of the line had to pay 1½*d.* per mile, but for any shorter

distance the rate was $2d.$ per mile. The merchandise rate was a uniform $4\frac{1}{2}d.$ per mile.

It is curious to stumble on an old railway in the north of England which graduated its rates according to the length of the haul almost exactly as is being done now under the Acts of 1888 and 1894. For the first fourteen miles its rate was $1\cdot30d.$ per ton per mile; for the next six miles (fifteen to twenty) it was $1\cdot25d.$ per mile, and for all distances over twenty miles it was $1\cdot05d.$ per mile. The merchandise rate was a uniform $2d.$ per mile. Doubtless the heavy traffic was chiefly minerals, and the rates would be adjusted to the circumstances of the various collieries. But it is an agreeable surprise to find the graduated distance rates of our own day thus plainly anticipated.

Thus the spirit and the traditions of the road have survived in our railway policy after the road itself has been left a century behind. Even the peculiarities of its rates and tolls have been closely followed, and still exercise a very confusing influence on the modern railway mind.

CHAPTER VII

A CENTURY OF RAILWAY BUILDING

THE history of British railways is generally written as if there were only one type of railway and it had grown up from a single origin. In reality there are several types, and each of them had an evolution of its own. The colliery railway was a familiar institution long before the first passenger train ran between Manchester and Liverpool. A system of transportation partly by canal and partly by rail had also been in operation for years. In Northumberland and in South Wales short lengths of railway linked up local canals and bridged over gaps where the cost of a water channel would have been prohibitive. They also connected collieries and ironworks with the nearest navigable water. They had been tried and tested in many ways on a small scale before the idea of long-distance lines occurred to any one.

The first generation of railway builders were small people who had no thought beyond the necessities of their own business. When steam traction came into use they experimented with it in various ways as best suited themselves and their circumstances. Sometimes they used stationary engines at the top of an incline, and sometimes a rude kind of locomotive. As yet they had no idea of speed, and their locomotives did not often travel much faster than an ordinary cart. On inclines it was not expected to do more than the usual three miles an hour.

Between the primitive colliery railway and the regular passenger line came the combined rail and canal system.

But this partnership did not last long. The railway, which had been at first intended as an auxiliary to the canal, ultimately absorbed it. One of our principal trunk lines—the Midland—is said to have had a humble origin of this sort, which is thus described in a recent history of the company:—

“The first portion of the Midland Railway constructed on modern principles, worked by locomotives, and conveying passengers as well as minerals, was, beyond all question, the line from Leicester to Swannington. It was the earliest line of railway now belonging to the Midland, constructed by George Stephenson and his son Robert on the same plan which they had previously introduced with such great success between Liverpool and Manchester. Not only the engineers, but the first manager, Mr. George Vaughan, the locomotive men, the man to work the incline, the platelayers, the guard, were all brought from the Liverpool and Manchester line to instruct the local men to become proficient in railway management; the rules and regulations of the Liverpool and Manchester were also adopted. The only difference between the two railways was that whereas the Liverpool and Manchester was a double line and had both passenger and goods trains, the Leicester and Swannington was a single line and had mixed trains carrying both passengers and minerals. By this means the new railway system was brought down from the north, where it had hitherto alone existed, into the very centre of England.”

Our three classes of railway traffic, minerals, merchandise and passengers, represent distinct types of railway which came into existence one after the other. Beyond doubt the mineral railway is the oldest of the three. The practice of running heavy coal wagons on wooden rails is traceable back into the seventeenth century. Previous to 1788 the rail itself was flanged and not the wheel, but in that year William Jessop had the happy inspiration to transfer the flange to the wheel. This rendered possible a great increase of speed combined with greater safety. The eminent engineer, Mr. James Brunlees, has described it as “an organic change which

has been the forerunner of the great results accomplished in modern travelling by railway."

The impetus given to railway building by the flanged wheel was strengthened by various improvements which quickly followed in the manufacture of rails. Cast iron was in course of time superseded by wrought iron. Iron bars were rolled by machinery instead of being hammered out by hand. Schemes for new iron roads—"train" or "drain" roads as they were called—multiplied so rapidly that Parliament resolved to extend to them the supervision which it already exercised over schemes for new canals. In June 1799 a committee which had been appointed to consider the question recommended that "The Standing Orders of the House of the 7th May, 1794, relating to Bills for making navigable canals, aqueducts and the navigation of rivers, or for altering any Act of Parliament for either or any of those purposes, be extended to Bills for making any ways or roads commonly called railways or drain roads."

Such was the casual and innocent-looking origin of what is now known as "applying for parliamentary powers"—an evil custom that developed into a costly and obstructive system of legal blackmail. Of all the errors and abuses with which our railway builders are chargeable it is the worst and the least excusable. In nine cases out of ten the parliamentary duels which have to be fought over new railway projects are not only useless but wasteful, and often harmful. Instead of checking bad and unnecessary schemes it has encouraged their promotion. At the same time it has been a cloak for secret bargains and agreements contrary to the public interests, and even more so to the interests of the railways.

In 1904 it was estimated by a competent authority that up to that date no less than £90,000,000 had been spent on preliminary surveys and parliamentary expenses out of a total of £1,200,000,000 of railway capital. For the then existing mileage (22,000 miles) this was equivalent to fully £4,000 per mile. Often the actual building of the railway did not cost so much. At the outset parliamentary

expenses were so moderate that reasonable exception could not be taken to them. In the very year that they were made compulsory on the promoters of new railways (1799) a Bill was presented to Parliament for a short line from Carno Mill to Cardiff, a distance of twenty-six miles with eighteen miles of branches. The expense of obtaining the Act was estimated at £894 17s., and the entire estimate for land and construction was £31,105, an average of £1,200 per mile if we reckon the main line alone, and of only £1,000 if we include the branches.

In these early days neither promoters nor lawyers nor railway contractors had any idea of the rich harvest that lay before them. It did not come in sight until the railway mania nearly half a century later. The financiers of 1799 were mere children compared with their successors of the King Hudson age. They had no suspicion of the possibilities of speculative capitalisation, and, on the other hand, the public had no suspicion of its dangers. But we who have to pay not only railway freights but public rates and taxes on grossly inflated capitals can devoutly wish that our railway finance had had a more sane and sober youth.

Perhaps we have little right to reproach our grandfathers with their extravagance as railway builders. All or nearly all the extravagances which they introduced we continue with very little change. As often as not the abuses of their time have been aggravated rather than reformed. The parliamentary and financial leeches flourish as luxuriantly as ever. The legal blackmail which has to be paid on railway Bills, large and small, is if anything heavier than ever. We still bear the shame of loading down our railways with preliminary expenses to an extent that compels them to charge high rates in order to obtain even the most infinitesimal return on their outlay. In this respect we enjoy an evil pre-eminence which no other nation envies.

Much might be said about the colliery railway as an interesting pioneer, but we must hasten on to the second type—the commercial railway. The earliest example of it is the London and Croydon line, or, to give it its

original title, the Surrey Iron Railway. It ran from Wandsworth to Croydon, a distance of less than ten miles. It was designed exclusively for goods traffic, and had no passenger trains. Practically it was a public toll-road on which any one might travel in his own vehicle. The company provided no rolling stock and did no carrying on their own account. In its organisation, methods of working and scale of charges the line closely followed the analogy of the then popular canals. Its up-traffic from Croydon to Wandsworth consisted of agricultural produce, chalk, flint, fuller's-earth and other heavy freight, while the return loading was chiefly coal and manure.

A diligent explorer in the pamphlet department of the British Museum has made the interesting discovery that the promoters of the London and Croydon line had ambitious hopes of carrying it by degrees down to Portsmouth. They obtained parliamentary powers for two additional sections—the Croydon, Merstham and Godstone being one, and the Godstone to Reigate another. But the second section stopped halfway at Merstham, and after struggling on for thirty years it was bought in 1838 by the Brighton Railway Company, who closed it. The original Surrey Iron Railway lingered on for another eight years, until 1846, when the rails were taken up and sold.

Between the Surrey Iron Railway of 1801 and the Stockton and Darlington of 1821, which is the next landmark in the history of the British railway, seven or eight experiments were made in different parts of the country. In 1802 a line eleven miles long was built in connection with the Tredegar Ironworks in Monmouthshire at a cost of £45,000, or £4,000 a mile. In 1809 a similar road in the Forest of Dean cost £125,000 for seven and a half miles, equal to £16,600 per mile. The others ranged from £1,400 to £5,000 per mile, and all of them seem to have been intended for goods only. The Stockton and Darlington was originally planned on the same lines, and only by degrees did it develop into a modern railway carrying passengers as well as goods.

Out of the very varied and chequered experience of

the Stockton and Darlington Railway may be said to have grown the four distinctive features of modern railway service—first, steam traction; second, combined goods and passenger traffic; third, combined ownership of road and rolling stock; fourth, a monopoly user of both. Its success had an immediate effect in other districts where the new form of traction was already engaging attention. This was particularly the case in Lancashire, and above all in the cotton trade. The canals were then in the heyday of their prosperity, and making a bad use of it. For very poor services they were making exorbitant charges and deliberately provoking unpopularity by petty insolence and tyranny.

Liverpool at last threw down a challenge. In October 1824 the prospectus of a new railway was issued, the capital asked for being £400,000. The money was raised and a Bill introduced in the session of 1825. The canal interests organised such a formidable opposition that it was thrown out. But next year it reappeared, and this time it got through. The promoters were equally fortunate in planning and executing the line. Not until the eleventh hour did they decide in favour of steam against animal traction, and it was George Stephenson's "Rocket" that turned the scale. It triumphed over horse traction, stationary engines and all other proposed means of propulsion. Its average speed of fourteen miles an hour, rising on occasion to double that rate, put everything else out of court.

So far these pioneer railways had been purely local, designed for local service and paid for with local capital. But now a higher stage had been reached, and the question of building trunk lines to traverse the country from end to end came up. It is surprising how quickly the boldest sort of proposals were put forward, and still more so how little attention was paid to them, though occasionally they were brilliant and far-seeing. Such a forecast was that of Thomas Gray, who as early as 1820 had published *Observations for a General Railway*. What he proposed was in fact a national railway network. It was to consist of six trunk lines radiating from London, with

branches linking up all the towns and villages along each route.

Earlier still, namely on the 11th February, 1800, a paper had been read at the Newcastle Literary Society, by Mr. Thomas, of Denton, advocating the extension of the colliery railways plan to the general carriage of goods throughout the country. Another apparently quixotic scheme was that of Mr. R. L. Edgeworth for a special highway out of London which for the first ten miles should have four lines of railway on it worked by stationary engines. In 1822 another railway enthusiast—a London engineer named William James—projected a “Central Junction Railway or Tramway,” which was to strike a bee-line from London to Stratford-on-Avon. There was a fine touch of imagination here, but it did not suffice to save the scheme. Mr. James’s labour was not wholly lost, however, as it brought him to the notice of the promoters of the Liverpool and Manchester Railway, who engaged him to make the surveys for their line.

As it happened, the trunk lines of the United Kingdom were not destined to spring ready-made from the brain of any ingenious projector. They originated in quite another way—that is, in the orthodox British way familiarly known as “muddling through.” All of them had an adventurous youth not without a dash of romance. Some of them had a hard struggle to get into London, and some had a hard struggle to get out of it. Not one of them has properly planned terminals according to modern ideas, and it is doubtful if they can ever be thoroughly modernised. Of the railways which started from London, the most notable are the London and North-Western, the Great Western, the Great Northern, the London and South-Western, the Brighton and the South-Eastern. Those which started in the provinces and had to fight their way into London later on were the Great Central, Great Eastern, Midland, and London, Chatham and Dover.

In looking back on the century’s work of our railway builders we see 22,000 miles of the most solidly constructed railway in the world. Running on it, there are said to be

20,000 locomotives, 70,000 passenger vehicles and 1,300,000 goods and mineral wagons. Working the traffic there is an army of 600,000 employees. In the course of a year they move 1,325 million passengers, 410,000 million tons of minerals and 114 million tons of merchandise. To measure the work of such a gigantic organisation and to judge whether or not it is living up to its full powers and opportunities, is one of the most interesting economic studies of our time.

It would be a tedious task to review in detail the whole century of British railway building. Only its most superficial results are to be found in the official reports of the railway companies, or in the annual statistics of the Board of Trade. Both of these exhibit magnificent totals, but they are subject to many drawbacks and qualifications. However well they begin, the final results are invariably meagre and disappointing. As a rule dividends are an insignificant fraction of the gross receipts. The high rates and charges which have to be paid by the traders for the use of the railways contrast badly with the poor returns which the shareholders receive on their capital. These two misfortunes are due mainly to two causes—over-capitalisation and expensive working.

They are the crux of the railway problem of to-day, and they will be still more important in the railway problem of to-morrow. Labour unrest, higher wages, heavier rates and taxes, official interference, the discontent of traders, and all other railway grievances resolve themselves finally into diminishing profits and dividends. This has for some years past been a burning question with railway boards and at shareholders' meetings. Many isolated and haphazard attempts have been made to deal with it, but so far the results have been disappointing. The old suicidal policy of competition is said to have been abandoned, and no doubt it has been honestly and sincerely on most railways, if not on all. But whatever the results may actually be they have not as yet assumed a very palpable form in the accounts.

As far as can be judged from this meagre information, the remedy has as yet had a very limited effect. Com-

pared with the enormous amount of overlapping which there is known to be on our railway system as a whole, all the co-operative schemes yet put in operation can hardly have scratched the surface of the evil. Evidently much more drastic action will be needed to effect even a fraction of the reform that is both possible and imperative. If a commission of independent experts could be empowered to investigate all the train services in the United Kingdom and to report every case of duplication, leakage or waste, its report might be appalling. Something of this sort will have to be done, however, before the public are roused to a fit sense of the gravity of the question.

The savings that can be effected by pooling agreements between two or even three companies at competing points are a bagatelle beside what might be done if a similar reform were being undertaken on national lines. As a concrete example let us take the coal traffic of the United Kingdom and try to form an idea of the possible economies which might be effected in that one branch of traffic. The first discovery we may make is that nearly twice as much rolling stock is employed in it as would be needed if duplication could be entirely eliminated. With half the number of engines and wagons to handle there would be a proportionate amount of labour saved. There would be a proportionate reduction in the shunting and marshalling of trains. There would be a proportionately smaller area occupied by yards and sidings. There might be a great decrease in the number of coal wharves and depots in London and other great cities. The crowding of main lines with coal trains would be immensely relieved.

Very probably two-thirds of the coal wagons now in use—or supposed to be in use—could do all the haulage and distribution actually required. But they would have to be as far as possible under one control. The chief coal-carrying lines—there are not more than half-a-dozen of them altogether—might share groups of collieries amongst them, and as each group could be best served by a particular route, there would always be full loading for the trains. They would also have quick loading and

a straight run to their destination. It might also be arranged that coal trains should seldom have to break up *en route*, but that as far as possible they should run solid to the end of their journey.

In London alone the price of coal could be reduced at least 20 per cent. by a better system of carriage and distribution. At present coal trains come up from the collieries made up anyhow. There may be wagons for a dozen different districts as far apart as Hammersmith, Fulham, Kensington, Shoreditch and Canonbury all coupled together. The train has in that case to stop at Willesden Junction, and two or three wagons have to be sent to one place, two or three more to another, and so on until they are all got rid of. After a while they have all to be gathered together again and a return train made up at Willesden. The expense of distributing the coal after it reaches London may be as great as that of hauling it 150 or 200 miles from the collieries.

The various branches of goods traffic might be taken one after the other and examined from the point of view of scientific and economical operation. The special tests of paying traffic are the full wagon load and the full train load. The larger the area of collection the easier it will be to get full loads not only occasionally but regularly. In the United Kingdom the areas of collection are small to start with, and in most cases more railways have crowded into them than they can possibly support. The effect has been not only duplication of service but triplication, and even at times quadruplication. A railway rate would require to be very profitable in order to maintain three or four men doing the work of one or two.

That is what is going on with a large part of the goods traffic of British railways. It is the root cause of heavy working expenses and slender dividends. If it could be taken in hand as a great national question a radical cure might be effected. But it cannot be cured by casual negotiations between individual railways. A pooling arrangement here and another there cannot touch the fringe of this problem. It must be attacked as a whole, and on the broadest possible lines.

Railway directors and managers do not seem to see that in the interlacing and overlapping of traffic the nationalisers will find their strongest and most practical argument. Such conditions have been proved by many years' experience to be in the highest degree wasteful and improvident. A moderate amount of thinking will show that they could not possibly be anything else. Duplication of work is the direct negation of Adam Smith's classical doctrine of the division of labour. It has never been carried further in any industry than in the goods traffic of British railways, and reform of the evil has hardly begun yet.

When everybody is clamouring to get all he can out of the railways there will be no alternative for them but to get all they can out of the public. Good and well if they first get all they can out of themselves. Not by raising rates, increasing terminal charges and curtailing privileges, but in a much bolder fashion—by reducing the number of half-loaded wagons and half-empty trains. In this direction there are probably pounds to be saved for every extra shilling that can be extracted from indignant traders. To correct past errors of over-building and over-competition in "public facilities" is what the crisis most clearly calls for.

Railway transportation in the United Kingdom has become a question of such magnitude and complexity that even professionals may well hesitate to dogmatise upon it. But there are some broad features on which even non-professional judgment may be safely expressed. Of these one of the most obvious is that the economic value of railway operations must depend greatly on the degree of organisation which is brought to bear upon them. The final test of their efficiency and economy is maximum of work done combined with minimum waste of power. By this phrase it is not engine power alone that is meant. It includes the collection and sorting of the traffic as well as the hauling. In fact hauling is the simplest and most uniform of railway operations. The proper loading of trains is much more difficult and demands a great deal more anxious thought than moving them after they are loaded.

British railways seem to have been expressly planned to render full and profitable loading as difficult as possible. The main lines intersect each other wherever they have a chance. They never miss a small town on the route that can be reached by a branch line of twenty or thirty miles. To get into a city of any importance they will go many miles out of their way. They build the most expensive stations and depots in decaying districts where the traffic is evidently on the wane.

Thanks to this superabundance of railway routes, stations, terminals, and train services, the traffic, instead of being concentrated at the smallest number of points, is scattered over the largest possible number. Consequently it has to be handled in small quantities, so that even one railway could not make a fat living out of it. But wherever there happens to be enough to furnish decent train loads, two or three rival lines are sure to have rushed in to scramble for it. This is the original and fundamental cause of light loading. It lies too deep and goes too far back in our railway history to be easily removed. Certainly no amount of private bargaining between railway companies will produce a sufficient concentration of traffic to ensure paying train loads for several lines even where the traffic is heaviest.

CHAPTER VIII

ELECTRIC RAILWAYS

THE electric railway is not merely a great advance on the steam railway, but it is in many ways a new departure. It is more than a new form of traction, it is going to revolutionise railway methods and to upset nearly all the ideas and habits of the old school of railway men. It may also open up a new era in railway economics and finance. So far the electric railway has cost on an average more per mile to build than a steam railway would under ordinary conditions, but against that may be set a number of advantages in working. It can go where no other kind of railway would nowadays be thought of. For underground passenger traffic steam locomotives are no longer conceivable. They will also have to be gradually banished from tunnels of any considerable length. In such cases electric traction has become indispensable.

In frequency of service the steam railway has been left far behind by its new rival. Out of that advantage will arise several others, both practical and financial. The electric train of from three to six coaches is much more manageable than a steam train of from eight to twelve coaches. It requires less haulage power and less handling. Running frequently, it has more regular loads and fewer empty seats. In proportion to the number of passengers carried it needs a much smaller quantity of rolling stock. Its short trains require only short platforms and less costly stations altogether. An enormous saving can be effected in shunting and making up trains. Electric trains can be nearly always running,

while steam trains spend a large part of their time in docks or in sidings. Sometimes they cost about as much to keep them standing as to run them.

In these various respects useful comparisons may be drawn between the old and the new styles of railway traction. They may help us to discover more definite standards of railway efficiency than the very vague and unsatisfactory ones we have to be content with at present. They will show us how misleading are the popular comparisons of railways according to their cost per mile of line, without taking into account the number of tracks, the length of sidings, the weight of the metals, and the character of the road bed. Such comparisons produce a bewildering diversity of results which is worse than no result at all. It stands out in violent contrast with the significant uniformity of the returns on capital cost which has been already remarked upon with regard to steam railways.

It further confirms and illustrates our opinion that the best test of railway efficiency is the average percentage of return on capital expenditure. On this basis all kinds of railways can be fairly compared with each other. Whether they be single or double lines, heavy or light lines, urban or rural lines does not make any serious difference. If they have been sensibly planned to suit local conditions and well adapted to the traffic they have to carry, there should be approximately as good a return on a £5,000 per mile line as on one that has cost twenty times as much. Conversely, a £100,000 per mile line should earn its dividend quite as easily as the £5,000 per mile one if its traffic is commensurate with its cost.

In studying the subjoined tables it should therefore be kept in mind that cost per mile is a meaningless test unless differences in location, structure, equipment and traffic are all taken into account.

The Board of Trade returns for 1911 enumerate nine electric railways in London and three in the provinces. They are set out in a group by themselves, and the first point to note about them is their capitalisation. Its nominal total is $63\frac{1}{2}$ millions sterling, but of that $2\frac{1}{2}$

millions is duplication. On the other hand, it should be noted that out of the twelve roads only three were bad offenders in this respect. The Metropolitan Railway is chargeable with £1,425,000 of duplication, and the District with £636,500. The only provincial line with any nominal capital is the Mersey Railway. It has £516,200 unrepresented by cash, but this, as well as the District £1,425,000, seems to be due rather to having to sell new stock at a discount. Neither company has ever been in the happy position of being able to dream about duplication.

ELECTRIC RAILWAYS, 1911.

TOTAL CAPITAL, LESS NOMINAL ADDITIONS.

	Total Capital. (000's)	Nominal Portion. (000's)	Cash Capital. (000's)
	£	£	£
Central London	4,390·3	—	4,390·3
City and South London . . .	3,011·8	—	3,011·8
Great Northern and City . . .	2,084·0	—	2,084·0
Waterloo and City	606·0	—	606·0
London Electric	16,419·0	—	16,419·0
Metropolitan	16,677·1	1,424·9	15,252·2
Metropolitan District	13,143·2	636·5	12,506·7
Metropolitan City Extensions	1,000·0	—	1,000·0
Whitechapel and Bow	1,575·0	—	1,575·0
	58,906·4	2,061·4	56,845·0
Blackpool	190·0	—	190·0
Liverpool Overhead	861·4	—	861·4
Mersey	3,589·7	516·2	3,073·5
	4,641·1	516·2	4,124·9
Total	63,547·5	2,577·6	60,969·9

A series of adjustments have now to be made in order to eliminate the more important differences between these roads as regards location, number of tracks, strength of permanent way, density of traffic, etc. The first will be a reduction of the mileage to single track:—

ELECTRIC RAILWAYS, 1911.

MILEAGE OF SINGLE TRACK.

	Miles of Line.	Single Track.	Length of Single Track to Miles of Line.
Central London	7	21	3·00
City and South London	8	18	2·25
Great Northern and City	3	7	2·33
Waterloo and City	2	4	2·00
London Electric	22	52	2·40
Metropolitan	48	132	2·70
Metropolitan District	26	65	2·50
Metropolitan City Extensions	2	5	2·50
Whitechapel and Bow	2	5	2·50
	120	309	2·60
Blackpool	8	15	1·85
Liverpool Overhead	9	17	1·90
Mersey	4	10	2·50
Total	141	351	2·50

ELECTRIC RAILWAYS, 1911.

CAPITAL PER MILE OF SINGLE TRACK.

	Miles of Single Track.	Cash Capital. (000's)	Per Mile.
		£	£
Central London	21	4,390·3	209,000
City and South London	18	3,011·8	167,300
Great Northern and City	7	2,084·0	297,700
Waterloo and City	4	606·0	151,500
London Electric	52	16,419·0	315,400
Metropolitan	132	15,252·2	115,000
Metropolitan District	65	12,506·7	192,400
Metropolitan City Extensions	5	1,000·0	200,000
Whitechapel and Bow	5	1,575·0	315,000
	309	56,845·0	184,000
Blackpool	15	190·0	12,600
Liverpool Overhead	17	861·4	56,700
Mersey	10	3,073·5	307,400
	42	4,124·9	98,200

Even when we have got the mileage reduced to single track the cost per mile varies widely. In London it extends all the way from £115,000 up to £315,000 per mile, while in the provinces the minimum is £12,600 and the maximum £307,400 per mile. A very significant fact is the extraordinary cost of the tubes—the latest form of metropolitan locomotion and at present the most popular. The London Electric system has a capital expenditure of £315,400 per mile of track recorded against it—equal to £730,800 for each mile of line. The Metropolitan is capitalised at little more than a third as much, but its average is considerably lowered by including a large amount of comparatively cheap line in its suburban extensions.

The problem of the electric railway in London is unique. Both from the engineering and the economic standpoints it differs widely from the corresponding problem in the provinces. Neither an electric nor a steam railway is ever likely to be built hereafter in the heart of London for less than a quarter of a million per mile of single track or half a million per mile of double track. The projectors of any new metropolitan scheme would therefore have to satisfy themselves beforehand that a fair return could be earned on such an outlay. The average of the existing lines is, it will be seen, much smaller than that—namely £184,000 per mile of single track and £368,000 per mile of double track. That is due, however, to the low average of the Metropolitan Railway, as already explained.

When we turn from the striking diversities in the cost per mile of electric railways, both in London and the provinces, to the returns they yield on their capital cost, we find a degree of uniformity as remarkable as was the diversity in capitalisation. No matter what the average cost per mile, the range of variation in the returns is surprisingly small. To this there are only two exceptions—the electric railway at Blackpool the gross revenue of which in proportion to its capital cost is fully three times as large as that of the London lines, and the Liverpool Overhead which earns nearly double the London percentage.

ELECTRIC RAILWAYS, 1911.

PERCENTAGE OF GROSS REVENUE TO CASH CAPITAL.

	Cash Capital. (000's)	Gross Revenue. (000's)	Percentage of Capital.
	£	£	
Central London	4,390·3	288·6	6·6
City and South London	3,011·8	184·9	6·1
Great Northern and City	2,084·0	82·5	4·0
Waterloo and City	606·0	31·4	5·2
London Electric	16,419·0	759·0	4·6
Metropolitan	15,252·2	925·2	6·0
Metropolitan District	12,506·7	652·8	5·2
Metropolitan City Extensions	1,000·0	80·7	8·0
Whitechapel and Bow	1,575·0	70·0	4·4
	56,845·0	3,075·1	5·4
Blackpool	190·0	37·8	19·9
Liverpool Overhead	861·4	78·9	9·1
Mersey	3,073·5	109·9	3·6
	4,124·9	226·6	5·5

On the above table two obvious observations are to be made. First, the percentage of gross revenue to cost will strike the reader as very small. The London average, 5·4 per cent., is a shade more than a shilling in the £. This, remember, is for gross and not for net receipts. More surprising still, the average of the provincial lines is almost identical with that of the Metropolitan ones—namely, 5·5 per cent. against 5·4 per cent. Out of this meagre proportion the whole of the operating expenses, administration, etc., have to be paid. It may seem wonderful how anything can be left for the owners of the railways and their creditors. But all the lines emerge with a trifle of net revenue. Sometimes it is only enough to pay prior charges, and it never runs to a substantial dividend.

This may be the most convenient point to draw a few comparisons—or contrasts perhaps—between the new style of railway and the old.

First as to mileage. In England and Wales there are 16,200 miles of railway, equal to 54,576 miles of single

ELECTRIC RAILWAYS, 1911.
PERCENTAGE OF NET REVENUE TO CASH CAPITAL.

	Cash Capital. (000's)	Net Revenue. (000's)	Per Cent.
	£	£	
Central London	4,390·3	122·3	2·8
City and South London	3,011·8	98·9	3·3
Great Northern and City	2,084·0	41·4	2·0
Waterloo and City	606·0	15·9	2·6
London Electric	16,419·0	413·1	2·5
Metropolitan	15,252·2	431·6	2·8
Metropolitan District	12,506·7	344·3	2·75
Metropolitan City Extensions	1,000·0	25·8	2·6
Whitechapel and Bow	1,575·0	28·1	1·8
	56,845·0	1,521·4	2·7
Blackpool	190·0	18·6	9·8
Liverpool Overhead	861·4	24·0	2·8
Mersey	3,073·5	50·5	1·6
	4,124·9	93·1	2·25

track. Of these only 141 miles, or 351 miles of single track, is electric. Thus the railway of the future is as yet but in its infancy.

Second. While the steam railways of England and Wales have cost on an average £22,380 per mile of single track, those of Scotland £17,600, those of Ireland £9,200, and the United Kingdom as a whole £20,600, the new electric lines have averaged in London £184,200 per mile of single track, and in the provinces £98,200. But note that the greatest part of their mileage is underground, and therefore exceptionally expensive.

Third. As regards cost per mile of single track, even the most costly of the steam railways compare favourably with the electrics. Their highest averages—the Lancashire and Yorkshire's £27,800 and the Midland's £24,700—are less than a sixth of the electrical average. The overhead average of the nine trunk lines analysed in a previous chapter is only £18,300 per mile of single track, which is less than a ninth of the all-British electrical average (£172,000). The mineral lines in England averaged, as we have seen,¹

¹ Page 12.

£16,200, and in Wales £20,200 per mile of single track, little more than one-tenth of the electrical average.

These few comparisons may give the reader a faint idea of how lavishly capitalised the pioneer electric railways have been. Most of them have the excuse that they had to commence operations in densely populated areas. This of course necessitated expensive building, and handicapped the pioneer lines heavily in their competition with the older system of traction. They required proportionately large traffics to make them a success, and in this respect they have so far had little to complain of. If we compare the two groups—steam and electric—as aggregates it will be found that the electric earnings per mile of single track are hardly on a par with their capitalisation. In other words, they are not yet living up to their higher standard of cost per mile. Their gross revenues in 1911 compare as follows with those of the steam railways:—

ELECTRIC RAILWAYS, 1911.
GROSS REVENUE PER MILE OF SINGLE TRACK.

	Miles of Single Track.	Gross Revenue.	Per Mile.
Central London	21	£ 288,661	£ 13,746
City and South London	18	184,913	10,273
Great Northern and City	7	82,559	11,794
Waterloo and City	4	31,391	7,848
London Electric	52	759,008	14,600
Metropolitan	132	925,228	7,000
Metropolitan District	65	652,825	10,000
Metropolitan City Extensions	5	80,725	16,145
Whitechapel and Bow	5	69,985	13,997
	309	3,075,295	9,952
Blackpool	15	37,841	2,523
Liverpool Overhead	17	78,945	4,643
Mersey	10	109,947	10,995
	42	226,733	5,400
	351	3,302,028	9,400
English Steam Railways	41,861	97,145,000	2,320

While the capitalisation of the electric railways has averaged about five times as much per mile of single track as that of the steam railways, their gross receipts are only about four times as much. Moreover, this comparison is unduly favourable to the electric railways in so far as they are for the most part Metropolitan lines, enjoying the finest traffic areas conceivable, while the steam railways are of all kinds, from the poorest to the richest. In order to get an equal comparison steam and electric lines working in the same areas and under similar local conditions should be matched against each other.

The North London is the only purely Metropolitan line still worked by steam which is fairly comparable with the tubes, while the London, Tilbury and Southend may be taken as a good example of mixed Metropolitan and suburban traffic worked on the old system. It corresponds pretty well with the two underground railways, the Metropolitan and the District, which have also a mixed urban and suburban traffic.

In 1911 the North London reported gross receipts of £452,694 and working expenses £301,421, leaving £151,273 net. Mileage—fourteen miles of line and sixty-nine of single track. Its gross receipts were consequently £6,560 per mile, its working expenses £4,368, and its net revenue £2,192. The corresponding averages for the London group of electric railways were £9,952 per mile of gross receipts, £5,440 of working expenses, and £4,920 of net receipts. Gross receipts per mile were nearly 50 per cent. higher than on the North London; working expenses only $12\frac{1}{2}$ per cent. more, and net receipts 125 per cent. greater.

The London, Tilbury and Southend makes a still poorer show against the new form of traction. Its gross receipts per mile (single track) in 1911 were £3,134, its working expenses £1,872, and its net receipts £1,262. Compared with the electric group the gross revenue was less than one-third, working expenses also about a third, but net receipts only one-fourth. If we eliminate the tubes from the electric group and adopt the Metropolitan Railway as a standard of comparison, it being, like the London,

Tilbury and Southend, partly suburban, more favourable results for the older road are obtainable. In 1911 the Metropolitan Railway's gross receipts were £7,000 per mile (single track), working expenses £3,780, and net receipts £3,270. Gross receipts were 123 per cent. above the Tilbury average, working expenses 100 per cent., and net receipts 159 per cent.

After making full allowance for the superiority of the traffic areas in which the electric railways operate, there will still be a large surplus at their credit. Evidently they are much better creators and developers of traffic than the steam railways.

Having compared the gross earnings of the two systems, we have next to analyse their working expenses.

ELECTRIC RAILWAYS, 1911.
WORKING EXPENSES PER MILE OF SINGLE TRACK.

	Total Miles (Single Track).	Total Expenses. (000's)	Per Mile.
		£	£
Central London	21	166·3	7,900
City and South London	18	86·0	4,790
Great Northern and City	7	41·1	5,870
Waterloo and City	4	15·5	3,870
London Electric	52	345·8	6,650
Metropolitan	132	498·6	3,780
Metropolitan District	65	308·5	4,750
Metropolitan City Extensions	5	54·8	1,100
Whitechapel and Bow	5	41·9	840
	309	1,558·5	5,440
Blackpool	15	19·2	1,280
Liverpool Overhead	17	54·9	3,230
Mersey	10	59·4	5,940
	42	133·5	3,180
Total	351	1,692·0	4,820
English Steam Railways	41,861	60,602·4	1,447

The electric railways of England as a whole cost an average £4,820 per mile of single track to work them while the steam railways cost only £1,447 per mile. The

London group by itself shows an average of £5,440 per mile, and the provincial group £3,180. Thus the cheapest electric lines have more than double the rate of working expenses per mile that steam railways show. The London group, which is the most expensive, is not far from four times as high as the steam railway average. Nevertheless the ratio of net to gross earnings is, as will be seen below, much higher on the electric than on the steam lines.

ELECTRIC RAILWAYS, 1911.
NET REVENUE PER MILE OF SINGLE TRACK.

	Miles.	Net Revenue. (000's)	Per Mile.
		£	£
Central London	21	122·3	5,824
City and South London	18	98·9	5,495
Great Northern and City	7	41·4	5,910
Waterloo and City	4	15·9	3,975
London Electric	52	413·1	7,940
Metropolitan	132	431·6	3,270
Metropolitan District	65	344·3	5,300
Metropolitan City Extensions	5	25·8	5,160
Whitechapel and Bow	5	28·0	5,620
	309	1,521·3	4,920
Blackpool	15	18·6	1,240
Liverpool Overhead	17	24·0	1,410
Mersey	10	50·5	5,050
	42	93·1	2,210
	351	1,614·4	4,600
English Steam Railways	41,861	36,543·0	873

The disparities in the above table are remarkable. The steam railway average of £873 per mile of net earnings is less than a fifth of the electric average, and not much more than a sixth of what the London group shows. It is a puzzle how such enormous differences can arise in the earning power of railways, even when they are similarly situated and appear to have almost equal advantages. In London they are due chiefly to the fluctuating volumes

of passenger traffic. This, again, will furnish us with some striking contrasts between steam and electric traction. The first of the following tables illustrates the passenger traffic of the electric, and the second that of certain steam railways in 1911.

ELECTRIC RAILWAYS, 1911.

PASSENGER TRAFFIC PER MILE OF SINGLE TRACK.

	Total Miles.	Total Passengers. (000's)	Per Mile. (000's)
Central London	21	37,630·2	1,792·0
City and South London	18	24,405·0	1,356·0
Great Northern and City	7	9,753·6	1,393·0
Waterloo and City	4	3,694·6	923·0
London Electric	52	99,303·2	1,910·0
Metropolitan	132	80,644·2	611·0
Metropolitan District	65	70,067·4	1,078·0
Metropolitan City Extensions	5	559·7	112·0
Whitechapel and Bow	5	21,278·8	4,256·0
	309	347,336·7	1,124·0
Blackpool	15	3,005·0	200·0
Liverpool Overhead	17	11,132·1	655·0
Mersey	10	11,879·7	1,188·0
	42	26,016·8	620·0
	351	373,353·5	1,064·0

STEAM RAILWAYS, 1911.

PASSENGER TRAFFIC PER MILE OF SINGLE TRACK.

	Miles.	Total Passengers.	Average per Mile.
England and Wales	41,861	814,850,800	19,466
North London	69	23,759,700	344,343
London, Tilbury and Southend	222	34,400,000	155,000

Compare the 347 million journeys made on electric railways in London alone with the 814 million journeys made on steam railways in England and Wales, and try to realise what it means to have as dense a movement of population in one small corner of the country as in all

the rest put together. If we add to the electric railway journeys in London those of the electric tramways, the total will far exceed that of all the steam railways in England. The averages per mile of single track furnish even more striking proofs of the density of London traffic. While the steam railways of England and Wales carried in 1911 less than twenty thousand passengers for every mile of single track in operation, one electric line, the Whitechapel and Bow, carried four and a quarter millions. The respective numbers were 19,463 and 4,256,000.

The Whitechapel and Bow is, of course, a very short section of the underground system operating in the most densely populated part of London. No sweeping generalisation should therefore be drawn from such an exceptional case. But the London electric system, with its fifty-two miles of single track, is large enough to be accepted as a fair test of electric traffic. Its average in 1911 was 1,910,000 passengers per mile of single track as compared with the steam railway average of 19,463 per mile for all England. Nor was the Central London far behind with its 1,792,000 per mile. In the first case the steam railway average is multiplied nearly one hundred times, and in the second it is about ninetyfold greater.

The North London and London, Tilbury and Southend, our best examples of steam traction in the metropolitan area, are hardly within sight of the underground lines as regards volume of passenger traffic. The Tilbury's 344,343 per mile of single track is barely a third of the underground average (1,124,000 per mile). The North London passenger business has shrunk so sadly of late that its average is now down to 155,000 per mile. But electric traction may do as much for it as it has done for the tubes.

The final test to be applied to the two rival systems will be a comparative analysis of their passenger traffic, including both volume and revenue. The first table gives for the electric group their total number of passengers, total revenue and average receipts per head. The second gives corresponding figures for the steam railways of England and Wales as a whole, and for two

typical metropolitan lines, the North London and the Tilbury.

ELECTRIC RAILWAYS, 1911.
PASSENGER REVENUE PER HEAD.

	Total Passengers. (000's)	Passenger Receipts. (000's)	Per Head.
		£	d.
Central London	37,630·2	262·9	1·7
City and South London	24,405·0	172·9	1·7
Great Northern and City	9,753·6	78·5	1·9
Waterloo and City	3,694·6	30·5	2·0
London Electric	99,303·2	711·8	1·7
Metropolitan	80,644·2	702·9	2·0
Metropolitan District	70,067·4	609·5	2·1
Metropolitan City Extensions	559·7	77·1	33·0
Whitechapel and Bow	21,278·8	67·6	0·75
	347,336·7	2,713·7	1·9
Blackpool	3,005·0	37·8	3·0
Liverpool Overhead	11,132·1	76·3	1·7
Mersey	11,879·7	101·6	2·0
	26,016·8	215·7	2·0
	373,353·5	2,929·4	1·9

STEAM RAILWAYS, 1911.
PASSENGER REVENUE PER HEAD.

	Total Passengers.	Passenger Receipts.	Per Head.
		£	d.
England and Wales	814,850,800	35,264,800	10·4
North London	23,759,700	190,450	1·9
London, Tilbury and Southend	34,400,000	481,000	3·3

Here we have a return to comparative uniformity in the results of the two systems. Widely as they differ in mileage, in cost of construction, in methods of operation and in the character of their traffic, the two systems arrive at wonderfully similar financial results. The average amount earned per passenger is identical in the London electric group and the provincial group of lines—namely, 1·9*d.* On one of the typical steam railways, the North

London, it is also 1·9*d.* On the London, Tilbury and Southend it is larger—3·3*d.* per passenger—owing no doubt to the longer journeys made by seaside visitors.

In the London group of electric lines two striking anomalies will excite curiosity. One is the very low average fare earned on the Whitechapel and Bow section—namely, 0·75 of a penny, or in plainer English three-farthings! The other is the abnormally high average shown on the City Extension lines—33*d.* per head. This is probably a mere matter of book-keeping, but in any case the amount of traffic is too small to have any material effect on the other averages.

This examination of the electric railway accounts for 1911 leaves us strongly impressed with (1) the huge capitalisation they have to carry; (2) their great and growing traffics; (3) their heavy operating expenses per mile; (4) their small ratio of expenses to receipts, and finally, the meagre surplus left for the shareholders.

CHAPTER IX

LONDON'S OVERWHELMING TRAFFIC

THREE successive generations of railway engineers have tried different solutions of the baffling problem of inter-urban traffic. The first generation began with what seemed to be the most natural if not the only possible solution—overhead lines. There are many examples of these in London, all dating from about the middle of the nineteenth century. North of the Thames are the North London and the urban sections of the Tilbury line. South of the river are the urban ends of the London, Chatham and Dover, the Brighton line, the South-Eastern, and the London and South-Eastern. All these reach their termini on overhead tracks, while three of them cross the Thames by overhead bridges.

The overhead metropolitan system has obvious advantages and disadvantages. It is well lighted and well ventilated, consequently it is healthy for passengers. On the other hand, it is noisy and causes a large amount of discomfort to residents along the route. This nuisance has reached its maximum in the elevated railways of New York, which have rendered the streets they traverse almost uninhabitable. From a traffic point of view the overhead railway is non-elastic. It cannot be enlarged except at great expense, consequently it cannot keep pace with the phenomenal growth of metropolitan traffic. A minor drawback from which it suffers is difficulty of access. There is too much climbing up long stairs to suit the taste of modern sybarites.

Partly for that reason, when the street tramways came in the overhead railways were deserted in their favour. But in any case their reign would have been over then,

as they could not have coped with any large increase of traffic. The overhead railways which had hampered themselves still further with overhead bridges suffered all the more from this additional restriction. As may be seen at the Cannon Street and Charing Cross stations, they had to force their traffic inward and outward through the narrow neck of a bottle. Such an obstruction has this proved in these two cases that the advisability of abolishing the bridges and building new terminals on the Surrey side of the river has been more than once mooted.

The second solution of the urban traffic problem was the street railway. It has passed through a number of stages, beginning with the horse car and culminating in the capacious but cumbrous electric car of our own day. Like the overhead line, the street tramway is healthy and comfortable. The cars run smoothly and since their electrification they make fair speed. *Per contra* they are liable to be frequently held up by blocks in the street traffic. The breakdown of a single car throws the whole service on that particular route and all its connections out of gear. But the chief defect of the street railway is the number of breaks and gaps there are in the system. As an electrical engineer would say, it has too many loose ends.

This defect is to be seen at its worst in London, but even there it is not incurable. It need never have become so bad as it is but for the jealousies and disputes of a multitude of municipal authorities. If half a century ago London street traffic had been placed under some kind of central and uniform control, the tramways might not have broken off short as they now do at various points half a mile or more from the great centres of traffic. Such an obvious evil as this is has sooner or later got to be remedied. The growth of the traffic will compel the City authorities to abandon their *non-possumus* attitude and consent to some arrangement for linking up the Northern and the Southern networks of street railways.

The third solution of our street traffic problem is of a composite kind. Almost simultaneously two new

methods of transport came in—the underground electric and the motor bus. Up to a certain point they were deadly competitors, but now they are formidable allies. Since the original underground lines of half a century ago were electrified and brought up to date they may be classed along with the tubes among the new forms of metropolitan transport.

The latest development is a movement among the newest and most up-to-date railways toward co-operation. A powerful combination of tubes and motor buses has already been formed, and though it has still to give proof of its financial wisdom and stability, it must be treated as an accomplished fact in the urban traffic situation. All the more so as it soon found imitators and produced a crop of rival schemes. The Metropolitan Railway Board, fired by the success of the Speyer group of financiers in linking up three tubes, a suburban tramway system and the principal omnibus service with the District Railway, also took the field as a combineer.

Its first deal was the purchase of the Great Northern and City—a rather startling development, especially to the more conservative section of its shareholders. It will not be carried through without considerable opposition, and at first sight it does look a rather far-fetched scheme. But a careful survey of the various surroundings should satisfy any one that they offer ample scope for future extensions and new connections. It would be a comparatively small matter to continue the Great Northern and City from its present terminus at Moorgate Street on to the Bank. There it could be linked up with the Waterloo and City, and thereby put in communication with the network of suburban electric lines about to be built by the London and South-Western Company.

By means of shortlinks the City and South London could be joined up to Waterloo, and the spur line of the Piccadilly and Brompton tube which now breaks off abruptly in the Strand could be carried to its natural terminus on the south side of the river. When electrification is taken up in earnest all the gaps in the existing network of tubes and street lines will be filled up. A good beginning has

been made by the extension of the Central London to Liverpool Street, where it is now in a position to interchange traffic with the Great Eastern and North London, and through the North London with the whole London and North-Western system. It is impossible as yet to realise the possible results of the great changes which are impending in this quarter. The London and North-Western electric line from Watford to Euston and Broad Street, now being rapidly completed, will revolutionise the suburban service of that whole district. It will also give a new lease of life to the North London.

The Metropolitan Railway has its own possibilities, and all that is needed to realise them is fresh courage and capital. Its natural allies and feeders are the tramway systems of the north-east and south-west of London. Though the former are chiefly owned by the London County Council, there is an independent network controlled by the Metropolitan Tramways Company. At the western end of the Metropolitan Railway is the London United Tramway system. It is already in the Speyer combine, but is not in such a flourishing condition that any scheme for bringing grist to its mill is likely to be discouraged.

These two tramway systems dovetail naturally into the Metropolitan Railway and the Great Northern and City, and it would be easy to issue through tickets over the whole of the four systems. This would certainly be a convenience for the travelling public. It would cost the various companies little to carry out, and by degrees it might produce a considerable increase of exchange traffic. By bringing them closer together in their working relations it might also draw them together financially.

The logical sequel to these local combinations would be a fusion of the two central companies—the Metropolitan and Metropolitan District Railways. All along there have been shrewd suspicions that this was the ultimate goal of the purchasing and joint working campaign. What the Americans once adored as the "community of interest" would be well justified in this case. The wonder is that it was not effected long ago. When it might have been



done with the greatest advantage and at the least possible cost the trend of public opinion was unfortunately the other way. Now that it has wheeled round again in favour of fusion and co-operation, no good subject for such an experiment is likely to be long neglected and there could hardly be a better one than the two sections of the Inner Circle.

But to turn from the railway view of London to a broader, humanitarian one is the prospect of the nation being robbed of its best blood and brain in order to build up a modern Babylon so very attractive? An ever-growing London or a dwindling London, which would be the lesser evil? One thing is certain, that the rate of increase in the passenger movement which was initiated by mechanical traction cannot be long maintained without rendering London intolerably large and unwieldy. It would, in fact, soon become an uninhabitable expanse of noisy and dangerous streets. In little more than forty years the number of passengers carried annually in this densely covered area has multiplied nearly twenty-fold. In 1867 it was under 82 millions, and in 1910 it had increased to 1566 millions. In these forty years the population has barely doubled itself. In 1867 it was 3,605,000 and in 1910 it was 7,183,000. But concurrently the number of journeys per head per annum multiplied about ten-fold. The respective averages per head per annum were 22·7 in 1867 and 218·5 in 1910.

A twenty year comparison will be even more striking in the rate of increase exhibited. In 1891, which may be roughly spoken of as the beginning of the electrical tube and tramway age, the average number of journeys per head per annum was 95·4—only four times greater than it had been in 1867. Then the great expansion began. During the five years 1891-96, when the first tube—the City and London—came into operation and the electric tramway appeared on the horizon, the average number of journeys jumped up from 95·4 to 111·3 per head.

What may be called the twentieth-century system of passenger transportation went right ahead from 1901. In that year the average was 128·7 journeys per head of

the population—almost six times as great as that of 1867. As the new tubes and electric tramways came into operation the annual average rapidly advanced. It was 50 per cent. greater in 1907 than it had been in 1901, and in 1910 it was up another 20 per cent. These four years, 1907 to 1910, made a series of remarkable records. In 1907 the average number of journeys increased by 19·4 per head of the population; in 1908 by 12·4; in 1909 by 2·8, and in 1911 by 14·1. On the whole four years the increase was 39·1 journeys per head, or at the rate of 10 per head per annum.

Movements like these indicate more than a mere development of transportation facilities. They betoken radical changes in the habits of the people which may lead to moral and economic changes of vital importance to the nation. People who make on an average 218 railway or tramway journeys per head per annum—about four per week—must differ in many ways from their primitive ancestors who seldom left home and whose little world did not extend beyond a radius of a few miles. Whether the much journeying and the hurrying to and fro of modern urban life be due to sheer restlessness or to economic necessity it obviously entails great wear and tear of the physical system. Minor evils are immense waste of time and vast expenditure of money which might be better employed.

If we estimate that the 1,566 million passengers carried by rail, tram and motor bus in the year 1910 paid an average fare of 2*d.*, even that small sum would make a total of thirteen millions sterling. The average cost per annum to each of the seven million inhabitants of London for 218 journeys would be £1 18*s.* 4*d.* This includes children and old people, who travel very little. If the calculation were limited to adults the average would be twice as much. For adults alone £4 per head per annum is probably an under rather than an over-estimate. Moreover, the rapid growth of this passenger movement has its alarming aspects. If in little more than the lifetime of a generation the average number of journeys per head per annum has multiplied tenfold, what an enormous

volume of traffic will the coming generation have to provide for.

The figures of recent years are simply appalling compared with those of forty years ago. Let us see how they look at intervals of five years, beginning with 1867—

AVERAGE NUMBER OF JOURNEYS PER HEAD OF THE
POPULATION OF LONDON, 1867-1910.

1867	1871	1876	1881	1886	1891	1896	1901	1906	1910
22·7	29·7	38·6	56·6	74·9	95·4	111·3	128·7	163·5	218·5

Already our principal streets and thoroughfares are crowded to suffocation with all sorts of traffic. There is no classification, no organisation, no method, and, with the exception of the fixed point policeman, no control. The daily life of the Londoner is a continual struggle with street crowds, railway crowds, theatre crowds, and football crowds. He seldom if ever has room to move about in comfort and safety. He never has peace to enjoy anything or leisure to think out any of the thousand and one problems which beset him. He spends a good half of his time in being whirled around on business or on pleasure. Day after day he is shuttle-cocked between his home and his office without ever finding time to settle down properly in either of them. Can he possibly do his work as well as it used to be done in quieter and steadier days?

Merely to grasp the figures which indicate the magnitude of London traffic requires a strong mental effort. How much more trying must it be to organise and control it. That is fast becoming an almost impossible task. Still more impossible is it to keep pace with its tremendous growth. The day has long passed for replanning metropolitan roads and railways. They are now too confused and interlaced ever to be straightened out again. The worst places may be rearranged, but the maze of underground, surface and overhead railways will in all probability have to remain very much as it is.

Not only have most of them been laid out on wrong lines, but the few really good schemes which have been put forward were either mutilated in Parliament or

absolutely rejected. This has been the special misfortune of projects for linking up the railway termini with the docks and wharves on the river. The present generation has seen two of these defeated by combinations of opposing interests and local jealousies. The latest and best remembered was the Greater London Railway of 1911, which proposed to envelop North London in a huge semi-circle extending from Felton in the west to Tilbury in the east. Its wide sweep was to embrace Isleworth, Wembley, Kingsbury, Hendon, Finchley, Friern Barnet, Wood Green, Southgate, Tottenham, Walthamstow, Ilford, Romford, Dagenham, Hornchurch, Upminster and the Ockendens North and South.

This grandiose scheme encountered a torrent of opposition from District Councils, Borough Councils and other local authorities which proved too much for it. But the check it has suffered may be only temporary. Its chief interest for us lies in the illustration it affords of the difficulty of getting any large scheme of metropolitan transportation considered on its merits and judged from its own proper standpoint. Even from that standpoint the Greater London Railway was a rather dubious scheme, but however good it had been in itself it had obviously no chance against the phalanx of municipal objectors who rushed down on it.

A much more feasible Outer London Railway was proposed nearly thirty years ago and also rejected. Or it might be more accurately described as having fallen still-born. Fully half a million sterling was lost over it, so that instead of helping to solve London's traffic problem it postponed the solution for at least a generation. Nevertheless it is almost as certain as anything can be in the life of a great city which prefers to live from hand to mouth, that the railway in question will sooner or later have to be built. It was known as the Regent's Canal, City and Docks Railway—a name now probably forgotten by nearly all who have not painful cause to remember it.

This railway was much less ambitious than the Greater London of 1911. It took a much smaller sweep to the north of the Thames, and was consequently nearer the

centre of metropolitan traffic. It had the advantage of an open route well defined and a clear right of way secured for more than three-fourths of its entire length. Starting from Paddington it would have followed the course of the Regent's Canal to Victoria Park. Then, instead of going down to the Limehouse Basin, the river terminus of the Regent's Canal, it would have diverged to the north-east along the Hertford Union Canal. This line it would have followed as far as Old Ford, and then have struck away to the south-east. Running through Stratford and Canning Town it would have ended at the Victoria and Albert Docks.

That this still-born railway would have been an immense boon to North London as well as to the river trade can no longer be disputed. It would have brought the docks and all the northern railway termini—King's Cross, Euston, Marylebone and Paddington—into direct connection with each other. These termini were all to be joined up to it, and they need never afterwards have put a ton of import or export freight on the public streets. It would also have relieved the blockade of their City lines with goods and mineral traffic.

If the railway shareholders of 1883 had had the faintest idea of where their true interests lay on that occasion they would have insisted on the Regent's Canal, City and Docks Railway being heartily supported by their directors. But they were as usual blind and apathetic. They did not dare "to speak to the man at the wheel," and he as usual did as he liked. What he did was the worst possible thing for his shareholders as well as for the public. He would not part with an ounce of his dock traffic so long as he could keep it on his own line, however circuitous and inconvenient that line might be. Even when he had to part with it before reaching the docks, he would give it to any one rather than to a new railway which foreshadowed possible competition somewhere or other.

In short the directors and managers of the northern main lines played dog in the manger to the new project, which offered them the best and cheapest connection they could possibly get with the docks and the river

Thames generally. If they had approached it in an impartial business spirit they would have had no difficulty in making terms. It was quite well known that carting goods across London, say from Paddington to the docks, cost on an average 4s. per ton. Sending it by circuitous railway routes, most of which involved a certain amount of cartage, would not be much if any cheaper. Taking into account the unconscionable delays and waste of time which the round-about routes involved, it might even be dearer.

That the proposed railway could do their work better, quicker and cheaper than any existing service these conservative managers could not have denied. Rates were offered them which would have meant savings of thousands a year. They might have contracted beforehand for all their import and export freight at half the cost of cartage if they had been willing to guarantee a reasonable amount of tonnage per annum. One or two of them were willing to do this, but the others were scornful. The Great Western was the most discouraging. It suggested sixpence per ton as a maximum through rate, which would have been less than a halfpenny per ton per mile. The Great Northern was the most liberal of the main lines, in fact, the only one that showed any breadth of mind at all.

Notwithstanding all these dampers and discouragements, the promoters of the Regent's Canal, City and Docks Railway made a gallant attempt to raise the necessary capital. In February 1883 they issued a prospectus for £1,275,000, out of which it was proposed to pay £1,170,485 for the existing stock of the Canal Company. The stock-holders were given the option of taking new stock for old at the rate of £130 new for £100 old, and most of them to their subsequent sorrow made the exchange. The new company guaranteed them 4 per cent. until the 31st March, 1888, and 4½ per cent. in perpetuity thereafter. But the guarantee broke down before it was four years old. In 1887 only 3 per cent. was forthcoming, and in the two following years there was a further drop to 2½ per cent.

The old canal shareholders found themselves severely punished for attempting to render a valuable service to the public. Before the railway scheme was started they had been receiving a comfortable dividend of 5 per cent. on a capital of £996,000. The railway financiers watered their capital about 30 per cent. and cut down their dividends one-half. In the end they had to let the railway go and resume possession of the canal. But heavy as their loss was, that of the public was infinitely greater. Had the railway been built as was proposed in 1883, it might by this time have been not only earning good dividends, but effecting large economies in the cost of transit traffic through London. It might also have been acting as a check on labour unrest so far as the dockers and bargees are concerned.

The fate of the Regent's Canal, City and Docks Railway has one more important moral for us. Its promoters were blackmailed to a scandalous extent in expenses. The parliamentary deposits alone cost them £310,000, and other charges were in proportion. The company's *post-mortem* balance sheet showed a debit of over £600,000. The Greater London Railway Bill has probably been almost as costly a venture for its financiers. Need we wonder if a good outer-circle railway has still to be built? The task has to be approached in a very different spirit from that of the Parliament and the railway managers of 1883. It will never be properly executed until the public necessity for it is fully recognised, and all who are to benefit by it show their willingness to treat it at least fairly if not generously.

BOOK THIRD—TECHNICAL

CHAPTER X

THE GOODS SERVICE

IN Chapter III a full description has been given of the work done by British railways. In continuation of that we have now to see how they do it. This involves an examination of their principal services. Of these the most important, both in respect of earning power and of public benefit, is the goods service. It has not hitherto held its proper place in our railway economics, and still less in the estimation of our railway managers. The fascination which the showier forms of railway enterprise have exercised over them may account for the excessive attention they have bestowed on passenger expresses, with their luxurious and costly encumbrances of sleeping cars, drawing-room cars, dining cars and smokers. The true earning power of such trains is generally in inverse ratio to the elegance of their fittings and the splendour of their upholstery. It is the well-loaded goods train and not the magnificent sixty-mile-an-hour express that keeps a railway going. If it depended on the drawing-room car, both the car and the railway might soon be for sale.

The keynote of modern railway administration is the supremacy of the goods service. Where that is recognised and acted upon there will be a clear road to success. Where it continues to be ignored and neglected as it has been in the past there can be no solid progress; there is more likely to be retrogression. On all our trunk lines "full train loads" is now the motto, but even they cannot always live up to it. At metropolitan depots and in

large centres of traffic throughout the provinces express goods trains can be loaded from end to end and dispatched all over the country two or three times a day. They can be run on regular time-tables, and almost at equal speed with the passenger expresses, of which they are a questionable imitation.

Even second and third-rate manufacturing towns in the north have now their through goods non-stop expresses. The latest evolution of these appears to be on the North British Railway, where the whole system is gridironed with them. Carlisle receives no less than eleven of them daily from various points at the northern extremities of the system. Five come from Glasgow and the west of Scotland, three from Dundee, and one each from Edinburgh, Falkirk and Grahamstown. On the east coast Newcastle is quite as liberally, not to say lavishly served, and one of these expresses runs right through to King's Cross. Of course there are corresponding return trains both from Newcastle and Carlisle.

The speed records of most of these "through goods" expresses are noteworthy. The Sighthill (Glasgow) to Newcastle leaves at 9.30 p.m. and arrives at 7.10 a.m. next morning, doing the 175 miles in nine and a half hours. But that is slow going compared with the Glasgow to Berwick and the south. It starts at 7 p.m. daily except Saturday, and with a thirteen-minute stop at Niddrie Junction, runs right through to Tweedmouth, where it passes on to the North-Eastern system. This 104 miles is done in 185 minutes, or, deducting the thirteen-minute stop, 172 minutes. From Tweedmouth it rattles on to York, and thence to King's Cross, where it is due at 6 a.m. on the following morning. The time for the through run is exactly eleven hours.

The reverse train from Berwick to Glasgow starts at 5.35 a.m., and makes a non-stop run to Niddrie Junction, 53 miles in 80 minutes. From Niddrie it goes right through to Parkhead, 46 miles in 99 minutes, and enters the College goods station, Glasgow, five minutes later. The running time for the whole journey from Berwick to Glasgow is 2 hours 4 minutes. The fastest passenger train on the

same journey takes about two hours and a half, so that in this case goods travel quicker than live freight. Another crack goods train on the North British uses the Waverley route. It does the 98 miles in 3 hours and 5 minutes with thirty loaded wagons : the best passenger time being only half-an-hour less.

Taking the North British as a typical line, these "through goods" expresses differ very little from non-stop passenger flyers. They have to be engined and braked quite as expensively, and quite as much care has to be taken in running them. If a comparatively small system like the North British can find work for about a score of such trains, how many of them are there likely to be on the great trunk lines like the North-Western and the Midland? The total number running between the chief provincial cities of England should probably be reckoned by hundreds. Whether they all pay is an open question. If the data for answering it were available it would be a most important point to determine.

In their favour is the fact that as a rule they will run with full loads. That will probably more than counter-balance the extra cost of their fast running and their expensive maintenance. It may easily happen that the local goods trains are less profitable than the "through goods." They labour under the most serious drawback that goods traffic can have to contend with—light loading. It may seem a paradox that local goods traffic should tax the skill of railway officials more than the long-distance traffic, but a very slight study of the working conditions in the two cases will show why it is so. Short-distance traffic has to be collected in small quantities from station to station. It travels as a rule in wagons which may not be half or even one-third loaded. It runs at slow speeds and with frequent stops. Both the train itself and the goods need a great deal more handling, and that is an expensive item in freight movement.

Speaking without definite data as to the profitable character of the principal classes of goods traffic, we might venture to say that the "through goods" expresses pay best because of their full loading. In that respect

they have an analogous advantage to the excursion train, which may often pay through sheer force of numbers. The local goods traffic, even when most carefully and economically worked, is so expensive that it must often be unremunerative. We are still more sceptical as to the parcel business of the railways in which they so foolishly compete with the Post Office. On the face of it sending a van to collect a small parcel, carrying it a hundred miles, and sending out another van to deliver it—all for the small charge of sixpence—is not getting ninepence for fourpence, but the other way round.

It took our railway managers a good many years to discover that full train loads are the secret of success in modern transportation. They cannot always get them either in their goods or their passenger business. For every full train they run a dozen go out half empty. For the public as well as for the railway the full train is best, because it not only gives the quickest service, but it is generally the cheapest. Railway managers are therefore to be encouraged to make the full train their motto. It is an undoubtedly good motto, though it was borrowed from the United States along with many other less obvious innovations, as, for instance, ton-mile statistics. There may be wide differences of opinion among practical as well as among theoretical railway experts as to the best test of loaded trains, but the full train load itself is an indisputable axiom.

It is gratifying to observe that railway officials are beginning to appreciate its importance, and even the men cannot avoid taking an interest in it, though they consider it contrary to trade union principles. One of their chief grievances during the strike of 1911 was that heavier trains and more powerful engines enable the railways to do more work with fewer hands. That is unquestionably true, and justifiable to boot. It is the natural and legitimate answer of worried capital to mutinous labour. But for fuller and fuller train loads the railways could never have stood up as they have done to the incessant attacks of the trade unions in the past decade.

The full train load is the crux of railway efficiency and

success. It is the crucial problem of the modern railway manager, and there can be no more interesting or instructive study than the innumerable methods by which he tries to solve it. The latest solution in use is the "tranship" method, by which small consignments from country stations are passed on to "tranship" stations until a paying load is obtained for every wagon travelling any distance. This system requires to be very methodically carried out, and a multitude of strict rules have to be laid down for its regulation. Consequently it is not popular with either station agents or their staffs. A writer in the *Great Central Railway Journal* for April 1911, who has evidently studied the subject from the inside, says—

"Local conditions vary and difficulties often arise of which headquarters staff know nothing. The station staff have to cope with the trouble, and should not be tied up with frivolous instructions."

At the same time he admits that the station staff cannot be left entirely to themselves. Men are often inclined, he says, to send a wagon away empty if it means work in getting it into position.

The present system of obtaining the average load dispatched from each station is not, in his opinion, satisfactory. He would substitute for it a daily statement showing the average load for local, foreign and road wagons, specially noting light loads and the reasons for same. It should also state what foreign wagons have been sent away empty. By this means he thinks it would be possible to put a finger on the weak spot at once, and not, as is now often the case, in a few months' time.

That last sentence embodies the unconscious verdict of a practical railway man on the ton-mile theory. Before ton-mile figures for a given month can be got out and put in proper shape to submit to the General Manager, it may be well on into the following month. To this official objection the ton-mile theorists have never yet been able to return a conclusive answer. Then there is a still more practical objection put forward by the men who have to work the traffic. Speaking for them, the writer in the *Great Central Railway Journal* says—

“ Whilst at some stations it is possible to maintain average loads of three to four tons (per wagon), there are many which find it impossible to get even two tons. Varying traffic is responsible for this, and it is difficult for a foreman, however good, to follow out his many instructions as to getting traffic to destination promptly and at the same time preventing light loads.”

The “ tranship ” system he regards dubiously, but his opinion of it has evidently been formed at second hand. It is therefore not of great value, though it may deserve passing notice. Some companies, he observes, have endeavoured to prevent light loading by means of “ tranship stations ” with varying results, although the balance of evidence seems to be more or less in their favour. Altogether light loading is a difficult problem in connection with local goods traffic. Where it is impossible to obtain full loads the railways have a certain amount of justification for charging proportionately higher rates on such traffic. Before the advent of the road motor they often did penalise short-distance traffic, but now that there is an effective check on them they will be wise to conform to the new motor rates even if they leave very little profit.

On long-distance traffic, and especially on through traffic exchanged with other railways, the “ tranship ” system may become very valuable. On certain trunk lines it has been most elaborately organised, and minute instructions are given for its operation. It is being carried out most thoroughly perhaps on the London and North-Western, which no doubt borrowed the idea from its American friends. Since 1905 there has been in use on the London and North-Western a book of “ Instructions as to working of road vans and tranship traffic.” It is a volume of over a hundred pages, in which all the starting-points of regular goods trains are arranged alphabetically. Under each starting-point are shown the various trains and their destinations, also the stations served by them. It explains where traffic is to be picked up or exchanged or transferred, where through loads are to be made up, where tranship wagons are to be attached to

a through train, where goods are to be sent on by passenger train, where they are to be carted from one station to another in order to go forward by a more direct route, where they are to be shunted in order to fill up with local goods, and innumerable other directions.

The object of these minute regulations is evidently twofold—first, to keep a check on half-loaded wagons, and secondly to minimise the risk of goods going astray. When a consignee lodges a complaint about missing goods, the official receiving the complaint can tell at once by what route they should have travelled, and where they should be at a given time. He knows where to start making inquiries about them, and the chances are in favour of their being quickly traced. This is a point on which our railway managers may plume themselves. Compared with foreign railways their percentage of lost goods is very small, and the percentage of recoveries very large. The writer had this fact strongly impressed upon him while travelling in the western States. Wherever he broke his journey he found the baggage-room in a high temperature owing to complaints about missing baggage.

The American freight department is also unlucky. Consignments go astray and are often lost for weeks. Where they are urgent special precautions have to be taken against delay. In the case of a large shipment with a long distance to travel the railroad undertakes to advise the consignee day by day of the point it has reached and how it is proceeding. On British railways, and especially on those where the "tranship" system is well developed, no such special arrangements are needed. If the regulations laid down in the "tranship" book are faithfully observed, goods should travel almost as methodically as passengers, and should reach their destinations almost as punctually.

In a brief preface to the "tranship" book of the London and North-Western Railway, general instructions are given as to the loading of goods traffic, the use of road vans, the amalgamation of loads, etc. The idea of transshipment is to separate through traffic as far as possible from local. The former is to be sent forward

by the regular through trains to its proper "tranship" station, while the latter is to be carried by road vans serving the intermediate stations. The first sentence in the regulations says—

"The agent at a station which starts a road van for delivery at various destinations will be held responsible for seeing that it is fully and properly utilised, and for reporting to his District Goods Manager any case of light or unnecessary running or other irregularities."

No road van is to start with a load of less than 15 cwt., unless it is specially authorised by the District Goods Manager, or is the only van covering a certain section of the line, in which case it must run daily irrespective of weight. The last clause deserves to be taken note of, as it lays down the wholesome principle that every section of the London and North-Western Railway is to have at least one goods service daily. When a road van on reaching a "tranship" station has less than 15 cwt. of a load, it must have its load increased if there be goods available for it. If not it must unload at the "tranship" station, so that goods for competitive points may go forward by a through train the same night.

Even separate stations in the same town and separate loading depots or sidings at the same station are required to co-operate in the amalgamation of loads. Every effort, it is said, must be made to amalgamate loads for the same destination, either by carting or by using partly loaded wagons, that is, wagons provided at one part of the station for conveyance of goods accumulated at another part.

The station agent is of course an important person in the carrying out of these regulations. He has not only to supervise his staff, but he has to educate them. Clause 13 of the general instructions says that "agents are held responsible for seeing that their foremen checkers and loaders are educated as to the proper usage of foreign wagons, selection of suitable vehicles, and the standardisation of loading for particular classes of traffic, also as to the method of starting and building up the loads so as to secure wherever possible (consistent with safety)

loading to the maximum carrying capacity of the trucks." They have further to watch and report cases where light or duplicate loads are received from local stations, as well as instances of duplicate or light loads of unimportant traffic being received from foreign lines.

In short, the station agent is expected to be Argus-eyed. He is not only to have a hundred eyes, but he is to keep turning them in all directions, watching not only his own staff but his brother agents. The misdeeds and irregularities of foreign lines have to be duly recorded in his daily reports. Between District Goods Managers who may not be exactly sweet-tempered, and checkers who are often cantankerous, the poor station-master cannot fail to have some bad quarters of an hour. He would be an angel if he took in the official organ of the National Union of Railwaymen and could read without a blush what his head porter or possibly the lamp-cleaner says about him at the Sunday meetings of the local branch. He may now hope, however, that less of that trade union insolence is to be tolerated hereafter. All the companies had allowed it to be carried to a disgraceful length, but now apparently some examples are being made of the worst offenders. So much to the good for the long-suffering station agent.

It is due to our railway managers, after the severe but not always intelligent criticism that is poured out on them, to acknowledge that they are at last beginning to appreciate the scientific side of their work. Many of them are applying themselves earnestly to the economical working of their goods traffic. The many complex questions involved are beginning to receive systematic consideration. American methods are being studied with an open mind and a readiness to admit that they are sometimes ahead of our own. But on the threshold a serious obstacle is encountered in the fact that the British and American methods of handling freight differ fundamentally.

A few examples will suffice to illustrate and enforce this oft-forgotten truth. Our railways not only transport goods by rail, but they collect and deliver them.



American roads only haul them from station to station. Collection and delivery charges have therefore to be eliminated from our rates before they can be fairly compared with American rates, which cover only haulage from station to station.

The ton is the invariable unit of charge on heavy shipments, whereas American shippers can have special rates for five-ton lots, car loads of 30 to 50 tons, or train loads of from 800 to 2000 tons.

Freight rates in America include forty-eight hours' demurrage, which is so much free warehousing to the consignee. He has it extended when the railroad can do so without inconvenience, and goods are often re-shipped from a freight depot without having been touched by the original consignee. For these facilities American roads make no extra charge, while British railways start at once with a charge for terminals; they are also more strict in levying demurrage, and British freight as a rule has to undergo a larger amount of handling than American.

"Accommodation Sidings" are much more liberally provided by American than by British railways. Every factory or warehouse of any importance has one. Manufacturers and merchants are encouraged to locate themselves close to railroad tracks, where they can load and unload on to their own sidings. They lease sites from the railroad company at nominal rentals, and put up their own buildings. The sidings are generally also rented, and some of them are miles long. Not only do shippers thereby escape terminal charges, which on our short hauls may be 40 or 50 per cent. of the rate proper, but a much larger saving is effected in handling the freight. The dray work in New York is not half so troublesome as in London, though the bulk of the freight in transit must be considerably greater.

The method of operating freight trains in America may also deserve more consideration than it has yet received from British managers. It differs radically from the British method, and if a fair experiment could be made with it on a British line, it might be found more

economical. An ounce of fact is worth a ton of theory in railway work as in all other practical walks of life. But any railway making the experiment would have to be prepared for a complete reorganisation of its traffic department. It would have to transfer one-half of its goods porters from stations to trains and dispense with the other half. Each train on the American principle would have a complete working staff of its own—"crew" is the technical term—and be able to load or unload freight at any point without local help.

A "train crew" consists of driver, fireman, conductor and two or three brake-men, who act as travelling porters. A train thus manned can run into a station, deliver freight and pick up new freight without seeing any one but the station agent or his deputy. Through trains call only at principal stations—"division points"—which may be 100 or 120 miles apart. "Local freights" calling at all stations do the local business, and also pick up through freight, which they carry to the calling stations of the through trains. This, it will be seen, is a more elastic system than ours, and under better control from a labour point of view. Goods porters have not to be kept at stations where they may be needed only now and then, or where they may have only a few hours' work per day. A "train crew" is bound to be always in full work. When required an extra train may be put on—complete in itself like all the others. In the reverse case a train can be taken off or its trips may be rearranged in order to give it full employment. All this can be done without reference to the station staffs, which compared with our own are very small.

The issue to which we invite the attention of British railway officials is between stationary freight handlers and travelling freight handlers. Whether can a given quantity of freight be moved quicker and cheaper by the one system or the other? *Prima facie*, if goods porters be distributed along the line at fixed points, each fixed point will require a maximum supply of them. Unless they are to be at times greatly overworked, their number must be in excess of normal requirements, which can

never happen with a train crew. The latter can be increased or diminished at pleasure; trains may be put on or taken off at an hour's notice. Economy of labour would seem to be decidedly with the Americans.

To give the "train crew" system a fair chance on a British railway, collection and delivery would have to be abolished along with the extra porters at goods stations. It might work pretty well without that change, but it would work much better if shippers were to do their own collection and delivery, as in the States. Here, too, economy of labour is possible, and, what would be a still greater boon, heavy traffic on the streets might be reduced. Instead of every railway having its own cartage outfit—sometimes overworked and at other times underworked—one or two agencies might act for them all. Our street traffic would thereby be immensely relieved, with better service rendered at the same time to traders.

The public if not the railways, but probably both, would gain by putting the railway companies back as near as possible into their original position of traffic haulers. In course of time all the irritating questions of terminal charges and cartage rates might be got rid of. The railways, if restricted to their proper business of hauling freight from station to station, could simplify their work immensely. As a natural consequence they might be able to do it better and more economically. A traffic manager, who, instead of having his mind dissipated over a score of side questions, could concentrate it on the single problem of how to move a train load of goods over a given distance at a minimum cost might discover possibilities of economy undreamt of hitherto.

That problem, which is the true railway problem, and the basis of all transportation systems, calls impatiently for solution in this country. Far from being solved, it is only beginning to be realised. In the United States it is being eagerly studied, and that is the secret of the remarkable progress the American railroads have made in the past decade. Our railway officials are too often hampered by the cast-iron rules they work under, which

leave very little room for original thought or initiative. Nevertheless one occasionally meets in the railway press with startling suggestions.

In the *Great Western Railway Magazine* for August 1912 Mr. F. W. French of Helston throws out quite an American idea. The present system of station truck working he truly declares to be antiquated, and he asks if there could not be substituted for it a sorting train which would entirely eliminate road-side work. The idea has evidently been suggested to him by the Post Office sorting van arrangement. It would, in fact, be an adaptation of the letter-sorting method to parcel and light goods traffic. At the same time it would be an approximation to the "train crew" system of the American railways. I have already observed that this would be an experiment well worth trying.

CHAPTER XI

THE PASSENGER SERVICE

THE fundamental problems of goods traffic and of passenger traffic are practically alike. It is the full train load that governs both. But very different solutions are sought for in the two cases. In the goods service direct business-like methods are taken to secure as full a train load as possible. Small consignments are amalgamated at successive points on the route until they reach paying quantities. There is reason to believe that this policy when carried out with energy and intelligence produces very satisfactory results both for traders and shareholders. It is therefore all the more surprising that exactly opposite methods should be applied to the passenger service.

Instead of trying to fill up their regular trains, railway managers when they want a full train load advertise a special excursion to some popular resort. Instead of charging the regular fare for these excursions they offer tickets at a half, a third or even a fourth of what regular passengers have to pay. This practice is now almost peculiar to British railways. It never attained in any other country the absurd development which it has received here. What there was of it in other countries is being given up, and a gradual return is being made to the original principle of flat rates. On the State railways of Germany not only have excursion fares, circular tours and all other special rates been abolished, but return tickets have been withdrawn.

This was done, however, in such a way that the public gained rather than lost by the change. Wherever a return

fare was abolished the two single fares were reduced to the level of the old return fare. Thus where the single ticket had been a shilling and the return eighteenpence, the single ticket was reduced to ninepence. The ultimate effect of the readjustment was that the German State railways have now a perfectly simple and uniform tariff based on mileage. They charge the lowest rates possible for each class, and every passenger pays so much per mile no matter whether he travels five miles or five hundred. Many British tourists, in happy ignorance of this change, continue to arm themselves beforehand with circular tour tickets. The reduction they obtain on them is purely imaginary, as the price charged is simply the sum-total of the separate fares. In fact they get a separate ticket for each section of their journey.

This truth may be brought home in a rather unpleasant way to tourists who try to get circular tours at a German railway station. In the first place you will most likely be told that the circular tour office is somewhere outside. When you find it you will be confronted with a row of military-looking officials. After humbly explaining to one of them where you wish to go and by what route, you will be silently and severely handed a printed form to fill up. If you should look particularly bewildered, or if the clerk is in unusually good humour, he may refer you to a big book lying on a table in the middle of the room. This is a dictionary of fares far more formidable than the British Bradshaw. The first glance at it inclines you to throw up the sponge and return to the railway station determined to pay as you go.

At that moment a benevolent German takes pity on your distress and shows you how to fish out the details necessary to make up your *Rundreise*. For every separate section of it you have to find the mileage and the fare, and enter them in the proper place in the schedule. Having laboriously collected and entered them all and added up the amounts, you return the form to the official Cerberus, who with a stony look accepts your money. If you should fondly imagine that you are going to get your ticket on the spot you will suffer another disappointment.

He will probably tell you to return in the evening about a quarter of an hour after the last night train has gone through.

It is useless to argue with him, still less to appeal to his magnanimity. You will not get your circular ticket a moment earlier than the appointed time, and when you get it you will discover that you have wasted a day for nothing. You might have gone on in the morning paying the local fares all the way round, and come out even on the transaction. In short, the German *Rundreise-billet* has degenerated into a huge Teutonic joke. Why it was not abolished altogether on the introduction of the new single fare system I cannot guess. Perhaps it was retained in order to demonstrate by contrast the sweet simplicity of the uniform mileage rate. The latter is certainly a good thing in itself, and is popular with the Germans, as it will also be with British tourists when they begin to understand it.

In the United States a similar reversion to uniform fares has also taken place in the past few years. Special fares are granted only for special occasions, such as political conventions or public conferences. Then they are hedged round with limitations as to routes and length of time available. Excursions are frequently organised by Societies or private speculators, but seldom by a railroad company on its own account. Almost the only privileged fare that survives is the thousand-mile ticket, which was the original model of the strip ticket now extensively used on tramways and tube railways. These are rational and equitable forms of commutation, but unfortunately the attempt to introduce them in this country has been an indifferent success. The only railway, I believe, which now issues thousand-mile tickets is the North-Eastern, and even it does not push them much. The strip ticket is chiefly used for workmen's trains, for which also weekly tickets can be had.

The standard form of commutation on British railways is now the season ticket. It is universal on metropolitan lines (with the exception of the latest tubes), and also in provincial cities. It is peculiarly suited to the

enormous masses of suburban traffic which have now to be dealt with morning and night. It is difficult to see how they could be handled in any other way. The issuing and checking of nearly a million tickets twice a day would be physically impossible. But necessary and convenient as the season ticket may be, it is a very rough-and-ready way of charging for the transportation of passengers. It may mean to one passenger a single journey per day, to another two, to another three, and in fact anything up to spending a whole day on the train.

If the actual journeys made in a week by half-a-dozen season ticket holders with the same class of ticket were reduced to mileage, it might be found that A had travelled twice as far as B, and B three times as far as C. But all had paid the same price for their tickets, so that while C's fare worked out at a halfpenny per mile, B's might average only a farthing per mile, and A's an eighth of a penny. This is not only a very random method of charging for transportation, but it involves a great deal of unfair discrimination between passengers, and in many cases heavy loss to shareholders. There is no pretence of scientific basis for it. It acknowledges no standard either of equity or value.

Season ticket rates are notoriously arbitrary and capricious. There is not a word to be said in their favour, except that they are very simple and easily worked. Consequently they give little trouble either to the ticket holders or to the railway officials. That is their one merit, and it is dearly bought at the price of inequality and fraud. But if the season ticket goes too far in the direction of absolute uniformity, our railway managers restore the balance by the multiplicity and diversity of their ordinary fares. On the Brighton line one may get a first-class season ticket for about £40 a year, and if he uses it twice a day—that is, up and down—the total journeys made in a year will be, say, 626. Their average cost will be under 1s. 4d., or little more than half of the lowest fare charged to a cheap tripper, and less than a third of the ordinary parliamentary fare.

The time-honoured adage about making a reduction

on taking a quantity is not to be lightly spoken of, but in this instance it is surely being carried too far. The first-class return fare from London to Brighton is 15s., and 313 return journeys would cost at that rate £234. The "discount on taking a quantity" is therefore about 90 per cent. Either that is an unreasonable reduction to give to the season ticket holder, or the ordinary return fare is unreasonably high. There is no visible proportion between the two, and no principle can be discovered in the fixing of them. Neither of them bears an intelligible relation to the other, and still less to the hundreds of other fares chargeable on the Brighton Railway. The suggestion that there should be any relation between them would possibly excite surprise in railway board-rooms generally.

Previous to 1888 freight rate books were the standing puzzles of British railway administration. They were then reduced to comparative order and intelligibility. Though they are not yet by any means perfect, they shine beside the Babel of passenger fares that are still in force. There is hardly a town of any importance in the three kingdoms but has five or six different prices to pay for the transportation it purchases from the local railways. A resident in one of them who makes a journey on Monday is probably charged full third-class fare, say 10s. For the same journey on Wednesday he may get the benefit of the weekly cheap trip, and so save 4s. or 5s. For a week-end ticket he may have to pay 8s. In summer he may have a tourist return good for a month for 6s. When the excursions are on he may have a large choice of them two or three times a week for half-a-crown.

Until one goes to London Bridge or Liverpool Street or Victoria, he can never guess what the cost of his projected trip is to be. It varies not only with the days of the week, but with the time of day. The same journey may be 50 per cent. less in the afternoon than it would have been in the morning. To go to the same place may cost 20s. on a Friday night and 30s. on any other night. These are eccentricities of our passenger service which no one can account for, much less justify. They have grown

up with the system, and become so firmly embedded in it that it will need a very hard wrench to pull them out.

It is surely a peculiar irony to find such absurdities flourishing in the home of the penny post and the sixpenny telegram. For a counterpart of our passenger fares in the year 1913 we have to go back to the protectionist tariffs of a century ago with their twelve hundred and odd classes of dutiable imports. What curious affinity can there be between the up-to-date railway booking-office of to-day and the antiquated Custom House of a century ago? Smart railwaymen may jeer at the old-world fiscal tariffs who never suspect that their own passenger tariffs are framed on the same model. They are divided and sub-divided in the same arbitrary way, overloaded with unnecessary differences and distinctions, and made as puzzling as possible to distracted passengers.

It is in the concoction of needlessly differentiated return tickets that the perverse ingenuity of the modern ticket clerk shines most conspicuously. Not content with creating unnecessary variations in the fares themselves, he further muddles them up by making them valid for two, five, eight, fourteen or sixteen days as strikes his fancy. He evidently sees a difference which is perceptible to nobody else between carrying people on a Wednesday and carrying them on a Saturday. He has occult reasons of his own for assuming that they should pay more for bringing them home in the second week of their holiday than in the first. The simple fact that it is the same man that has to be brought back whether in two, five, eight or sixteen days never seems to have occurred to him.

As a *reductio ad absurdum* of the British method let us take one or two familiar cases, beginning with Cromer. This popular watering-place is subject to half-a-dozen different time limits on its London returns. Two single tickets cost 21s. A tourist return good for six months costs 20s. A fortnightly return is 5s. less, a week-ender is 11s., and a day trip is 5s. 6d. Very probably the cheap tripper rides in the best train of the lot, makes the best time, and is altogether best treated. This is another paradoxical development of modern passenger fares—

very often the less you pay the more you get for it. The writer frequently uses a Cook's excursion train from London Bridge to Worthing. It runs on Saturdays and Mondays, starts at a more convenient hour than any of the regular trains, goes through to Brighton with one stop,—makes close connection there with a fast train for Worthing, and reaches its destination half-an-hour sooner than any regular train could do it.

In every respect this is absolutely one of the best trains on the Brighton system, barring, of course, the Pullman expresses. Its return fare is 3s. compared with 9s. 2d. for two single fares by an ordinary train, or 7s. 9d. for a week-end return. A two-day return by the excursion train can be got for 4s. 6d., and a three-day return for 5s., the return halves being valid on any regular train. Now here is a conundrum for the Brighton Railway Company—on what principle do you charge 3s. for a return ticket to Worthing by a fast non-stop train, and 7s. 9d. for a similar ticket by a slow train calling perhaps at all stations, and wasting an extra hour of the passenger's time?

A similar conundrum might be put to the Great Eastern Railway—what need is there to offer the public a bewildering choice of eight different prices for such a simple service as transportation from London to Cromer and back again? The ascending scale of return fares is like Jacob's ladder, it begins very low down and ends very high up. This is how it ascends—

RETURN FARE LONDON TO CROMER.

1 day.	3 to 5 days.	8 days.	14 days.
5s. 6d.	8s. 6d.	11s. 6d.	15s.
Week-end.	Fortnightly.	Tourist.	Double Fare.
11s.	15s.	20s.	21s.

The one-day fare averages 0.24d.—rather less than a farthing per mile, while the week-ender pays about a halfpenny per mile, and the regular passenger a penny per mile. Often there will be samples of these eight different tickets on the same train. If all the holders happened

to meet and compare notes, the people who had paid the penny a mile would hardly approve of the modern railway policy of charging eight different prices for the same article.

The policy of charging by time as well as by mileage is also extensively practised on the Midland Railway. Here it is carried the length of caricature. The following schedule of return fares with time limits is enforced on Bank holidays between London and Leicester—

Half-day.	One day.	Two days.	Three days.
3s. 9d.	6s.	8s.	9s.

Between London and Loughborough they are—

Half-day.	One day.	Two days.	Three days.
4s. 3d.	7s. 6d.	9s.	10s.

Between London and Sheffield this is, or used to be, the scale—

Half-day.	One day.	Two days.	Three days.
5s. 6d.	9s.	10s.	14s.

What difference did it make to the railway company whether these people returned the same day or next day or the day after? In other lines of business the price of a service is supposed to be determined chiefly by its cost to the person who renders it. Here the cost of transporting passengers between London and Sheffield would be practically the same on all the four days of which they had the choice. To charge them for time in addition to the initial charge for mileage is a proceeding of questionable legality. As a matter of business it is certainly not sound, neither is it calculated to enhance the popularity of railway methods.

The German flat rate of so much per mile Saturdays and Sundays, summer and winter, on short distances or long distances, is not only simpler, but there is a quiet dignity and uniformity about it worthy of imitation nearer home.

No railway manager will pretend for a moment that the practice of making half-a-dozen prices for the same article is good business. Still less can he claim that it makes good statistics. British fares are so shuffled and confused that it is almost impossible to strike a true average of their yield per mile. Nearly five years ago Sir George Paish raised this interesting question at the Railway Shareholders' Conference of 1908, but it has not been followed up as it should have been, thanks to the incurable apathy of the shareholders themselves. He expressed very neatly the dilemma in which our railway managers had landed themselves by their reckless and gratuitous rate-cutting—

“It is very desirable,” he said, “that information should be available of the kind of passenger traffic carried. In the early days of railways practically the whole of the traffic was carried at what are known as ordinary fares—the fares which the companies are required to post in the railway stations. But as time has passed they have issued great numbers of cheap tickets. Were information available, probably it would show that the railway companies at the present time have a much larger passenger mileage at cheap ticket rates than at the ordinary fares. Doubtless the earnings from the ordinary tickets are still greater than the earnings from cheap tickets, but when allowance is made for the very low mileage rates at which the cheap ticket traffic is carried, it is evident that the bulk of the passenger traffic of this country is carried at other than ordinary fares.”

In plain English our railway managers have landed us completely in the dark as to the passenger traffic from which nearly one-half of our railway revenue is derived. They have mystified us as to the principles, if any, on which that traffic is being conducted. If they know themselves they take care not to explain it to their shareholders. All the shareholders can find out is that every year better service is being given to the public for less money.¹ Whether this policy pays or does not pay we

¹ This year (1913) slight additions are being made to some of the cheap trip fares.

have no means of finding out. Railway chairmen assure us that it does pay, but they do not see that they are trying to run two contradictory systems side by side. If their cheap trip policy be sound, then their regular train service must be unsound. If full trains at low fares be the true policy, why persist in running half-empty trains at high fares? If one be right the other must be wrong, and it matters little to the shareholders which of them happens to be right. What does matter is that, having ascertained which is the right one, we should whole-heartedly adopt that policy and renounce the other. We cannot have both.

There are three classes of travellers for whom the fashionable railway manager specially caters—the cheap tripper, the summer tourist and the Pullman car sybarite. We have seen how far he is prepared to go in cutting rates for the crowd. His homage to the summer tourist takes the form of non-stop expresses. As soon as the season begins these are let loose all over the three kingdoms. Every holiday resort from Brighton to Oban is provided with a daily service of them. The long distances they cover without a stop, the wild speeds at which they run, and the luxury with which they are fitted up are duly proclaimed in all manner of advertisements. So vigorously and lavishly are they boomed that it would be a wonder if they did not attract a good many passengers. They are not always crowded, however, and in wet summers like that of 1912 they must have some poor days. But whether they run full or empty a heavy score of working expenses will always be mounting up against them.

If these tourist expresses were put on in moderate numbers there might not be very great objection to them. But they are crowded in between the ordinary trains so thickly that the whole service is liable to be thrown out of gear, and delays become inevitable, to say nothing of the risk of bad accidents. Mr. H. G. Archer, who makes a speciality of this curious branch of railway statistics, frequently remarks on the rapid multiplication of summer tourist expresses. In noticing the last addition he said that “a truly amazing grand total has been reached.” He also commented ironically on the fact

of the co-operative movement having had no apparent effect in restricting the tourist programmes of any of the companies. "After all the talk," he says, "about closer relations between certain organisations with a view to greater economy, the new time books reveal that while they have conferred a distinct boon by making return tickets available by either route, they have refrained from the experiment of making one tourist train do the work of two or three."

In order to give the reader some idea of the extravagance of these non-stop runs, it is only necessary to present a list of the most remarkable ones, giving the times they occupy—

	Miles.	Minutes.
Euston to Warrington . . .	182 $\frac{1}{4}$	201
Euston to Stockton . . .	177 $\frac{1}{2}$	198
Euston to Liverpool . . .	192	208
Paddington to Exeter . . .	173 $\frac{3}{4}$	180
King's Cross to Wakefield . . .	175 $\frac{3}{4}$	189
Cheadle to St. Pancras . . .	181 $\frac{1}{2}$	205
Waterloo to Exeter	171 $\frac{3}{4}$	194
Waterloo to Plymouth . . .	230 $\frac{3}{4}$	287
Paddington to Penzance . . .	305 $\frac{1}{2}$	395

London has no longer a monopoly of these swagger trains. A later development of summer tourist enterprise is a series of cross-country expresses which bring most of the leading provincial cities into direct connection with each other.

In the season the Great Western puts on a direct express between Birmingham and Penzance which does the distance in 8 $\frac{1}{2}$ hours. In the opposite direction a through train is run from Cardiff over the London and North-Western and Great Eastern lines to Yarmouth. Two or three times a day through trains can be seen arriving at Brighton from Manchester and Liverpool. The South Coast has now a regular service of expresses to Bath and Bristol. There is, in short, abundant evidence that Sir Samuel Fay was not over-praising himself and his brother managers when he thus eulogised their endeavours to

place all parts of the United Kingdom in direct railway communication—

“The companies themselves have of their own motion established through facilities, through passenger and goods trains, east, west, north and south, through rates and fares applicable generally by all routes not unduly circuitous. Through trains run not only to and from the metropolis and distant parts of the country, but between Newcastle and South Wales, from Manchester to Dover, between York, Oxford, Southampton and Bournemouth, from Liverpool and Manchester through Lincoln to Norwich and Yarmouth, from the North-Eastern district to Bristol, Exeter, Plymouth and Kingswear. Companies without the advantage of lines to Scotland, Ireland, the North-Eastern district or Lancashire and Cumberland canvass for traffic at equal rates for the southern, eastern and western counties as well as London; *e. g.* the Great Northern, Great Eastern and Great Central compete with companies having direct lines to Scotland or boats to Ireland, and thus our islands are very largely open to the influence of the facilities offered by each of the large companies in competition one with another.”¹

It will be readily admitted that the trader, the tourist and the cheap tripper have been generously provided for in these train arrangements, but what of the shareholder who has to bear all the financial risks? Is he to be the only person not worth considering in connection with them? Should he be left entirely in the dark as to the effect they may have on his interests?

Another vexed question on which he may fairly claim some enlightenment is the first-class carriages, which add so little to train receipts and so much to their expenses. The first-class passenger is a child of luxury who, however costly he may be to himself, costs the railway companies a great deal more. At least one general manager has the grace to acknowledge that he is a pampered idol. Mr. Butterworth of the North-Eastern lately observed—

“It is difficult to believe that the luxurious night travelling which is to be found to-day on our main trunk

¹ *Report of Board of Trade Conference, 1909.*

lines, and the services of goods trains which are run between large towns at a speed little short of that of passenger trains, would have come into existence except under the stress of competition, which has induced first one company and then another to 'go one better' than its neighbour in the hope of gaining some temporary advantage, or at any rate of obliging an older established rival to recognise its existence."

The latest word in the policy of "going one better" than your neighbours is Fishguard. It raises not one but many disputable questions of railway policy. Many millions of Great Western capital have been spent there, the shareholders will probably never learn how much. They can, however, make their own estimate of it, and taking note of what they have got for it in the shape of new traffic, they may judge whether or not it has been well-spent money. But that is not the whole point. Not merely should the money have been remuneratively spent, but the object to which it was applied should have been what the Great Western Railway most needed at that particular time.

No competent and independent judge will, I think, say that of the Fishguard enterprise. A new harbour which requires to hold out all manner of baits and temptations to shipowners in order to attract business cannot be said to be urgently needed. A passenger service which has to begin by overcoming an endless succession of natural difficulties, and which even then has to be operated in the most expensive way, has little hope of developing into a popular and profitable one. Harbours like Fishguard and Heysham are exotics, forced growths. They have diverted millions of money which might have been better employed in improving the main line, reducing working expenses, increasing train loads, and thereby enabling the company to lower freight rates.

The parrot cry of "giving the public greater facilities" has led to many mistakes in British railway policy. It has caused money to be spent, as Mr. Butterworth pointed out, in luxuries and fineries which might have been easily dispensed with. Had our railway managers,

instead of wasting their time on problems of speed, long runs and drawing-room cars devoted more of it to the economical movement of goods, they might to-day have been thinking about reducing instead of raising their freight rates. Cheap trains are far more needed for products than for producers.

CHAPTER XII

TERMINALS AND TERMINAL CHARGES

OUR railway terminology is even more bewildering than the operations it professes to distinguish from each other. It bristles with definitions which do not define, and with explanations which do not explain. The key-word itself—railway—is differently described in nearly every text-book. In the statute book it is not expressly recognised at all. Railways are spoken of there as “common carriers,” and legally speaking there is no difference between them and their humble predecessors of the turnpike road. But in new countries like the United States, where the railway is often the only public carrier they have ever known, it is treated in its own proper character.

From the term “railway” many distinctive offshoots have in a long course of evolution sprung up. Or rather they have gathered round it like twigs and branches. Conspicuous among these is the puzzling word “terminal.” Where it came from, who invented it, and when it was first used are questions which have all passed into the dim ages. As far as I can trace, it made its first appearance as a charge for the use of the station. This was in the Lancaster and Carlisle Act of 1844, one of the only two that specifically authorised station charges. The other was the North Staffordshire Act passed in 1880. Several early Acts authorise reasonable charges for loading and unloading, which doubtless was the original form assumed by terminals.

At the outset traders found their own vehicles, and then they would naturally do their own loading and unloading. The next evolutionary step was for the

railways to provide the vehicles, the traders continuing to load and unload them. At the third stage the railway would undertake the loading and unloading and make a special charge for them. As the traffic increased and developed extra facilities and means of protection would be found necessary. The railway would supply them, and every time would add a new item to the growing catalogue of its terminals. In course of time platforms for handling goods, sheds, sidings, turn-tables, cranes, tarpaulins and all the accessories of a shunting yard would have to be piled on. The final item added to the list is said to have been the cost of the land occupied by the terminals.

All these extras have now been scientifically figured out, and enter into the calculation of every goods rate, large or small. Any one who wishes to see how ingeniously they have been built up should read a remarkable exposition of them in a book published a few years ago under the title of *Railway Rates*, by the late Joseph Horrocks. The author is said to have devoted many years of his life to elaborating it and reducing it to a system so perfect that every rate would be made up of its proper number of component elements. The theory of the book is that the transport of goods consists of a series of services, some important and others minute, each of which can be separately assessed and charged up. How severely logical it is may be gathered from the opening paragraph—

“The act of conveying a train consisting of engine, tender, brake van and loaded or empty wagons from one station on a railway to another station, respectively called the first and second terminal stations, comprehends three inter-terminal services, namely, railage, haulage and truckage.”

“Railage” is explained to be the use of a section of the railway; “haulage” is the services of the engine and trainmen; “truckage” the use of the vehicles with their tarpaulins and other accessories. Two distinct kinds of service are said to be rendered by a goods train in transit from one terminal to another. One is the service in chief

and the other is supplementary or incidental. Apparently as an excuse for extra charges, the author remarks in passing: "Probably only seven or eight out of every ten hours of employment are devoted by the staff of a train to the performance of main services or services that can be professedly charged for." On the theory that every minute of railway time should be accounted for, the supplementary charges have been devised and elaborated.

"Terminals" of course afford a delightful field for the exercise of this kind of analytic skill, which in theory is admirable, however little traders may appreciate it in practice. Railage, haulage and truckage have each its corresponding terminal service. "The terminal service of railage consists in the use at a terminal station of sidings in which loaded or empty wagons may stand, and in which they may be moved or marshalled by locomotives or other power as circumstances require. It includes the use of the adjacent main line when necessary in carrying out shunting operations and the consequent employment of signal-men. It embraces the use of covered and uncovered platforms, wharves and other suitable places where goods either already conveyed or intended to be conveyed may be temporarily deposited for the railway company's convenience, and also the use of the land giving access to the sidings."

Mr. Horrocks left nothing out, and for that the railway companies should be much indebted to him. His definition of terminal haulage is shorter and less formidable than that of railage. "The terminal service of haulage comprises the expenditure of power, the use of machinery and the employment of individuals to control the power and machinery in moving loaded or empty wagons in a terminal station from one position in the sidings to another as may be required."

The third of the terminal services, "truckage," emerges from the skilful analysis of Mr. Horrocks in this shape: "The terminal service of truckage consists in the use at a terminal station of wagons, including their accessories, either loaded, waiting to be dispatched or discharged, or empty, waiting to be placed in position for loading or

dispatch as the case may be. The use of tarpaulins in protecting damageable goods from the weather, and the use of sheds with the same object during the processes of loading and unloading, must be joined to that of wagons." Mr. Horrocks carries his scientific analysis of station expenses even farther than terminals. He defines as legitimate subjects of charge the corresponding services performed at junctions and "interjunctions," the latter term being applied to junctions between two railways.

Mr. Horrocks believed in the possibility of arriving at an equation of the costs of all these various terminal services, but it does not appear that any railway has yet attempted to put his method into operation. Managers may be satisfied for the present with the theoretical enjoyment of it. He has further provided them with formulæ for calculating some of the principal items of terminal expenditures. The railway itself, with its signalling apparatus and other appurtenances, is to be put down at so much per mile, and the land occupied by sidings, turntables, structures, wharves, roadways, etc., at so much per square yard; cranes and other machinery at average cost per unit, locomotives, tenders, brake vans and wagons at average cost per ton; manual-power and horse-power at average cost per hour; delay of wagons at average length of time per wagon.

When all these averages have been laboriously calculated they are to be used as may be necessary, "in order to arrive at suitable sums, *including profit*, to be employed as factors with actual weights of loads, average weights of wagons and instruments of power, and with distances, to compute rates with inter-terminal services constituting conveyance, and with actual weights of loads and average weights of wagons to compute charges for terminal, junctional and interjunctional services according to the average periods of time during which they are respectively performed."

An exceptional and it may almost be feared an impossible supply of mathematical genius would be required to frame a tariff of terminal charges on such a highly scientific basis as that. The mere suggestion of it would

be too much for the average consignee, but it may be good for him to be shown that there is a side to the question absolutely different from his own. It may also be useful for the public to see that haulage is by no means the chief part of the service rendered by a railway in the transport of goods. Nor is it necessarily the most expensive part. Handling at terminal points may cost the railway more than the transportation from point to point. This unpleasant discovery appears to have been made by railway managers at a comparatively early period, for there is evidence of it in Dr. Lardner's text-book. But it took them many years to impress it sufficiently on Parliament to induce that body to expressly authorise terminal charges. As has been already noted, a charge for the use of stations was admitted as early as 1844, and that in reality conceded the terminal principle.

Dr. Lardner, with characteristic foresight, warned the railway officials of his day that they were making a great mistake in forcing their passenger traffic at the expense of their goods traffic. He predicted truly that of the two there was more money in goods if equal attention was bestowed on them.

“The transport of goods, though presenting less striking phenomena (than ‘the brilliant and unexpected results of the passenger traffic’), is attended with not less benefit to the country, and may soon, if duly cultivated, become the source of more permanent and extensive profits to the railway establishments. But to realise these it will be necessary that this branch of the business should receive a more profound study on the part of railway managers than has hitherto been bestowed upon it.”¹

More than once he returns to this interesting point, and farther on in the same chapter he adds: “The transport of goods is subject to more various and difficult conditions than that of passengers. If frequency of departure and extreme speed are not so imperatively demanded for it, the adjustment of the tariff so as to render the transport compatible with the commercial conditions of the local markets is a subject out of which arise numerous and

¹ Dr. Lardner's *Railway Economy*, p. 200.

difficult questions for solution. On the solution of these questions, and on the due graduation of the goods tariff, will depend altogether the extent and the success of this important branch of railway business.”¹

Many years of labour and controversy had to be spent on the elaboration of an ideal goods tariff before it assumed a defensible form. One of the chief stumbling-blocks in the way was the question of terminal charges. They were a much more contentious subject than the haulage rates, which might with some give and take on the part of railways and traders have been graduated to the satisfaction of both parties. But terminals were an ever growing complication. They had only a quasi-legal authority, a few companies having them explicitly conceded in their Acts, while others had to assume that they were implied if not actually expressed. In the end Parliament was virtually compelled to recognise them for the purpose of securing control over their exercise.

The Joint Committee of 1873 had the question first definitely brought before it, and its decision upon it was ambiguous. It was to the effect that if a separate charge for terminals was allowed, it should be subjected to limitations the same as the principal charge for conveyance. In the words of the Committee—

“But where it is a separate charge it seems obvious that if the services thus charged for are as necessary and as general as the actual carriage of the goods, there is just as much reason for imposing a legal maximum in the one case as in the other. And such a maximum would no doubt have been imposed in the earlier Acts if it had been foreseen that each company would ‘do all the carrying on its own line.’ Whether any such maximum should now be imposed is a different question.”

During the next eight or nine years opinion was slowly ripening on the vexed question of terminals, and the Railway Rates Committee of 1881–82 advanced a stage beyond the Joint Committee of 1873. *Inter alia* it recommended—

“That there should be adopted over the whole railway system one uniform classification of goods.

¹ Dr. Lardner's *Railway Economy*, p. 203.

That terminal charges should be recognised, but be subject to publication, and in case of challenge to sanction by the Railway Commissioners."

Another seven years of rapid and not always peaceful evolution brought a certain amount of order out of chaos. The Select Committee of 1888 effected two great improvements in our railway law. It established the principle of uniform classification, and definitely recognised the right of the railway companies to charge separately for terminals. The clause in question said—

"Your Committee, therefore, are of opinion that the right of Railway Companies to charge for 'station terminals' should be recognised by Parliament, so as to provide by a general Act that the sums which they claim a right to demand for terminals of any kind at each station shall be clearly entered in the rate-book or otherwise publicly notified at such station, so that it may be open to anybody at any time to challenge before the Railway Commissioners under section 15 of the Railways and Canals Traffic Act of 1873 the reasonableness of such sums."

Soon after this we find terminal charges in full operation, and their most strenuous defender will have to admit their oppressive character. In the mildest examples they amounted to double or treble the cost of haulage, and in bad cases they might be six or seven times as heavy. So friendly a critic as Mr. W. M. Acworth bears testimony to this anomalous result. In reply to the accusation often brought against them of being arbitrary and excessive, and of yielding a large profit to the railways, he wrote in his *Elements of Railway Economics* (p. 120)—

"The companies as between themselves—when therefore they have no motive for exaggerating—reckon that terminal service, including collection and delivery, costs on the average 8s. 6d. per ton in London, 4s. per ton elsewhere. In other words, if a ton of goods is sent from London by the Great Eastern to Halstead on the Colne Valley Railway, a distance of 66 miles, supposing the rate charged to be 15s., then the Great Eastern Company

will take out of the 15s., 8s. 6d. for terminal in London, the small company 4s. for terminal at Halstead. There remains 2s. 6d. as the sum attributable to conveyance proper, and this will be divided between the two companies in proportion to mileage."

Observe the very small part that the actual haulage of the goods plays in the cost of their conveyance. Collecting, delivering and station service at each end absorb five-sixths of the whole rate. Surely this is where the economists and the advocates of more efficient railway methods ought to begin. A mere trifle can be saved off the haulage of a ton of goods 66 miles for 2s. 6d. compared with what might be saved off the 12s. 6d. per ton that is frittered away in collecting it, handling it at two stations, and passing it on to its destination.

At first blush it may seem odd that greater outcry should have been raised against the railway companies on account of terminals and other incidental charges than against the haulage rates themselves. These are seldom causes of complaint, while terminals are endless sources of dispute. The explanation which has been given of their intricate and artificial character may to a large extent account for that. It may also help to explain the alleged excess of British railway rates over those of certain foreign countries, notably Germany and the United States. It is not the haulage rate proper that is excessive on British railways so much as the extra services which accompany it, and from which foreign railways are largely free.

The American railways neither collect nor deliver goods. They do not, in fact, trouble themselves with parcel traffic at all. They leave that to the Express Companies, which pay them mileage for every car they run over their roads. Even the heavy traffic is to a large extent in the hands of Express lines which run over several systems. In other words, much of the actual business of American railroads is farmed out to lesser companies, which find their own equipment and their own terminals. This greatly reduces the importance of the terminal question on American roads. But even if no such unequal

conditions obtained, the comparison would still be very unequal.

On American railways long hauls are combined with comparatively cheap terminals, while on British railways the hauls are short and the terminals costly. The relative proportion of terminal to haulage is quite different in the two cases. Hence the fact that terminals are a peculiarly British grievance, and are little heard of in the United States. In some reports of State Railroad Commissioners the name seldom occurs. Neither are cabalistic phrases like "collection and delivery rates" to be met with. These include terminal charges, and consequently appear high until it is understood that they represent combined rates for several distinct services. Such a thing as railage pure and simple is unknown to our railway-men. The very idea of it has died out from amongst them. It has been smothered by an accumulation of terminal and other extra charges which are the worst enemies of efficient and economical working.

CHAPTER XIII

THE ROLLING STOCK

HITHERTO rolling stock has been regarded as a secondary factor in railway economics, but it has of late years risen greatly in importance. For the goods manager it is the most difficult problem he has to face, and it demands more constant attention than any other. The permanent way, when it has been properly laid, requires only to be carefully looked after and well maintained. With a competent engineering staff that is a matter of routine. It need not trouble the management a great deal unless when extensive alterations or improvements are under consideration. But the rolling stock is a subject of ceaseless anxiety. It affects every movement of traffic, whether goods or passengers. The safety of every train and of every point on the line depends upon it. A defective wheel or axle escaping detection may cause a disastrous and costly accident. A faulty distribution of locomotives may hamper the working of many miles of line. A scarcity of trucks or wagons at an important station may delay the regular traffic greatly, and at the same time increase the cost of working.

There is probably more money to be saved or wasted in connection with the rolling stock than in any other department. The maintenance of permanent way cannot differ widely on lines of a similar class, but the expenditure on rolling stock in a given year may be twice as much on one line as on another. These extreme differences may not be due altogether to superior or inferior management. There are many other factors which may control them—the physical character of the line, the nature of

the traffic, the financial condition of the company, and so forth.

In this respect the railway systems of foreign countries exhibit striking contrasts to our own. As yet railway operations have been very little studied from the rolling stock point of view. The tests which it furnishes have been imperfectly appreciated, and it will be our aim here to make them better understood. When our railway authorities are being sweepingly condemned for their extravagance the charge is seldom followed up by detailed proof. Those who most freely make it are not always best qualified to prove it. But if a competent critic were to start looking for concrete examples, he might not find many in the permanent way or in the general traffic department. His search is much more likely to be rewarded in the history of the rolling stock.

This branch of the service when thoroughly examined is likely to prove one of the weakest. A variety of causes have contributed to render it wasteful and extravagant. The worst of these was the foolish policy of "competition in public facilities," which for many years crowded our railways with superfluous trains and their sidings with empty wagons. Agents touting for traffic promised traders a prompt and unstinted supply of trucks, exemption from demurrage and other privileges, all tending to lock up rolling stock. In course of time the accumulation of idle wagons, not only earning nothing but costing some companies thousands of pounds a year to maintain, became a scandal too great to be winked at.

The labour unrest of 1911-12 had a redeeming feature in so far as it called public attention to various unjust burdens which the railways had hitherto endured voluntarily. Among them was the excessive amount of free use of railway rolling stock which was claimed by wholesale traders. Of course it is only the big shippers who enjoy such privileges. The small men have to "toe the line" and pay demurrage from the moment when it becomes chargeable. If their present fit of zeal should last long the railways will deal more fairly in future with their various classes of customers, but the wholesale

traders are not likely to let go their demurrage privileges without a struggle. If they can continue their selfish policy of playing off the railways against each other, the demurrage question may not be finally settled for a long while yet. So long as it remains open its natural effects will be seen in excessive outfits of rolling stock and corresponding cost of maintenance.

Of course railway managers do not admit the alleged superabundance of rolling stock. At present they will go farther and assert the contrary: that rolling stock, instead of being in excess, is suffering from a severe shortage. This, in fact, was assigned as one of the reasons for more strictly enforcing the demurrage rates. But oddly enough, both versions may be true. Up-to-date vehicles are never too plentiful, even on the best lines, and out-of-date ones are never very scarce. In this case there is reason to fear that any superabundance there may be is among the latter class. Thousands of trucks and wagons may be resting in sidings which should have gone long ago to the scrap-heap. Thousands more may be running at a loss, and would be willingly replaced if the necessary capital could be raised without inconvenient questions. The average cost of locomotives, passenger coaches, wagons and trucks might rise to an alarming extent if all the effete vehicles were to be renewed as rapidly as they ought to be.

The wasteful and inefficient use of rolling stock was not an unforeseen danger. The earliest writers on railway management called special attention to it. Half-loaded wagons were already very much in evidence even at important goods depots like Chalk Farm. In 1849 the number of wagons arriving and departing from that station was estimated to average 500 every working day. Their full load was nearly 6 tons, and if all of them had been fully loaded the total movement of goods would have been about 3,000 tons per day. But it was found that their loads averaged only $2\frac{1}{4}$ tons, and the aggregate movement would therefore be only 1,125 tons per day. This estimate was to a certain extent confirmed by Pickfords' receipts and deliveries, which in 1849 averaged 900 tons per day.

At this time Pickford and Co. were the cartage agents for the London and North-Western Company.

The above averages indicate that the proper utilisation of rolling stock was already being studied as a special problem. It was of course dealt with by the father of railway economics, who laid down rules for ascertaining the average wagon loads and train loads passing over a given section of line or being handled at a given station. The nature of the calculation is briefly indicated thus—

“ By comparing the movement of the different classes of traffic with the movement of the various classes of transport to which they are respectively appropriated, we can obtain the average load carried by each vehicle, and by comparing them with the movement of the locomotive stock we can obtain the average load drawn by each engine. Data are thus obtained by which numerous economical problems of the highest importance can be solved. It is by these means that we can ascertain the extent to which the moving stock of the railway has been utilised.”

In another passage Dr. Lardner goes a step farther and foreshadows statistical records very like what the ton-mile school are advocating to-day. He mentions incidentally the data on which they could be based, namely, the way-bills which showed both the weight and mileage of each consignment.

“ If we know the distance which any class of vehicles have travelled within the year, and also know the distance over which each class of objects of transport to which such vehicles are appropriated have been carried, the comparison will immediately supply the means of ascertaining the average load carried by each vehicle, and this average load is the only exponent of the extent to which each class of vehicle has been utilised. To accomplish this it would be necessary to keep separate accounts of the traffic and of the rolling stock. *In the case of the traffic its mileage can be immediately ascertained from the record of the receipts, inasmuch as each sum received represents the transport of a given object to a given distance.*”¹

¹ Dr. Lardner's *Railway Economy*, p 521.

It is hardly to the credit of our railway managers that elementary questions like the full loading of trains should be in almost as crude a state to-day as they were over sixty years ago. Since 1849 the question has grown immensely as regards size and number of vehicles, but that appears only to have allowed greater scope for waste. Our railways are now carrying 1,325 million passengers and 523 million tons of goods annually. It is obvious that an immense quantity of rolling stock must be employed in doing it. In 1911 there were nearly 23,000 locomotives in service in the United Kingdom. England and Wales have 19,472, Scotland 2,500, and Ireland 897. Passenger coaches and vans numbered about 72,000, including 60,107 in England and Wales, 8,549 in Scotland, and 3,269 in Ireland. The goods and mineral wagons were officially reported at 767,539, or close on three-quarters of a million. Of these six-sevenths (601,472) were owned by the English and Welsh lines, and nearly one-fifth by the Scottish lines (143,767), leaving for the Irish lines a thirty-fifth part (22,300).

Not until lately has the importance of equipment as a factor in railway efficiency begun to be thoroughly appreciated. Formerly the only tests of efficiency recognised by the public, and even by railway men themselves, were the cost per mile of construction and operation. So long as these made a respectable showing, shareholders were content. Often they did not even pursue their inquiries so far, but simply looked at the percentage of working expenses to gross receipts: the most deceptive basis of comparison that could be imagined. All the while much simpler and more reliable comparisons might have been drawn from the various classes of rolling stock and the work they performed. This applies to goods wagons and passenger coaches as well as to locomotives.

Prima facie the railway which can get the largest amount of productive work out of its rolling stock should from all points of view be regarded as the most efficient. It renders the best service to its customers and the public as well as to its proprietors. The data at present available for such comparisons is very incomplete, but under the

new regime we may look for steady enlargement and improvement. The fuller returns which the railway companies will have to furnish hereafter to their shareholders should enable us to ascertain on which line the best results are being obtained from each class of rolling stock, from the locomotives down to the coal wagons.

This test may be made very elastic and comprehensive. For example, the average haulage of the locomotives may be calculated by dividing the total tonnage of the year by the number of engines in service. True, many of them may not be engaged all the time in hauling trains. A great deal of subsidiary work has to be done, such as shunting, marshalling trucks, etc. Failing any separate details of these auxiliary services, we have to assume that on the principal railways of the United Kingdom the percentage of them is pretty uniform. None of them need fear any serious injustice from such an assumption.

The Board of Trade statistics do not distinguish minutely between the various classes of vehicles employed in passenger traffic and those engaged in the goods service. As regards locomotives, no division at all is attempted, but they are all lumped together. The only distinction we can venture upon here is to divide them equally between goods and passengers. For the United Kingdom that gave, in 1911, the following averages—

AVERAGE WORK OF PASSENGER VEHICLES, 1911.

	England and Wales.	Scotland.	Ireland.
Passenger Locomotives . .	9,736	1,252	448
Passengers per Locomotive .	122,000	85,700	66,200
Carriages and Vans . . .	60,107	8,549	3,269
Passengers per Vehicle . .	19,760	12,550	9,000

AVERAGE WORK OF GOODS VEHICLES, 1911.

	England and Wales.	Scotland.	Ireland.
Locomotives	9,736	1,252	448
Tons per Locomotive	46,000	54,850	14,800
Wagons, Trucks, etc.	601,472	143,767	22,300
Tons per Vehicle	745	480	297

The Board of Trade statisticians would be rendering a great service to the scientific operation of railways if they would follow up the above line of inquiry and present the results in an intelligible form. As it is they devote little attention to rolling stock. Beyond adding up the numbers of locomotives, passenger coaches and goods vehicles furnished to them by the railway companies, they do very little with them. The only separate table they devote to rolling stock (No. 5, p. xxii, Introduction) gives merely the average number of each class per mile. This has a certain degree of interest, but not much practical value. It affords no indication of the comparative amounts of work that are being done in the three kingdoms respectively. Where railways differ so widely in cost of construction and in earning power, mileage averages have little significance. But such as they are we append a few examples of them :—

AVERAGES OF ROLLING STOCK PER MILE OF LINE, 1911.

	England and Wales.	Scotland.	Ireland.
Locomotives	1·20	0·66	0·26
Passenger Coaches	2·77	1·58	0·60
Other Vehicles on Passenger Trains	1·01	0·66	0·36
Goods Wagons of all kinds .	36·0	37·15	6·26
Other Carriages or Wagons .	1·13	0·54	0·30
Total number of Vehicles * .	662,709	152,320	25,584
Average number per Mile .	40·91	39·93	·527

* Excluding Locomotives.

Owing to the meagre character of the official statistics relating to rolling stock, any calculation of average earnings and cost of maintenance must of necessity be merely approximate. We may obtain a rough idea of the earning power of the locomotives on a system by dividing their total number into the gross earnings of the year. But we cannot distinguish the earnings of the goods from those of the passenger locomotives, because the locomotives themselves are not distinguished. The reader may, however, desire to see an estimate of them however vague.

We therefore divide the total number of locomotives in the returns (about 23,000) equally between the goods and the passenger services. The resulting averages come out as under, first for locomotives and then for coaches and wagons—

EARNINGS PER PASSENGER AND PER GOODS LOCOMOTIVE.

	England and Wales.	Scotland.	Ireland.
<i>Passenger :</i>			
Locomotives *	9,736	1,252	448
Gross Earnings	£46,308,000	£5,362,000	£2,284,000
Per Locomotive	£4,756	£4,280	£5,100
<i>Goods :</i>			
Locomotives *	9,736	1,252	448
Total Earnings	£53,921,000	£7,281,000	£2,082,000
Per Locomotive	£5,540	£5,800	£4,647

* One-half of the total number reported, passenger and goods engines not being distinguished in official returns.

EARNINGS PER PASSENGER COACH AND PER GOODS WAGON.

	England and Wales.	Scotland.	Ireland.
<i>Passenger :</i>			
Coaches and Van	60,107	8,549	3,269
Total Earnings	£46,308,000	£5,362,000	£2,284,000
Per Vehicle	£770	£627	£700
<i>Goods :</i>			
Wagons	601,472	143,767	22,300
Total Earnings	£53,921,000	£7,281,000	£2,082,000
Per Wagon	£89	£50	£93

Two or three paradoxes catch the eye in the above tables. One is the uniformity in average earnings of the rolling stock in all three kingdoms. Per locomotive it varies only in the passenger service from £4,280 in Scotland to £5,100 in Ireland, and on the goods side from £4,647 in Ireland to £5,800 in Scotland. Another paradox is that passenger coach earnings are greater in Ireland than in Scotland, and stranger still, they are almost as great as

in England. The averages, it will be seen, are, England and Wales £770, Scotland £627, and Ireland £700. In the goods department more anomalies present themselves. Ireland shows the highest average per wagon in 1911, namely, £93, while England and Wales come second with £89, and Scotland brings up the rear with £50.

Why the average earnings of a goods wagon should be so much lower in Scotland than in the other two kingdoms is a puzzling question. For an offset to it we find an exactly opposite anomaly in the average earnings of the Scottish locomotives. These are somewhat higher in Scotland than in England, and considerably higher than in Ireland (Ireland £4,647, England £5,538, and Scotland £5,800). Nor is this the only contradictory feature. When we try to test the accuracy of the average earnings per goods wagon by the average amount of work done, we find a fresh discrepancy. The latter, measured by the number of tons carried in 1911, was 480 tons in Scotland as compared with 745 tons in England, and only 297 tons in Ireland. A Scottish wagon, while doing two-thirds of the work of the English wagon, gets only about 60 per cent. of its earnings.

Various other explanations of Scotland's ton average earnings may suggest themselves. One is an unusually large proportion of mineral and other low-grade freight. Another is the possibility—or may we not say the probability?—that an exceptional quantity of rolling stock has been kept in service after it ought to have been scrapped? Scrapping will never be a popular operation in Scotland, though it may often be penny wise and pound foolish to shirk it. Still another feasible explanation is the extreme length to which the abuse of demurrage privileges was carried in Scotland before the drastic reform introduced two years ago. And, to conclude, the suggestion may be made that the low earning capacity of the Scottish wagon may indicate a lower level of freight rates than England or Ireland enjoy.

The subjoined table gives the average earnings of the locomotives, the passenger coaches and the goods wagons on each of our nine principal railways in 1911. The figures

will cause some surprise, seeing that the best results do not appear where they might have been most naturally expected. It is not the London and North-Western that comes out first in the comparisons, but the London and South-Western. The latter has a very small supply of rolling stock in proportion to its mileage, but this anomaly may be due to the lightness of its traffic and the easy grades it has to work over on the greater part of its system. Even then £6,823 per annum is a large average earning for locomotives, and £267 is an equally good record for coaches and other vehicles—

COMPARATIVE EARNINGS OF ROLLING STOCK ON BRITISH TRUNK LINES, 1911.

	Number of Locomotives.	Earned by each Locomotive.	Number of Coaches, Wagons, etc.	Earned by each Vehicle.
		£		£
Great Central	1,182	4,032	37,540	127
Great Eastern	1,080	5,400	32,291	180
Great Northern	1,279	4,510	43,160	134
Great Western	2,596	5,428	77,465	182
Lancashire and Yorkshire	1,549	3,929	39,163	155
London and North-Western	3,063	5,193	87,946	181
London and South-Western	748	6,823	19,073	267
Midland	2,800	4,593	123,060	104
North Eastern	2,000	5,168	121,888	85
	16,297	4,950	581,586	139

For a variety of reasons the rolling stock, or, as the Americans call it, the "equipment" problem is receiving increasing attention. Sweeping charges are being made against this branch of the service which must be at least discussed. Whether or not they can be effectively answered remains to be seen. Some of them bear marks of exaggeration on the face of them. It has, for instance, been alleged by the author of the goods clearing-house project that there are fourteen hundred thousand goods wagons in use on the railways of the United Kingdom, and that their average amount of actual service is only three days per annum.

We have already given the actual numbers appearing in the official returns of the Board of Trade, namely 767,539. The only important additions there can be to make to these are the privately owned wagons of collieries and coal merchants, which can hardly account for the missing six hundred thousand. Anyhow they are another confusing element in calculations of work done by rolling stock. Some lines have more privately owned wagons than others, and this, of course, disarranges the averages. Again, railways may differ widely as regards the condition of their rolling stock. Among three-quarters of a million wagons there may be all ages, from a few months up to twenty or thirty years, and all sizes from six tons up to fifty. Finally, there may be great differences in local customs as to demurrage and the consequent detention of wagons in sidings and station yards.

Qualifications like these must of course detract from the value of averages based on such huge numbers and quantities. Any comparison of hauling power or earning power drawn between the equipments of various railways can be at best only approximate. But it is worth making, however imperfect and incomplete the available data. When developed and perfected, as it may easily be when its value begins to be appreciated, it should furnish more useful as well as simpler tests of efficient management than any hitherto employed. It may even be found preferable to the scientific ton mile and passenger mile formula, as to which railway experts and statistical experts are so hopelessly disagreed.

Many points in railway economics are best illustrated in the rolling stock department. It shows, for example, more clearly than any other branch of the service the general tendency toward higher prices of everything that railways consume. In the decade 1902-11 the cost of working the engines rose from $5\frac{1}{4}$ millions sterling (£5,250,000) to nearly $6\frac{3}{4}$ millions (£6,686,000). This was an increase of close on a million and a half sterling, or 30 per cent., in the ten years. The actual rate of increase was 3.2 per cent. per annum. In connection with this a significant circumstance may be noted. Repairs and

renewals of engines cost fully 40 per cent. of their operating expenses. This sounds a large proportion, especially if we remember that the operating expenses themselves may be none too low.

What was said in a preceding chapter about the disproportionate amount of the terminal charges compared with the haulage charge proper might be repeated in a modified sense about the rolling stock. Its share in the total cost of operating trains may not be very large, but it is insufficiently appreciated. Still more so is the influence it has had on the capital account. From $12\frac{1}{2}$ to 15 per cent. of the aggregate capital expenditure on British railways is generally debited to rolling stock. In 1904 Mr. Acworth attempted an analysis of the capital account, which then amounted in round numbers to 1,200 millions sterling. He estimated the preliminary surveys and parliamentary expenses at £4,000 per mile, or, on the then mileage, £90,000,000; the road bed, terminals and buildings at £800,000,000, and the rolling stock of all kinds at £150,000,000. For every sixteen shillings spent on the road bed and stations, three shillings would have to be found for locomotives, coaches, wagons, etc.

BOOK FOURTH—COMMERCIAL

CHAPTER XIV

THEORIES OF RATE-MAKING

As regards their rates British railways are in a most peculiar and anomalous position. A railway is a very complex business undertaking which cannot be conducted on purely business lines. It is an important public service which has to consider the interests of its corporate owners as well as those of the public. It is supposed to be administered by a representative body of directors responsible to their shareholders, but directors and shareholders alike are subject to continual interference by legislative and official authorities. It employs an army of six hundred thousand men, and pays them more than the average wage for their class of labour, but it is not the absolute master of any of them.

The greatest anomaly of all in the British railway is that it has been found impossible even for the most expert of its managers to define the principle on which its services are charged for, in other words, the principle on which its rates and fares are determined. They are not governed by any of the familiar rules of ordinary business, and yet all of them have to be recognised more or less. A railway cannot follow the example of a factory and add a percentage of profit to the actual cost of production. While the factory produces only two or three staple articles, the railway renders in course of a year millions of services all separate and distinct. Each of them has its special conditions, and only to a partial extent can it be brought under any general rule.

Four or five different sets of principles may be applied to the making of railway rates: first, purely business principles which consider solely the interests of the undertaking itself; second, economic principles which also take into account the rights and interests of the community; third, parliamentary principles arising out of the statutory duties and restrictions imposed upon it; fourth, competitive principles more or less powerful according to the amount of competition it has to face at various points on its system. Against the latter may, however, be set the advantage of co-operation among neighbouring companies who are wise enough to live on friendly terms with each other.

After taking a general survey of the vast area of railway rates with their infinite diversities, it will not be difficult to understand what an immense amount of skill and care must have been expended in bringing them up to their present level, moderate as it is. Years of negotiation with Chambers of Commerce and individual traders, whole sessions of parliamentary warfare, and conferences without number among railway managers have been required to formulate the rate-book of the present day. It is the outcome of a mixture of all the principles above enumerated—business, economic, parliamentary and competitive. The rates, therefore, cannot be fairly judged by any one standard, for various principles have had more or less influence on them. In the words of a distinguished authority, Mr. Grierson, a former General Manager of the Great Western Railway—

“The managers of English railways have not assumed that they could fix rates on a ‘scientific’ or a ‘natural’ basis. But they have endeavoured, after consulting merchants, manufacturers and traders, to fix such rates as were required to develop the largest amount of trade, and it is submitted that they have been carrying out principles which will on the whole bear the closest examination. . . . It has been the aim of railway companies to make rates conform to the requirements of trade, or, according to a popular expression, to charge what the traffic will bear.”

Then turning on his critics Mr. Grierson retorts--

“When English railway companies are accused of imposing charges at haphazard and in an arbitrary fashion, what scientific principle, it may be asked, ought to be followed? There is no escaping this question—not even if the task of framing or controlling rates were committed, as has been sometimes proposed, to the Board of Trade or the Railway Commissioners.”

Since that was written we have witnessed a long advance toward the officially fixed rates to which it sarcastically alluded. Already they are in full swing on the other side of the Atlantic, and Westminster is rapidly drifting toward them with its emergency laws to allow railway rates to be raised for the special benefit of labour voters. It must now be clear to the dulled comprehension that British railway rates, like British railway wages, are no longer to be settled either on business or on economic principles. Both of them are passing under the parliamentary regime and becoming questions of party politics. Their only hope of escape from such a doom is that railway directors, traders and employees may discover some means of settling their differences among themselves.

Parliamentary intervention has done little good to any of them. In fact, the latest example of it—the Railways (No. 2) Act—simply stirred up another hornet's nest. Now that the vexed questions of rates and wages have got hopelessly mixed up in the public mind, and particularly in the minds of working-men, it is more than ever necessary to see them in their true and unbiased relations to each other. To this end the impartial reader will endeavour to appreciate and do justice to the principles on which the contending parties have hitherto been working. Several generations of railway managers and experts have followed certain rules in the fixing of rates. They have put these on record, and have repeatedly explained and vindicated them. In the rush and confusion of new ideas that now prevail these are in danger of being brushed aside and forgotten, which might be a great loss for the community. As a safeguard against

it a little time may be well employed in recalling some of the theories of rate-making which governed our railways during the first three-quarters of a century of their history.

Their fundamental idea, of course, is that the builders and operators of a railway are to have every opportunity to obtain from it a reasonable return on their outlay. They have indeed a double claim to such a return—first as an elementary right at common law, and secondly as the holders of a special legislative charter. As to the claim itself, there can be no difference of opinion, but as to the best method of enforcing it practical authorities have and still do differ widely. For example, one of them lays down that “each item of traffic must bear its fair share of the total cost of the entire railway service.” This may be distinguished as the “cost of service” doctrine which, being the most business-looking, has naturally found the largest number of adherents. Mr. Acworth has thus defined it—

“The guiding idea of the management remains the same throughout. Each rate has, as we have seen, its own maximum and minimum. All the rates must among them cover all the expenses and leave, if possible, a sufficient margin to pay interest on capital at the normal rate. *Inter se* the rates must be so adjusted that each item of traffic bears its fair share of the total cost of the entire railway service.”¹

The above is perhaps the nearest approach that has been made in our railway text-books to a definition of rate-making at once practical and scientific. Unfortunately it does not seem as yet to have got far beyond the text-books. The generation of railway managers which claimed for its own Findlay, Grierson and Laing did not profess to be able to assign even to the most important items of traffic their “fair share of the total cost of the entire railway service.” The Select Committee of 1888 investigated this question more thoroughly than it has ever been done before or since, and the conclusion it arrived at was distinctly negative. The following extract

¹ *Elements of Railway Economics*, by W. M. Acworth.

from its report expresses its views on the relation between rates and cost of service—

“According to the evidence of the railway managers who appeared before us, no general principle or system of fixing rates has been adopted on any railway in this country. The charge for conveyance, they informed us, was such a sum within the power of the Company as they thought the traffic would bear, having regard to competition both of other means of conveyance and of other districts or markets; in other words, as much as could be got, and without reference to the cost to the Company of performing the service. Indeed the managers examined informed us that they found it impracticable to determine with accuracy the cost of conveying any particular kind of goods between two stations.”

A much later authority has enforced that view in terms which greatly strengthen and emphasise it. Sir George Gibb, in his introduction to Sir George Paish's *British Railway Position*, remarks—

“It is in the ascertainment of the total cost of the separate branches of railway service that the main difficulty lies. A railway is worked as a whole, and though many items can be separated in the accounts and allocated to particular services, the residue, which no knowledge and no ingenuity can allocate, is so large that the result must always be a very doubtful and distant approximation to actual fact. This is not surprising when it is considered that the fact itself is in the nature of a metaphysical abstraction. There is no such thing, in fact, as the cost of moving a passenger by himself or a ton by itself. It is impossible to ascertain the separate cost of working passenger goods and mineral traffic on a railway, because these kinds of traffic are not separately worked except in regard to some items of the service. . . . This, however, does not diminish the necessity for knowing ton miles and passenger miles. It merely limits the field for the employment of the figures.”¹

Still a third authority, and this time an American one, may be cited against Mr. Acworth's doctrine that

¹ *British Railway Position*, Introduction by Sir George Gibb, p. vii.

railway rates can be adjusted "so that each item of traffic bears its fair share of the total cost of the entire railway service." Professor Hadley in his well-known treatise regards cost of service as a comparatively small factor in the problem. It has, he says, "played only a minor part, and the possibility of developing traffic has been the main question considered." This is a characteristically American verdict. He goes so far as to affirm that fifty per cent. reductions in rates have been known to develop such an increase of traffic that the net profits have been doubled.

British theories of rate-making have been adopted by American writers so far as they are applicable to American conditions, but they are largely supplemented by others of native origin. Of these the most interesting is what we have just termed the "development" theory. It savours of a young country with boundless resources waiting to be utilised. Under such exceptionally favourable conditions an almost indefinite reduction of rates may prove remunerative, or at least may be carried on without actual loss, but in an old country such as our railways have to serve it might be easily overdone. Professor Hadley's account of it is, however, well put from the American standpoint—

"It took some time for railroad authorities to wake up to the fact which now seems self-evident, namely, that the profitableness of a railroad as a whole or of any particular part of its business depends quite as much upon the volume of traffic secured as upon the absolute price charged. It was further seen that certain lines of business were of such a character that little or no movement could be obtained at high rates, while a great deal could be had if the rates were made low enough.

"Even when a railroad tariff was originally based on differences of cost of service, it does not long continue so. It never remains long unchanged. Every day special circumstances arise which were not foreseen and which seem to demand a change. The question in every such case is, what will be the effect of the change? If rates are reduced on certain lines of business, gross

earnings will probably increase on account of increased volume of business obtained. But will net earnings increase? That is to say, will gross earnings increase faster than operating expenses? This is the real question, and its answer involves two elements. One is the expense of hauling each additional car-load; so far rates are based upon cost of service. The other is the increased development of business by lower rates; this is quite independent of cost of service. To a certain extent both these elements have acted in combination to secure the great permanent reduction in rates. But in each particular case cost of service has played only a minor part, and possibility of developing traffic has been the main question considered.”¹

The last two sentences suggest a question which may be fairly put to our railway managers—have they done their full duty in the way of “development” rates as these are understood on American railroads? In other words, have they always been on the look-out for new enterprises to encourage and infant industries to foster with a view to creating fresh sources of traffic? They may reply that whatever they might have done in this way years ago, when they were free to adapt their tariff to changing circumstances, they are no longer their own masters. Now-a-days they cannot alter a rate without a wearisome round of formality and red tape. Even to restore a reduced rate may involve costly lawsuits. Thus they are practically forced into a policy of masterly inactivity as regards the most important branch of their business, the goods traffic. They may exercise their ingenuity in dispatching 300 expresses a day from London, but they cannot on their own authority vary a goods rate to the extent of a shilling. Hence some of them have come to consider that their special function is to spend money for their shareholders, not to earn it.

In sharp contrast to the “cost of service” theory of rate-making there is one that charges according to the value of the goods, bulk and weight being also of course taken into account. This may be distinguished as the

¹ Hadley's *Transportation Problem*, p. 109.

ad valorem theory, and it has perhaps had most practical influence on existing rates. Our whole classification system has been built up on it—first by the railway companies themselves, next by the Clearing Houses, and finally by the legislation of 1888–1894. Classification is an indirect form of rate-making. It is just as easy to change a rate by shifting the commodity into a higher or a lower class as to alter the rate itself. Under present conditions it may even be easier.

Classification being the basis of rating, the history of the one is quite as interesting and important as that of the other. In the early annals of the railway we read quite as much about classification as about rates. It was a perfectly natural idea to be evolved by the primitive science of transportation. It was only a natural principle for the railways to borrow from their original models, the canal and the turnpikes. The special Acts under which the pioneer railways were incorporated all exhibit rudiments of classification. The Select Committee of 1888 thus referred to them—

“One set of clauses specifies charges for the use of the line, for wagons or carriages, and for locomotive power; and another set of clauses the maximum rates they can charge for the conveyance of passengers or of goods, including everything incidental to the conveyance except wherein otherwise provided. . . . Goods are usually divided into four or five different classes, for which different mileage rates are allowed, and the rates range from *1d.* to *5d.* per ton per mile except for coals, which under some Acts are carried under special conditions at less than *1d.* per mile.”

The first generation of railway experts had much more exalted ideas of their statistical skill than were justified by actual results, and they imagined the classification of railway items to be a much simpler task than it afterwards proved. Dr. Lardner's forecast of how it should be done sounds now-a-days rather naïve—¹

“It would be necessary to classify the merchandise first according to the description of vehicle in which it

¹ Dr. Lardner's *Railway Economy*, p. 205.

is transported, and secondly according to its tariff. Special vehicles are appropriated to different descriptions of goods, and in order to ascertain the cost of the transport of each class of goods it would be necessary to keep a separate mileage account not only of each class of traffic, but of each class of vehicle appropriated to its transport. The average load carried by each vehicle would be determined by a comparison of these mileages, and upon this average would depend the cost of the transport."

Much less minute particulars than Dr. Lardner advocated would satisfy the most exacting railway statistician of our own day. His ideal standard was a counsel of perfection which neither he nor any of his successors ever realised. At a much later date they still fell far short of it. On the British and the American railway systems classification developed on somewhat different lines, but the ruling principle in both cases was value. Professor Hadley states this very clearly with regard to the American policy—

"Railroads divide their freight into four or more classes, *the division being mainly based on the value of the goods*. Thus dry goods are placed in the first class, and lumber in the fourth, and the charges on the former are made two or three times as high as on the latter. There is a difference in cost of handling and of risk, but nothing like as great as the difference in charge. The railroad does not base its charge on cost of service, but upon what the traffic will bear. A ton of lumber has so little value that if they attempted to charge the same rates for it that they do for the dry goods they would get none of it to carry, the traffic would not bear the higher rate. A great deal of freight of small value is carried not merely at less than the average rates, but at less than the average cost, that is, at rates which if applied to the whole business of the road would not pay expenses. Most people assume that such business is an actual loss to the road, and that other business is taxed to make up for it. This is a fallacy. Any rate which will more than cover the expense of moving the cars and handling the goods is a paying

rate, provided the business can be had on no other terms."

This was a popular doctrine in the United States in the days of rate wars, and in thus boldly stating it, Professor Hadley was echoing the excuses of the fighting railway managers for cutting rates. It was a favourite theme with Mr. C. P. Huntington of the Southern Pacific and other railroad men of his class. They argued that having secured a paying train-load, anything they could get in addition would be so much extra revenue. But the Interstate Commerce Commission does not encourage that sort of logic, and it is no longer fashionable even in the States. There was never room for it in this country. Where there are no unlimited sources of traffic a level is soon reached when further concessions in rates would bring out no more freight, and would consequently be thrown away.

But though the "development" policy of rate-making once so popular in America has never been and could not be practised here on a large scale, it has been endorsed by some of our writers on railway economics. It forms part of Mr. Acworth's three fundamental rules of railway policy.

"The policy common to all railways, whether owned by the State or by private companies, is—

1. Get traffic. The more traffic carried the less it costs to carry.

2. Charge no rate so high as to stop the traffic from going. Subject to—

3. That no rate shall be so low as not to cover the additional cost incurred by the railway in dealing with the traffic to which the rate applies."¹

These are American maxims toned down for British traders, but the plain truth is that British railway rates owe little or nothing to scientific evolution. They passed through three successive stages, and now appear to be entering on a fourth.

First, each railway did the best it could for itself, and

¹ Acworth's *Elements of Railway Economics*, p. 71.

got the highest rates that Parliament would grant fixed in its special Acts.

Second, the various companies put their heads together and agreed on schedules of rates as nearly uniform as they could make them.

Third, then the Board of Trade and the House of Commons stepped in, and by the legislation of 1888-1894 established a certain degree of statutory uniformity.

But before this happy conclusion was reached many parliamentary inquiries had to be held, and many Select Committees had to report on them. The Railway Rates Committee of 1881-82 may be said to have commenced the campaign on behalf of intelligible rates and classifications. The state of affairs at that date is thus described in its report—

“The representatives of the railways agreed with some of the witnesses who gave evidence on behalf of the traders as to the original classifications in the Acts of the companies having become obsolete. They explained that from time to time they had been rectifying in the manner already described the defects of the statutory classification, and that, acting on information communicated by manufacturers and merchants, and guided by their own experience, they had framed and generally adopted the Railway Clearing House Classification, which embraces some 2,700 articles.”

From 1881 to 1888 was a period of active agitation in the railway world. Rates and classifications were the most heated subjects of discussion. Bewildering diversity of tariffs still continued, so much so as to amaze the Select Committee of 1888. It condemned the existing situation even more strongly than the Select Committee of 1881-82 had done—

“Your Committee have failed to discover any general principle on which maximum rates have been fixed, or on which the few articles enumerated in the special Acts have been classified. It is usually provided that all articles not enumerated may be charged at the highest rate authorised. ‘Manufactured’ articles are usually, but not always, enumerated in the highest class. Where

this is the case it is difficult to determine the particular class to which such article belongs.

“The classification of goods is very imperfect, and no uniformity in classification or rating is observed either as between the Acts of different companies or among the various special Acts of the same company. Almost every railway company levies rates under several Acts applicable to different portions of its system, and in some cases reference must be had to more than fifty Acts to determine the various rates the Company is authorised to charge.”

On this strong appeal the Board of Trade got to work, and by dint of long and patient negotiation with the railway companies, a scheme of rates was evolved which, if not highly scientific, has so far kept the peace between the railways and the traders. How long it may continue to do so is becoming doubtful.

CHAPTER XV

REGULAR RATES AND FARES

IN the whole history of British railways there has been no more puzzling task than the fixing of rates and fares. This problem was partly inherited and partly created by the railways themselves. The original passenger fares had to be governed more or less by those of the mail coaches. In many cases these fares were adopted bodily, and in others they were but slightly modified. From the same source the three classes of passengers were derived. The first-class carriage was a close imitation of the mail coach. Station agents, drivers, guards and porters, were all christened with mail coach names. The pioneer railway service was intended at first to be developed on mail coach lines. The primitive trains were meant to be simply road vehicles set on iron rails.

So quite naturally and spontaneously the mail coach tariff or a near approach to it passed on to the railway. But it did not long serve its purpose. Traffic grew and multiplied at such a rate that the railways prospered overmuch, and voices were soon raised against them and their so-called monopoly. At a very early period the Legislature stepped in and began to make regulations in the interest of traders and the public. The passenger service claimed first attention, and for many years it was the hobby of Select Committees and the House of Commons. They were always doing something to improve it or to make it more useful to the public. Among other things they established the parliamentary or penny a mile rate, which ultimately became a maximum for 95 per cent. of railway passengers. They also decreed

that at least one train per day each way should stop at all stations.

Within twenty years from the birth of the railway a penny a mile had become the standard third-class fare, and it remains so in principle, though excursion and other cheap trains have made rather a mockery of it in practice. From the establishment of the parliamentary train stopping at all stations, and the penny a mile third-class fare, Parliament has left the passenger service very much alone. Any confusion or disorganisation that exists in it to-day is due chiefly to the railway managers themselves. They had every opportunity to frame a rational schedule of fares, but instead of doing that they have vied with each other in inventing what have been only too correctly though sarcastically called "freak fares."

With goods rates the railway companies have had much more trouble. Their traffic soon outgrew the primitive range of the canal on the one hand and the road carrier on the other. The industrial development to which the railways gave such a fillip created new products, new manufactures, new trades. It multiplied tenfold the commodities which were offered for conveyance. Every new line built opened up a new industrial area with fresh sources of traffic. Dr. Lardner, the founder of the science of railway economics, indulged in a variety of curious calculations as to the enlargement of the area of transportation resulting from the increased speed of the railway as compared with the road. He had an ingenious theory that the lower the tariff adopted, the greater the distance to which goods could be transported, and consequently the larger the volume of traffic that would be obtained by the railways. This opinion seems to have been shared by the Railway Commissioners of the day, as in their annual report dated the 30th June, 1847, they reason thus—

"The average distance to which merchandise was transported, $22\frac{1}{2}$ miles, is much less than might have been expected, or than would have taken place under the operation of a properly graduated tariff. It is evident from this that the tariff is prohibitory for a greater

average distance than about 20 miles. It would be interesting, if we possessed the requisite data, to apply a like investigation to the various classes of merchandise, so as to ascertain what classes are transported to the greatest distances, but the reports supply us with no data for this purpose."

Mr. Acworth, the apostolic successor of Dr. Lardner, puts the same idea in a different way. In his opinion the railways drew away traffic from the older routes by gradually reaching out for lower-grade commodities and cutting the existing rates. His description of the process by which they descended from the finer to the coarser kinds of freight will we fear be regarded by the traders of to-day as past history. As far as their experience goes the lowering of rates came to an end long ago, and the tendency is now the other way. However, it may have been true once, and consequently it has still a certain amount of historical interest—

"The railway begins with a small volume of high-class traffic at high rates. Its constant tendency is to increase the volume of traffic by successively lower rates, tapping successively lower strata of traffic. The traffic attracted by such rates is partly drawn from previously existing but less efficient modes of conveyance, partly created by new railway facilities. As the traffic increases the average rate comes down, and as the rate comes down the traffic increases. And so the reciprocal process goes on up to the point where the railway has got all the traffic it can afford to take."¹

On the face of it that is a natural and plausible theory of the evolution of railway rates, but unfortunately it was not one which the railways could put before their customers. They could not cynically boast that having captured all the traffic in sight there was no more need for reductions. So they had to cast about for more humane as well as more scientific principles of rate-making. In this good work railway managers have exhibited great industry and versatility. Many and various are the explanations they have given in books and speeches, as

¹ Acworth's *Elements of Railway Economics*, p. 64.

well as in evidence before Select Committees, of the true principles on which rates are fixed. The most comprehensive is Sir George Findlay's, published thirty years ago—

“The rates are governed by the nature and extent of the traffic, the pressure of competition either by water or by a rival railway route, or by other land carriage, but above all the companies have regard to the commercial value of the commodity and the rate it will bear so as to admit of its being produced and sold in a competing market at a fair margin of profit. The companies each do their best to meet the circumstances of the trade, to develop the resources of their own particular district, and to encourage the competition of markets, primarily no doubt in their own interest but nevertheless greatly to the advantage of the community.”¹

Sir George Findlay's definition of scientific rate-making was published while he was General Manager of the London and North-Western Railway. It was heartily endorsed on various occasions by his friend Mr. Grierson, the then General Manager of the Great Western Railway. These two authorities proclaimed the principle of “what the traffic will bear,” and tried to live up to it. Mr. Grierson claimed for it a statutory origin, and there certainly is a phrase in the Railway Clauses Consolidation Act of 1845 which favours his contention. “To accommodate rates to the circumstances of the traffic” is only a round-about version of “what the traffic will bear.” The passage in Mr. Grierson's book reads well from the railway point of view—

“If their sole object were to obtain the necessary revenue they might cease to regard the effects of rates upon the interests of traders, districts or ports, and while conforming to the statutory maxima they might levy rates detrimental to particular kinds of traffic. Their practice has been altogether different, they have sought to give full effect to the intention which Parliament had in view in framing the rude statutory classifications. They have endeavoured to suit the charges to the capacity

¹ Findlay's *Management of an English Railway*, p. 206.

of the traders, and, in the words of Section 90 of the Railway Clauses Consolidation Act of 1845, 'to accommodate them to the circumstances of the traffic.' "

Mr. Grierson was not content, as Sir George Findlay had been, simply to state the meaning and purpose of the much disputed motto, "what the traffic will bear." He did not even stop at claiming, as we have seen, statutory sanction for it. He went on to argue that it was the best method both for traders and the public. Then he capped his case by showing that public rates and taxes are also levied on the principle of what the traffic will bear—¹

"Rightly understood this, it is contended, is the only fair working principle, the only scientific rule, if that phrase has any clear meaning. It is only another way of saying that rates should be so fixed as to enable a manufacturer or a trader and the railway company to obtain a reasonable profit, and that rates should ultimately be determined by the law of supply and demand. The value of conveyance, like the value of any other service, is not necessarily what it costs, but what it is worth to him who wishes his goods carried."

Then the income-tax analogy is cleverly brought in.

"An endeavour is made to obtain the revenue of the country from the persons who can best afford to pay, and to levy it upon articles the taxation of which will, to the least practicable extent, be a burden on the trade of the country. To fix railway rates on any other principle than that described above would be much like raising the national revenue from all persons alike, rich or poor, or to impose the customs duties and excise upon all commodities, whether articles of luxury or necessity, and irrespective of their value."

The reader need hardly be reminded that the above extract was written in the Arcadian days which were brought to a sudden and violent end by the advent of Lloyd George finance. The discriminatory taxation which Mr. Grierson considered so good both for national and railway revenues has now been carried much farther

¹ Grierson's *Railway Rates, English and Foreign*, p. 70.

than he would have approved. It has therefore become a doubtful model for the fixing of railway rates. Let us turn from Mr. Grierson to another expert, Mr. Acworth. In this as in all other railway puzzles, Mr. Acworth is pre-eminently philosophical. He can always demonstrate to us that whatever is right, and could not be right if it were otherwise. Observe how ingeniously he proves that "what the traffic will bear" is a principle of moderation and not of extortion—

"Translated into railway language the principle means this—the total railway revenue is made up of rates which in the case of traffic unable to bear a high rate are so low as to cover hardly more than actual out-of-pocket expenses, which in the case of medium-class traffic cover both out-of-pocket expenses and a proportionate part of the unapportioned cost, and which finally in the case of high-class traffic, after covering that traffic's own out-of-pocket expenses, leaves a large and disproportionate surplus available as a contribution towards the unapportioned expenses of the low-class traffic, which such traffic itself could not afford to bear. This in principle and in outline is the system of charging what the traffic can bear."

An intelligent railway shareholder reading that semi-official defence of railway rating will be first struck by the admission that certain classes of freight are carried at rates which do not cover working expenses, while other classes have to be charged super rates in order to make good the loss on the unremunerative rates. This insidious though perhaps unavoidable power of discrimination has been carried much farther by the American than by the British railways, and the American justification of it is on much the same lines as Mr. Acworth's. Or conversely, it might be said that Mr. Acworth has adopted the American theory and applied it to British conditions. In its own country it has had many expositors, but it will be generally agreed that Judge Cooley and Professor Hadley head the list. Judge Cooley was chairman of the Interstate Commerce Commission, and had occasion to deal with

this question in his first annual report. He came out strongly in favour of low-grade freight being favoured at the expense of the higher classes—

“To take each class of freight by itself and measure the reasonableness of charges by reference to the cost of transporting that particular class, though it might seem abstractly just, would neither be practicable for the carriers nor consistent with the public interest. The public interest is best served when the rates are so apportioned as to encourage the largest practicable exchange of products between different sections of our country, and with foreign countries. This can only be done by making value an important consideration, and by placing upon the higher classes of freight some share of the burden that on a relatively equal apportionment, if service alone were considered, would fall upon those of less value. With this method of arranging tariffs little fault is found, and perhaps none at all by persons who consider the subject from the standpoint of public interest.”

The proposition can be stated in many different ways, all leading to the same conclusion. Professor Hadley's argument, it will be noted, takes even a wider sweep than Judge Cooley's or Mr. Acworth's. He also differs from them in giving us a glimpse of the other side of the question—

“Thus there has gradually grown up a system of rates favouring certain classes of goods, certain localities or certain individuals. It was found that by lowering the rates for cheap goods a large traffic was developed. It was found that by lowering the rates at competitive points a large traffic might be secured which would otherwise go by other routes. It was found, or at any rate it appeared, that by lowering rates to certain individuals a road increased its returns better than by a general lowering of rates. This constitutes the system of charging ‘what the traffic will bear.’ The ordinary objections to it are obvious at once. It is generally believed that the less-favoured shippers are taxed in order that the railroad may do business for others at

unreasonably low rates, that in any other business the loss of competition would prevent such abuses, and that in the absence of any effective competition laws should be passed forbidding the railroads making a great deal more profit on one part of its business than it does on another. This is the aim of anti-discrimination bills."

Briefly put the governing principle of railway management at the present day is to obtain a living return on the capital cost of the railway, and to divide this as equitably as possible over the various classes and grades of freight from which it has to be drawn. For such a promiscuous levy there can be no general rule. It may in some cases be scientific, but in many others it must be arbitrary. While there may be in it many individual anomalies and inequalities, on the whole it may be as fair and just as the very difficult circumstances permit. What is really most needed is more elastic means of negotiation between the railways and the traders.

In justice to the railways it should always be remembered that from their very birth they have been hampered in their rate-making by outside interference and dictation of every possible sort. It was Parliament and other public authorities who invented these legal bugbears—maximum and minimum rates; the onus of proving every proposed change of rates, however trifling, to be reasonable; the parliamentary passenger fare, the workman's train, and many other encroachments on the freedom of railway administration. To all these problems, difficult enough in themselves, the railway manager comes with his hands tied and his motives suspected.

Conversely it is not to be wondered at if traders accustomed to conduct their own business on the simplest possible lines get hopelessly fogged over railway rates. In the first place there are no published tariffs which he can keep on his desk and refer to as occasion requires. Every time that he has a new commodity to ship or a new market to reach he must go to the railway station to make personal inquiries. He begins with the station-master, who refers him to the Goods department, where he at last discovers a wonderful expert known as the

rate clerk. When this gentleman learns his business he produces from a capacious desk bundles of well-thumbed rate-books.

One set of these is for "local" rates and another for "foreign" rates, local meaning traffic confined to the company's own line, and foreign applying to through traffic over one or more other lines. A third set is distinguished as "Clearing House rates," over which the individual railways have no control. In order to ascertain any particular rate, half-a-dozen intricate operations may have to be gone through. First the article in question must be traced in the classified lists, of which there are eight (A, B, C and 1, 2, 3, 4, 5), each of them containing hundreds of separate items. They started in 1847 with about 300 articles, and now they have grown to over 7,500. As if that were not complication enough, 900 Acts of Parliament have been required to authorise them.

The article having been identified, the next difficulty is to ascertain the mileage of the proposed journey. Then the rate has to be calculated in sections, so much per mile for the first twenty miles or any part thereof, so much per mile for the next thirty miles, so much per mile for the next fifty miles, and so much per mile for the remainder of the distance, whatever it may be. Both the trader and the rate clerk are to be pitied when they go floundering through this maze of classifications, mileages and rates. Even when they emerge from it their explorations are not finished. The terminal charges have still to be settled, and these vary not only with the character of the goods, but with the station and the extent of the terminal service.

There are two classes of terminal service recognised by our latest railway legislation—first the so-called station terminal, which is supposed to represent the rental of the station buildings, yards, etc., and secondly the service terminal, which covers the cost of handling the goods. It is subdivided into four heads—loading, unloading, covering and uncovering. Thus on an article carried more than a hundred miles, and having all the

terminal charges to pay, there may be nine different items to work out and add together—four for weights and distances and five for terminals. And that does not include collection and delivery, for which two additional charges will have to be made!

It is not at all improbable that when this labour of Hercules has been completed the trader and the rate clerk will not find themselves in agreement as to the result. The trader will then have to choose between submitting to a rate which is a Chinese puzzle to him and fighting it. In the latter event he may begin economically with an appeal to the Board of Trade for its advice and mediation. The Board of Trade experts are always ready to act the part of mutual friend in such disputes, but they have no legal authority to enforce their decisions. If the point at issue is important it will have to go to the Railway Commissioners, who have so far not proved themselves to be an ideal commercial tribunal.

British railway rates, like so many other British institutions, are obviously suffering from over-doses of parliamentary law. They smack of the Select Committee room, and of the forensic battles which have been waged there over matters which the railways and the traders might have settled among themselves with half the amount of trouble and less than half of the expense. With less Philadelphia law and more plain business sense, that jungle of rates and classifications might have been to a large extent avoided. Instead of it we might have had railway charges made as simple and intelligible as ocean freights. Why indeed should there be such a contrast between the two?

CHAPTER XVI

EXCEPTIONAL RATES AND SERVICES

TRADERS and railway officials regard questions of rates from two opposite points of view. The trader thinks of them as arbitrary creations of official authority, while the railway manager treats them as statutory regulations. They are, in fact, something between these two extremes. Both the arbitrary and the statutory elements have entered largely into them, so largely indeed that it is now impossible to distinguish them. Few things have had a more mixed origin than British railway rates. The earliest of them were established by special Acts of Parliament. Schedules of maximum rates were deemed as essential a part of a primitive railway Act as of a turnpike or a canal Act. These were the models on which the first railway tariffs were framed.

Later on tentative efforts were made by the House of Commons to classify the principal kinds of traffic and to apply uniform rates to them. After many Select Committees and Royal Commissions had worked intermittently on this ever-growing task, a comprehensive scheme of classification and rating was evolved about twenty years ago. In 1888 the various railways in the United Kingdom sent in to the Board of Trade their proposed schedules of classes and rates. In 1894 these were all embodied in an Act of Parliament which continues to be our fundamental law of railway rates to the present day. It has been supplemented and elaborated by a long series of judicial decisions which are continually being added to. No branch of our commercial life is in such a state of flux as that administered by the Railway and Canal Commissioners.

The Clearing House recognises three kinds of freight, and provides for each of them a scale of rates. The first is the parcel traffic by goods trains, the second, "smalls," or consignments not exceeding 3 cwts., and the third, heavy traffic (A, B and C). "A" is the mineral class, "B" is for bricks, lime, etc., and "C" for such things as cement, which have to be carried in bags. These are all station to station rates, exclusive of collection and delivery. They are, of course, much lower than the 1 to 5 classes which are distinguished as "shed goods." The latter always include collection and delivery, though a scale of rebates is provided for those who wish to do these services themselves.

In qualification of the general statement that British railways have little or no latitude in their rate-making, it should be added that they can and do give special terms for large consignments. The A, B and C scales are specially intended for wholesalers. In A and B a minimum of 4 tons is required, and in C a minimum of 2 tons. But there may be shipments running up to hundreds of tons, cargoes of grain, for instance, being discharged from foreign steamers. The railways have power to contract for such business very much below the regular rates for ordinary quantities. In class goods (1 to 5) there are a good many commodities with a sufficiently heavy tonnage to warrant concessions from the official rates; which, of course, give the big trader a considerable advantage over the small one.

In these days of mammoth factories and stores, universal providers, and co-operative societies with tens of thousands of members, there must be many traders able to drive a good bargain with the railway companies. A General Manager once informed a Select Committee that 80 per cent. of the business in the North of England was done at exceptional rates. Such rates cannot be objected to because, though probably much below those levied on smaller traders, they are within the letter of the law. The small trader would also get them if he could send equally large consignments. The principle is analogous to that on which gas companies reduce

their charge per 1000 feet, as the amount consumed increases.

At the lower end of the scale still more surprising exceptions are to be found to general rules. Passenger train parcels, for instance, are greatly favoured to the prejudice of more profitable business. For their benefit tariffs are set aside, terminal charges are ignored, and special through services are organised which on the face of them cannot be remunerative. Often they must be very much the reverse. The whole parcel service, with its extensive and costly network of collection and delivery vans, may be safely challenged as a losing concern. The meagre accounts and statistics hitherto published by the railways do not furnish any definite proof on the point, but it would seem impossible on the face of it that a service involving such a waste of power, and of which each railway company can have such a very small share, can ever be very profitable.

It is a characteristic of the exceptional rate that it is generally accompanied by exceptionally good service. This is quite in accordance with a similar peculiarity in the passenger service which allots quicker and more comfortable trains to the cheap tripper than to the regular customer of the railway who has to pay full fare. There are many different catchwords in use among railway officials for advertising their exceptional services, "Rapid transit" is one of the chief favourites. It has the changes rung upon it in railway advertisements. It is proclaimed in glaring posters at village stations which furnish hardly a single truck-load of freight in a week. All over East Yorkshire may be read the following announcement—

"HULL TO SCOTLAND

Goods collected nightly and delivered in Edinburgh and Glasgow the following morning."

Of late the praises of the British lightning collection and delivery system have not been sung quite as lustily as they used to be, but there was a time when every

British railway manager of any note joined in them. We may start with the London and North-Western and go all through the list without encountering a single discordant note. "Rapid dispatch" was the fetish of the generation which had Lord Stalbridge, Sir George Findlay and Mr. Grierson for its representative railway men. On one occasion Lord Stalbridge thus addressed the London and North-Western shareholders on this popular theme—

"In this country a merchant in Manchester, Liverpool, Leeds, York or any other of the big towns, feels that he must receive in the morning the invoice of goods awaiting delivery that left London only the night before, whereas in France and the rest of the Continent they have never less than three days allowed for delivery, and at some distances five, six or seven days. If goods could be kept that length of time in this country, so that full train loads could be made up and dispatched at convenient times, the goods traffic could be conducted more cheaply, but it would be impossible for railway companies to reduce rates if they had to deliver with the expedition prevailing at the present time."

But is it absolutely necessary that they should? Is the game worth the candle, and as the expense of it steadily increases with dearer coal and dearer labour, will it not become less and less worth the candle? Sir George Findlay's picture of it is doubtless fascinating from the railway manager's point of view, but one can imagine a less costly picture being more welcome to railway shareholders. It is fearful to contemplate how much money which might have been available for dividends has vanished in the heroic attempt of the railways to supply every corner of the three kingdoms with "goods per return of post."

In his *Working and Management of an English Railway* Sir George Findlay says—

"Goods are punctually collected, carried hundreds of miles between all the most important towns in England and delivered to their consignees within the day of twenty-four hours; and even between England and

places in Scotland and the seaport towns of Ireland within forty-eight hours. The Yorkshire manufacturer who attends the London wool sales to-day may have the wool he purchases in his warehouse to-morrow. The Lancashire cotton spinner will buy cotton in Liverpool one day and it may be in actual consumption in his mill the next. Dead meat from Scotland and from abroad, poultry, butter and eggs from Ireland, vegetables, fruit and all perishable goods of the kind, are dispatched by the growers with the narrowest possible margin of time to catch a particular market. And all this is done with the utmost certainty and punctuality."

In another panegyric of rapid dispatch we read—

"Your modern business man wires his manufacturer, who may be 200 miles or more distant, in the afternoon for certain goods to be dispatched to him, and looks upon it as something extraordinary if they are not at his premises waiting his arrival on the following morning."

Where the wonderful genius of this feat comes in it may not be very easy to discover. The Parcel Post is quite as clever at it as any of the railways, and as cheap. It is still a question if such business might not have become better organised and developed had it been left in the hands of Pickford and the other public carriers. At first they did the carrying on the railways as they had been doing it for years before on the roads. They collected goods, hauled them over the railway in their own wagons, and delivered them at the other end. They performed, in fact, the rudimentary functions of an American express company, and had they been left alone, that is the form they would probably have assumed. But when the railway companies resolved to become carriers themselves and to do their own hauling, they would brook no competition.

In vain the carrying agents appealed to the courts for protection. They got judgments on various points against the companies, among others one affirming their right to send what were called "packed parcels," that is, a number of small parcels for the same destination packed together. The companies gradually squeezed

them out by making their business as unpleasant as possible for them, and throwing every obstacle in their way. While the company's own parcels went out by the night trains and were delivered in Birmingham and Manchester next morning, the carrying agents' parcels were held back till next day. This was another original cause of the quick goods service. After the carrying agents had withdrawn it was kept up until in due time the legend grew around it that the British trader was always in a hurry for his goods.

A policy so foolish and wasteful was bound to be abused, and in due time the abuses appeared. Sheer speed is a sort of competition that develops recklessness, and sometimes also unscrupulousness. When it was carried so far that the poorer railways could not stand it, mutual recriminations began. The Great Eastern Chairman, Lord Claud Hamilton, took his shareholders into the secret and gave them a few examples of what the "rapid dispatch" craze had come to. At one of his half-yearly meetings in 1906 he thus described to them the latest instance of it—

"Hitherto it has been the custom in England to carry perishable goods by passenger trains at passenger rates, but one company, thinking they could filch a little traffic away from a competitor, started running express goods trains at goods rates, which means a loss of something like 20 per cent. In addition, these trains could not be run at the rate at which they go, namely, about 45 miles an hour, unless they are furnished with continuous brakes. We found that one of our competitors was running these trains in our district and filching from us a good deal of our traffic. We remonstrated, but remonstrance appeared to be of no avail. We could not afford to sit still and see our traffic gradually taken away from us, and so we have been forced, much against our inclination and against your interest, to have some of our goods trains fitted up with continuous brakes in order that we may stop this competition on the part of our adversary. Now that has been money very badly spent, but what were we to do?"

Railway shareholders can now read such confessions with the consoling thought that they are past history. But if reckless and suicidal rivalry has been at last checked, can we be sure that the extravagant spirit which it fostered has also been eradicated? Moreover, competition has not been the only cause of exceptional rates and services. Very slight inquiry into their history will show that they spring from a variety of sources, many of them legitimate enough, and some even commendable. But the public hear less about these than about the illegitimate causes—competition, bad management and so forth. The legitimate and commendable causes have, however, played a much larger part in the development of our railway system than the others. Their most usual objects have been to open up new sources of traffic, by increasing the volume of traffic to lower the cost of operation, to promote local trade, to enable towns in their territory to reach markets from which they would otherwise be shut out, to make fuller and better use of their plant and rolling stock.

Apart from commercial reasons there may often be economic causes for exceptional rates. In wheat-growing countries like Canada and the United States the failure of a crop is considered to entitle the farmers to all the help the railways can give them in the way of special rates not only for what they ship out, but for the supplies they have to bring in. Again, with a new colony or a new industry it may be advisable to grant special rates for a time until it can afford to pay full tariff rates. Or when traffic is going too much one way and a large proportion of wagons are coming back empty, it may be worth while to accept very low rates for back loading. This, in fact, is one of the most practical tests of good management—the small proportion of empty running.

The back-loading question has been very well illustrated by Professor Hadley—

“One of the most effective devices in this matter, was the system of ‘back loading.’ To return a car empty is a great waste of power. In some cases it is a necessity—cattle cars and oil cars, for instance, can as a rule carry

a load but one way. In those cases the rate must cover the cost of moving the cars full one way and empty the other before the rate begins to be a paying one. For a long time it was so with nearly all cars employed in the carriage of grain. Gradually our railroad managers awoke to the fact that for obtaining goods to fill such cars any rate was a paying rate when it would cover the difference between hauling them empty and hauling them full—provided that such rates developed additional business which could be obtained on no other terms.”

But in the end “back loading” did not prove an unqualified boon. It was one of the causes of the rate wars which at a later period reduced three-fourths of the American roads to bankruptcy, and robbed British bondholders to the tune of millions sterling. By degrees the “back-loading” rates were under pressure of fierce competition extended to regular freight, and all the rates were pulled down to their level. This is precisely the danger we have to fear from the cheap trip mania of our own railway managers. So far they have held up their regular fares through sheer conservatism, but at the expense of their regular train traffic. They have to steer between the Scylla of lower fares and the Charybdis of fewer passengers.

Nevertheless the “load up at any price” policy has been advocated even by British railway managers. Mr. Grierson was a stout defender of it and of “differentials” generally. In the following passage he makes full use of the American argument—

“The fact is that differential rates have arisen in no small degree out of the same causes as have necessitated a classification of goods. Goods of small intrinsic value will not be conveyed at all unless at low rates; only on special terms can such goods produced at a great distance be brought to market. . . . To carry traffic at a rate yielding a small profit is better for a railway company than to have its permanent way for many hours unused and its plant not fully employed. It may be expedient to accept traffic producing only a small percentage of profit if it can be got on no better terms. Such traffic

will at least help to defray the fixed charges which must be incurred whether it is carried or not."

When all reasonable allowance has been made for the legitimate causes of exceptional rates and services, a considerable number will remain for which no such defence can be made. A host of them appear to be due to mistaken policy, and of all the mistakes of this sort which our railway administrators have committed the "collection and delivery" system as now conducted is the one that most urgently needs to be inquired into.

After fighting long and costly battles in Parliament for maximum rates, terminal charges and other rights which they never meant to take full advantage of, they wheeled round on themselves and scattered abroad concessions far more liberal than the public would ever have expected, much less demanded of them. In this prodigal mood they created new services which practically ignored terminal charges and all other legal extras. One of them was the now popular if not very profitable collection and delivery service. It introduced a combined rate which included not only haulage and terminals, but threw in free collection and delivery. Mr. Acworth's account of it may be taken as semi-official—

"The rates for these classes were known as C and D (collection and delivery) rates, because they included not only carriage on the railway, but also collection beforehand from the consignor and delivery afterwards to the consignee if within a reasonable distance. They were charged, to use the French phrase, 'without condition of tonnage,' except that for consignments less than 500 lb. a surcharge was made beyond the regular tonnage rate. The goods in the numbered classes (1 to 5) usually required to be protected from the weather in transit and to be loaded and unloaded under cover, consequently they were often known as 'shed goods.' Moreover, the service of loading and unloading was performed by the company, and the cost of it included in the gross rate charged."

This is obviously the sort of traffic that gives the railways a maximum amount of trouble and puts them

to a maximum of expense, but does not by any means produce a maximum of revenue. Comparatively high charges would be needed to make it self-supporting. If some "collection and delivery" rates be high, the majority of them are the reverse. They certainly do not leave a large surplus toward the general expense and up-keep of the railway. It is now admitted even at shareholders' meetings that too much is being spent on the carting service, especially in large cities. In London it has for years been very much overdone, and the best of the railway reforms now in progress is the curtailment of the railway traffic which vies with motor buses and taxicabs in pushing all other kinds of traffic off the streets.

On the face of it collecting a parcel, say, at the East End of London, carting it to a goods depot perhaps eight or nine miles off, carrying it by train to Glasgow, Edinburgh, or some other city three or four hundred miles off, and there carting it again several miles to its destination, cannot be a lucrative business. To judge by the frantic endeavours which are now being made by the directors of the London trunk lines to economise in their carting department, the profit and loss account can hardly have been satisfactory. We may doubt if it has been for years past. Apparently the shareholders have begun to look into it for themselves, and they find a good deal to think about.

This policy of the railway companies in competing with the parcel service of the Post Office might well have been challenged long ago. Its folly should be obvious almost at a glance. The advantage which the Post Office had over the railways in possessing a collection and delivery service which covers the whole United Kingdom far outweighed anything the railways could gain on the mere cost of train haulage. This, in fact, is one of the most striking proofs of how relatively small a factor the railway itself is in a complex system of transportation. Compared with the terminal services required—collection and delivery, station accommodation and facilities, handling, clerking and supervision—the actual cost of haulage is a bagatelle.

British railways are being handicapped and in many cases weighed down by their accessories, by extraneous work with which they should never have saddled themselves. If they had stuck to their proper business of hauling goods and passengers and left the collection and distribution of them to special agencies, as in the United States, the 10 per cent. dividends with which they began their career might easily have been maintained. Long hauls and cheap terminal service are the secrets of railway success. Nature has denied them the first and their own shortsightedness has deprived them of the second. But they have still much to gain by recognising the errors of the past and as far as possible correcting them. The least they can do is to avoid persisting in them and adding to the heavy burdens they have imposed on unfortunate railway shareholders. Intelligent and impartial travellers on a British railway may be greatly edified by comparing the line itself with the multitude of accessories which have been found necessary to its operation. Even a second-class station may represent the cost of miles of track, while its working expenses might pay for millions of ton miles of haulage.

Both on British and American railways it has been observed that the great majority of complaints by traders are made on the ground of unfairness or inequality. Very few of them allege that the rates are in themselves excessive or unreasonable. Inequality was an almost necessary consequence of the haphazard way in which the original tariff came into existence. Every new railway company proposed a tariff of its own, and generally got it passed. The first efforts at uniformity were limited to special classes of goods or special trades. The only kind of equality that Parliament concerned itself about in those days was equal treatment for all users of the railway. This wholesome doctrine was distinctly laid down as early as 1844. Section 90 of the Railway Clauses Consolidation Act says—

“ And whereas it is expedient that the company should be enabled to vary the tolls upon the railway so as to accommodate them to the circumstances of the traffic,

but that such power of varying should not be used for the purpose of prejudicing or favouring particular parties, or for the purpose of collusively and unfairly creating a monopoly either in the hands of the company or of particular parties, it shall be lawful, therefore, for the company, subject to the provisions and limitations herein-after and in the said special Acts contained, from time to time to alter or vary the tolls by the special Act authorised to be taken, provided that all such tolls be at all times charged equally to all persons and after the same rate, whether per ton per mile or otherwise, in respect of all passengers and of all goods or carriages of the same description, and conveyed or propelled by a like carriage or engine passing over the same portion of the line under the same circumstances."

It can hardly fail to be noticed how much more liberal and elastic was this rating principle established by the Parliament of 1845 than the one substituted for it fifty years later. The Consolidating Act of 1894 deprived the railway companies of the freedom to adjust their rates which had been voluntarily conceded to them in 1845. They are no longer at liberty "to vary their tolls so as to accommodate them to the circumstances of the traffic." No advance, however reasonable and well justified, can be made by a railway company on its own authority, and this veto operates also as a veto on reducing rates. No company, however willing it might be to lower a rate for a special occasion, will risk doing so when it knows that a lawsuit may be necessary to get it restored. The trader for whose supposed benefit the Act of 1895 was passed suffers equally with the railway company through its left-handed operation.

CHAPTER XVII

COMPETITIVE RATES

THERE are almost as many different kinds of competitive rates as there are different theories of rate-making. The chief of them may, however, be divided into three or four groups according to their causes.

First, those which have resulted from economic or political causes beyond the control of the railway companies.

Second, those which have been forced on the railway companies by outside competitors—road and water carriers in particular.

Third, those which have originated among the railways themselves, and for which they have themselves entirely to thank.

A typical economic cause of railway competition was the revolution in our fiscal system due to the repeal of the corn laws. It altered and in some cases reversed the main currents of British trade. It called for new trade routes and threw old ones out of use. Railways had to be rapidly built to meet the demand for new forms of transportation, and, as was almost inevitable, in the circumstances, they were over-built. On top of this evil parliamentary interference led to many costly mistakes being committed. If the original network of railways had been wisely planned with a single eye to the work to be performed, it would not only have been much less heavily capitalised, but it would have had many fewer points of competition.

Until recently road and water competition has been an unimportant factor in railway economics. Now, however, it is becoming serious, and in the near future

they may prove formidable. As yet the motor bus and motor van have done little more than flutter the railway dovecots and scale down some of the weaker dividends. But we have seen only the beginnings of their evolution. Their future possibilities can only be guessed at.

After discounting all the external forms of competition from which the railways have suffered, a very large balance remains which must be charged to their own account. All sorts of reasons, objects, motives and policies have played a part in it. From petty vanity to bold strategy it has had many parents. Now that the railway pioneers of last century are all resting from their parliamentary and other duels it may be admitted that they were a pugnacious generation, and cost their shareholders not a few millions of pounds which more pacific tactics might have saved. But in extenuation of this peculiar fault of theirs it may be pleaded that they had to deal with people as bellicose as themselves. Everybody hustled in those days, and all classes fought for their own hands. The farmer, the manufacturer, the trader, the importer and the exporter were animated by a common desire to get as much as they could out of the railways and to pay for it as little as possible.

The policy of the fighting railway managers of the Victorian Age is rather difficult to follow, it is so full of contradictions. With one hand they were co-operating and with the other they were devising new methods of competition. At certain competing points they pooled the traffic, and at certain others they fought for it as if their lives depended upon it. They gave each other running powers over sections of their lines and leases of valuable terminals, then, having admitted an enemy into the citadel, they fought him tooth and nail. In this way the traffic of important provincial towns was divided and subdivided until what might have been enough for one or two had to be scrambled for by three or four.

The scramble that goes on at Bradford may serve for a typical example. Two railways, the Midland and Great Northern, have their own terminals in that city, and doubtless they could do all the work there is to do.

But the Great Northern saw fit to take in two lodgers. It gave the Great Central running powers into its station, with the right to employ a staff of its own to canvass and collect traffic. Afterwards the Great Eastern obtained a similar privilege, but it did not put in a staff of its own, it shared that of the Great Central. So it came about that four railways found themselves fighting for traffic which was perhaps barely enough for two. They fought, however, in a most gentlemanly and courteous manner. Etiquette forbade them to cut rates even to the extent of a farthing. Neither could they give rebates. But they could spend as much money as they pleased in "granting facilities" to their customers. In other words, they could compete in expenditure though not in rates. They could put on twice as many collecting and delivering vans as were really needed for the traffic. They could duplicate and triplicate all the terminal services, and in so doing waste thousands a year. What actually occurred at Bradford has been thus described—

"The buses and vans of the four companies are being used to collect the traffic. At the various depots the consignments may be loaded into either Great Central, Great Eastern, Great Northern or Midland trucks, and when loaded they will travel by four different routes. The vans frequently come into the depots with only half a load, and as the trucks by all routes cannot be just filled, the probability is that each company has some goods left over for which a half-empty wagon has to be run. Also as each company has only a few wagons in all for London, not one of them can run a through train, so the wagons have to be taken to a junction, where time and labour are expended in shunting and transferring them to another train."

The connecting trains for the first junction are probably not fully loaded, and if they belonged to one company, four of them might do the work of five. This would be all the greater saving in the case of the Great Central and Great Northern trains, which run for a considerable distance out of Bradford on the same metals. It is these interlacing and overlapping arrangements rather than

direct and open competition that cause the worst leaks in the goods service. More flagrant cases of duplicate expenditure than even Bradford might be named. In 1907 the *Economist* exposed a bad case of overlapping at Manchester—

“There is no doubt that the Great Northern and Great Central companies are both running a vast amount of mileage which but for the stress of competition would be unnecessary. They are both probably sending wagons long distances every day with very light loads, and they are both employing an army of canvassers to secure business upon which the profit is reduced to vanishing-point on account of the conditions under which it has to be carried. To take a concrete case by way of illustration. A shipper in Manchester has, say, a ton of cloth in bales to send away each day to some town served by both these companies, and as the canvassers of both companies are clamouring for the business, he decides, as is constantly done, to divide it between them. Both companies send their lorries to bring away 10 cwt. each, and that small quantity has to be specially handled at the station and loaded in a through truck to its destination in order to avoid any possibility of delay by transshipment at some intermediate point. Under a system of co-operation such as that adopted on some of the other lines there would in the first place be no occasion for either company to employ canvassers to tout for the ton of cloth. The companies would probably agree to collect and deal with the whole consignment alternate weeks or alternate months, and in this way the double cartage would be saved and the ton of traffic would be carried to its destination by one company at probably no more than the cost incurred by each of them under the previous system in conveying half the consignment.”

It is satisfactory to note that the co-operate movement has begun to produce some good results in this direction. An even more drastic remedy for overlapping than that suggested by the *Economist* is being applied to some of the worst cases. The *Railway Review* of the 2nd August, 1912, is our authority for the following

list of joint stations that have passed into single ownership—

“It is understood that the London and South-Western Company will shortly absorb the Great Western passenger station at Salisbury and convert it into a goods depot. In return the Great Western will take over the London and South-Western business at Weymouth. The Great Northern are leaving Cambridge to the Great Eastern and Sheffield to their Great Central friends. The Great Central are withdrawing from Bradford, Halifax, Keighley, and Leeds, where the business will be administered by the Great Northern. It is confidently anticipated that considerable economies in administration will be effected by these and other changes which are pending. The public are assured there is to be no reduction in efficiency—in fact, increased interchangeability of tickets is broadly hinted at as a probable result.”

Competitive rates on British railways have been evolved by a very similar process to framing a new tariff in the United States Congress. Everybody with an axe of his own to grind had to be heard, and as far as possible satisfied. Every group of producers and of traders had to be negotiated with. All the budding industries along the line or within easy reach of it had to be made to feel that the railway was their friend. The staple industries on which it was to depend for the bulk of its traffic had to be conciliated. The various districts it passed through bristled with local jealousies which had to be respected. Finally, as the coasting and over-sea trade developed, the most difficult problem of all evolved itself—how were foreign and domestic rates to be adjusted?

These various difficulties were struggled with in a haphazard, hand-to-mouth way. The ultimate result was that many were not only left unsolved, but wrong roads were taken which led them farther and farther away from a real solution. In excuse for the original rate-makers it may be urged that they did not initiate the custom of favouring the import and export trade at the expense of domestic trade. It had long been one of the fiscal principles of the country, and Mr. Grierson

has pointed out that it was embodied in the charter of our very first steam railway—the Stockton and Darlington—

“Nor is the practice recently introduced in the interest of railway companies. In the Act authorising the very first railway on which steam was used, the Stockton and Darlington, the principle is recognised. The tolls upon the coal shipped on board any vessel for export were fixed at one halfpenny per ton per mile, while the toll on all other coal was 4*d.* per ton per mile. Each of the export rates, it may be truly said, has been made at the instance of some manufacturer or shipper who would be injured by their withdrawal.”

This, it must be admitted, is not a very strong defence of favouring the foreigner, but it throws some needed light on the origin of the practice. On the other hand, it does not excuse modern railway managers for continuing it long after changed conditions had rendered it unnecessary, and in many cases unfair. At the very least it should have been abandoned after the principle of equal treatment for all was formally adopted in 1845. Mr. Grierson's excuse for special export rates, that “some manufacturer or shipper would be injured by their withdrawal,” is in one sense an aggravation of the charge, as it indicates that only privileged shippers had the benefit of them.

Nevertheless Mr. Grierson's main argument, that the railways did not originate the reduced foreign rates now so much objected to, is perfectly true. A large and varied amount of foreign competition had developed before the railway became a formidable factor in commercial transportation. When it did begin to reach out for foreign traffic it was import rather than export business that it chiefly coveted. Export rates soon ceased to be of vital consequence. They affected only some heavy exports like coal and other raw materials. But privileged rates on imports hit quite another and a more sensitive class. Their earliest and worst victims were the farmers, who were also the first to raise a vigorous protest.

It was not against the railways only that the farmers

had a grievance. They had already been hard hit by the development of steam navigation in the Irish and the continental trades. It was while they were still staggering under this blow that the corn laws were repealed. Then they not merely lost all the fiscal and geographical protection which their markets had previously enjoyed, but they were actually handicapped in competition with their foreign rivals. The exceptional freights granted to continental ports made it a good deal cheaper to send wheat to London from Hamburg than from Hertfordshire. This grievance was loudly proclaimed in the *Farmers' Magazine* for January 1840.

“The charges on the internal transport of grain by the rivers and canals (with their heavy dues) say freight factorage, etc., frequently amount to 6s. or 8s. a quarter. The expense of a quarter of wheat from the banks of the Shannon to its general consuming market (Manchester) is equal to that incurred on a quarter shipped from Hamburg to London. A sack of flour made by a Hertfordshire miller twenty or twenty-five miles from London and sent hither by land carriage is 3s., while a Hamburg miller can send one to London at the same expense.”

The above was a case of natural competition, subject to geographical conditions, for which neither railways nor steamers were responsible. They had not gone out of their way to create it, as the railways undoubtedly did at a later period. Then they laid themselves open to a new and more serious grievance of the farmers. This was the organisation of special continental services for the purpose of giving importers of foreign produce advantages which were quite beyond the reach of the same class of home producers. This point was argued out before the Railway and Canal Commissioners in the Southampton Docks case, which has been clearly stated by Mr. Acworth—

“In that case, where it was a question of the reasonableness of charging very much higher rates for local and retail traffic than for the wholesale traffic in the same commodities between Southampton and London, figures were produced which showed that a train load of dock

traffic in bacon, butter and the like, charged at 6s. per ton for seventy-eight miles earned 12s. 6d. per train mile, leaving the railway company, after deducting 2s. 6d. per train mile as cost of working, 10s. per train mile net profit. The local traffic came in such small and uncertain quantities that though the rates averaged 15s. per ton for an equivalent distance, a train only earned 5s. per mile, leaving, after once more deducting 2s. 6d. per train mile for working expenses, a net profit of only 2s. 6d., or one-fourth of that in the former case.”¹

If it had been a question of railway rates pure and simple that was being discussed, the defence of the London and South-Western Railway in the above case would have been plausible if not conclusive. But the modern conception of a railway is much larger than that of a mere public carrier. It is no longer supposed to sit still and wait for new traffic to come to it. It is expected to encourage, and as far as in it lies to assist, the various classes of producers in its territory to create traffic.

Had the London and South-Western Railway adopted this policy thirty years ago it might ere now have been able to run train loads of Hampshire and Devonshire produce to London as easily and cheaply as to bring train loads from the Continent. It is a pleasure to give it and other English railways credit for having turned over a new leaf in this respect. A remarkable development of market gardening is in progress along the south coast, especially between Brighton and Southampton. It has already created a volume of railway traffic worth catering for, and the local railways are beginning to do their duty by it. At the same time it has raised the status of the home producer much nearer to that of the foreigner. He should soon be able to negotiate on equal terms with the railway company, and to claim equality of treatment both as regards rates and services.

From the agriculturist's point of view the question of import rates has improved considerably in the past thirty years. But the railways can still do a good deal more for him. They have to get into closer touch with

¹ Acworth's *Elements of Railway Economics*, p. 54.

the growers, and to give them every possible facility for getting their produce to market in good condition. The Brighton Company and the London and South Western now run special market garden trains to London at fixed hours, but they tender no help in collecting the various shipments. This part of the work is still in a very crude state. What is badly needed on the south coast is a few motor vans to collect each day's consignment from the gardens and run them to the special train which is to carry them to London. More might be saved on this part of the service than on the railway rates, even if these were to be cut down one-half.

While the farmer continued to be the principal victim of preferential foreign rates they did not excite much public interest. But in due time home manufacturers and merchants came within the scope of their ever-widening influences. The Victorian Age was distinguished by a strong and general outburst of commercial politics. It applied itself with enthusiasm to practical questions of taxation, transportation and foreign trade. Customs duties and railway rates became as favourite topics at Westminster as Home Rule and Disestablishment are to-day. The hitherto all-powerful railway companies were attacked by several distinct bands of hostile critics—legal, commercial and political. Their foreign rates were most hotly assailed as being their most vulnerable point. Session after session they were denounced in the House of Commons and in Chambers of Commerce. One Select Committee after another was appointed to investigate new phases of the problem as they arose. But the railway companies were generally able to show that there was something to be said on the other side. So the controversy has drifted on and on without making much progress toward a definite settlement.

Meanwhile a fairly satisfactory compromise was effected by the arrangement of 1894. The schedules and the classifications then agreed upon worked smoothly for a good many years, and if they are now in some respects out of date, there should be no difficulty about overhauling them in a friendly spirit. Unfortunately that

is not the spirit in which many of those who claim a voice in the matter are approaching it. The railways had enemies enough in the Victorian Age, but they seem to have many more now. Their enemies were also bitter enough, but their bitterness was honey itself compared with the sweeping denunciations of present-day censors.

The variety of these censors and the many different lines of attack they adopt are the most surprising features of the campaign. While Sir Alfred Mond and his allies assail them from one side, the trade unionists strike at them from the other. The farmer's friends jump in whenever they see an opening. The ministerial Radicals oppose any and every concession to the railway companies for the sake of the labour votes that are to be got out of it. The Socialists, of course, miss no opportunity of denouncing the railways as a capitalistic crime, and charging them with all the sins of mismanagement that can be heaped on them. The trade unionists run their Socialist friends hard in these outbursts of rhetorical abuse.

In the present temper of the House of Commons such a thing as justice to the railways is not to be looked for. But sadder than the partisan hostility of their opponents is the fatuity with which they have spoiled their own case and presented their worst side to the public. Instead of organising simple and direct train services for which moderate rates could be charged, as on German and American lines, they invented the most complicated services, and had to charge proportionately for them. When the latter are analysed into their various parts, and each part is fairly valued, it is found that the sum total, instead of being excessive, is really moderate, often to the extent of being unremunerative.

Popular declaimers against the railway companies know little and care less about what they have come through. They take no account of the past mistakes which the present generation of railway managers have inherited. They forget the parliamentary interference by which the railways have all along been hampered. They ignore the new difficulties which are always starting

up in their path. Whatever is wrong is attributed to the existing directors and managers. Mr. Hyndman specially distinguishes himself in this very one-sided kind of censorship, and several choice examples of it occur in his *Reminiscences*. Referring to the Duke of Devonshire's Royal Commission on foreign and domestic railway rates, he says—

“A little more attention was given to the question of differential rates in favour of foreign imports because it was the question of the moment. It did seem preposterous even to Royal Commissioners that home meat from Cheshire should cost twice as much to send to Sheffield as foreign meat from Birkenhead in the same county; that it should cost just one-third the freight to ship ores and manufactured iron between Essen and port, as it did between Sheffield, the English Essen, and port, and that fruit and other agricultural produce should be rotting in English orchards and fields because the freight to London was prohibitive, while inferior foreign eatables of the same description were passing up every night and every day to Covent Garden at a fraction of the rates charged to our own countrymen.”¹

Sweeping abuse of this sort is invariably based on imperfect information. In this case the writer appears to be quite unaware of the fact that most of our trunk lines have a parcel service specially organised for agricultural and garden produce. The rates, so far from being exorbitant, are so low that it is doubtful if any of these services are self-supporting. When the cost of collection and delivery has been met very little will as a rule remain for train haulage.

¹ H. M. Hyndman's *Further Reminiscences*, p. 21.

CHAPTER XVIII

LONG AND SHORT HAUL RATES

ONE of the most puzzling factors in railway economics is the great advantage of the long haul over the short haul. Even railway managers seem to find it difficult to grasp the essential difference between the two. Nowhere is this difference more remarkable than on our own railways. So heavily handicapped is the short haul by expensive terminals and other fixed charges, that its financial results cannot be expected to compare with those of long-haul freight. Short-haul roads, as most of our British railways are, and long-haul roads, as the principal American railways are, have little or nothing in common. They are entirely different propositions.

Short hauls and relatively high terminal charges are the two weak points of our railway system. They have been the most prolific causes of competition, not merely in train service, but in building unnecessary mileage. This produces over-capitalisation, which in turn entails excessive fixed charges. The short haul is at a double disadvantage, first in the high ratio of its terminal charges to the charge for haulage, and secondly in the higher rates charged for short than for long distances. Notwithstanding short-haul traffic being thus overcharged, it pays badly compared with long-haul traffic. According to Mr. Acworth—

“The French railway companies compete and publish statistics giving for each section and branch of their system separately the traffic carried over it, the earnings, expenses and net profit. Broadly the result is to show that the main lines with low average rates are splendidly profitable, while the branch lines with light traffic, in spite of higher rates, are worked in most cases at an actual loss.”¹

This is a curious confirmation of American experience with regard to long and short haul traffic. The French railways offer a much closer comparison with our own than those of the United States, and yet they lead us to a very similar conclusion. But it was the American and Canadian transcontinental railways that first taught the railway world these two great truths, that goods traffic is much more remunerative than passengers, and that length of haul is more important than the rate per mile. To these might be added a third—that terminal charges are the worst possible form of levying railway rates. They resemble the extras in an hotel bill. In the case of very long hauls terminals are such an insignificant item as to be hardly worth mentioning, whereas on a short haul consignment they may amount to one-half the total charge or even more.

Mr. Marriott, the Assistant Traffic Manager of the Lancashire and Yorkshire Railway, has given in his book on the fixing of rates and fares some useful examples of how goods rates are compiled. They distinguish in each case haulage, station terminals and service terminals, and it is very interesting how they vary in their relative proportions of the whole. For a short-haul example we may take Manchester to Bradford, 38 miles. The consignment has to travel over two railways, and consequently has to be rated on two short distances—first, $29\frac{1}{2}$ miles on the London and North-Western, and next $8\frac{3}{4}$ miles on the Lancashire and Yorkshire. Subjoined is an exact transcript of Mr. Marriott's bill for one ton of goods—

¹ Acworth's *Elements of Railway Economics*, p. 54.

MANCHESTER AND BRADFORD, CLASS 1, 13*s.* 5*d.* PER TON.

LONDON AND NORTH-WESTERN AND LANCASHIRE AND YORKSHIRE,
38 MILES.

	Per Ton per Mile.		Per Ton.	
	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
Manchester (L. & N.-W.) to Bradley Wood Junction :				
First 20 miles	0	2-30	3	8-00
Next 9½ „	0	1-85	1	5-57
Bradley Wood Junction to Bradford :				
8¾ miles	0	2-20	1	7-25
<i>Station Terminals :</i>			6	8-82
Manchester	1	6		
Bradford	1	6		
<i>Service Terminals :</i>				
Loading	0	5		
Unloading	0	5		
Covering	0	1-50		
Uncovering	0	1-50		
Cartage	2	8-00		
			6	9
			13	5-82

A rather humorous coincidence will be observed between the charge for haulage and the combined terminal charges. They are practically identical—6*s.* 9*d.* each—showing that it costs as much to load and unload the goods as to transport them a distance of nearly 40 miles. To put it in another way, 50 per cent., or one-half of the total charge, is not for transportation but for handling at the beginning and the end of the journey. As the length of the haul increases the proportion of the total charge absorbed by terminals diminishes. In the next example, a 233 mile haul, it declines from 50 per cent. to 20 per cent. But that is still a large deduction to make for the mere handling of the goods.

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COLNE TO LONDON, CLASS 2, 43s. 9d. PER TON.

LANCASHIRE AND YORKSHIRE AND LONDON AND NORTH-WESTERN,
233½ MILES.

	Per Ton per Mile.	Per Ton.
<i>Colne to Ardwick :</i>		
First 20 miles	2.65	4 5
Next 16½ „	2.30	3 1.95
		7 6.95
<i>Ardwick to London via Crewe :</i>		
First 20 miles	2.65	4 5
Next 30 „	2.30	5 9
„ 50 „	1.80	7 6
„ 87½ „	1.50	10 10.87
		36 1.82
<i>Station Terminals :</i>		
Colne	1 6	
London	1 6	
<i>Service Terminals :</i>		
Loading	8	
Unloading	8	
Covering	2	
Uncovering	2	
Cartage	5 10	
		10 6
		46 7.82

It has been said that the shorter the haul the greater is the disparity between the cost of the haulage proper and that of the terminals. Raw cotton carried a distance of 20 miles will furnish a good illustration of this. Its maximum rate is 2.20*d.* per ton per mile, consequently the rate for 20 miles would be 3*s.* 8*d.* per ton. But the terminal charges, cartage, etc., would amount to 6*s.* 9*d.* per ton, or nearly twice as much as the cost of the twenty-mile haul! Even on single-line traffic, that is, traffic passing over only one railway, the cost of handling is out of all proportion to the cost of haulage. But on traffic passing over two or more lines the disparity is liable to be aggravated by the initial rates having to be

repeated every time that the consignment passes on to a new line.

In the above Colne to London example of a compiled rate, it will be noted that on the London and North-Western section of the journey the rates are graduated downward according to distance. For the first 20 miles the charge is 2·65*d.* per ton per mile. For the next 30 miles it is 2·30*d.*, for the next 50 it is 1·80*d.*, and for the next 100 it is 1·50*d.* But this graduation downward only holds good on the same railway. On changing to a second railway a fresh start has to be made at the top of the scale. Instead of 1·50*d.* per ton per mile, 2·65*d.* has again to be paid for the first 20 miles, 2·30*d.* for the next 30 miles, and so on as before. This system of rating sometimes produces the paradoxical result that the longest route proves the cheapest. If it should be on one line all the distance over 100 miles may be charged the minimum rate of 1½*d.* per mile, whereas if there be three lines to pass over the rate will be alternately dipping from 2·65*d.* per mile to 1·50*d.*, and jumping again to 2·65*d.*

A very plausible argument in favour of the amalgamation scheme promoted by the Great Central, the Great Eastern and Great Northern Railways was that it would do away with this special tax on short hauls. When the lines of the three companies were counted as one, consignees, it was said, would get the full benefit of the graduated distance scale. This doubtless would be a great boon, but would it not be a still greater and more direct boon to abolish the surcharge on short hauls? If it had been intended to compensate the railway for terminal expenses it might have been reasonable, but the terminal charges are levied all the same, and presumably they at least reimburse the railway for its outlay on them. As a rule they may do a good deal more.

If terminal charges cover the cost of the service, there is no other good ground for differentiating between long and short hauls; that is, on the same railway and working under similar conditions. There may be, and in fact are, sound reasons for differential rates on different

railways. Equal mileage rates are a theorist's dream, but our system of surcharging short hauls is a trifle too wideawake. It must often hit the small trader pretty hard.

The British policy of making as much as possible out of the short haul has been obviously overdone. It has run too much to small details and little extras. To make as much as possible out of the stations and the accessories of a railway while neglecting the greater possibilities of the line itself is small-minded management. The American policy, to create and foster long-distance traffic to the utmost, not only looks better but pays better. Of course we have not the magnificent distances which the Americans have to work upon, but more might be made of such as we have. For a British railway manager nothing could be more bracing and expansive than a study of how long-distance traffic was built up by the creators of the world's greatest railway systems. These men did not waste their time and energy on the minutiae of terminal charges, parcel deliveries and excursion trains. They struck out into the wild west for the big car, the heavy train and the long haul.

True we have no wild west, but there may still be scope in the old country for creating new traffic and getting fuller trains as well as longer hauls. The story of how millions of tons of freight were brought across from the Pacific coast to the Great Lakes at a cost which beforehand would have been considered absurdly low is worth studying for its own sake, and as an education in railway economics. For British railway officials it should have a special interest, as showing them the antipodes of their own system. In the first half of this chapter they will find a faithful picture of short-haul traffic in its highest development. In the remaining half they will see the perfection of long-haul traffic.

The most typical examples of American railways are those of the new North-West. They are the most up-to-date, which of course means the most thoroughly American. They have the greatest faith in American methods, and are loudest in the assertion that as regards

both rates and working expenses European railways have been left far behind. Mr. J. J. Hill, the builder of the Great Northern, personifies this North-Western spirit, and expresses it frequently in breezy speeches to the farmers and manufacturers along his road. On one occasion he read a remarkable paper at Chicago to the Illinois Manufacturers' Association on the opening up of the North-West. Naturally he adopted the view that cheap transportation had been the main factor in that marvellous evolution. In order to prove what railways economically built and operated could do for the opening up of a country, he contrasted the rates that were being charged on the North-West with those of the principal railway systems in Europe—

“In England the average amount paid by the shipper for moving a ton of freight one hundred miles is \$2.35; in France, \$2.10; in Austria, \$1.90; in Germany, where most of the railways are owned and operated by the Government, \$1.84; in Russia, also Government ownership, where the shipments are carried under conditions more similar to our own than in any other country as respects long haul, \$1.70; in the United States the average cost is 73 cents, or less than 40 per cent. of the average cost in Europe. And this is done while every article used by the railroads, including labour, costs more in this country than it costs in Europe, with the exception of coal and right of way.”

While Mr. Hill was thus enlightening the Chicago manufacturers on their advantages from a railway point of view, a British railway manager was showing in the columns of *The Times* that on the short-distance traffic in which we are most interested the British trader has the advantage. Sir George Gibb, then the General Manager of the North-Eastern, gave a selection of comparisons between British and American rates charged on similar goods under similar conditions. He described them as “rates per ton for conveyance of a consignment of five tons (excluding collection and delivery) between two stations 42 miles from each other. In both countries,” he explained, “the charge is for haulage alone—station

to station rates, as we call them. American rates as a rule include no terminals, and they have gained greatly by their exclusion both as regards simplicity and economy of work."

STATION TO STATION RATES.

	American.		British.	
	s.	d.	s.	d.
Bricks (common)	12	2	4	6
Cement	8	5	5	10
Flour (in sacks)	7	6	6	8
Malt (in bags)	7	6	7	1
Oil cake	7	6	6	8
Potatoes (in bags)	8	5	8	3
Plates and Bars (Iron or Steel)	8	5	5	0
Stone (building)	8	5	4	3
Ale	12	2	10	0

On what principle these particular articles were selected as tests of railway rates in the two countries does not appear. Of the whole nine only two can pass as agricultural produce. The other seven are industrial, that is, town-made goods rather than country made. There is not one typical product of the North-West among them—neither wheat nor meat nor lumber. The long-haul traffic of the North-West must be judged by its own standards, and under its own peculiar conditions. It has always been regarded by Mr. Hill, its principal pioneer, as creative traffic. He holds strongly that the main duty of a railroad is to develop the country it traverses. Only it must be allowed to do it in its own way. In one of his later speeches he said—

“If the railway is to increase its traffic, it can only be done by increasing the business of its customers. This same principle applies to the occupation and cultivation of the land along the lines of railway throughout the country, and particularly applies to the lines west of Chicago. Unless the farmer can make money by the cultivation of his land, either through selling his wheat, his grain, his cotton or his stock, with a profit to himself, the time must come when he will cease to cultivate the

land, and the railway is left as it were in a desert. For the past twenty years or more I have had some experience in opening up and peopling new states, and have always adopted as a fixed policy the making of rates on the products of the country seeking a market, and the necessities of life, such as coal, lumber and building material, at the lowest level the company could afford, looking more to our profit from the lighter articles of merchandise and shelf goods consumed in the country."

Mr. Hill entered into an elaborate comparison to prove to the farmers that they stood to gain much more from low rates to the seaboard for their produce than they could lose through high rates on the merchandise they consumed. "Take," he said, "a man growing 2,000 bushels, equal to 60 tons of wheat. A reduction of one dollar per ton on the carriage of that to market would be a saving to him of \$60. But if he went to the local store every week and took away each time 50 pounds of merchandise, it would amount at the end of the year to only 2,600 pounds, the entire freight on which at 40 cents per hundred would be only \$10.40. Thus if the railway carried his merchandise for nothing, and charged him five cents a hundred additional on his grain, he would be worse off by nearly 50 dollars."

That expresses pretty clearly the fundamental policy of American railroads, especially in the West, to give the lowest possible rates to the staple commodity of a district, be it lumber, grain or minerals, and to make the high-grade freight, merchandise and all kinds of fine goods, pay for it. A drawback to this benevolent theory is that it turns the railroad into a kind of special providence, and places at its mercy all the settlers along its route. The Interstate Commerce Commission does not admit the special providence function of the railroads, and asks to have the rate-making power handed over to it as the best solution of the difficulty. Though it has to some extent succeeded, the railroads, especially in the West, have still a large discrimination in the making of rates for the good of the district. They have as a rule

used their power well, and sometimes generously, as, for instance, in the following case described by Mr. Hill—

“ Intelligent railway management is constantly called upon to secure for the producers on its various lines a market for their productions, and, if possible, a return load for the car carrying such product to market. We have on the Pacific coast the largest body of first-class saw timber left in the United States. When I first visited that country, with a view to extending our lines to the coast, I saw at once that unless we could carry their lumber to market at a price that would enable them to manufacture and ship it with a profit, our railroad would have no business. The first and great crop of that country is its lumber. We made a rate of 40 cents a hundred for 2,000 miles, or four mills a ton per mile, on this lumber, in order that we might load back the cars that carried out the merchandise to the West. This rate was necessarily met by other roads, and the result was the expansion of the lumber trade of Washington and Oregon, so that to-day it is over ten times what it was nine years ago. Now in place of seeking additional loads for our cars from the West, we are seeking additional loads for our west-bound cars going out to be loaded with lumber.”

Seldom if ever has the British railway manager an opportunity of developing traffic on that magnificent scale. We have no roads that can quote rates for a haul of 2,000 miles. Neither have we any that could carry lumber for four mills per ton per mile equal to two and a half miles for a halfpenny per ton. But in the West immense quantities of freight are carried on these special terms, and the railways, instead of being ruined by them, seem to thrive on them. On eastern and middle state roads vast quantities of minerals and other heavy commodities are being carried at correspondingly low rates. Not in every district, of course, but wherever the traffic is of sufficient importance to be entitled to special facilities. On short hauls, where the traffic is too light to require exceptional treatment, American rates may easily be higher than British rates for a similar

distance, but these may be only a few needles in a haystack compared with the enormous mass of long-distance freight being carried at a mere fraction of the corresponding British rates.

Let us be sure of comparing like with like before we attempt to decide the issue between the two systems by means of a few scattered items. We must all acknowledge that the rate-making machinery in the United States is much more elastic than our own. Every American manager can grant special rates under circumstances similar to those of Mr. Hill's lumber traffic from the Pacific coast. That the power has been used with incalculable benefit to newly-settled areas all the recent history of the Western States bears witness. Likewise in the older districts of the East, though to a smaller extent, the rate-making power has contributed largely to industrial development. Notwithstanding the favoritism and other abuses which have attended special rates, they have built up magnificent industries in every part of the Union. It may almost be affirmed that there is no great industry in the United States which does not owe much to the railroads, both in the way of efficient service and low rates. Every-day trade may not be particularly well treated, but when there is a new district to boom or a new source of traffic to develop, rates are not allowed to stand in the way.

The one limit always recognised is that no train is to be run at a loss. According to the new school of railroad economists, every train should pay its expenses and leave something over for the road. Within these limits a comparatively free hand is allowed to traffic managers. They can have on the same train freight of many classes, and at many different rates: some of them abnormally low, as, for example, Mr. Hill's eight dollars per ton for hauling lumber more than 2,000 miles; others high, like Sir George Gibb's selection of short-haul charges. To set extreme rates against each other is a rather peddling operation and will not advance us far toward the main question, namely, the comparative merits of the two policies, British and American. Their respective

merits are steadiness and elasticity, and may it not be that both are carried rather far? Our British rates have an almost cast-iron firmness, while the American ones are in a continual state of change. When the railroads themselves are not shifting them about the Interstate Commerce Commission is being instigated to level them down. Some shipper is always appealing for redress against discrimination shown to a rival, or some town is up in arms against alleged partiality shown to neighbouring towns.

BOOK FIFTH—ADMINISTRATIVE

CHAPTER XIX

THE DIRECTORS

THERE are many practical questions affecting British railways which, though not far from a century old, still remain in a very hazy condition. Among these are the directorate and the executive. Even to railway shareholders there are mysteries of the Board which few are daring enough to try to penetrate. Directors come and go, but where they come from or where they go to are points seldom raised at railway meetings. Retiring directors are generally re-elected as a matter of course. When one dies full of years and honours, the Board have always a successor ready to take his place. Often he is actually in office before the shareholders know anything about the change. Though when a vacancy occurs through death or otherwise it would be quite safe to defer a new election until the next meeting of shareholders, that is rarely done. Directors apparently like to keep their numbers intact, and as each of them has some specific duty, however unimportant, to perform, holding a vacant seat open might entail extra work on the others.

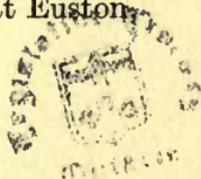
The distinctive feature of a British Railway Board is that they are practically co-optive. A certain proportion of them are semi-official. A custom has arisen lately of retiring the General Manager at a comparatively early age, and giving him a seat on the Board. Frequently, after a few years' experience, he is elected chairman, which in effect means that he becomes General Manager again, but with a freer hand and greater authority than before. A British railway chairman who has risen

from the ranks holds a much stronger position than one who has never been anything but a director. He corresponds fairly well to the American railway president, who is always a practical man.

Occasionally a secretary becomes General Manager, and in due time also reaches the Board room. The proportion of official directors is, however, small, especially on our principal railways. Until lately it was smallest on the London and North-Western, the Midland and the Great Western. A retiring solicitor like the late Mr. Beale of the Midland may sometimes be rewarded for long and valuable service with an invitation to join the Board, but these are exceptional cases. Between the directorate and the executive there has always been a well-defined gap which few have crossed. Directors are not expected to be technical men, and as a rule they have no desire to be. On the other hand, they cannot be called amateurs, as the best of them acquire a large amount of general knowledge which in its own way may be as useful as technical skill and experience.

On every important Board there is almost sure to be one or two practical financiers, whose counsel will be valuable on financial matters, such as capital expenditure and issues of new stock. Local landowners are also largely represented, especially if they happen to be members of the peerage. This practice appears to be a legacy from the days when it was deemed wise to have powerful friends in both Houses of Parliament. They have not been figureheads, however, as the names of Lord Redesdale, Lord Wharnccliffe, Lord Allerton and Lord Stalbridge abundantly testify. It is a noteworthy fact that on our most successful railway Boards the percentage of peers and their relatives is considerable. On the London and North-Western there were in the late Lord Stalbridge's time five peers and three junior members of the peerage, very nearly one-half of the whole twenty directors. Add two or three large landowners, and it will be seen how strong the landed interest continues to be in our railway system.

No other Board is quite so patrician as that at Euston.



but failing peers they draw largely on the baronetage and the Privy Council. The Great Western has not only Viscount Churchill for its chairman and two peers on its Audit Committee, but the Board itself presents a strong array of "Sirs" and "Honourables." The Midland is the most plebeian of the trunk lines, having only one peer on the Board and two baronets. As if to accentuate these defects, it has two earls on its Audit Committee. Neither is the landed interest so strong on it as on the other trunk lines. That may be partly due to its having a smaller Board to start with. While the London and the North-Western requires twenty directors and the Great Western nineteen, the Midland gets along with fifteen.

Next in importance to the landed interest on our railway Boards is what may be distinguished as the business element. This consists of colliery proprietors, ironmasters, manufacturers, shipowners and others, who are supposed to be "able to bring business" to the railway. At first glance it may seem to be an immense advantage to a company to have in its directorate men who have at their disposal thousands of tons of freight weekly. The traffic of a great brewery, or a huge iron-works, or a big steamship line is something to be coveted by any railway. A seat on the Board would seem to be a small price to pay for it, and so it would be if an even balance could always be maintained between the interests of the railway and those of the directors who are customers as well as directors.

That, however, is no trifling risk to take even with men of scrupulous honour, as a large majority of British railway directors undoubtedly are. Not a few railway shareholders are fully alive to the drawbacks of such an arrangement and its possibilities of abuse, but it is too delicate a question to discuss at public meetings or even in the press. They have no fear of trading or shipping directors taking advantage of their position to secure pecuniary privileges in the way of rates or services, but there are even more important occasions on which duty to the railway may clash with private considerations.

Cases have actually occurred in which large concessions have been made to the employees of a railway without apparent cause or justification. But the key to the puzzle might be shrewdly suspected in the district. On the Board there might be owners of large works dependent on the railway for their raw materials and the marketing of their goods. Even a few days' stoppage of the railway might cause them serious inconvenience and loss, while a prolonged strike might mean ruin. Such directors would be superhuman if they did not go to the farthest limit of compromise, and at all hazards try to avert the cutting off of their supplies.

Another possible case is where a railway director is heavily interested in the collieries of a particular district which is one of several served by the railway. Without any positive unfairness or injustice the district which is most strongly represented on the railway Board may be fostered at the expense of the others. It may be more promptly and liberally furnished with wagons, or the collieries which own their own wagons may have them more promptly returned when empty. It may have greater facilities given it for reaching distant markets. It may be assisted to overcome geographical difficulties while less-favoured districts only get what the law entitles them to. Discrimination has never reached such a height here as it did years ago on the American railways, but it was never altogether absent. The last generation of railway directors and managers never pretended to be absolutely neutral.

The shipowning director may be even more formidable than the colliery owner. The first object of his thoughts is an up-to-date harbour with deep-water docks, the latest dock equipment and the most reasonable charges. If a generous railway company will build such a harbour for him, or even provide him with deep-water jetties, he will be everlastingly grateful. He may not wait to consider that such a harbour may cost the company millions of money and then may not earn its working expenses, let alone interest on the new capital expended. On the other hand, the shipowning director may get the

benefit of very complete and expeditious shipping facilities at a merely nominal rate.

Although a trading director may have no personal interest likely to clash with that of his railway, he is apt to share the bias of the trading community against railway companies. Almost from the beginning the railway and the traders have regarded each other as natural enemies. They are still far from a good understanding—almost as far, indeed, as the railway Boards and the railway-men. But even so the trading director with all his risks is a much-coveted acquisition. Few railway Boards would refuse a director who could put £1,000 a week of traffic on the line. He need not fear refusal, for he is always in demand.

With the British public the reputation of being “a business man” goes a long way. It matters very little in what line of business the reputation may have been acquired. It will serve equally well whether obtained at the head of a joint stock bank, or a great railway, or a public department. The man in the street never specialises. Success in any line of life means to him a mysterious kind of ability which in any other sphere, however different, might be equally fortunate. He does not understand that there are vocations which require the continuous training of a lifetime. Of these the most strenuous is railway administration.

The notion that any good business man can become a successful railway director was much stronger in the Victorian Age than it is now. Some remarkable recruits then found their way into railway Board rooms. A subordinate place in the Government of the day was supposed to be a special qualification for railway service. Local members of Parliament felt themselves passed over if a vacancy on the Board of the local railway was not offered to them. At times they could fly at much higher game. Ministers retiring from office with a decent record might even have a chairmanship offered to them. This actually happened to the late Mr. W. H. Smith after his first term at the Admiralty.

The London and North-Western Board of that day

were at a loss to find a worthy successor to their ideal chairman, Sir Richard Moon. They offered the position to Mr. Smith, whose experience of railway operations had hitherto been confined to the bookstalls. He modestly pointed out that there was a considerable difference between managing the bookstalls and running the entire railway. It is possible that the London and North-Western missed a great chairman through Mr. Smith's modesty, one perhaps who would now be ranking with Sir Richard Moon himself. On the other hand, their idea that any kind of a good business man has in him the making of a first-rate railway director or even of a brilliant chairman was certainly wrong. It could only have existed in the amateur stage of railway science.

A similar idea prevailed also in our banking world, and it survives there even more strongly than among our railways. So conspicuous an example of purely "business" administration as the Bank of England has presented throughout its whole career could not fail to influence for good or evil, or both, all kindred institutions. It established the precedent of a great financial institution conducted by merchants and other plain business men without the help of specialists. The Bank of France has an official Governor with a handsome salary who is an expert in all branches of banking, domestic and international. The Imperial Bank of Germany has not only a banking expert at its head, but he is surrounded by a group of experts with whom he can always take counsel in emergencies.

Compared with such authorities on banking and finance the directors of the Bank of England may without offence be termed amateurs. That, however, is not an unmitigated drawback. In international banking it is quite possible to be too clever and too adventurous. There are times when a few grains of English caution may be worth any quantity of French or German skill.

On the same principle the British railway director may be regarded as an amateur compared with his German and American colleagues. He seldom possesses a shred of their technical science, either in the matter of accounts

or of operating. His ideas of "ton miles" and "passenger miles" may still be extremely hazy notwithstanding all the learned discussions and expositions which these ethereal units have undergone during the past decade. But against all his technical defects and shortcomings can be set the inestimable gift of trustworthiness. He is a perfectly "safe" man in all his administrative functions—safe in his judgment, in his traditional policy, and in the routine work of his office.

Of course he has his weaknesses, but as a rule they are not personal. They originate in the peculiar system under which he has been trained, and in the conventions which he has inherited from his predecessors. Until recently his chief weakness was reticence and a love of official secrecy. In this he took after his friends and models in Threadneedle Street. When the first railway companies were formed the ideal directorate was that of the Bank of England, which never publishes any accounts, and never sees its shareholders more than a few minutes twice a year, when it announces to them the dividends they are about to receive, for which they are expected to be duly thankful.

As for the public, they are thought of, though of course not spoken about in the classical language of the late Commodore Vanderbilt. In the early days of joint-stock companies the public as such were not recognised either legally or officially. Even the shareholders were almost a negligible quantity. Railway Boards took at the very outset very high ground in this respect. They repudiated all responsibility to the State beyond what might be necessary to ensure the safety of passengers and property in transit on the railway. The earliest text-book of railway economy—that of Dr. Lardner published in 1850—shows what an exalted idea the pioneer directors had of their office. In one passage he says—

"This demand (for some efficient system of control) was opposed by railway directors and parties under their influence, who went so far as to deny the right of Parliament to interfere with their concerns, assimilating their establishments to those of banks, insurance offices, dock

companies and other industrial associations. These parties indignantly rejected all control, and even complained of the system of publishing periodical reports, partial and imperfect as it has been, which the law and public opinion has exacted from them, as a grievance. They declared that any interference with the affairs of railway companies, or any compulsory publication of their proceedings, or any report of the state of their financial concerns is a violation of the rights of capital as gross and unjustifiable as would be the same measure if adopted with reference to the mercantile transactions of Rothschilds, Barings, or any other private establishment. They admit that Government may so far interfere as to provide for the safety and convenience of the public in travelling. But beyond this they denounce all legislative or State intervention in their affairs.”¹

Dr. Lardner himself was an advocate of publicity, as the following extract indicates—

“It is sometimes contended that railways being commercial companies whose concerns affect only their respective shareholders, publicity should not be exacted from them, and that the shareholders alone have the right to be informed of the affairs of their administration and management. But to this it may be answered, that nothing short of publicity can bring such information to the knowledge of bodies so large and fluctuating as those of railway shareholders. By what means short of general publicity, for example, could a body like the proprietors of the North-Western Railway acquire a clear, full and satisfactory knowledge of the affairs of that vast enterprise?”²

What would Dr. Lardner’s contemporaries at Euston have said of the present situation as regards Government control, parliamentary restrictions and all-round interference? If their official dignity was outraged by the statutory accounts prescribed to them in 1868, what would they think of the tenfold more complex and elaborate returns required of them by the Railway

¹ Dr. Lardner’s *Railway Economy*, edition 1850, p. 506.

² *Ibid.*, p. 524.

Accounts Act of last session? But bad as they might have seemed, these would have been small horrors to them beside the Conciliation Boards, the Minimum Wage Acts and the thousand and one pin-pricks of the trade unions. What they might have thought of stamp-licking it is happily needless to attempt to put in words.

The British railway director as he has been here briefly sketched is *sui generis*. It would be useless to look for a counterpart of him in any other country. Even in our own colonies he has reproduced himself to a very limited extent, and what there is of him is rapidly dying out. He is giving way to a more strenuous and professional type of director. At one time railway Boards in the United States followed the British model. They were if possible more conventional, for they seldom attempted to exercise any control over the operating of the road. Their special function was to finance it. In emergencies, as when working expenses had to be ruthlessly cut down, they might put pressure on the executive, but otherwise the latter had a free hand.

Since American railways got out of the hands of New York bankers and Wall Street gamblers their directorates have become less financial and more operative. They now include a fair number of executive officers, and though the outside directors may still be in a majority, they would never attempt to over-rule the men who are responsible for the working of the road. Thus on the existing Board of the Canadian Pacific Railway, which may be considered the last word on the American system, there are five high officials or ex-officials out of a total of fifteen. A full third of the directors have served their time on the road, and are personally familiar with the whole routine of its operations.

Besides, there is an Executive Committee of half-a-dozen which forms an inner council of the Board. Its members are the President, Sir Thomas Shaughnessy, the ex-President, Sir William Van Horne, the first Vice-President, Mr. David McNicoll, and three of the oldest directors, Lord Strathcona, Sir Edmund Osler and

Mr. R. B. Angus. Inside of the inner council there is possibly a still smaller one consisting of the men who are always on the spot—say the President and the first Vice-President. By this arrangement of wheels within wheels a concentration of authority in one or two hands is achieved without going the length of absolute autocracy. The men at the wheel have to answer to the Executive Committee, which in its turn has to answer to the Board of Directors.

But here directorial authority may be said to stop. It is true that the shareholders meet once a year at Montreal, but their meetings are even more of a comedy than those performed on similar occasions at Euston and Paddington. Hardly one in five hundred shareholders can attend personally, and all the proxies are sent as a matter of course to the Board. It is consequently more absolute and farther removed from the control of the actual proprietors of the stock than any British Board could ever be. Whether or not that be best for the shareholders, it is an ideal arrangement for the operating officials.

British Railway Boards have also their wheels within wheels, but generally of quite a different kind from the American and Canadian ones. The whole Board is subdivided into committees in much the same way as town councils are. Each committee has a particular branch of administration to look after. One has to take finance, another stores, a third the locomotive service, a fourth the maintenance of way, and so on. A new director begins on the simple business of the line, and moves upward until he reaches the highest committee, which is generally finance. When he has made the full round his directorial education is supposed to be complete.

But in railway business the cleverest and most experienced man is always learning. It used to be made a reproach to railway directors that they had no age limit and stuck too long to their job. During the agitation of 1907 over the threatened national strike, patriarchal portraits of them were published which suggested that most of them were centenarians. Their average age

has declined a good deal since then, but it is still higher than obtains in any other profession except perhaps politics. Parliamentary polemics and railway administration seem to be both favourable to longevity. Whatever the reason, railway directors seldom die young.

CHAPTER XX

THE EXECUTIVE OFFICERS

THERE is not a great deal of humour in our railway system, but diligent search may be rewarded with some curious anomalies. Strange to say, the most interesting of them are of legal origin. For example, the law demands of railway companies only two statutory officials, and neither of them is the chairman or the General Manager. A railway can be quite legal without either of the latter, but it cannot dispense with a secretary and a treasurer. Their duties are carefully specified in most of the Acts incorporating railways. Everything else connected with the executive is optional. This freedom of action with regard to the operating officials has enabled the companies to develop a very elastic system of management.

The British railway executive has undergone a long process of evolution, and it is still evolving higher and more complex forms. A sarcastic writer of the last generation thus spoke of it as it existed then—

“In a general way it may be said that Parliament in passing railway Bills contemplates the need of a secretary and treasurer only; the former to keep the records and the register, the latter to keep the cash. In its wisdom it has seen fit to assume that a general management, a general superintendence, a locomotive superintendence, an engineer of the permanent way, and a goods manager are quite unneeded for the development and the working of traffic. It has nothing to say for or of these offices, but it clearly defines the functions of the secretary and the treasurer.”

At first the duties of secretary were usually combined with those of the General Manager. An assistant

secretary did the office work, while his chief attended to the managerial business. In the list of officials the treasurer follows the secretary, and after him comes the operating staff. In 1848 the Caledonian Railway appears to have had a resident engineer working under the direction of a firm of consulting engineers. There were only three other head officials deemed worth mentioning in the directors' reports. These were the Traffic Superintendent, the Locomotive Superintendent and the Goods Manager. Each of these single-handed officials has now blossomed out into probably hundreds.

The solicitors of the company invariably receive prominent mention. While land was being bought, right of way being acquired, and all sorts of agreements being negotiated, law was the most important factor in railway development, and its practitioners were honoured accordingly. The smaller railways often tried to get on without a General Manager, but they never dreamed of dispensing with a solicitor. They went to the other extreme, and often paid nearly as much for legal advice as they did for locomotive power. The treasurer did not always get his proper legal title. Sometimes his old name, which had been used in the coaching days, stuck to him, and he was known as "cashier" or "cashier and book-keeper."

Occasionally a bank undertakes to act as treasurer—a precedent which has been followed by many of the local authorities of to-day. In 1848 the title of "inspector" begins to crop up, and about the same time auditors are first mentioned. In a few cases the engineer acts also as manager, while in the colliery districts a separate manager is appointed for mineral traffic. But even on the principal lines, such as the Caledonian and the Edinburgh and Glasgow, the operating staffs were absurdly small according to modern ideas. So also were the Boards of Directors. A dozen was the outside number and often it was as small as half-a-dozen. Four or five officials were the maximum, and they might drop in some cases to two.

A quarter of a century later railway organisation had

become very different from what it was in 1848. A legion of Chief Managers, Assistant Managers, Superintendents, Assistant Superintendents, District Superintendents and Inspectors, had taken the place of the Secretary and Manager rolled into one. The magnitude of the evolution may be gathered from Mr. Findlay's account of the London and North-Western staff in his day—

“The executive management of the line is carried on by a General Manager, a Chief Goods Manager with two Assistants (one for the outdoor working and one for the indoor working—making of rates, etc.), and a Superintendent of the line with one assistant. . . . For administrative purposes the entire system is divided into ten sections or districts, each of which is under the control of an officer of tried and practical experience termed the District Superintendent. . . . In some of the less important districts the District Superintendents are responsible for the goods work at the stations as well as the conduct of the passenger traffic, and in that case they are answerable both to the Chief Goods Manager and to the Superintendent of the line; but in six of the more important districts they are relieved of the management of the goods business (except as to the working of the trains) by district officers of equal rank with themselves, who are called District Goods Managers, and who are responsible to the Chief Goods Manager at Euston.”

A concise summary of the duties and responsibilities of a modern railway manager will be found in Mr. Fisher's standard book on *Railway Accounts and Finance*—

“Traffic receiving, forwarding, exchange arrangements and negotiation of agreements; the relief of congested districts or development of traffic in poor localities; the adaptation of rates and charges to the necessities of various trades; the provision of suitable accommodation; block interlocking and other signalling arrangements; the framing of rules for the guidance of the staff in every conceivable emergency in working the traffic; the most suitable kind of brake, wheel, axle, coupling or even

carriage-door fastening—these and a thousand other details require the constant and careful consideration of the General Manager and Heads of Departments by whom he is assisted and advised.”

It might have been added that these multitudinous duties are being continually multiplied and increased, until now there is hardly an art or science or a branch of business with which a General Manager should not have at least a bowing acquaintance. Since the first edition of Mr. Fisher's book was published about twenty years ago, the sphere of railway activity has been greatly enlarged. It now includes catering for passengers on the trains, hotel-keeping at all the principal stations, running coaches in the touring season, compiling and publishing guide-books, and in some cases managing the bookstalls.

These “side shows,” as they are sometimes called, added to the engine and carriage building works which most railway companies maintain, impose on the management an immense amount of labour and anxiety outside of its proper functions. In such a crowd of extraneous operations the original and proper object of a railway as a public carrier is apt to be overlooked, or at least to be blurred in the public mind. It is an open question which may soon have to be seriously considered, whether the railway companies would not have done better for themselves by resisting the temptation to go so far afield as they have done in search of supplementary profits. Frequently they have found that they were running after a will-o'-the-wisp, and even when the supplementary profits were realised they may not have proved an un-mixed benefit. The road may have suffered for them in another way.

The safe and successful working of a great railway system must in its very simplest form be an anxious and laborious occupation. In order to ensure the highest degree of efficiency the obvious course is to enable every member of the executive staff, from the General Manager downward, to concentrate his attention and his energies on the special business of the railway. Any irrelevant

or extraneous duty that is imposed on the management must weaken to some extent its hold on the main object for which railways exist, namely, rapid and economical transportation. Important matters may then have to suffer for unimportant ones.

Sir William Van Horne, when he was President of the Canadian Pacific Railway, was once asked what had given him most trouble in organising that now magnificent road. He replied half in joke that "it was finding the best coffee in the market for the company's new hotels." He could at least plead that a special service of hotels was absolutely necessary to the Canadian Pacific at the outset of its career, but few British railways can adopt that plea. Most of their hotel ventures might have been better left to private enterprise, while some of them could have been well dispensed with altogether.

The same argument applies still more strongly to the huge and costly machine shops which all our trunk lines have set up for themselves. It is practically certain that the work done in these shops might as a rule be more cheaply done outside. The management has all the trouble and expense of looking after them combined with the uncomfortable feeling that it is losing by them into the bargain. Another swarm of extraneous officials is employed in railway docks which do not always pay working expenses, and very seldom yield a decent return on their cost. In connection with them lines of steamers are run here, there and everywhere, often regardless of the traffic there may be for them.

Some of these points have already been discussed from the traffic point of view, but we have to consider them here in relation to the railway staff and its efficiency. Whether or not they be good business for the railways is one question, and what their effect may be on the staff is another. *Prima facie* the excessive multiplication of officials, and especially of officials who have no connection with the traffic, is undesirable. A passenger train encumbered with cooks, waiters, barbers and ladies' maids is like an army burdened with camp followers. It has to carry a large amount of useless weight, which

often increases the train expenses more than the train receipts.

But the gravest objection to complicating and confusing the proper business of the railways by "side shows" is its tendency to aggravate the ever-present labour trouble. The mere numerical increase of a company's employees has an exciting effect on them. A big crowd once started is naturally much more difficult to control than a small one. There are evident limits to the number of work-people that any employer, whether an individual or a company, can properly control. If our trunk lines have not already exceeded these limits they must be very close to them. In my own opinion they have been passed on our trunk lines. How can any Board of Directors control eighty thousand employees, which is understood to be the number that the London and North-Western has now reached? Such an army of men and boys massed together and kept in a state of chronic discontent by leaders whose living depends upon it is not in a mental state to submit to the discipline essential to the safe and economical working of a busy railway.

Careful observers of the growth of labour unrest cannot have failed to see that it has kept pace with the growing complexity of the railway service and the new functions that are continually being added to it. A modern hotel train carries a retinue of attendants which would have served for a royal progress in less luxurious days than these. All the new functionaries have not only to be paid, but they have to be well paid. They have to live up to their surroundings, and the old-fashioned pound a week is not good enough for them by a long way. They force on the company a new standard of wages which has to be extended by degrees to all the lower grades. In the hands of a clever trade unionist labour unrest is a powerful lever for raising wages. It is being systematically used for that purpose, and the larger the number of persons in any one employment the worse the unrest is likely to become.

While the duties and responsibilities of railway managers have been growing year by year both in numbers

and magnitude, the executive organisation has undergone no corresponding development. It remains very much on the primitive lines of its infancy. Its ideas, regulations and methods are often those of eighty years ago. It cannot be accused of excessive subdivision or complexity. Compared with the continental or the American organisations of executive officers it is decidedly primitive. The most striking of its various anomalies is that it seems to ignore the passenger service, and readers will naturally wonder how that is supervised. They may easily gratify their curiosity by writing to Euston or Paddington for tickets to be used on a certain day. If the correct price is enclosed in the letter the tickets will arrive in due course. Probably there will be a printed slip sent along with them showing that they emanate from the office of the Superintendent of the Line.

This may excite fresh wonder. Why, it may be asked, should the Superintendent of the Line have the issuing of passenger tickets included among his multifarious and most of them very responsible duties? His proper business is the supervision of the roadway and the working of the trains. At one time, when the traffic was infinitesimal compared with what it is now, he may also have had general charge of the goods and passengers in transit. When the goods traffic became too heavy for him to attend to, it was handed over to a new official now known as the Goods Manager. The latter has gradually become an important chief with a large staff of assistants posted all over the system at the principal centres of traffic.

But somehow the passenger business was left entirely in the hands of the Superintendent of the Line. No British railway has a special passenger department or an officially designated passenger agent. There is doubtless in the Superintendent's office a special staff for that branch of the work, but it has no distinctive name, and to the outer world it is unknown. Though it is the passenger service that the public see most of and are most concerned in, it has for them the least individuality of all. They cannot penetrate beyond the booking office, and it is little

enough they are allowed to see even there. In the early days the booking office was the only place where tickets could be obtained. The American plan of having branch offices all over town and ticket stands in hotels and stores was not followed in London until a comparatively recent period. In its place we had a remarkable development of excursion and cheap trip agencies. These have diverted from the regular booking offices a very large amount of the passenger business—larger in some cases than the Directors or the General Managers would like to admit.

Here we find another notable contrast between British and American methods. The British railway manager holds on firmly to every shred of his goods traffic. He will not, if he can avoid it, share a pennyworth of it with outside carriers, however great a relief such an arrangement might be to congested goods sheds and blocked sidings. But almost any outsider may hire a passenger train and use it to spoil the regular business of the line. He may sell passenger tickets at a third or a fourth of the proper fare, and run twenty or more carriages crammed full where the company itself cannot half fill one-half of the number. The company, in short, farms out that part of its business which would be most easily kept for itself, and clings desperately to the part which might be advantageously farmed out.

The American railways do exactly the reverse. They keep their passenger business as much as possible in their own hands, but they willingly sublet sections of their goods traffic to intermediaries. Passenger agents hold a prominent place in their official hierarchy. In this respect the Canadian railways are naturally more American than English. On the Canadian Pacific the Passenger Traffic Manager ranks equally with the Freight Traffic Manager. Not only at the head office but at all the division centres both services have their special staffs. The subdivision of authority is carried much farther there than it is with us.

In the annual reports of the Canadian Pacific the general officers number between thirty and forty—about twice as many as there would be in a corresponding

English list. First comes the President of the Company, who acts also as Chairman of the Directors. He is supported by four Vice-Presidents, the first of whom is also the General Manager, and the others are heads of departments. Their relation to each other is something like that of the Lords of the Admiralty. They have all distinct spheres subject to the supervision of the President. Each of them has assistants, who also have their special duties. Altogether there are eight assistants, the President having two, the Vice-Presidents one each, and two being unattached. They are styled "General Executive Assistants."

On a railway which is building or rebuilding hundreds of miles annually the engineering branch of the executive must necessarily be very strong. It is under a Chief Engineer stationed at Winnipeg, and an Assistant Chief Engineer at Montreal. The former has charge of the western lines, where the heaviest part of the new construction is going on. The latter has supervision of the eastern lines, and both have large staffs of assistants.

For the working of such a varied traffic a number of departmental managers are required. In addition to the ordinary freight and passenger managers there are a manager of steam lines, a manager of telegraphs, and a European manager—five in all. The President, Vice-Presidents and Managers form the general staff of the road, and next in order to them come the divisional officers. There are nine divisions, each of them under a General Superintendent with a staff of his own—assistant superintendents, engineers and inspectors. The divisions extend from the Atlantic to the Pacific, and may be of any length, from four or five hundred miles up to a thousand. Counting from east to west, they are distinguished as the Eastern Lines Division, the Atlantic, the Eastern, the Ontario, the Lake Superior, the Manitoba, the Saskatchewan, the Alberta and the British Columbia. Division Superintendents correspond pretty closely to the District Superintendents on the London and North-Western.

These are the operating staff, and apart from them there

are three others—secretarial, financial and legal. The Secretary is also assistant to the President, and he has a deputy in London, where a good deal of secretarial work is done. The registration of transfers requires no less than three offices—one in London and the others in New York and Montreal. The Treasurer has apparently little to do with the accounting, for which an Assistant Comptroller is responsible. Last of all the legal staff consists of a General Counsel who is also a Director, and a General Solicitor. Thirty-four distinct and separate experts are combined on this powerful executive. Very few British railways could carry such a combination without feeling top-heavy.

As the most typical and highly developed of British railway executives we may take that of the London and North-Western. The first glance at it shows so little similarity with that of an American or Canadian road as almost to preclude comparison. First we have to look for a General Staff corresponding with the American President, Vice-Presidents, Assistant Vice-Presidents and Managers. All that can be found is a General Manager, a Superintendent of the Line, a Chief Goods Manager, and a Mineral Traffic Manager. There are no Vice-Presidents in charge of special departments—finance, stores, etc. Presumably their place is occupied by the Committees of Directors, who do a large amount of departmental supervision. These may not be so expert as their American counterparts, and they may not have such a firm hold on all the administrative details, but on the other hand they are in much closer touch with the shareholders.

In American railroading shareholders count for very little; often they are entirely ignored, and the utmost civility ever paid to them is to solicit their proxies for the annual meetings. British shareholders do see their Directors and Managers now and then, and it is their own fault if they get very little information out of them. What they have to learn is how to ask for it and to insist on getting it. In America the cleverest of them—and as a rule railway shareholders are not superabundantly

clever—could not get a syllable more than it suits the Directors to tell them.

If the General Staff of the London and North-Western be very small and select, the operative staff is large. In fact it is not merely large, but it is promiscuous. It comprises an Assistant Goods Manager, two Assistant Superintendents of the Line, two Outdoor Goods Managers, eight District Goods Managers, a District Traffic Manager (at Dublin), and a host of Superintendents. How the latter are graded is not clear. The only clue to it is that the large stations have Passenger Superintendents as well as Goods Managers, while the smaller ones have Traffic Superintendents who take charge of both goods and passengers. The American plan of Division Superintendents looks simpler at first glance, but it must be remembered that on the London and North-Western there is a greater density as well as greater variety of traffic to handle.

We have next to compare what may be distinguished as the accessory staffs. On the engineering side there are a Chief Engineer, Assistant Engineer, Mechanical Engineer and Electrical Engineer, who is also Signal Superintendent. Under them are nine or ten Divisional Engineers stationed at central points throughout the system. Along with them may be classed the Marine Superintendent at Holyhead, the Carriage Superintendent at Wolverton and the Wagon Superintendent at Earlestown. These are more important officers in this country than in America, where most of the rolling stock, locomotives included, are bought in the open market.

The secretarial staff of the London and North-Western is unique. There is only one officially recognised secretary. He has no assistant, no registrar, no transfer agent. He is supposed to see to all these things himself, just as in the old days, when the traffic between London and Birmingham is said to have averaged 120 passengers and 72 tons of goods per week. The financial staff is also primitive, though not quite so unique as the secretarial. There is no Treasurer, the gentleman who performs that duty having still to be content with the humbler title

of Cashier. No doubt it was bestowed on him in the original Acts of Parliament, and cannot be altered without legislative sanction. In any case it would be a pity to alter it. In these days of flying hotels and cannon-ball restaurants, such a wholesome relic of the old world is like a certain widely advertised cocoa, "soothing and comforting."

The Cashier's department, if rather out of date, makes up for that defect by having many ramifications. Its indoor staff includes a Chief Accountant and a Chief of the Audit Department, besides whom there are two outside auditors chosen by the shareholders. Associated with the financial service, if not actually part of it, are the Estate Agent, the Rating Agent and the Store-keeper. But the chief financial factors in the London and North-Western are the bankers of the company—Glyn, Mills, Currie and Co. They are its actual treasurers, all the principal receipts and payments being made through them.

The only other branch of the London and North-Western executive that remains to be described is the legal department. It is of the most modest proportions, extending only to a solicitor and a firm of parliamentary agents. The latter are apparently less appreciated than they used to be in their halcyon days at Westminster, when railway managers and solicitors spent nearly half the year in committee rooms fighting over Bills, many of which we might all have been better without. They now give precedence to the Hotel Manager, who ranks among the superior gods. The superintendent of sleeping-cars has not yet attained that high official level, but doubtless his turn will come. The railway management of the future promises to be more concerned about feeding passengers and washing them than about transporting them at the lowest possible cost.

The conclusion which most readers may draw from these comparisons of British and American railway executives is that the British system is the simpler and more economical of the two. The salary bill of the President, Vice-Presidents, Managers and Superintendents

of an American road would probably pay for the whole staff at Euston, porters and shunters included. *Per contra*, it must be admitted that these high salaried magnates of the railway world have to work hard for their £5,000 or £10,000 a year. They have to prove that they are worth it before they get it, and they have to keep on earning it, or it may slip through their fingers. Our railway magnates, if their monthly cheques be comparatively small, have a much firmer hold on them.

Popular notions of the personnel of our railways are necessarily very vague. Railway officials even of the highest grades are very modest and retiring—too modest, in fact, both in their own interest and that of the public. They are even more reticent and self-contained than our leading bankers, who hold the record for latent wisdom. Bankers and railway managers alike have too little to say for themselves, especially in national emergencies, when every man in authority owes it to the nation to give it frankly and fully the best counsel at his command. Just now, when banking problems and railway problems are crowding in on us from all quarters, why should every voice be heard except that of the experts?

American railway experts are not afflicted with incurable reserve. They not only discuss professional questions among themselves, but they are always ready to come out in the open and cross swords with their critics. They write copiously in the press; they read papers at public meetings; they hold conferences with Chambers of Commerce, Boards of Trade and Farmers' Clubs. Not only so, but their office doors are always open to any trader who has a reasonable complaint or a rational inquiry to make. The personal knowledge which they acquire in this way of their customers, and the sources of their traffic, is amazing. Many of them are agricultural and industrial as well as railway experts.

CHAPTER XXI

THE WORKING STAFF

IF the various classes of society do not work together as harmoniously as they used to do, it may, on the other hand, be claimed for them that they take more practical interest in each other, and show greater anxiety to understand each other's conditions and sentiments. The economic condition of the wage-earners has become a subject of systematic and sympathetic study. It may not always be pursued in a friendly spirit, but both sides of the case are being more or less clearly put forward. Labour and capital are learning even from their conflicts to know and understand each other better than they have ever done before. It dawns on them that their struggle for mastery demands on both sides the most exact knowledge of each other's strength and resources. It also dawns on the public, though more dimly, that these questions underlie the foundations of national life and well-being.

The State has of late years paid an increasing amount of attention to what may be termed the economic education of the people. More than one public agency is now regularly employed in collecting statistics of wages, prices of commodities, conditions of labour, cost of living and other vital factors in the human problem. The labour troubles of late years have given a strong impetus to this branch of inquiry, and already some substantial results have been produced. Among them are the reports of the Board of Trade on the earnings and hours of labour of work-people of the United Kingdom. One of these is devoted to the railway service, and it will be exceedingly useful to us in the present chapter.

The above inquiry was begun at a very significant time—October 1907—when it may be remembered that the first threat of a national railway strike was sprung on the country. It took everybody by surprise, and as the fateful day approached it caused general alarm, bordering in some cases on panic. The real cause of the panic was ignorance. The railway service as it then existed was a complete mystery to the average citizen. He knew nothing about the complex organisation of our railways, and still less about their personnel. From the chairman to the youngest lamp-boy, railway-men were strangers to him. Naturally, therefore, when a national strike was threatened, he had no idea what it really meant. He could not imagine how it would be carried out, or what its ultimate effects might be. How many men were in the railway service, how they were paid, how they lived, and what they might do in the case of a general revolt were all mysteries to him. He had never thought about them from this particular point of view.

Happily the national strike was averted, but the Board of Trade did not follow the example of public departments which go to sleep again as soon as a danger is passed. It got to work on a census of railway servants, their hours of labour and their average earnings. This was so largely planned and so detailed in its execution that it took fully four years to complete. Mr. G. S. Barnes dated his introduction to it "February 1912," and it did not appear until a month or two after. It is a folio volume of 258 pages, containing millions of figures as well as a large amount of letterpress. The information it supplies is so full and complete that no one has any excuse left for remaining ignorant of the actual condition of railway labour.

Of course a good many changes have taken place since 1907, when the figures were collected, but these have all been in favour of the railway workers. The conciliation schemes of 1907 and 1911 have had the effect of raising wages at least 10 per cent. all round. The main point, however, for us here is that railway shareholders and railway servants are no longer in the dark as to their

respective positions. They can no longer confuse each other and the public as to the essential elements of wage disputes. The street corner spouter, who used to declaim about so many hundred thousand railway-men having to bring up their families on less than a pound a week, is once for all put out of court.

Mr. Barnes, the editor of the report, pays a high compliment to the railway companies and to employers generally for the cordial assistance they gave toward its preparation. He says—

“The information on which this and previous reports of the same character are based was supplied voluntarily by employers in response to inquiries made by the Board of Trade. . . . In the present case, owing to the special character of the railway service, it has been possible to obtain returns covering practically the whole number of railway servants employed in the United Kingdom, and for this result the Board are greatly indebted to the assistance of the railway companies which have compiled the detailed returns on which the report is based. Returns were prepared by all railway companies except a few very small undertakings employing so few work-people as to be negligible. These returns were combined by the Railway Clearing House to show figures for the various districts and groups of towns into which the United Kingdom was divided.”

The railways were divided into two groups, steam and electric. Only the men actually engaged in their operation were included, engine and wagon builders, dock and canal workers, and hotel servants being returned under their proper trades. Four enumerations were made in the year 1907, namely, in the last pay weeks of January, April, July and October. In the final abstracts prepared by the Railway Clearing House these are given, first separately and then as a general average for the year. The tabular abstract for the steam railways shows a grand total of 412,399 employees drawing pay to the aggregate amount of £26,714,106 a year. For the electric railways the corresponding totals were 6,859 employees and £508,790 a year wages.

The salaried staff—station-masters, booking clerks and higher officials—are of course excluded from this wage census. It is confined to men on weekly pay, and is far from being a complete account of railway employees. It may be distinguished as the trade union section of them, the men who spend a large portion of their leisure time in organising, agitating, grievance-mongering and otherwise antagonising their employers. The salaried section of the railway service probably numbers half as many as the wage section. This would give us a grand total of about 600,000 railway-men of all grades, from General Manager to van boy.

The steam railways employ about twenty different classes of men and boys. In 1907 their respective numbers, rates of wages and average actual earnings were as under—

BRITISH RAILWAYS (STEAM). NUMBERS OF WEEKLY WAGE MEN (1907).
AVERAGE RATES OF WAGES AND AVERAGE ACTUAL EARNINGS.

	Numbers.	Average Rates of Wages.	Average Actual Earnings.
		s. d.	s. d.
<i>Adult Workmen :</i>			
Foremen	14,208	34 0	35 9
Gangers (Permanent Way)	10,772	23 7	25 11
Porters (Coaching and Traffic)—			
Six-day Workers	18,146	18 8	19 9
Other Workers.	5,760	17 8	17 10
Porters (Goods)	18,506	20 9	21 10
Checkers (Goods)	10,095	25 4	26 9
Shunters	14,097	23 9	25 7
Passenger Guards	6,586	27 9	29 3
Goods Guards and Brakesmen	15,643	28 2	31 2
Signalmen	26,849	25 4	27 6
Engine-drivers	26,430	40 3	45 11
Firemen	26,029	23 10	27 5
Engine-cleaners	9,930	17 8	20 2
Mechanics	27,095	29 7	31 8
Platelayers and Packers	44,355	19 5	21 2
Carmen and Draymen	15,078	23 7	24 9
Labourers (Locomotive and Carriage Departments)	8,518	20 0	21 9
Labourers (Permanent Way)	27,197	20 0	21 8
<i>Lads and Boys :</i>			
Engine-cleaners	8,165	13 3	14 5
Porters	4,466	11 9	12 2
Van Guards and Dray Lads	6,519	9 11	10 3

BRITISH RAILWAYS (ELECTRIC). NUMBERS OF WEEKLY WAGE MEN AND AVERAGE EARNINGS (1907).

	Numbers.	Earnings.				
		s.	d.	s.	d.	
<i>Adult Workmen :</i>						
Foremen	232	38	6	to	55	0
Gangers.	70	35	11	„	37	2
Motormen	604	38	10	„	41	9
Conductors and Gatemen	1,199	23	11	„	24	7
Porters	285	17	10	„	19	0
Ticket Collectors and Examiners	222	22	1	„	22	11
Lift Attendants	383	25	5	„	—	—
Signalmen	207	28	6	„	31	11
Carriage Examiners and Greasers	146	28	7	„	30	11
Carriage Cleaners	143	21	4	„	22	7
Mechanics	672	36	8	„	40	2
Platelayers and Packers	561	25	7	„	28	10
Labourers	560	25	6	„	35	10
Other Men	355	27	3	„	28	7
<i>Electricity Generating Stations :</i>						
Labourers	129	25	6	„	28	0
Other Men	586	35	5	„	36	6
Total	6,354	30s. 1d.				
<i>Lads and Boys :</i>						
Trade Apprentices	54	9	8	to	—	—
Porters	145	11	5	„	13	4
Other Lads and Boys	364	12	10	„	14	3
<i>Electricity Generating Stations :</i>						
All Lads and Boys	23	13	3	„	15	0
Total	586	13s. 0d.				

If the issue between the railway companies and the section of their employees who are paid weekly wages were simply a question of the market value of their labour, it would be easily settled. In fact it would have settled itself long ago, or rather we might say that it could never have risen to the importance of a national question. The men themselves and the more candid of their leaders acknowledge that railway labour is better paid than any other class of labour with which it can be fairly compared. Taking into account all its peculiar advantages—its regularity, steadiness and absence of broken time—it is even above the average. Add to these the many supplements given in the shape of free

uniforms, annual holidays, sick allowances, free passes or reduced fares for themselves and families, in many cases houses rent free or at nominal rents, free gardens in the neighbourhood of stations, and other perquisites, and it will be seen that no class of workers have less right to speak of themselves as sweated toilers.

Neither has any other class of wage-earners less right to complain of the general attitude of their employers. They have been allowed to organise themselves into the strongest and most active union now in existence. Though their union is not directly recognised it has the substance of recognition without the name. Its leaders have cleverly manœuvred their way into the Conciliation Boards, and are gradually acquiring a dominant voice in them. Incognito they carry on important negotiations with railway officials, and even with General Managers and Directors.

Rather ungraciously the men, or at least the socialistic section of them, disparage the Conciliation Boards and carp at their decisions. In doing so they forget that these Boards are exceptional concessions made to them by the Legislature, and not solitary concessions either. The workers in other industries—some of them hardly less important than the railway service, have had to frame their own conciliation schemes and operate them as best they could. The Lancashire cotton operatives got no special help from Parliament in creating an organisation to negotiate with their employers. Neither did the engineers or the shipbuilders, or the building trades generally. Only the coal-miners and the railway servants have got the State to interfere on their behalf in their wage disputes. They alone have enjoyed the special favour of Ministers and members of Parliament in their strike campaigns.

This political favour has been extended to them generously, and not always wisely. They have enjoyed it even when they were breaking the law and threatening unspeakable harm to the community. When they ran up against a restrictive law, as in the Osborne case, and could not get round it, a subservient Legislature obligingly

agreed to alter it to suit them. Thanks to their own representatives in the House of Commons and the willing support of the Labour members generally, their parliamentary influence became so great that at one time they lost their heads and thought that henceforth nothing would be impossible for them. They not only became systematic log-rollers in their own interest, but they declared war on their employers and blocked nearly every Bill promoted by a railway company, regardless of its real object or its merits, or its possible effect on the public interest.

If a candid, impartial comparison be drawn between the respective uses which the railway companies and their employees have in recent years made of their political power, it will be seen that the extravagant demands have invariably come from the men, and the valuable concessions from the companies. The men do not even seem to realise the meaning of these concessions, let alone being grateful for them. To take the conciliation schemes as an example, do the men ever consider how much stronger and safer a position these put them in than the ordinary unskilled labourer ever attains?

In the airing of his grievances the railway-man has so many privileges and advantages that any other labourer may well envy him. He can quarrel with his foreman and carry the case at once to his superior officer. If the superior officer decides against him he can get his branch secretary to take up the quarrel and carry it to the local superintendent. If his decision is unsatisfactory it may be brought before the Conciliation Board. A little bit of temper between two men may spread and spread until it reaches the General Manager's office or even the Board room. If the union leaders happen to be in a fighting mood they may seize on it as a pretext for a general strike.

Every day in the year railway officials from the highest to the lowest are in danger of inadvertently treading on somebody's corns and raising a row. One time it may be in the porters' room, another time it may be in the shunting-yard, or the round-house. But wherever it

breaks out and whoever may start it, be he engine-driver or lamp-boy, the etiquette of the union requires that it be fought out to the bitter end. Railway men since they became politicians, diplomatists and sea-lawyers, are chock-full of grievances. They revel in them like Irishmen at a fair. Their official organ, the *Railway Review*, appears to live on them. At all events they constitute more than half of its reading matter. From the weekly cartoon, which is always more or less insulting to railway directors and shareholders, down to the report of the smallest branch meeting, there is nothing but jibes, sneers and abuse of the people who have been foolish enough to provide the money to build the railways and keep them going.

Whether we look at this line of conduct from a labour point of view, or as a matter of business, its foolishness will appear to be on a par with its bad taste. Needless to say it is utterly subversive of discipline, and no one perhaps would admit that more readily than the men themselves. It is a minimum of discipline they want as well as a maximum of pay. But neither of these is compatible with good railroading or with the best interests of the men themselves. If we look at it as a labour question, it cannot be for their benefit, any more than it can be for the benefit of the railway, that they should deliberately and systematically lessen the value of their services by disloyalty, insubordination and continual grumbling. If, again, we look at it as a matter of business, it cannot be either to their credit or their advantage to carry out their contracts and engagements in a grudging, discontented spirit; still less to repudiate them whenever they see a chance to drive a harder bargain with their employers and the public.

Even in the Socialist millennium for which so many hot-headed trade unionists are pining there will have to be some principle of good faith and common honesty. Promises will have to be kept and engagements fulfilled if the community is going to hold together. But if the new labour policy is to be pushed to its logical conclusion, the only moral law will be the caprice of the moment or



the war-cry of the latest strike leader. Unity House itself is no longer safe from anti-capitalist raids. That the headquarters of the railway men's union should be picketed like an ordinary shop or factory is surely a *reductio ad absurdum* of the labour doctrine that the worker must rule and the employer must obey.

It is a curious coincidence that the coal-miners, the other champion strikers who have enjoyed the benefit of parliamentary help and encouragement, have also had a domestic quarrel in which trade union principles were turned upside down. The Miners' Federation of South Wales at a recent conference decided to punish their leaders for the failure of the national coal strike by a drastic reduction of their salaries. This precipitated another sort of a strike—a serio-comic one. The leaders all marched out of the hall together, declaring that they would rather return to the pit than take less than collier's pay with unlimited abuse and bullying thrown in. Mr. Stanton, the fiercest firebrand of them all, added his private opinion that the office of a miners' agent was the best possible qualification for a hot hereafter.

If miners and railway men find it rather difficult to adjust the relations of labour and capital among themselves, they might learn to be a little more considerate toward ordinary employers. They might have the grace to acknowledge that employers are doing their best for them and making considerable sacrifices for their benefit. As yet we have not reached the high level of civilisation where the worker is to be his own master and to monopolise the entire product of his labour. The railways are still on a capitalistic basis, and a large majority of the people still prefer that to a socialistic basis. While this preference continues, absurd as it may seem to many trade unionists, railway labour will have to remain on a wage basis.

The practical question, therefore, is what sort of return the railway man should make for his wages. Granting, as the above figures compel us to do, that railway labour is well paid and well treated in comparison with most other kinds, what sort of service are the employers

entitled to expect from the employed? The very least they might look for is personal civility to begin with, and to that there might without any sacrifice of manhood or personal independence be added some slight respect for authority and a little regard for discipline. Recent events, however, justify a fear that both authority and discipline are being rapidly undermined. To make matters worse the men had in both cases considerable provocation.

In the case of Driver Knox the North-Eastern railway men no doubt honestly believed that he had been wrongly sentenced by the police magistrates. What they failed to see was that the North-Eastern directors were not only justified in acting on the magistrates' decision, but bound to do it in the interest of public safety. The men were quick enough to adopt that plea themselves in Richardson's case when it told in their favour and against the Midland Company. But they would not listen to it in the Knox case when it told against them and in favour of the North-Eastern Board. Then they started at once to take the law into their own hands. They assumed a right which would not be allowed for a moment to any employer or body of employers—namely, the right to make war on society for their individual ends.

This readiness to take offence and to resort on the slightest provocation to the most violent measures is a characteristic weakness of all workers who feel that they have a strong union behind them. It is eloquently exemplified in the following account of a meeting of North-Eastern men which took place at Gateshead during the revolt on behalf of Knox—

“Railway-men in Gateshead held a meeting last night to consider the case of an engine-driver who had been reduced in status consequent on being fined at the police-court for drunkenness. It was reported that a deputation to Mr. Raven, chief mechanical engineer of the North-Eastern Railway, had failed to get the decision reversed. A resolution for an immediate strike was only defeated by a small majority, and it was decided to communicate by telegraph with Mr. Raven, Mr. Butterworth, general

manager, and Mr. Williams, general secretary of the A.S.R.S., with a view to arranging an interview to-day and to call a mass meeting to hear the result to-morrow."

If any of these Gateshead men should ever migrate to that land of liberty, the United States, they will find on the railroads there the most drastic laws in operation against drinking. Whether on or off duty makes no difference either in the offence or the penalty. For a railway man to be seen entering a beer saloon is a breach of discipline. For the first offence he is warned, for the second he is reprimanded, and for the third he is discharged. This rule applies with special severity to engine-drivers. On the North-Eastern Railway quite a different code of ethics prevails. An engine-driver who gets into trouble in a police-court becomes a martyr to his fellow-unionists. When, instead of being summarily discharged, as he would be on an American road, he is only reduced to a lower grade, a general strike on his behalf is immediately threatened. And such things happen most frequently on the railway which has gone farther than any other in the attempt to rule its men by kindness and conciliation!

The trouble on the Midland was much more serious than that on the North-Eastern, as here there was reasonable ground for challenging the order given to Richardson. It not only required him to disobey a printed rule, but the officials who gave it declined to put it in writing. On both these points public opinion supported Richardson against the Midland officials and the directors—a signal proof of its impartiality and sense of justice. Seeing this the Midland Board promptly receded from a false position—an example which we may hope will not be lost upon the men. One cannot forget how differently they acted on a previous occasion when the Board of Trade referee dismissed a number of their complaints against the company.

If the union leaders can secure even a small part of what they are aiming at, railway labour will become co-optive. The railway companies will be reduced to something like the plight of European employers in

India where when a vacancy happens on the native staff of an office, if the employer fills it with a man of his own selection there is soon a fresh vacancy. If he makes another selection, this victim will also get short shrift. Then perhaps the employer will discover that his native clerks are in league to get the place for a friend of their own, and that there will be no peace for him until he accepts their choice.

The co-optive system has already advanced so far on our railways that all promotions are subject to revision at the branch meetings of the union. If a man is promoted out of his turn it will be treated as a case of victimisation, and an irate deputation will wait forthwith on the responsible official. Seniority is the only principle of selection recognised in the ranks, and the favourite motto is "every man to his own job." In the new dispensation there seems to be little room for officials or bosses of any kind. Government from below is fast superseding government from above.

CHAPTER XXII

FOUR NATIONAL RAILWAY SYSTEMS

IF all the blue-books and other dull books which have been written about British railways were piled on top of each other they could easily rival the Nelson column, and there would be enough over for a respectable bonfire. If books could have done it our railway problems should by this time have been nearly all solved and set at rest. But instead of that we appear to be only at the beginning of them. They increase and multiply faster than we can deal with them. Like all our other social and economic problems, they seem to be infinitely variable and many-sided. Every succeeding generation has a fresh set of them to struggle with, and before one set of them can be disposed of new and more difficult ones are claiming our attention.

The science of transportation is becoming as complex as the older and more universal science of production. "Complex" is, in fact, a mild term to apply to it. In most countries it might more correctly be called chaotic. Unfortunately for us British railways, though the oldest of all, are not the best organised and operated. They still bear marks of the primitive coaching and canal boat regime out of which they grew. Their fares are based on those of the old coaching days. Their regulations are in many respects better suited to road than to railway traffic. The most familiar part of their nomenclature has been inherited from the mail coaches of a century ago.

Their station agents are still officially designated "collectors." They give out their tickets in "booking offices," though it is no longer possible to do any booking.

Most of them have still three classes of tickets, though there is little or no difference in their practical value to travellers. All three classes of passengers ride as a rule in the same train, and have similar advantages as regards speed and comfort. The engine-man is still a "driver," and the conductor is still a "guard." The passenger fares are still distinguished as "coaching receipts," and goods have still to be accompanied by "way-bills." The chief official in charge of the traffic is still a "superintendent," but he is now "Superintendent of the Line" and not of the road as formerly. His new title is, however, a misnomer, for he has very little to do with the road itself.

But the hereditary influence of the mail-coach regime on our British railways goes much deeper than matters of detail and nomenclature. It affects the whole spirit and policy of our railway administration. It imposed limitations on the enterprise of our railway pioneers; it led our traffic managers astray on vital points of railway finance; it has biased and confused their ideas of rates and charges. But for the old mail-coach regime we might never have heard of such musty axioms as "charging what the traffic will bear." But for it we might have had rational and effective competition among the railways instead of the bastard and wasteful sort which goes by the name of "giving facilities to the public." In practice "giving facilities to the public" invariably means putting on more passenger trains than there is any need for, and running them at high speeds in order to keep them out of each other's way.

It would be a difficult as well as an ungracious task to apportion the blame of these mistakes among the various responsible parties. The chief share of it must, of course, fall on the original designers of our railway system. Each succeeding generation of railway administrators will have to be let off more easily. The worst charge that can be laid against them is that they were slow to discover the initial errors of their predecessors and to set about correcting them. The first and greatest sinners were the legislators of the period in which railways

originated. They were hopelessly obsessed with the narrow ideas and prejudices of the coaching age. However far-seeing the first generation of railway engineers and financiers might have been, they would have fought in vain against the conservatism of the parliamentary committees which sat on their Bills and generally squashed the best parts of them.

It was fated that we should have a railway system modelled on the coaching system which it superseded, and that is what we have got. This fundamental idea has to be clearly kept in mind in judging the British railways of to-day, and still more in comparing them with the railways of other countries. The latter had for the most part quite different origins and developments. The very imperfection of their road and canal transport gave them a freer hand than the British railway pioneer enjoyed. This difference is most striking in the new countries of the world, and above all in America. The American railway started on the prairie with free land, free charters and a free hand generally. It was very little hampered either by pre-existing roads or canals. Its task was entirely different from that of the British railway, and the problems it had to solve were of a quite opposite kind.

The typical pioneer railway of the Old World had to take over an established and well-developed traffic, while the typical pioneer railway of the New World had to go out in the wilderness and create traffic for itself. The Old World railway was shut up within narrow limits, both geographical and intellectual. It had comparatively short distances to cover, and comparatively small loads to carry. It had a multitude of small towns to serve, and each of them demanded costly station accommodation. Worse than all these natural disadvantages was the costly fight it had to maintain against parliamentary cormorants—lawyers, land-owners and company promoters.

What emerged from the political conflict in which the British railway was born was an insular system of iron roads differing in very few respects from the macadamised

roads of the preceding generation. The ideas and methods of the old roads were as far as possible applied to the new ones, with the effect of hampering their growth and restricting their usefulness. Not till after years of "mail coaching" did the British railway engineer become fully alive to the fact that a mail coach and a railway train are two absolutely different things. Fortune saved the American railway pioneer from that costly error. He was free from "mail-coaching" theories and traditions. He had no social distinctions and prejudices to study. The locomotive was to him simply a new power unfettered and unrestricted. All he had to do was to take hold of it and in his own language to "run it for all it was worth."

The problem of the American railway has throughout its whole history reflected this superior freedom and larger scope. It has never been small and petty like many of our own railway controversies. Its main question has always been how to do the largest amount of transportation at the smallest possible cost. Judged by this practical test the American railway is the most successful transport agency of the present day. In its early life it was a great deal more than that. It was the most powerful colonising agency ever known. It opened up millions of acres of otherwise inaccessible land. It carried in millions of settlers and cultivators. It furnished them with the means of cultivation and production. It hauled out their produce in enormous train-loads at fabulously cheap rates, without which they could not have reached a market or made a cent of profit on their year's work.

The British and the American railways represent the two antipodes of modern transportation. Their respective symbols are the short haul and the long one, the small wagon and the monster car, the light load and the heavy one, the high and the low mileage rates. Between these two extremes the railways of all other countries range themselves. Some are more British and some are more American than the others. But the two opposite types are always distinguishable. The American railway does the wholesale transportation

trade and leaves the retail business to the British short lines. In comparing these two systems a master key may be found to the principal transportation problems of the day.

Throughout the world there are now fully half a million miles of railway in operation.¹ Over three hundred thousand (306,767) miles are embraced in four large networks—the British, French, Prussian and American. These are not only the most extensive railway systems, but they are the best organised and most highly developed. They are supposed to produce the best economic and financial results. By all other countries they are regarded as models of scientific transportation. They are not, however, uniform models. On the contrary, there is little similarity between them either in their physical character, their methods or their results. In the most important respects they exhibit striking differences which are difficult indeed to explain.

The mileage of these four great railway systems about to be compared was as follows in 1909—

	Miles of Line.
United Kingdom	23,280
Prussia (including Hesse)	23,154
France	24,931
United States	235,402
Total	306,767

The above comparison relates, of course, to mileage of line, which is only a rough-and-ready test. It places on the same level single-track railways across the prairie, which can be built now-a-days for £2,000 or £3,000 per mile, and four or six track lines in large cities, which may

¹ Miles of line in Europe	177,365
In the United States	234,717
In other countries	97,408
	509,490

The aggregate capitalisation has been estimated at 10,717 millions sterling, of which 5,659 millions is in Europe and 5,059 millions in other countries.

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have cost £300,000 or £400,000 per mile. No standardisation of cost is possible, but we can make some approaches to it. We may, for example, get at the track mileage of the respective networks, and this item alone will be found to make a considerable change in the comparison. It greatly improves the British position and lowers the American one. The following are the totals of track mileage as distinguished from length of line—

	Miles of Single Track.
United Kingdom	39,622
Prussia (including Hesse).	33,133
France	35,650
United States	259,975
	368,380

Thus nearly the whole of the British mileage is double track, while hardly a tenth of the United States mileage has more than one track. The American capitalisation per mile should therefore be almost doubled in order to show a fair comparison with the British average per mile. The importance of distinguishing track miles from miles of line will be seen in the next comparison, which gives the percentage of line in each system having two or more tracks—

	Percentage of Line having two or more Tracks.
United Kingdom	55·8
Prussia (including Hesse)	42·3
France	43·0
United States.	8·9

Strictly speaking railway comparisons should be based on miles of track instead of on miles of line, but the old method has been so long in use that it will not be easily displaced. It is only one of many anomalies and absurdities that have crept into railway statistics.

A great variety of financial and economic factors enter into the question of railway efficiency. All these have to be taken into account in comparing the railway systems of various countries. They have long been a subject of special study among railway statisticians, and this

branch of statistical science is consequently making rapid advances. It owes much to the labours of the "Bureau of Railway Economics" recently established by the railways of the United States "for the scientific study of transportation problems." This Bureau issues at brief intervals most useful brochures furnishing up-to-date information on current questions of railway finance.

Its summary of comparative railway statistics of the United States, the United Kingdom, France and Germany for 1909 will be very helpful to every one engaged in inquiries like the present. They are divided under four heads—

1. Railway mileage in proportion to population and area.
2. Motive power and equipment.
3. The utilisation of the railways.
4. Their capitalisation, revenues and expenses.

It will be more convenient for us to reverse the above arrangement and begin with the capitalisation of the four chief railway systems of the world. It should be premised that not the whole of the United States railways, but only a group of them are taken into this comparison. The Interstate Commerce Commission have for statistical convenience divided the railways under their jurisdiction into geographical groups. These are numbered from east to west; Group I comprising the New England States, while Group II embraces the States of New York, Pennsylvania, New Jersey, Delaware and Maryland.

Group II has been selected to represent the United States in this interesting comparison because it corresponds most nearly with the United Kingdom in area, population, railway mileage and density of traffic. The five States forming it are virtually of the same extent as Great Britain and Ireland. Though they have only half the density of population they possess a larger number of miles of railway, and, what is of much more importance, they enjoy a better railway service at smaller cost. The various comparisons made by the Bureau of Railway Economics between the two systems are exceedingly

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instructive. All the more so when the corresponding figures are given for the two principal continental networks, French and Prussian.

First, with regard to capitalisation per mile, we have the following averages for the year 1909—

	Per Mile of Line.	
	\$	£
United States	59,259	11,852
Prussia—Hesse	110,727	22,145
France	141,301	28,260
United Kingdom	274,766	54,953
Average for all four countries	146,513	29,302

These wide variations in the capital of cost per mile of the principal railways of the world may, and in fact do, arise from a variety of causes; many of them unavoidable, some avoidable but legitimate, and others altogether illegitimate. In the category of unavoidable causes may be placed—(1) the dense settlement of the older States and the sparse settlement of the younger States when railway building began; (2) the comparatively heavy cost of land, right of way and terminal accommodation in the older States; (3) the more frequent and expensive railway services which in the older States had to be provided from the outset; (4) the extra precautions that had to be taken for the safety of passengers and the public.

In the case of British railways there have to be added some special causes of over-capitalisation which were unavoidable so far at least as the railway builders themselves were concerned. These were—(1) grandmotherly supervision and fussy interference by the Legislature; (2) the scandalous cost of obtaining parliamentary authority to build railways; (3) the legal formalities that had to be gone through at every step in the history of a new railway undertaking; (4) the crowd of speculators who were always launching new schemes and causing expensive parliamentary contests; (5) the persistent

demands of the public for competing lines and services; (6) the large amount of mileage which had to be built and operated within urban areas; (7) the considerable mileage which for various reasons had to be abandoned though the cost of it still figures in the aggregate capitalisation; (8) the exceptional cost of stations and terminals.

But after all the unavoidable causes of over-capitalisation have been allowed for there will be a good number left that were avoidable. For them British railway builders and managers are consequently answerable. They are of two kinds, legitimate and illegitimate. Familiar examples of the former are—(1) the large nominal additions made to capital by the conversion and consolidation of stocks; (2) the unremunerative lines which had to be built for special reasons—to satisfy popular demands, to serve important local interests, or to protect traffic which might have been diverted to other railways; (3) the exaggerated interest taken by British railway managers in passenger business, a policy which entails expensively equipped lines and rolling stock; (4) the difficulty they experienced previous to the advent of street tramways in coping with their suburban traffic; (5) the large proportion of two, three and four track mileage which they have had to provide.

When everything that is possible has been said in excuse for British railway capitalisation, when the unavoidable and the legitimate causes of excessive expenditure have all been counted up, the average per mile still remains well above that of all foreign railways which can be fairly compared with our own. A large part of the excess must therefore be due to causes neither unavoidable nor excusable—in other words, illegitimate. Whether it originated in errors of policy or of engineering the railway companies must bear the blame. Errors of both kinds were undoubtedly numerous, but only a few of the most characteristic need be recalled at this late period of the day.

The British railway pioneers appear to have started

on a wrong tack, then to have suddenly changed it and rushed to the opposite extreme. Their first idea was simply to provide iron rails for the use of vehicles. The owners of the vehicles were to accompany them and take charge of them. The railway company was merely to levy tolls as the canal companies did and still do. On this assumption there were to be no goods stations and no costly terminals. The traffic was to come and go at its own sweet will and its own risk. But very soon the toll theory was exploded and the railway companies had to become independent carriers. Having made this new departure they over-did it. They tried to get everything into their own hands, and that has been their mistaken policy ever since.

First they drove off all the private carriers who had been using the railways and relieving them from the most difficult and unpleasant part of their work, namely, the collection and delivery of goods. A whole series of evil effects flowed from this early mistake of the railway companies. It committed them to an enormous outlay of capital on goods stations and terminals, and subsequently to a heavy annual expense in the working of them. It provided a new opening for competition between rival lines—competition which was destined to become the most foolish and wasteful of all. It is not with their train services so much as with their lorries and parcel vans that British railways fight each other. It is not on their own tracks but on the public streets that they do their most wasteful competing.

How much of their over-capitalisation may be due to their extravagant collection and delivery system it were hard to say, but it must be a substantial item. Its importance may be guessed from the much smaller capitalisation of the American railways, which have never hampered themselves with collection and delivery work. The American parcel express may be a rapacious auxiliary of the railways, but it has spared them many hundred million dollars of capital expenditure. It has enabled them to economise tremendously in rolling stock as well as in goods stations and terminals. In the

following comparisons between British and foreign railways these points will come out very strikingly.

Of all the many forms of over-expenditure from which British railways and their shareholders are now suffering, the one most open to criticism is that on terminals. It is peculiarly objectionable because, as has been indicated, it was to a large extent gratuitous. At the outset it was incurred in order to take work from outside carriers which they were already doing well, and might have continued to do better than the railway companies have been able to do it for themselves. This needless and as it turned out most unwise innovation involved the companies in enormous outlays of capital which might have been otherwise unnecessary. To this day it entails a heavy and increasing burden on their working expenses.

In this and other important respects the American railway pioneers have been much more fortunate than the British. They were not blackmailed as the first British railways were by lawyers, landowners and legislators. They could go where they pleased and take what they pleased, on the one condition that they went ahead. No scruples about public convenience or even public safety were allowed to stand in their way. On the prairie railways fencing was unknown. For years they required no mechanical signalling. They were allowed to cross roads and even busy streets on the level. Their saving on bridges must consequently have been immense. They were able to economise even more on terminals. Not until within the past ten years did their expenditure under this head approach the British level, but they are now fast overhauling and even overshooting it. The terminal difficulty has hitherto been a peculiar affliction of British railways, but the Americans are now coming in for their share of it.

The ultimate test of railway efficiency is earning power in relation to capital expended. In this there are three elements—gross revenue, working expenses and net revenue. The following tables exhibit the four national railway systems from these points of view. The figures

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are given in dollars as in the American tables from which they are quoted—

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I. THEIR OPERATING REVENUES PER MILE, 1909.

	Goods.	Passengers.	Total.
	\$	\$	\$
United Kingdom	12,433	10,702	23,135
France	7,196	6,210	13,406
Prussia—Hesse	13,580	7,476	21,056
United States	7,184	3,172	10,356
Five Eastern States (New York, Pennsylvania, New Jersey, Delaware and Maryland)	15,693	6,328	22,021

II. THEIR GROSS RECEIPTS, WORKING EXPENSES AND NET RECEIPTS PER MILE, 1909.

	Gross Receipts.	Working Expenses.	Net Receipts.
	\$	\$	\$
United Kingdom	23,135	14,833	8,302
France	13,406	7,765	5,641
Prussia—Hesse	21,056	14,527	6,529
United States	10,356	6,851	3,505
Five Eastern States	22,021	14,674	7,347

In the above table there are three remarkable examples of uniformity. The British, Prussian and Eastern State railways coincide to a few dollars per mile in their working expenses. They are also very much alike in their gross receipts, but their net receipts differ more widely. British railways earn \$23,135 per mile with an expenditure of \$14,833, and thus obtain \$8,302 net revenue. The corresponding Prussian totals are—Gross receipts \$21,056, working expenses \$14,527, and net receipts \$6,529. The United States Group II comprising the five Eastern States earns \$22,021 gross, expends \$14,674, and clears net \$7,347. But these very similar earnings per mile have

to be distributed over nearly three times the amount of British as of foreign capital—

	Capital per mile.	Net Revenue.	Percentage to Capital.
United Kingdom	\$ 274,766	\$ 8,302	\$ 3·0
Prussia—Hesse	110,727	6,529	5·8
Eastern States	128,000	7,347	5·7

After this striking proof of the over-capitalisation of British railways, it may not be surprising to discover other exaggerations. It would seem that they are also over-equipped in comparison with the three other great railway systems. Subjoined is an interesting comparison of their rolling stock—

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I. LOCOMOTIVES AND CARS PER 1000 MILES OF LINE.

	Loco- motives.	Passenger Cars.	Freight Cars.
United Kingdom	980	2,270	32,020
France	480	1,159	12,811
Prussia—Hesse	835	1,609	17,530
United States	243	136	8,809
Eastern States	561	375	21,128

With little more than half the number of locomotives in proportion to mileage of line, the United States railways do a great deal more work than the British. Unfortunately close comparisons are impossible owing to the meagre character of British statistics, but wherever they can be made they are more favourable to foreign railways than to our own. The United States in particular has a right to crow over us in this respect. And it does, as may be seen in the following extract from Bulletin No. 24 of the Bureau of Railway Economics.¹

“The railways of the United States, with number of freight cars per mile of line but a fraction over one-fourth

¹ *Comparative Railway Statistics of the United States, the United Kingdom, France and Germany*, p. 8.

of that of the United Kingdom, have a freight train density over one-third as great. The freight revenues, per mile of line, are over one-half as great. The railways of the United States with less than one-sixteenth as many passenger cars per mile of line, have a passenger train density nearly one-fifth that of the United Kingdom, and passenger revenues per mile of line little less than one-fourth as great."

In other words, American railways do more work, in proportion to their mileage and equipment, than our own railways do. Considering how much less favourably situated they are in respect of population and industrial development, that fact is exceedingly creditable to them, and our railway managers might make a special effort to discover so important a secret. Why should it be possible for the railroads of New York and Pennsylvania to average 2,200,000 ton miles per mile of line, when one of our best heavy lines—the North-Eastern—averaged in the same year (1908) only 739,000 ton miles? Or why should the North-Eastern in the same year have been content with average train loads of 107 tons, when similar roads in New York and Pennsylvania were doing four times as much—412 against 107 tons?

BOOK SIXTH—THEIR POLITICAL RELATIONS

CHAPTER XXIII

TO THE LEGISLATURE

IN contrasting the political relations of the early railways with those of the present day the most notable change to be seen is in the attitude of Parliament, or rather of the House of Commons, towards them. While the new form of transportation was novel and wonderful it was enthusiastically encouraged, except by Tory land-owners who resented its encroachment on their privacy. But before it had well established itself an outcry of monopoly was raised against it. Parliament wavered and fluctuated between these two contrary influences. It favoured the new-born power, but at the same time was rather afraid of it.

The free-trade sentiment of the age conflicted with the love of authority and control. Railway legislation was driven now in one direction and then in the other. Sometimes in the same Act there are indications of both these contradictory views. While the planning of the main lines is considered a proper subject of legislative supervision, interference with the working of them is strongly deprecated. On the whole the railway companies agreed with that distinction, but it was not long maintained. It was the ruling idea of the memorable year 1844, when the first attempt was made at a consolidated railway law.

We owe to the famous Select Committee of 1844 not a few of the fundamental principles of our railway policy. They have the additional distinction of being associated

with the name of Mr. Gladstone, who was chairman of the Committee, and doubtless the chief author of its various reports—five in all, I believe. His colleagues were for the most part men of mark and business capacity. The names of Colonel Wilson Patten, Mr. Labouchere (the elder), Mr. Edward Horsman, Mr. Beckett Denison, Viscount Sandown and Sir John Easthope, show that it was as good a Committee of the kind as the House of Commons of that day could have produced, and it certainly had no lack of able men.

The instruction given to it implies that its special object was legislative, and not administrative, control of the railway system. It read thus—

“To consider any and what new provisions ought to be introduced into such railway Bills as may come before this House during the present or future sessions for the advantage of the public and the improvement of the railway system.”

Its object, in short, was to produce a parliamentary model on which railway Acts might be framed hereafter. It was characteristic of Mr. Gladstone to undertake with a light heart so Herculean a task. If he over-rated his ability and his prescience he still achieved a great work. Many regulations which originated with the Committee of 1844 survive to this day either in whole or in part—notably the Lands Clauses Consolidation section. The attitude it assumed towards the railways is consequently of special significance. It was on the whole favourable, especially in the frankness with which it recognised the invaluable services they were rendering to the country. On this point the Committee spoke out warmly in its first report—

“It is manifestly of great national importance to give countenance and aid to the investment of capital in domestic improvements, and the very complaint of monopoly which is urged against the railway companies is an indication and a measure of the increased accommodation to the traffic of the country which they have afforded, inasmuch as it has not been so much by statutory enactments granting to them special privileges as by

superior cheapness, security and rapidity of travelling that their command of the intercourse of their districts has been acquired, and the Committee doubt whether the establishment of railways in this country does not afford a more remarkable instance than can be cited from any analogous subject matter of immense and certain and almost uniform benefit to the public combined with a very moderate standard of average remuneration to the projectors."

The two striking features of that quotation are its involved parliamentary English and its flattering judgment on the railways. It may be even a little too flattering, but that would be a much more lenient fault than the parliamentarians of to-day commit, whose only thought about a railway Bill is how to obstruct it or, better still, to throw it out. The Committee of 1844 at least conceded to railways the right to live, but even that is sometimes questioned now-a-days. Legislative control and administrative freedom were advocated by the Committee in the following terms—

"The Committee entered upon their inquiries with a strong prepossession against any general interference by the Government in the management and working of railways, and they have not seen reason to alter their first impressions on that subject. But with regard to railway legislation they are convinced that it is alike clear from reasoning and from experience that it should henceforth be subjected to an habitual and effective supervision on the part of the Government."

Such supervision had, in fact, already begun. A new department had been organised at the Board of Trade for dealing with railways. Mr. Samuel Laing, afterwards chairman of the Brighton Railway, was its first chairman, and a very energetic one he proved. Thanks to him many ambiguous points in railway law and practise were definitely determined. He also endeavoured to realise the ambition of the House of Commons to have a comprehensive network of railways mapped out in advance, so that every new line authorised might be fitted into its proper place. Unfortunately the

comprehensive plan was never worked out, and traces of strategical foresight may be vainly looked for in our railway map. But the ideal was excellent, and the Select Committee of 1844 clearly foreshadowed it. A clause in its report says—

“The Committee entertain very strongly the opinion that in the future proceedings of Parliament railway schemes ought not to be regarded as merely projects of local improvement, but that each new line should be viewed as a member of a great system of communication binding together the various districts of the country with a closeness and intimacy of relation heretofore unknown.”

This parliamentary dream was never realised. In an age which worshipped free trade and glorified private enterprise its realisation would have been impossible. Soon Parliament had enough to do to keep in check the rush of railway Bills which every new session let loose on it. It was impossible for the most experienced and conscientious of Select Committees to exclude all wild-cat schemes. At times the Select Committees themselves seem to have been carried away by the railway mania.

But when the railway building programme was nearly finished a new parliamentary regime began. This was the battle of the rates and classifications. As it proceeded the House of Commons became gradually less and less friendly to the railways. It could not resist the rising tide of democracy, and from this period onward railway legislation became more favourable to the traders than to the railways. The latter were not only hedged round with statutory restrictions and disabilities, but they had various special authorities set over them. Whereas in their early days they had to answer to Parliament alone, they were now subject to Railway Commissioners, municipal councils, and even district councils. At the same time the Board of Trade continued to steadily increase and multiply its supervisory powers.

In this third stage of railway development the officials found themselves beset with regulations and restrictions. They had so many special authorities set over them that

they never knew which of them they were to be hauled before next. Among so many tribunals it was difficult to choose. Some companies would rather deal direct with Parliament, which in practice means with the House of Commons. Some preferred the semi-official mediation of the Board of Trade. Some would welcome the appointment of a Minister of Railways. But all of them were and still are very shy of that hybrid tribunal—the Railway and Canal Commissioners. They consider that it has generally proved a waste of time and money to go before it. Rather, they say, risk the most capricious vote of the House of Commons.

The late Sir Robert Inglis, when he was General Manager of the Great Western Railway, expressed this view very strongly in the Memorandum which he submitted to the Railway Conference of 1909. Applying it to the question of working agreements, he strongly advocated going direct to Parliament for their ratification. In the case of the triple agreement between the Great Central, Great Eastern and Great Northern Companies, that would have been a wiser course than the one actually adopted, namely, going first to the Railway and Canal Commissioners and then to Parliament, and failing with both. Sir Robert's view was thus set forth—

“ It is submitted that no better tribunal for the authorisation of a combination between companies, whether by amalgamation or in any less complete form, can be devised than Parliament itself, and that the present system of submitting working agreements to the Railway and Canal Commission should be abolished. The Railway and Canal Commission has no legislative powers, and it is hardly to be conceived that Parliament will delegate such powers to it. . . . It has been shown by the reports of various Parliamentary Committees that railway companies have, both under the General Act of 1845 and under some of their special Acts, powers to enter into agreements between one another, and it is better to leave these powers in their present position, with the right to have recourse to Parliament for any special powers they may from time to time require, than to attempt to exact

any general provisions at the present time, which probably, when the time comes for their exercise, will be found not to meet the special circumstances of the case in which they are sought to be applied."

Though he preferred the House of Commons to the Railway and Canal Commissioners, Sir Robert had little love for either of them. In this he no doubt was a correct spokesman of railway managers generally. What they wanted most was to be left alone in free and reasonable exercise of the parliamentary powers they already possessed. All fair-minded people would agree with that, but Sir Robert Inglis overlooked the stumbling-block that these powers have to be interpreted by qualified courts of law. Whatever Acts of Parliament, old or new, may seem to-day, it is the judicial interpreters—in this case the Railway and Canal Commissioners—who must have the last word.

So long as the railway companies have to apply to Parliament for every power or facility which they may require for carrying on their business, so long will they also be subject to judicial veto. The only escape from this double hardship is to be found in some sort of administrative control such as now exists in a half-developed form in the Board of Trade, or which might be much more fully realised in a Ministry of Commerce.

Fair and just legislation is a primary requisite of railway success, but it can hardly be said that British railways have ever enjoyed it for long at a time. It has been shown how they were penalised in all their original expenditure. No sooner had they got their heads out of that noose and begun to get moderate returns on their capital outlay than a cry of monopoly was raised against them. To this and all subsequent outcries of a similar kind Parliament promptly responded. It began with a sweeping claim to regulate rates, and went on from one thing to another, until the whole railway system was parliamenteered.

At intervals of about ten years anti-railway crusades were started at Westminster, and they are still going on. In the six years 1888 to 1894 a continuous battle of rates

and classifications had to be fought with the traders. It ended in a complete revolution of railway charges and conditions, which the companies were just beginning to get over when they had to meet a still more formidable assault—that of organised labour. In both these cases the Legislature showed greater sympathy with the attack than with the defence. Even level-headed Conservative legislators seemed to regard railway companies merely as corporations which had neither souls to be saved nor bodies to be kicked.

The result of this anti-railway bias on the part of the popular branch of the Legislature has been a growing estrangement between our law-makers and our railway administrators. The latter have had to adopt a fighting policy where a friendly policy would have been much better for all parties. At length the prolonged conflict landed itself in a deadlock. Between them the traders and the Labour Party have contrived to stalemate the railways at Westminster. While the parliamentary deadlock continues little more can be done in the way of useful railway legislation. Even solemn engagements entered into by the Government with representatives of the railway companies are not safe from parliamentary repudiation, or at least mutilation.

There must, of course, be a recoil one day from this futile obstructive policy. National emergencies are bound to arise—and they may not be far off—in which the heaviest sacrifices conceivable may be demanded of us all. The railways will have to bear in these trying times the largest share of sacrifice and responsibility next to the Government itself. Now that they should be preparing for it by husbanding their resources and strengthening their organisation, they are being fleeced and worried by politicians whose personal interests and still more their class interests obscure their vision of the supreme interest of the nation. The parliamentary scramble is destroying all sense of higher motives and larger objects.

Suppose that the British Legislature and the British Railways as now constituted, and holding their present

relations to each other of armed neutrality, were called upon to act together in order to save the country from a food famine or some other dire calamity, could they do all that the Germans did in their meat famine of 1911? Could the railway companies be fairly asked to cut down their charges for carrying food by 20 or 30 per cent. as the German railways then did? After subjecting them for years to cast-iron rates which cannot be varied in the slightest degree without the risk of popular agitation, costly litigation and perhaps a fresh dose of hostile legislation, how could any Government or Parliament impose on them a task of which they might be financially incapable?

When the German railways cut down their rates in one direction they very probably level them up somewhere else. They have a free hand to do one or other or both. British railways cannot do anything without the consent of lawyers, law-makers and Government officials. They can level down their rates without leave, but have to get leave to put them up again. This is assumed to be for the protection of traders, but it generally works the other way. Elasticity in rate-making is what the trader needs, and no legislation can secure that to him. He can only obtain it by give-and-take negotiation with the railway companies. The worst course to adopt is to wage all-round war on the railway companies.

Traders in persistently voting with the Labour members against railway Bills, however reasonable, are simply hastening nationalisation, which would mean higher freight rates within the year. They seem to forget that the Labour Party has become a factor in the House of Commons, and one much more likely to grow in power than to diminish. Its future influence on railway legislation has to be seriously considered. So far it has not been conspicuous either for breadth of view or length of vision. On the contrary, it has been of the narrowest and most one-sided kind. A purely and absolutely trade union policy has been all along pursued with regard to railway Bills. Labour members have exhibited positive delight in opposing railway Bills however reasonable

or however much in the public interest. They have even sacrificed the interests of their own class to the bitterness of class jealousy. Millions a year have been diverted from the labour market by the blind prejudices of labour leaders against what they call the capitalist system.

A Legislature controlled by such antagonisms cannot possibly legislate for railways in a broad and friendly spirit. Happily neither can it do them very deadly harm. At the worst it can only obstruct their progress and condemn them to permanent stagnation. It cannot even buy them out, and thus realise the Socialist dream of nationalisation. No sane community would entrust its tramways, let alone its railways, to a body of politicians who prove in everything they do that they can only be dogs in the manger. If they were rational and business-like they would seize every opportunity of exercising a sensible and liberal supervision over railways, especially as regards rates and fares. They would favour instead of opposing every attempt of the railways to increase their revenues, if only in order to obtain a fresh excuse for screwing up wages.

The policy of the Labour Party is reducing the House of Commons to a double dilemma. If it should be persisted in it will soon make it impossible either to advance or to reduce railway rates. The existing tariffs will become as inflexible as cast-iron, and there will be no means of modifying them to meet industrial emergencies however great and urgent. As it is, British railway managers have to regard with helpless envy the ease with which foreign rates are advanced or reduced on special occasions. Now and then Germany provides us with object lessons in this connection. During the "meat famine" of 1911, as our free-traders styled it, the whole of the public authorities, the State railways included, combined to reduce to the utmost the cost both of producing and distributing meat. The various State Governments devised and set in motion schemes for the breeding of beef cattle. Other agencies were started for the reclamation and cultivation of waste lands. Municipal

councils entered the market as wholesale buyers, and retailed their purchases at cost price, much to the advantage of the poor. The Government seconded their benevolent efforts by giving them the benefit of reduced duties on all foreign meat imported by them. Then the State railways did their share by granting them special rates for the carriage both of dead meat and live stock.

The common object of all these special arrangements and concessions was to eliminate the middle-man as far as possible. Local authorities, benevolent societies, large employers, and all who undertook to supply meat to the small consumer at or under cost price were encouraged in their good work by reduced customs duties, special railway rates and other privileges. The railway remissions were thus described at the time by a Berlin correspondent—

“The latter commodity (meat) is already carried at special rates, and these are to be cut down by 20 per cent. In the case of live stock a reduction of 30 per cent. will be made. The Government reserves to itself the right of co-operation in the fixing of prices of meat imported alive or dead under these conditions. The existing special rates on sea fish when it is conveyed inland on the order of local authorities or public organisations will remain in force till the end of 1913, and up to September 30 next feeding barley and maize will be carried for about half the present charges on condition that the benefit goes to the stock-raisers.”

It is not inconceivable that we may one day have a meat famine in this country. Our open ports may no longer attract adequate supplies from abroad, and what will our position be then compared with that of the Germans in 1911? Will Parliament, the Government, the local authorities, the large employers and the public carriers all join hands as they did in Germany and work together for the common good? Could very generous concessions as to rates of conveyance be expected from railways which Parliament had for years treated as Ishmaelites? However willing railway directors and

shareholders might be to sacrifice their personal interests to those of the community, could they suddenly forget how they had been wantonly hampered and obstructed in their business by the politicians who were now appealing to their benevolence ?

CHAPTER XXIV

TO THE TRADERS

THERE are certain branches of administration in which machinery and method are the most important factors—road-making, for example. There are certain others in which the personal element should predominate and the mechanical element should be reduced to the simplest possible form. Education as now carried on in this country is a striking proof of how a subject essentially simple in itself can be unnecessarily complicated and confused by excessive administration. The relations which should obtain between the railways and their customers, particularly their trading customers, suffer from the same evil tendency. Their natural simplicity is overwhelmed by a multitude of laws, regulations and conflicting authorities.

The railway and the trader, instead of being allowed to transact their business freely and quietly as other business is transacted, are continually surrounded by a crowd of politicians, lawyers and Government officials who dictate to them what they should do, and how and when and where they should do it. They have had schedules of freight rates imposed on them by Parliaments without any practical knowledge of railway traffic. They cannot vary their rates without a long argument over them with the Board of Trade, which may prove perfectly futile, the Board having no power to enforce its decisions. If they want a decisive judgment they have to go to the Railway and Canal Commissioners and fight it out with a costly array of solicitors and counsel, as if it were a suit in Chancery. Anything more foreign to ordinary commercial ideas and practices can hardly be imagined.

There may have been some excuse for this legal and political interference in the early days of the railways, when everything connected with them was novel, crude and unregulated. From very small and simple beginnings traffic grew more and more varied and complex. An increasing diversity of goods had to be classified and rates fixed for each of the hundreds of articles in each class. In connection with each mileage rate there might be a great diversity of service. The same article might travel by different classes of trains. It might have to be handled at different terminals, some cheap and others costly. It might be loaded and unloaded by the trader himself or by the railway company. It might be carried in the railway company's wagons or in those of the trader. All these and innumerable other differentiations had to be taken into account in rate-making.

Such a difficult and gigantic task could not possibly have been carried through without mistakes and misunderstandings. The nature of the case required that it should be done in the first instance entirely by the railway authorities. The original rates were all more or less experimental, and for that reason they had to be arbitrary. It was impossible to consult the traders about them beforehand, however willing the rate-makers might have been. It must be admitted, on the other hand, that the rate-makers fully realised their power and made the most of it. During this tentative period of railway history the General Manager was an autocrat, and doubtless his power was frequently abused, as autocratic power often is.

The chronic feuds of the railway companies themselves did not tend to allay the hostile feelings of the public. In the parliamentary duels in which time and money were so lavishly wasted questions of rates frequently arose. They were hotly argued by pugnacious counsel on both sides. The attempts made to explain them usually resulted in rendering them more unintelligible, and nothing irritates a business man so much as charges which he cannot understand. The state of feeling that prevailed during this period between the railways and

the traders was graphically described in the report of the Select Committee of 1888 on the charges of railway and canal companies. The Committee thus summarised the grievances of the traders which witnesses of various classes had brought before them—

“The complaints made against railway companies in respect to goods traffic submitted to your Committee may be arranged under the following heads—

“1. That rates in excess of the maximum authorised by the special Acts are in many cases exacted.

“2. That on the same line of railway higher rates are charged on some kinds of goods as compared with others, although the cost to the company of performing the service is no greater in the one case than in the other.

“3. That in many cases lower rates are charged for goods imported or for export than for the same articles produced or for consumption in this country.

“4. That preferential rates are granted to one port or town as against another.

“5. That rates are now in many instances much higher than they were many years ago, and that excessive though not illegal rates prevent the development of traffic, to the prejudice of the public and of the railways themselves.

“6. That the difficulties in the way of obtaining redress of private individuals against railway companies for over-charge or illegal preference are almost insuperable.

“7. That in consequence of the multiplicity of private Acts, imperfect classification and defective rate-books it is almost impracticable to ascertain the particular class to which any article belongs, and the rates which the railway company will charge or is authorised to charge for its conveyance.”

It is impossible to imagine such an array of complaints being brought before a Select Committee at the present day. Though rate-books are not yet by any means perfect, they have made a great advance both in consistency and intelligibility since those fighting times. It is due to the Select Committee of 1888 to acknowledge the valuable service which it rendered in bringing about improved methods and conditions.

After fifty or sixty years of many-sided controversy a scheme of classification and ruling was at length evolved. It assumed legal form in the schedules of 1888 and the Consolidating Act of 1894. This legislation placed the traders on firm ground in relation to the railway companies. It defined the rating powers of the companies and provided the traders with legal means of protection against the abuse of these powers. Only one grave defect remained in the absence of a cheap and expeditious method of settling disputes. This and the mischievous weakness of members of Parliament for tilting at the railway companies and courting popularity at their expense are the chief difficulties of railway administration at the present time.

Sweeping as the assertion may seem, it is literally true that the House of Commons is the source of the worst of our railway troubles. It keeps up continual irritation between the companies and their servants as well as between the companies and the traders. A Parliamentary debate on any railway question invariably gives the public the idea that the companies are Ishmaelites with every man's hand against them. Fortunately the reality is very different. Ninety-nine per cent. of their business is done just as peaceably and smoothly as that of any other large industry. Compared with the vast number of transactions which go through their hands, the disputes which reach the public ear are infinitesimal. Many even of these are settled out of court, and there is a steady downward tendency in the volume of railway litigation. If all his Majesty's courts had as little to do as the Railway and Canal Commissioners this would be a poor country for the legal profession. It is only at long intervals that the public hear anything about them, and the really serious cases which come before them are few and far between.

In the first ten years of the Commission as reconstituted under the Act of 1888 the total number of complaints which came before it was 683, or at the rate of 68 per annum. But 35 of them were against canal companies, consequently the railway cases proper were only 648, or

65 per annum. One half of them (335) alleged unreasonable or excessive rates. Rather more than a fourth (175) complained of undue preference, and the other fourth (173) related to minor matters of delay in transit, through rates, rebates, etc.

It will be interesting to traders and railway grievance-mongers at large to learn the ultimate fate of these 683 complaints. One-third of them (218) are said in the report of the Commissioners "to have been settled more or less to the satisfaction of the complainants." In another third (231) "the complainants were not satisfied." The remaining 234 cases "were not followed up by the complainants." Thus in the whole decade only 218 charges against railway and canal companies were proved to the satisfaction of the Commissioners. Out of millions of railway and canal rates the insignificant number of twenty per annum were successfully objected to.

There has been of late years a tendency toward the increase of minor complaints, but a surprisingly small proportion of them are sustained by the Court. In 1908-9 out of a total of 280 cases entered, only 91 were "settled more or less to the satisfaction of the complainants." In 122 cases "the complainants were not satisfied," and 62 "were not followed up." The complaints withdrawn or rejected numbered 184, or nearly 70 per cent. of the whole. The truth seems to be that the Railway and Canal Commissioners' Court is used by traders more as a bogey for the railway rate-makers than as a means of redress for *bona fide* grievances. Doubtless not a few concessions are made to them under threat of legal action.

The above figures may be useful in checking the strong assertions that are often made in parliamentary speeches and Chamber of Commerce resolutions about oppressive and inequitable rates. But the Chambers of Commerce are not always unreasonable. It is to be noted with satisfaction that they seldom adopt the fiery resolutions which their anti-railway members are always bringing forward. Either they tone them down or shelve them or throw them out. This feature of their discussions has

become more prominent since railway directors and managers got into personal touch with the Chambers of Commerce and began to take part in their discussions.

In this respect the annual meeting of the Associated Chambers of Commerce for the United Kingdom in March 1912 was a very encouraging omen. No less than four railway resolutions were on the agenda, and they were all discussed temperately as well as intelligently. Not only so, but the spokesman of the railway companies, Sir Charles Owens, spoke at some length on two of them. In both cases he received a very attentive hearing, and his speeches had a manifest effect on the subsequent voting. This in itself is a notable advance toward a better understanding between railways and traders, and greater consideration for each other.

The 1912 session of the Associated Chambers of Commerce will, I believe, rank hereafter among the most interesting and instructive of the series. It dealt in a business-like spirit with the burning commercial questions of the day—national insurance, labour troubles, railway agreements, railway rates, “all-British” cables, State telephones, telephone rates, and the Sugar Convention. No nearer approach has yet been made in this country to a commercial Parliament than was exhibited in these three days of serious, purposeful deliberation by representatives of industry and commerce from all parts of the United Kingdom. It was a marked contrast to the corresponding exhibitions in “another place.”

The railway resolutions in particular were discussed with much greater moderation and less animus than heretofore. Some speakers even went so far as to put in a good word for the railways. Several delegates opposed a resolution in favour of the appointment of a Royal Commission “to inquire into the present working of the railways of Great Britain, and to report how far they afford separately or in conjunction with other means of transit adequate facilities for the cheap and rapid transport of goods and passengers.” One of them gave as his reason for doing so “the very great progress made by the Midland Railway at Derby in the last fifteen or

twenty years." Another observed very truly that "ever since railways were inaugurated they had been considered fair game to be shot at." But he added, if the railways were penalised the people who had placed their savings in them would also be penalised. Comparing them with continental railways, he recalled the too generally forgotten fact that they had had to pay outrageous prices for their land and for obtaining Parliamentary sanction to their Bills, whereas on the Continent in a great many cases the land was obtained free, and legal expenses were a minimum.

The railway Bill then before Parliament received, of course, its due share of attention, and a protest against it was moved by the delegate from Sheffield. He began his speech, however, with a very naïve and significant admission that "the Sheffield Chamber desired to be reasonable on railway questions, because the railway companies in Sheffield were their best customers." This is an aspect of the question which has not hitherto struck many traders, and it is much more important than even the friendly delegate from Sheffield may have been aware. It has not often been referred to by railway managers, though it gives the railways one of their strongest claims on the sympathy and consideration of the traders. At the Board of Trade Conference in 1909 Sir Samuel Fay thus put it—

"It is not generally recognised how much home industries depend upon railway purchases. The annual value of materials and stores of all descriptions bought by British railways on revenue account may be put down roughly at £20,000,000 a year, or nearly equal to the value of three months' total exports from the United Kingdom to British possessions. When depression of a particular traffic on which a company mainly depends sets in, purchases must be kept within the narrowest possible limits, to the detriment of many trades, and that at the very time when they are most in need of orders for work."

Reference has been made to the very conciliatory and wholesome influence which Sir Charles Owens exercised

in these railway discussions. A short extract from one of his speeches may be very usefully set alongside the above quotation from the report of the Select Committee of 1888. A comparison of the two will show how greatly the relations between railways and traders have improved in the past twenty years—

“Speaking as a man who had been connected with railways for half a century, and who had controlled one of the large railway companies for no less than fourteen years, he could say, both from his own experience and the experience of others, that the managers of railway companies did recognise that the interests of the railway companies and the interests of the traders were identical. The railway companies were as much traders as any gentlemen in that room; they existed to sell transport, and they wanted to sell as much transport as possible, and they knew that if they could sell fifteen articles at 2s. it was better than selling ten at 2s. 6d. The idea that railway companies forced upon traders the highest rates they could get out of them was to consider the companies to be governed by men who were not acquainted with the very elements of business. As a matter of fact, no man rose to the position of manager of a railway company unless he had some amount of business instinct. He thought it was time that stereotyped attacks upon railway companies should cease. The resolution was asking for a strong Departmental Committee to go to the very bottom of the whole relations between railway companies and traders, but was it a fact that there were such serious difficulties between railway companies and traders?” (“Yes.”) “He denied it. During the fourteen or fifteen years he was General Manager of a railway company he had had no serious difference with traders. He wanted traders to look upon the railway companies as their friends. If there were things the traders did not like they should go and see the managers about them, and he would undertake to say that, if there was any reason in the case, the railway companies would be found only too ready and anxious to do what was fair. Resolutions such as that before the meeting were being continually passed

and becoming stereotyped, and it was stultifying a great body continually to pass stereotyped resolutions which it must be well known were unlikely to produce any effect. It took years to allay the irritation arising from the agitation of 1888 to 1894, and the annoyance caused by the prolonged inquiry, and nothing could be more adverse to the trading interest of this country than to submit the whole of the relations of the railway companies and traders again to an inquiry, with all the annoyance that must follow."

Perhaps the best way to avoid any more official inquiries, which it must be admitted have oftener proved futile than fruitful, would for the parties to take things into their own hands, as above suggested, and arrange their differences as far as possible among themselves. This give-and-take policy is being very successfully carried out on some of the American railways. Doubtless the Board of Trade would be glad to assist with it and to act as *amicus curiæ* whenever its services were required in that capacity. In order to be able to do so efficiently it should perhaps be armed with larger powers of certain kinds. Working agreements of a routine character which involved no public question might well be left to it. It might also have the final say about railway rates when the companies and traders cannot agree within a reasonable period.

As regards the amount of control to be given to the Board of Trade over agreements and amalgamations, that would depend on the capacity in which it was called upon to act. In a case where there was no opposition either by other railway companies or by traders or by shareholders, its duty would be simply to confirm and register the agreement. Where there was opposition it would have to hear each case and adjudicate on matters of fact, reserving legal questions for the Railway Commissioners. It would be chiefly by traders that difficulties would be raised, and these would relate either to rates or service. Already the Board has under the conciliation clauses considerable influence in the settlement of disputed rates. Without much danger to the railways, that power might

be extended by means of a proviso that if within a certain time, say six or twelve months, the railway company and the trader could not agree on a rate, the Board should arbitrate on it. Official arbitrators may sound shocking to old-fashioned free-traders, but they would at least know their business, which is seldom the case with the lawyers and politicians who are at present in control.

The agitation now being carried on by Chambers of Commerce and other Associations of traders against the revised railway rates, begins to hold out some hope of friendly compromise. The Employers' Parliamentary Association has, in course of a recent correspondence with the President of the Board of Trade, thrown out the following plausible suggestion:—The Board of Trade should arrange a conference with representatives of the traders and of the railway companies, at which the railway companies would be invited to show exactly the amount of the increase in wages involved, and to satisfy the conference as to the amount of such increase which might reasonably be allocated to that part of the traffic affected by the proposed increase in rates. The conference would also take into consideration all such other attendant circumstances as would properly be taken into account in proceedings before the Railway and Canal Commissioners. By these means it is likely that, without great difficulty, agreement would be reached at some figure which would represent some percentage, possibly 4 per cent., as claimed by the railway companies, possibly something substantially less as claimed by the traders.

CHAPTER XXV

TO THE LOCAL AUTHORITIES

BRITISH railways have now-a-days such a formidable host of enemies, and they are assailed from such a variety of points, that shareholders can never tell which point is in greatest danger and in most need of defence. The consequence is that in their bewilderment they seem to get paralysed and do nothing. Before old enemies are beaten off new ones start up, sometimes from unexpected quarters. It is hardly possible to keep an eye on all of them, and sometimes one drops out of sight for a time. Thus there has been little heard in recent years about the growth of rates and taxes, which used to be a prominent grievance at shareholders' meetings.

This may be partly due to the effect of the fiery protests which were made against them a few years ago. These protests not only put some restraint on the rating authorities, but they stirred up the railway boards to greater vigilance with regard to valuations and assessments. Directors had to admit that great laxity had prevailed in this department. A roundabout and most inequitable system of assessments had in the case of the English and Welsh railways been very fruitful of hardships and abuses. The Scottish and Irish lines were, happily for themselves, not subject to this barbarous method of assessment, and all they had to complain of was the rates themselves. Even these were moderate compared with the English ones.

A campaign against the English railway assessments produced good fruit, in so far as many overcharges were discovered. Important reductions had to be made, and in flagrant cases refunds were obtained. The alarming

advance in rates and taxes which distinguished the new municipal democracy was stayed, and in 1907 the agreeable surprise of a reduction was recorded. The four years 1902-1905 showed increases averaging a quarter of a million sterling per annum. In 1906 the increase dropped to £32,000, and in 1907 it suddenly changed into a decrease of £102,000. But this welcome relief did not last long. Next year the upward movement was resumed, and no further check was experienced until 1911, when a slight reduction of £23,000 occurred.

Many tests may be applied to these local rates and taxes, and all of them will furnish proof of exceptional hardship. They may be measured against the aggregate amount of railway capital in the United Kingdom, namely, 1,401 millions sterling at the end of 1911. It takes fourteen millions to pay one per cent. on that amount, but rates and taxes aggregating £5,079,000 intercept nearly one-half of it. If we set aside the Loan and Debenture stock (£357,109,000) there will be 1,044 millions of Ordinary and Preference stock, on which £5,079,000 of rates and taxes will be exactly one-half per cent. If, again, we exclude the Preference stocks and deal only with the Ordinary, which amounts to 493½ millions, the rates and taxes will average more than one per cent.

This is perhaps as simple and concise an illustration of the subject as can be offered to Ordinary shareholders. Rates and taxes represent fully one per cent. of dividend, which is diverted from their pockets to those of the local authorities. To be exact, a small part of it passes to the Inland Revenue in passenger duty, but apart from that the local authorities are the chief receivers. The fact to be impressed on railway shareholders is that before a penny of Ordinary dividend can be paid, one per cent. will have been "municipalised." To a large extent this is simply an extra income-tax. The railways generally benefit less than any other class of ratepayers by the local expenditures to which they have to be chief contributors. A large portion of the rates that are spent on highways, for instance, may injure instead of benefiting them by fostering competition on the part of road vehicles.

“ Rates and taxes ” in the broad sense ought to include the income-tax payable by Debenture holders on their interest and stock-holders on their dividends. If we do this we shall get a total of nearly eight millions sterling which the railways have to pay out of net receipts amounting to barely $48\frac{1}{2}$ millions. The apostles of confiscation may be shocked when they run up against discoveries of this sort, showing that other fiscal locusts have been there before them, and have eaten a big slice of the railway cake. Of the modest residue that remains after Debenture interest and Preference dividends have been paid, one-fourth is annexed for rates and taxes, and the Ordinary shareholder has to be thankful for the remaining three-fourths.

So far we have been regarding local rates and taxes as a tax on capital. A tax of one per cent., or even of a half per cent., on capital is all the world over considered a heavy burden. But the Ordinary stock of British railways has to pay in one form or another $1\frac{1}{4}$ per cent. of taxation. It is first mulcted of £5,079,000 in local rates, and then of a round million in income-tax. That makes £6,079,000 on a nominal capital of £493 millions, equal, as already said, to $1\frac{1}{4}$ per cent. After which the railway shareholder will still have his own private rates to pay. He, in fact, never knows when he is done with the rate collector. Corporately or personally he is always being taxed and rated.

On the very narrow margin of dividend which he enjoys—say $3\frac{1}{2}$ per cent.—such taxation is a much more serious matter than it would be on the much higher yields of industrial securities. Perhaps $1\frac{1}{4}$ per cent. on capital, heavy as it looks, would not be intolerable if associated with a 6 or 7 per cent. dividend, but when levied on $3\frac{1}{2}$ per cent. dividends it becomes oppressive. Nor as time goes on is it likely to improve in that respect. With the evolution of the new land taxes it threatens to become destructive. But there is a point beyond which it will begin to pinch other railway interests than those of the shareholders.

Over five millions a year of rates and taxes may prove a

serious matter, not merely from the dividend point of view, but from the wage point of view also. It is a considerable item of expenditure whichever way we look at it. An engine-driver might stare a little if he were told that railway rates and taxes nearly equal the locomotive wage bill of our whole railway system. The difference between the two totals is only £607,000—rates and taxes having amounted in 1911 to £5,079,000, and the “working of engines” having cost £5,686,000. The latter sum did not, however, include repairs and renewals, which form a separate item of £2,476,000.

Another coincidence of the same sort may interest the coal-miners. The total expenditure of all the British—and Irish—railways on coal and coke in 1911 did not much exceed the aggregate of their rates and taxes. It was £5,661,000 as compared with £5,079,000. It may further interest locomotive men and coal-miners to learn that rates and taxes are increasing a good deal faster than the coal bills or the locomotive pay sheets. They have risen from £4,228,000 in 1902 to £5,079,000 in 1911 (in 1910 they were £5,102,000), an increase of £851,000. In the same period the coal bill advanced from £5,042,000 to £5,661,000, or £619,000, and the locomotive pay sheets from £5,251,000 to £5,686,000.

Of the three locusts the rate collector appears to be the most voracious. In the past ten years he has increased his levies by £851,000, while the coal contractor has exacted only £619,000 more, and the locomotive men £435,000. But the locomotive men are fast making up for their overmodesty in the past. The point to note is how relatively large an item rates and taxes are in railway expenditure. To an average householder they mean a fourth, or it may be a third of his house rent. This may be only a twenty-fourth part of his total income, while to an Ordinary shareholder in a British railway they mean a fourth of his whole income from dividends.

It is not in rating only that the local authorities have been bad friends to the railways. They have penalised them in many other ways. Often they seem to delight

in putting them to needless trouble and expense. They have sometimes approached very near to blackmailing them. But in such cases the would-be biter has been generally bit, as in the following example. A go-ahead town on the Bristol Channel had in its neighbourhood a small watering place which it was anxious to develop. It was served by two trunk railways, one of which thought to pay it a graceful compliment by running a short branch down to the embryo Brighton. It lodged a Bill for the purpose, but to its amazement the town council gave notice of opposition, and prepared to send up the usual civic deputation to exploit the Select Committee and take in a few outside sights as well. But this little game was nipped in the bud by the prompt withdrawal of the Bill, to the great chagrin of its sham opponents.

It is now quite understood by the promoters of new railway schemes that they may expect to see every town council and district council on the route mustered in the Committee room against them. They make such a formidable show that they generally succeed in their opposition, sometimes to the public advantage and sometimes the reverse. But whether the rejected Bills be good or bad, this method of sifting them is as irrational as it is expensive. It becomes idiotic when it is applied to the Bills of established railway companies applying for additional powers. These may be absolutely necessary for the carrying on of their business as well as for the public service, but the modern legislator is superior to sentiments of that sort. He has more practical interests to consider.

He may be a Labour member sitting for a trade unionist constituency which has declared war against railway companies as the enemies of labour. Or he may be a faddist who wants British railway rates reduced to the American level, regardless of the fact that American rates are for haulage only, and long hauls at that. Or he may be an anti-railway man of the municipal sort who thinks that Parliament should give nothing for nothing except to municipal philanthropists and housing reformers. These gentlemen have been costly legislators for the

railways. They have obliged them to spend millions on re-housing schemes and on street improvements which invariably ended in a flagrant waste of money that could be ill spared.

It is, of course, in the metropolitan area that the railways have been worst victimised in this respect. All the principal London termini have had to pay toll to the municipal dictators, and one company, the Great Eastern, was so badly fleeced by them that it has never got over it. Liverpool Street Station is a monument of municipal greed and railway penalisation. All the municipal faddists seemed to gather together and descend on its devoted head. The worst of them were the re-housing reformer and the advocate of workmen's cheap trains. The Great Eastern company was caught in both these municipal crazes, and its sad experiences are duly recorded in a variety of parliamentary records. Mr. Gooday, the then General Manager, in giving evidence years after, before the London Traffic Commission, thus described the bad bargain made with Parliament in 1864—

“When we were seeking powers to construct our Metropolitan new lines, we had imposed upon us by the Great Eastern Railway (Metropolitan Station and Railway) Act of 1864 an obligation to carry workmen at 2*d.* fares for the return journey from Edmonton, distant 11½ miles from London, and Walthamstow, distant seven miles, from London. In return for that we were excused from certain obligations with regard to re-housing the working classes we displaced. In those days we were anxious not to incur a large capital expenditure in re-housing these workmen, and that is one of the reasons why the obligations were accepted by the company.”

Though the Great Eastern fared worst, it was not alone in playing a losing game with the municipal philanthropists. Other metropolitan railways also saw visions of wealth and ever-increasing dividends in the new suburban traffic, and burnt their fingers over it. They gladly allowed themselves to be saddled with workmen's trains, cheap trains, and every other “deadhead” privilege that the parliamentary Samaritans

could think of. In many cases the suburban traffic was so handicapped from the start that it never had much of a chance to make money or even to pay its way. What with the longer trains, the extra carriages needed to meet the morning and evening rush of traffic, and the sidings that had to be provided for carriages out of use during the day, it is doubtful if the cheap suburban fares could ever have paid.

Of all the failures among London railways, and they are not a few, the most wasteful and disastrous are the suburban schemes which were thus hatched by a long course of haggling between parliamentary municipal and railway negotiations. The popular train service which it introduced was the most prodigal that could have been devised, both as regards stations and rolling stock. Being a purely morning and night service, it was in full use for only a few hours daily. The rest of the twenty-four hours the trains were eating their heads off in expensive sidings.

“A third-class workmen’s train,” said Mr. Gooday, “runs $47\frac{1}{4}$ miles a day; an ordinary workmen’s train runs $58\frac{3}{4}$ miles. The reason is that during the other periods of the day when the trains are not filled with workmen, we must have first and second class carriages on them. The ordinary trains running morning and evening only run 73 miles, and the ordinary trains running all day run as much as 259 miles. The capital expended in providing sidings for the trains during the time they are idle ought also to be taken into consideration, although it is impossible to estimate exactly how much should be attributed to this particular traffic.”

According to Mr. Gooday, who appears to have worked out the problem thoroughly, the new suburban lines were too heavily handicapped from the beginning ever to have had a chance of success. Two disadvantages on which he lays special stress are the large number of stations required in consequence of their being so close together, and the disproportionate expense of staffing and maintaining them. The local rates alone swallowed up a large percentage of their earnings and it is not

surprising to learn that when the traffic fell off some of them had to be closed.

The cost of working the cheap trains running out from Liverpool Street on being most carefully calculated was found to average 43·76*d.* per mile, "taking all things into consideration." That included an expenditure of £110,000 in lengthening platforms and putting on extra coaches—seventeen instead of the usual fifteen. The re-housing schemes were losing concerns, and threw a heavy burden on the rates, a large part of which recoiled on the railway company. Rates rose so much that the better class of residents were driven away from the district, and again the railway company was the principal loser.

It might have been thought that the municipal Samaritans after doing so much harm to the railways might have relented toward them, and even have felt some pity for them. But there has been no relenting. On the contrary, there has been continuous hardening of heart. The railway companies appear to have more parliamentary and municipal enemies now than they ever had before. Every railway Bill of any consequence introduced into the House of Commons calls out swarms of them. The railway companies, brewers and State Churches have become a trio of political Ishmaelites.

To-day the trader, the trade unionist, the municipaliser, the nationaliser, and the politician at large are all out against the railway shareholder. He is even more at their mercy than the land-owner. They can only tax the land or confiscate it openly, but they can get at a railway in a score of side ways. They can saddle it with so-called Conciliation Boards. They can compel it to run workmen's trains at a loss. They can blackmail every Bill it introduces into Parliament. They can keep up a perpetual outcry for increased facilities, comforts, and luxuries in travelling, all of them, of course, to be free. Just now it is the municipal philanthropist who is most in evidence against the railways. A few years ago the London County Council presented a modest request to the Railway Commissioners for an extension of the "ten miles for a

penny" scale of passenger fares. This was another nasty hit at the Great Eastern, the railway which in the past has suffered most from the cheap train craze of our parliamentary and municipal Samaritans. The County Council coolly went outside of its own territory to attack a rival in the transportation business. It asked to have the Great Eastern Railway compelled to carry passengers in a district outside of the Council area at rates lower than the Council was charging on its own tramways, low as most of these are.

This was surely a *reductio ad absurdum* of municipal fussiness. The attempt failed as it deserved, and now that the London County Council is itself bearing the brunt of unfair competition it may be able to feel more sympathy with neighbours in a similar plight. At all events the motor-omnibus seems to have had somewhat of a sobering influence on our municipal busybodies. It is some time since they launched any new scheme for penalizing the railways. Their game of late has been obstructive rather than destructive. Town Councils, County Councils and District Councils find a bond of union in indiscriminate resistance to any kind of railway invasion. This is hard on the promoters of such schemes, who sometimes lose hundreds of thousands of pounds in unsuccessful battles in Parliamentary Committee Rooms. But for the railway interest as a whole it is not an unqualified misfortune. It heads off possible competitors, and strengthens the grip of existing railways on their several territories. Not many years hence local authorities may be as anxious to obtain new railways as they have been of late to shut them out.

CHAPTER XXVI

THE RAILWAYS AND THE STATE

IN discussing the relations of any great industry to the State the first danger we have to guard against is the use of bogey words such as Socialisation and Nationalisation. The next pitfall to avoid is the very common assumption that questions of this kind are to be settled by theoretical or ideal methods. The theorist may be very useful in thinking out general principles, but in the thick of an industrial conflict he does not count for much. Real conflicts have real issues behind them. They are fought out by real men with human tempers. When their blood is up they have little thought to spare for principles or ideals. When they have finished their fight they make peace on the best terms they can, which as a rule will be based on actual circumstances of time and place.

A large majority of industrial disputes spring from local causes, and latterly many have been of personal origin. Driver Knox and Guard Richardson were for a brief week or two shibboleths in the mouths of two or three hundred thousand railway men. But though on the surface the quarrel over them was personal, underlying it there were several vital issues,—the safety of the public, the discipline of the railway service, the right and duty of the State to intervene, and the best form of intervention. This last was the most difficult as well as the most critical question of all. State control has, from the dawn of our railway history, been one of its essential factors. It was not directly asserted until a comparatively late period, and it was longer still in being recognised by the railway companies. But it has been in

actual operation for many years and every fresh trouble in the railway world tends to strengthen it.

Therefore it is too late to argue about the abstract merits of State control and State intervention. The thing exists and has existed for years under various names. Each generation has found a new name for it, to express the latest advance in its development. At first it was simply a general right of supervision over the railways as necessary monopolies. Next it intervened on behalf of public safety. Then it took the railway shareholders under its protection, after them the traders, and finally the working staff.

The State is now a universal providence for all the varied interests affected by railways. To this extent—and it goes much farther than most people suspect—our railways are already nationalised. If we could imagine a Nationalisation Bill being suddenly rushed through Parliament and put in operation at once we might be astonished at the very small difference it would make to most of the people who had looked forward to it as the opening of a new era. By the time that its eagerly anticipated advantages had been realised and shared out the individual quotas would have shrunk to very small dimensions. Then there would be a debit side of the account to set off against the credit side. Unfortunately in a social rearrangement no person or class can be benefited except at the expense of another person or class. Where, as in this case no new wealth is created, redistribution might be a mere game of “general post.”

It is not this clumsy sort of nationalisation that railway shareholders need concern themselves much about. What they have to look out for is the kind in actual operation and being gradually extended: the State control which step by step is spreading itself over our whole industrial and economic system. Public health, education, production, and transportation are all being nationalised in the sense that they are being treated as national interests. National ownership could only be at best a step farther in the same direction, and at worst it might be a long step backward.

State control, which is at present a very haphazard hand-to-mouth arrangement, may develop into a scientific form of national control, though as yet there is very little indication of it. In any case there will be no brand new social system. The future will have to be evolved from the present, as the present has been evolved from the past. The practical question of the day, therefore, is not how to transform the existing system of privately owned but State controlled railways into an ideal system of State owned and State controlled railways. It is how to get the best possible results out of the existing arrangement. No one pretends that it is perfect. Both the State control and the private ownership are susceptible of great improvement. Neither of them is well organised and self-consistent.

A State control which is exercised sometimes by the Cabinet, sometimes by a Cabinet Minister, sometimes by the House of Commons, and sometimes by a Government Department, can hardly be expected to produce ideal results. Theories and doctrines apart, the public interest demands that the existing machinery should be got into working order, that its obvious defects should be cured and its causes of friction removed. First of all we need a properly constituted State authority capable of exercising an intelligent, impartial and judicious control. In other words it must be a non-political control, independent alike of Ministerial majorities, trade union threats and outside dictation of every sort or kind.

Such a properly constituted authority ought to have a proper ethical code to work upon. Certain fundamental principles would have to be laid down beforehand for its guidance. The railway companies, the traders and the trade unionists would have to agree among themselves whether or not private property in railways was to continue to be recognised. It would be a mockery of law and justice to compel any one to submit to a tribunal which did not recognise the plainest principles of social law and order as hitherto understood.

If it is social chaos and disorder that the trade unionists want they should go for them by the shortest and

most direct route so that the issue may be settled as speedily and thoroughly as possible. They cannot have State control and anarchy at the same time. State control means justice, fair play and equal treatment for both sides. To such a tribunal neither the honest capitalist nor the honest employer need fear to submit himself. But no capitalist or employer can be forced to subject himself permanently to tribunals of the opposite sort. Individuals may be dishonest, whole classes of society may be dishonest, but no State can afford to be utterly dishonest. If it were it would be denying its own moral authority and its right to govern.

In order to govern efficiently the State must be a power of itself : something above and beyond the governed. It should be as little as possible at their mercy or under their control. In trade disputes it should not be bottle-holder to either side. When it intervenes it should be on behalf of the public as such and not in the interest of either labour or capital. This would be the true democratic doctrine, and already some democratic States are acting upon it. In the gas-workers' strike at Sydney in February 1913 the public authorities, both national and municipal, acted upon it and all did their duty, consequently short work was made of the strike, and the right of the public to be protected against anarchy from whatever quarter was triumphantly vindicated.

The Sydney gas-workers' strike was a much-needed encouragement for British railway directors and shareholders to stand firm against threats of anarchy and public misery. The Minister of Labour and Industry having made reasonable proposals for a settlement, and the strikers having rejected them, he decided to guarantee protection to free labour. At the same time the Lord Mayor appealed for volunteers to help the gas companies to maintain the necessary supply of gas. Even the Executive of the Labour Council joined in and asked unionists not to join the strikers. In a very short time sufficient labour was got to carry on the works.

This remarkable strike wound up with an incident which was the strangest of all. The Prime Minister

issued a public explanation of the conduct of the Government in which he stated that "the strike issue is not now between the gas companies and the men. The Government has intervened on behalf of the public and is standing for the principle of arbitration which is the policy of the State endorsed by the Labour Party." Here we have the true doctrine of State control laid down and practically illustrated. It is an absolute negation of the national strike shibboleth which is so quickly shouted by the hotheads of the colliery and railway unions the moment that anybody treads on their toes.

When we happen to have a Government in this country with sufficient courage and sense of fairness to follow the good example set at Sydney in February last there will be little danger of any more national strikes. The very thought of such an outrage will be banished from the mind of the most irresponsible labour leader. This is one way of nationalising the railways which we do not need to wait for, much less to dream of as a future paradise. It may be realised at once if the trade unionists will only recognise that they are not the State: that it is something above even them, and that labour as well as capital is in the long run subject to it.

When railway men or any other class of workers resort to anarchy they change the trade union issue into a national one. As the Prime Minister of New South Wales put it the question is no longer between employers and employed, but between the Government and the enemies of society, who, as such, must also be enemies of the State. This thoroughgoing democratic doctrine would of course demand sacrifices from both sides, but in the long run they would be worth their price. To be relieved once for all from the barbarous threats of national strikes would compensate employers for liberal advances in wages, which again might console the workers for giving up the right to inflict the largest possible amount of harm upon their fellow creatures.

A State armed with the power to arbitrate between employers and employed as to wages and conditions of labour would as far as industrial questions are concerned

be a virtual dictator. There may be danger of such power being abused, but apparently that risk must be faced. The only alternative is a still worse dictatorship, that of the trade unions. Precautions can of course be taken against abuse. The State should not exercise its power of arbitration through any political agency, but through a specially constituted tribunal of the highest character and capacity.

This tribunal should combine the authority of the Cabinet and the House of Commons with the professional qualifications of the Railway Commissioners and the Board of Trade. Its decisions should be such as the whole country would accept with confidence, and to which public opinion would enforce obedience on both sides. It should be a body able in its own sphere to speak for the nation and thus to give us the kind of nationalisation most urgently needed in the railway service as in several others.

As regards nationalising the railways the writer has long contended that it is not the shareholders but the railway men who are the greatest obstacles to it, because they are least willing to make sacrifices for it. It has been said over and over again at railway meetings that any honest scheme of expropriation would be favourably considered. Even among railway managers there is no strong prejudice in favour of the existing system. The fact of their being all believers in amalgamation and consolidation shows that they are already well on the road to nationalising. One distinguished manager who died a few years ago was an avowed nationaliser. He did not consider that on fair and equal terms national ownership could beat private ownership, but he held that hampered and handbound as private management is now-a-days it cannot do justice to itself. This argument grows stronger year by year, and it is evidently approaching its climax in these days of dictatorial guards and drivers.

State control is no new idea among British railways. It laid hold of them in their infancy, and ever since it has been tightening its grip on them. At first it was exercised

in a mild and inoffensive way by a specially created body—the Railway Department of the Board of Trade. This was intended simply for purposes of observation and statistical information. The Select Committee of 1838 which recommended its appointment offered the naïve reason that the railways had acquired a greater monopoly of transportation than had been foreseen when the original Acts of Parliament were granted, and would now require to be better looked after than ordinary carriers. They must be treated, in short, as monopolists. The following clauses in the report of the Select Committee indicates the sort of supervision that was deemed necessary. In its vague and harmless suggestions it contrasts strongly with the Board of Trade activity we now see around us.

I. That railway companies using locomotive power possess a practical monopoly for the conveyance of passengers on their several lines of railway, and that under existing circumstances this monopoly is inseparable from the nature of these establishments and from the conduct of their business with due regard to the nature of their business.

II. That this monopoly is the result of circumstances contemplated neither by the Legislature nor by the Companies themselves, the extensive powers contained in their Acts of Parliament having been obtained under the impression that the interests of the public were sufficiently secured by fixing a maximum rate of tolls, and providing for free competition in the supply of locomotive power and other means of conveyance.

III. That under these circumstances the Legislature is bound to provide that the public interests shall not suffer from the mistaken view taken in the infancy of the science of locomotion, and that for this purpose the powerful monopoly under which a large and increasing portion of the national commerce of the country is placed should be subjected to the supervision and control of the Board of Trade.

IV. That as an important part of this duty the Board of Trade should collect and register statistical information

on all points of general interest connected with the railway system.

By degrees, as the statutory powers of the new Department were enlarged and extended it became more aggressive. In 1885 it was no longer content to be a mere collector and publisher of statistics. It aspired to take a hand in the war of rates which then broke out between the traders and the railway companies. A Government Bill was introduced which would have given it power to make and change rates at its discretion, subject only to the veto of Parliament. The railway companies succeeded in defeating that attack, but it was only a brief respite they obtained. Mr. Grierson's account of the Bill shows that even thirty years ago the anti-railway movement was well advanced, almost as far, indeed, as it is to-day—

“Last session (1886) the Board of Trade introduced a Bill not only to compel the railway companies to do what they by their Bills introduced in the session of 1885 sought to do but also to make it obligatory on them to accept such altered rates and tolls as the Board of Trade with the subsequent sanction of Parliament might lay down, and to submit to periodical revisions thereof—requirements so contrary to the conditions under which the companies provided the capital for the construction of the railways that it is difficult to believe that the effects of the provisions of the Bill could have been clearly understood.”

The feud between the traders and the railways died down after 1889 and by 1894 it had been compromised. The new classifications and schedule of rates then agreed upon have been in force for nearly twenty years, but they are now showing signs of wear. No sooner, however, had the traders been pacified than the trade unions took the field and the railway managers have since gone through more worry over wages than they had to suffer before over rates. Between the two the Railway Department of the Board of Trade has been kept busy right along. It is being appealed to almost daily by railway companies, public bodies, private traders and employees.

If it could promptly and definitely settle one-third of the questions submitted to it it might be a fair substitute for the efficient State control which we are advocating. But as regards rates and wages its powers are for the most part only advisory.

The crux of the matter is—Can a *bona fide* effective State control be created either out of the existing Railway Department of the Board of Trade or out of the Railway Commission or by some new combination? This is the practical question of the day and it is also the real question of the future. It is the socialist question as well as the trade unionist question. Even if the railways were to be confiscated they would still have to be operated. The same quantity of traffic would have to be carried if the men were to earn the same amount of wages. There would have to be discipline of some kind if the whole service were not to go to pieces. The confiscated part of the net revenue would have to be divided up among perhaps ten times as many claimants as the number of its dispossessed owners. Thus the issue would return in a vicious circle to a question of State control—the only practical form of nationalisation.

It may be that the conflicting forces which are now shaking our railway system almost to its foundation are unconsciously working towards a common end. By different and apparently opposite paths they may be advancing toward some kind of State control which will do justice to all of them, and in which they can all have confidence. The more thoughtful of the unionist leaders apparently begin to see that something of this sort would be the most rational form of compromise. In giving evidence before the Departmental Committee of the Board of Trade on Railway Agreements they indicated as much. The most outspoken of them was the editor of the *Railway Review*, Mr. G. J. Wardle. He quoted with approval the following passage from the *Statist*—

“If the agreements and arrangements are to be sanctioned, as we trust they will be, it will be absolutely necessary to create as a portion of the machinery of

Government a Board of Railway Control, to protect the nation's interests, and to see that the agreements and arrangements make for the public welfare. This board should consist of men whose ability to exercise effectively the important duties entrusted to them would be universally recognised."

Mr. Wardle even went so far as to acknowledge the friendly disposition of railway shareholders toward reforms likely to be for the common good. On this point he heartily endorsed the views which had been recently expressed by the Chairman of the Railway Shareholders' Association—

"Ordinary shareholders who have no official bias can see that the tendency of events is more and more towards Government supervision. It seems to them wiser to recognise this tendency than to shut their eyes to it, or to fight blindly against it. The Board of Trade has become much too powerful a factor in the administration of our railways to be got rid of, even if that were desirable. The only possible policy now is for all concerned to make the best of it by seeing that its power is wisely and justly exercised. That can be best done by each of the various interests entitled to the protection of the Board keeping in close touch with it. Whether we like it or not, a certain amount of Government intervention has become inevitable in every important dispute arising between the owners of the railways and the large classes of the community dependent on them for their livelihood; whether as traders or as workers."

It is a curious fact pointing also in the same direction that since the Knox and Richardson disputes the National Union of Railwaymen has adopted a formal resolution calling on the Board of Trade for fuller and stricter enforcement of the rules and regulations for the safe working of the railways. So far good, but the railway managers on their side will have to see to it that the increased official control thus demanded is not perverted into an instrument for obstructing necessary improvements and economies in working the traffic. That is above all what the companies have to fear and to guard against.

CHAPTER XXVII

NATIONALISATION

THE question of nationalising railways is argued on so many different and incompatible grounds that the various arguments are apt to clash. If we consider it first from a commercial standpoint it has very little to say for itself. If we regard it as a political issue it at once becomes involved in the discredit and disfavour into which political methods have lately fallen. If we treat it as part of the great socialistic movement, it will be like the rest of that movement, a waning force. But there is one, and only one point of view from which it is really dangerous. The future of railways generally, and British railways in particular, depends on the development of trade unionism. If the latter had remained on its original lines, employers and employees might have continued to settle questions of wages in a friendly give-and-take spirit. But if the policy of class war, which has of late been adopted by the unions, is to be carried to the bitter end, it will force the railway companies into an impossible position.

A house divided against itself cannot stand, much less a railway system, which in order to do its duty efficiently must go like clockwork. In the campaign of grumbling and kicking, which has been started by the railwaymen, a point may soon be reached at which authority and responsibility will have disappeared together. The railways may then have to be nationalised, not for commercial or political or socialist reasons, but as an imperative necessity. The only way to save them from themselves may be to place them under martial law. This is the sort of nationalisation we are most likely to end in, and the people who will like it least are the trade unionists who are now shouting most lustily for it. When the nation takes them in hand they will have a

master whom they dare not criticise and caricature and vilify as they now do their private employers.

It is not railway shareholders who have to fear nationalisation, unless the nationalisers are going to plunder them completely. Neither is it the railway officials, whose power would be increased tenfold when they became national functionaries. If, as the trade unionists allege, many of them are bumptious and overbearing, what would they be as State officials without any Board of Directors to fear, or shareholders to consider? A short trip on a Prussian railway—all of which are nationalised and State-owned—might thoroughly disabuse any intelligent English railwayman of the idea that he would be better off as a State employee.

Short of deliberate spoliation, which, after the past six or seven years' experience of a semi-socialist regime, is less to be dreaded than it was, railway shareholders have less to fear from nationalisation than either employees or traders. It could not possibly do them greater harm than the class war which is now being systematically waged against them. This has shaken their credit more than anything that ever happened to them before. It has reduced the market values of their securities far below the level at which their returns should be capitalised. It is hampering their operations at every point, and rendering it increasingly difficult to perform their responsible duties to the community.

This issue will by and by become so serious that the community itself will have to take it in hand. It will pass out of the control of the railway companies, and the nation will have to decide once for all on the kind of railway administration it prefers. If it desires the present system to continue, it will have to devise a *modus vivendi* between existing employers and employees on the one hand, and railway users on the other. If it should decide on eliminating private employers and substituting State ownership, that will only vary the problem without solving it. It will have got rid of the least troublesome of the three hostile factors, and the two most difficult ones—the traders and the workers—will remain.

The class war will still have to go on. Its conditions

will only have changed for the worse. The railway workers will continue to think only of their own class interests, and the State will have to oppose them in the public interest, just as the railway companies are doing now. The question is whether its opposition will be weaker or stronger. As to that there cannot be a doubt. The existence of a modern State depends on organisation and discipline. It has to choose between order that is life-giving, and disorder that is self-destroying. Already we have seen enough of the latter to be able to judge of its future prospects. Day by day we are getting fresh proofs of the great truth that government without moral authority is a contradiction in terms. But there can be no authoritative government while whole classes of the community—miners and railwaymen, for example—are arrayed against it.

In the ultimate determination of a vital economic question like this Parliaments and political parties count for very little. They are only flies on the wheel, and very ephemeral flies at that. A Labour-ruled House of Commons may pass Labour laws by the score, but it will not have the slightest control over their actual results. They are quite as likely to work the wrong way as the right one. The most triumphant democracy cannot set aside, much less conquer, the natural laws of society. No shuffling of political cards can give every class all it would like, and no single class can be allowed to have all its own way.

Even railway shareholders must have some kind of justice meted out to them, or the community as a whole will suffer along with them. Supposing that they were expropriated, the trader and the railway worker would find themselves face to face with directly and absolutely opposed interests. They would be worse off than when the railway shareholder acted as a buffer between them. Just now he is not a mere buffer. He is a sort of mediator and balance-holder. There are many losing rates which have to be made good out of his scanty dividends. When he becomes a simple annuitant, neither trader nor worker will have any further claim upon him. They will have to fight out their quarrels themselves, unless the Board of

Trade or some other public department cuts them short by issuing an official decree which neither of them dare disobey.

Under a regime of nationalised railways the traders and employees would be natural enemies. Their interests would be continually clashing, and there would be no intermediate power to weaken the collision. Freight rates could not be lowered and wages raised simultaneously. They would have to take turns, and the traders and workers might find that quite as difficult a matter to arrange as a new scale of wages under the existing regime. The only source from which the two classes might derive common benefit would be increased economy and efficiency in working, but that involves conditions to which railwaymen, in their present state of mind, would not be likely to submit. The controllers of the traffic would require to have a free hand in making experiments to reduce the cost of transportation—a privilege which is now being rapidly curtailed. They should also be free—which they have not been of late—to adopt labour-saving and time-saving methods.

The ideally-managed railway would be continually increasing the average amount of transportation performed per head of its working staff. Divested of labour, municipal and political complications, that is the true railway problem. But the trade unionists cannot face it in that light, because it is at complete variance with their policy. It suits traders and shareholders because the more efficient the working the lower the freight rates and the higher the dividends. Between these two there is no irreconcilable contradiction, but between labour on the one hand and rates and dividends on the other there is an impassable gulf. The trade-unionist gospel requires the largest possible number of men to be employed at the highest possible wages, and for the shortest possible number of hours per day. This is the antipodes of proper railway administration, whether national, municipal or individual.

The reproach most frequently flung at existing railway managers is that, notwithstanding all the recent advances in wages, more work is done for less money than before. Men are better paid than formerly, but fewer of them are

needed ; therefore the gain to the men and the loss to the railways is less than it appears to be.

Judged by this test the labour agitations of recent years have all been economic failures, and they would equally fail under nationalisation. There would be as much, or even more, necessity to show good returns in State-owned as in company-owned railways, and that can be done only in one way—by efficient and economical working. Thus the nationalisers have to choose between good administration for the railways and a good time for railwaymen. The two conditions are utterly inconsistent and incompatible. They may be partially reconciled by a judicious policy of compromise ; the traders being satisfied with reasonable rates, and the men with the fair current value of their labour. Within these reciprocal limits railway transportation may be made a great industry, with or without nationalisation.

The problem of nationalisation cannot be solved by looking at it solely from the railway point of view. It is equally necessary to regard it from the opposite standpoint of the State. Are State-owned railways likely to be of greater service to the public than privately-owned railways ? Is the State in a fit condition to undertake so huge an enterprise, and to manage it efficiently ? Are there no more pressing and important tasks than railway nationalisation which the State should see to first ? What about the ordinary highways, which, between national and local tinkering, are fast becoming both an incubus and a scandal ?

It might have been thought that the nationalisation of our transport services should begin with the public roads. The future ownership and control of them is quite as difficult a subject as the State management of the railways. When the State has proved that it can provide the country with good roads at moderate expense, then it may be time to talk about nationalising transportation generally. Meanwhile there is a more valuable service that can be rendered to the railways at comparatively small expense. What they need before nationalisation or anything of that sort is an intelligible railway law and an appropriate means of administering it at reasonable cost.

More than half of the ill-feeling that exists between railways and traders is due, in fact, to slipshod piecemeal law-making. If the trader had, as in Germany, a concise code of rates and regulations he could always find out for himself what was the proper legal charge in a given case. In this country he very seldom can. When he has satisfied himself that he is being overcharged he has no prompt and inexpensive remedy. He must fight it out in the first instance with the railway officials. Failing satisfaction from them he may go to the Board of Trade, where he will get good advice, but no more. For an effective decision he must go still higher, to the Railway and Canal Commissioners. In practice he finds that every disputed rate involves a laborious and costly lawsuit.

The wholesale advance of rates which was made on July 1, under the Railway Act of 1913, will affect millions of traders and might give rise to many millions of rate disputes. But not a fraction of them will ever come to a satisfactory settlement, simply because there is no means of settling them within reach of the ordinary trader. The Railway Commissioners' Court is as far above him as the Court of Chancery or the House of Commons itself. As for the Railway Act of 1913, from its inception on the famous Saturday night in August 1911, it has been an unlucky measure. It interrupted at the last moment a strike which, in the true interest of the railways and the country, ought to have been fought to a finish. It was ill-received by the House of Commons, and could only be pushed through by a strong effort of Ministerial authority. It has provoked violent opposition from all classes of traders, and broken the peace which had existed for twenty years between them and the railway companies. All because we have no simple business-like system of fixing railway rates.

In 1911 the general principle was admitted that railways are as much entitled as other industries to living rates, and that when their working expenses were being continually increased by the higher demands of labour, they had a claim on the community for, at least, partial compensation. In their case this claim was all the stronger because of their special relations with the State and the

Legislature. The higher demands of labour were, to a large extent, forced on the railway companies by political influence. They were subject to the control of special tribunals created by the State. They were supported by a large body of public opinion. The railway companies could not have resisted them indefinitely without incurring odium and unpopularity, such as no large body of employers cares to endure.

The moral claim of the railways on the community was indisputable. It will not be their fault if the bargain they entered into with the Government should prove impracticable. Its confirmation by the House of Commons, if grudgingly given, was definite. But the moment they began to enforce their claim lions arose in the path. In the most favourable circumstances it would be a herculean task to readjust millions of rates to the new conditions. The announcement of an average increase of 4 per cent. is of course only a preliminary move. In every case the details will have to be gone into and duly considered. Afterwards they will have to be discussed with Chambers of Commerce, Chambers of Agriculture, municipal councils and other public bodies, to say nothing of thousands of aggrieved traders. Many of the latter will be important people whom the railways cannot afford to quarrel with.

This is not by any means a matter to be settled with a stroke of the pen and a short advertisement in the newspapers. The railway companies are not going to have it all their own way, nor do they evidently expect it. There will have to be a good deal of haggling and of give and take before the new rates are definitely fixed.

The general advance in rates was no sooner announced than the hornet's nest became active. Then the railway companies began to draw in their horns. First they got two or three explanatory articles published in *The Times* to prove that the advance was not nearly so formidable a bogey as it looked. Still the hostile agitation of the traders continued, and the next move was a partial climb down. *The Times* of June 21 contained a semi-official statement that "the increase was not to apply to class rates." The following extract gives the gist of the concession :—

“ In order to make the position perfectly clear, traders and the public may be reminded that for the purpose of the practical working of the railway traffic, all goods carried, or likely to be carried, by rail are divided into classes under a recognised classification, and that the rates charged fall into two main groups: (1) class rates which, except for long distances, approximate somewhat to the maxima; and (2) exceptional rates, which are rates for similar traffic, but are fixed on a lower basis, to meet various conditions in regard to full truck loads, large lots, etc., such exceptional rates being, as a rule, substantially below the corresponding class rates. . . .

“ What the companies have decided to do, in order to simplify the position, is to eliminate from the increase, as announced, all traffic that is now carried on at ordinary class rates, except in certain instances, the most important of which are the long-distance traffics between England and Wales and Scotland or Ireland, and class rates on the Scotch railways. Otherwise the increases will apply exclusively to exceptional rates. Most of the through rates (whether class or exceptional) for merchandise or produce carried from or to the Continent will be subject to the same increases.”

In thus limiting the advance to “ exceptional ” rates, which apply mainly to heavy goods, the railway companies may be reducing the area of opposition, but they will not diminish its intensity. It is agricultural produce, building materials, minerals, machinery, metal-ware, raw cotton and wool, and similar commodities that will now have to bear the brunt of the higher rates. Broadly speaking, it is the canal class of traffic that is going to be penalised, and the question will naturally arise, if an effort should not be made to relegate such traffic back to the canals.

If British legislators and traders had had a shred of the foresight which the same classes have shown in Germany and France, our canals would not have been allowed to become useless derelicts. The question of reviving them has been frequently raised in an academic way, but this move of the railway companies may put heart and soul into the agitation. It has already done so, in fact, in

the Midlands. The Birmingham Chamber of Commerce has led off with a strong declaration against any increase of railway rates, and in favour of canal competition.

For aught we know we may be entering on a new era in our methods of transportation. Unless large capacity canals are found to be impracticable from an engineering and a financial point of view, there would be much to say in their favour. A transfer of the greater part of our heavy traffic from rail to water carriage might prove to be, not only an important national economy, but a great relief to the railways, and a help to them in conducting the fast traffic, which properly belongs to them, with greater safety and efficiency. Very probably it would even now pay them to weed out some of their low-grade freight, and they will almost certainly have to do it a few years hence.

This is another element in the vexed question of railway nationalisation. How long will the railway companies, as at present constituted, be able to grapple with the rapid growth of their traffic, goods and passengers alike? The more their physical difficulties increase the larger will be the scope for political and administrative interference. Conversely, the more they are interfered with and regulated the more their difficulties will multiply. The policy of official intervention is fast approaching a climax, when it will have to be decided, once for all, whether State control should not be carried to its logical issue by transferring responsibility from the controlled to the controllers. The existing hydra-headed system of supervision is becoming intolerable. The Board of Trade by itself might be endurable and even helpful. The Railway Commissioners, if costly, are perhaps a necessary evil. The House of Commons, it is to be feared, there is no escape from. But a triple combination of House of Commons, Railway Commissioners and Board of Trade is too dreadful to contemplate as a permanency.

By the way, what place would these incongruous authorities have in the national regime? Could they be dispensed with, or would they not be more meddlesome than ever? If they are to be kept on, would the change

from joint-stock ownership to State ownership not be much greater in name than in reality?

An article entitled "Railways and Traders," which appeared in the *Daily Telegraph* of March 12, 1913, may be here quoted as a concise summary of the peculiarities and defects of our railway law. Traders may find in it useful information as to the principal railway Acts operative at the present time, and the methods of judicial interpretation applied to them.

"What is most needed to-day, both by railways and traders, is a simple and rapid method of settling their differences. Though the United States practice is by no means perfect, it is much superior to our own in directness and simplicity. When the railroads there wish to revise their rates—and they are clamouring for it now as persistently as our own railway companies—they can go straight to the Inter-State Commerce Commission. It hears both them and the traders, and pronounces judgment accordingly. Scores of such petitions to authorise higher rates are always before the Commission, and decisions on them are being frequently given. The railroads know exactly what to do when they want a rate altered. They send in their case, and in due time get their answer.

"But British practice inverts that natural course of proceeding. The railway company announces its new rate—as so many of them have done lately—and then any dissatisfied trader may take them before the Commissioners. He appears as a complainant, and the railway company has to justify its action. This is where the complications and the fine distinctions come in. First, the desired increase must be within the maximum rates fixed according to the Act of 1894. Second, passenger traffic has to be excluded, but the Act does not say how the working expenses of passenger and goods trains are to be distinguished. Third, a sharp line is drawn at Aug. 19, 1911, and no previous advance in wages is to be allowed to count. Fourth, it has to be proved that the advance asked for is part of a general scheme to meet a particular increase in the cost of working. Next, it has to be proved that the advance is not 'on the whole greater than is reasonably required for the purpose.'

These cryptic provisos and qualifications wind up with a prize puzzle. 'The proportion of the increase of rates or charges allocated to the particular traffic with respect to which the complaint is made must not be unreasonable.' Who is to interpret a conundrum like that ?

"The new Act may indirectly serve a good purpose if it calls attention to the vagaries and diversities of our existing railway laws. They are sadly in need of revision and consolidation: so much so that this should have preceded any attempt to add to their number. Railway companies and traders would, in the writer's opinion, get on much better if they would make an honest and sincere endeavour to understand their existing legal relations. The companies, of course, are well posted on the subject. They have an army of legal and managerial experts continually engaged in studying it from their own point of view. But what is A B C to them is Greek to the ordinary trader.

"If he were to tackle the subject historically he would have to wade through at least a dozen Acts of Parliament in order to settle the simplest legal point. The following are the nine most important Acts now in force :

- Railway and Canal Traffic Act, 1854.
- Railway Clauses Act, 1863.
- Regulation of Railways, 1873.
- Board of Trade Arbitration Act, 1874.
- Cheap Trains Act, 1883.
- Railway and Canal Traffic Act, 1888.
- Conveyance of Mails Act, 1893.
- Railway and Canal Traffic Act, 1894.
- Railways (Private Sidings) Act, 1904.

"The above list is calculated to convey an exalted idea of the comprehensiveness and minuteness of Parliamentary supervision over railways. It shows also the tendency of this supervision to become more and more meddlesome, and its interference more frequent. In the first half-century of the railway age new railway Acts were passed only about once in a decade. In the past half-century five years has been the average interval, and now even that is considered too long. In the decade

1888—1897 no less than four railway Acts of historical importance got through Parliament. Two of them—those of 1888 and 1894—still form the basis of our railway rates and classification.

“It is hardly possible for any one having large dealings with the railways to do himself justice in his daily battle with them unless he has ascertained his exact legal position from the Acts themselves. By examining them consecutively he will be able to trace the origin and development of the peculiar maxims of British railway administration. In the Act of 1854 he will find (Clause 2) one of the oldest and most venerable doctrines of our railway law—that of equal rates for equal services. ‘No such company,’ it says, ‘shall make or give any undue or unreasonable preference or advantage to or in favour of any particular person or company, or any particular description of traffic, in any respect whatsoever.’

“This was a brave declaration, but very feeble and costly means were provided for its enforcement. Aggrieved traders were given the expensive privilege of applying to any of his Majesty’s superior Courts in England, Scotland, or Ireland for a writ of injunction against the offending railway. But it was worth while risking something to obtain a conviction, as the offender might be fined to the tune of £200 a day. Undue preference was the chief bogey of British traders about the middle of the nineteenth century. Ten years later working agreements came into fashion, and the Act of 1863 was specially concerned with them. It laid down rules for carrying them out, subject to the proviso that they must be approved both by the shareholders of the companies concerned and by the Board of Trade.

“Skipping another ten years we come to the Act of 1873, by which the first Railway and Canal Commission was created. It also introduced two other innovations—the compulsory publication of rates and the right of the Railway Commissioners to fix terminal charges. In the language of the Act (Clause 15) they are ‘to decide what is a reasonable sum to be paid to any company for loading and unloading, covering, collection, delivery, and other services of a like nature.’ It was a very lawyer-like

arrangement to split up terminal charges into a multitude of small details, and it has proved, as might have been expected, a very doubtful policy for the railways. If they could have decided on a reasonable scale of inclusive charges they might have spared themselves a large amount of worry and unpopularity.

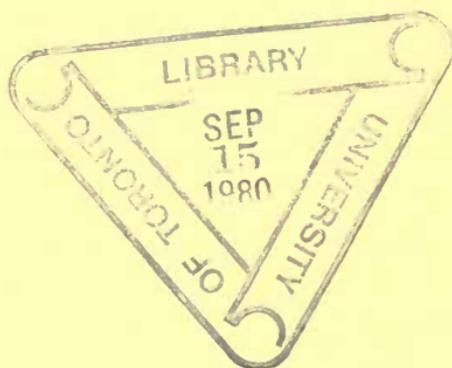
“The corner-stones of our existing railway law are the Acts of 1888 and 1894. The former established a new Railway Commission, which was expected to be more commercial and less legal than its predecessor; but so far the difference between them has been undistinguishable. Business men still wait longingly for their ideal court of law, which is to combine justice with common sense. The new Commission, moreover, had the advantage of the old one in enjoying a much wider jurisdiction. The number of local authorities entitled to act as complainants was greatly enlarged. It now includes any association of traders or freighters, or Chamber of Commerce or Agriculture, as may, in the opinion of the Board of Trade, ‘be a proper body to make such complaint.’

From every point of view and the traders’ especially, it is a complex and confused foundation on which a nationalising policy would have to be built up. Such policies may be easy to talk about, but let the talkers, whether they be trading or trade-union grievance-mongers, ask themselves where they would begin their revolution. As the above sketch indicates, there are many tangles to straighten out before we can venture to launch into electioneering experiments with a railway system which owes its greatest virtues to private enterprise and its worst faults to the politicians.

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