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The Theory of Railway Rates

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THE THEORY OF RAILWAY RATES.¹

AT the request of my friend Professor Edgeworth, who has, I suppose, considered that the tendency of academic study to be too abstract and theoretic, might usefully be corrected by your listening for an hour to a lecturer who, while hardly claiming more than a schoolboy acquaintance with general economics, has yet devoted special attention, largely based on actual personal contact with the concrete facts, to the study of railway economics in particular, I have undertaken to sketch in a lecture the outlines of a subject which for its adequate treatment would require a portly volume. You will, I am sure, forgive me, therefore, if I confine myself strictly to my subject, and if, refusing to discuss hypothetical bases of railway rates—postal principal rates, rates based on cost of service, or equal mileage rates, these two latter things essentially opposite to one another though often imagined to be the same—I confine myself to the theory which, as far as I know, has been practically applied in the conduct of railway affairs *semper, ubique, ab omnibus*, applied whether those responsible for imposing the rates have been officers of the State or managers of private commercial undertakings, though doubtless to some extent in Germany and to a greater extent in the zone-tariff of Hungary and Austria the outward semblance appears otherwise.

This theory is commonly described in England, and by practical men who have no more idea of acting on economic theory than M. Jourdain had of talking prose, as “charging what the traffic will bear,” in other words charging rates based not on the cost of the service to the railway company, but on what it is considered that the recipient can and should pay for it. Historically this theory has been recognised and approved by English legislation from the time when Adam Smith applauded the equity

¹ A lecture delivered at Oxford, Lent Term, 1897.

of statutory turnpike tolls at the rate of 1s. for a light carriage and 8d. for a heavy dray, through the whole long series of canal Acts and railway Acts, down to the elaborately careful revision of the railway companies' charging powers in the series of Provisional Order Confirmation Acts dated 1891 and 1892. The opinion of modern economists all over the world as to the justice of the underlying principle may be conveniently summarised in a sentence borrowed from the first annual report of the American Interstate Commerce Commission: "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."

In order to place ourselves in a position to appreciate and criticise the theory, let us first consider very briefly the nature of a railway and its business. At the outset, however, one thing should be noted. No other industrial undertakings are as much controlled as are railways by non-economic forces. Positive legislation, traditional standards, claims on the ground of social obligation, all have—here in England at least—had so much weight that the results we see produced in practice are far from being the effect of the natural working of economic laws.

A railway company occupies a double position. It is first the owner of a road and secondly a carrying agency. As the owner of a road it is entitled to tolls for use and maintenance; as a carrier it claims payment for services directly rendered. The *cahiers des charges* of the French railways still distinguish between the *péage* and the *prix de transport*, and our Acts previous to the recent revision apportioned the total maximum rate legally exigible between toll for the use of the line, charge for engine power, and charge for the use of carriages or waggons. *Qua* road owner the railway company is comparable to a canal company or a turnpike or bridge trust. It has invested a large capital in the construction of its line. The line is there, available for the use of traffic of all kinds, but useless except for transport purposes. The capital is irrevocably sunk. The expense of maintenance is small by the side of the amount of money required to pay interest at the normal rate on the construction capital. *Qua* carrier the railway company represents both the stage-coach and the pack-waggon proprietors. To a large extent the same stud of horses haul and the same staff of servants attend to both passengers and goods. In other words almost the whole construction capital is spent, almost the whole cost of maintenance and a large part of the working expenses strictly

so-called are incurred, on behalf of the traffic as a whole. The absolute withdrawal of either the entire goods or passenger traffic would leave the claim of capital to its normal interest just as great as before, would effect but trifling reduction in the cost of maintenance, and even in traffic working proper would produce very far from a corresponding reduction of expense. The withdrawal of certain categories of goods or passenger traffic, say, export or market goods or excursion passengers, would leave the volume of expenses practically—the withdrawal of single consignments of goods or single passengers would leave them absolutely—unaltered. The expenditure, that is, of a railway company is incurred almost wholly on the joint account of all its customers; the accommodation it provides and the services it renders it must therefore render and provide at their joint cost.

This fact is of such importance that it will be well to illustrate with actual figures. Roundly speaking English railways have cost a thousand millions and earn eighty million pounds per annum. One half of this latter sum, forty millions that is, remunerates the invested capital at the rate of 4 per cent.¹ The other half is absorbed in working expenses including therein maintenance. Of the working expenses maintenance of way and works costs £7,600,000. The larger part of this item represents expenditure wholly independent of the traffic carried. Fencing and drainage works must be kept up, the masonry of tunnels and bridges repaired and repointed, ballast replaced, timber and iron work painted and after a time replaced, and so forth, whether one train or a hundred pass over the line per diem. Sleepers rot by weather much faster than they perish by wear. In some parts of the country the same is actually true of the rails themselves. Even of the small portion of the permanent-way expenses due to actual use, such as the normal wear and tear of rails, it is impossible to allocate any definite proportion as between goods and passenger traffic as a whole. It is true that an allocation is sometimes made on the basis of the ratio between goods and passenger train-miles respectively, on the assumption that the extra speed of passenger trains balances in destructiveness the extra weight of goods trains. All such allocations, however, are at best no more than a conventional

¹ It should perhaps be pointed out that, though the cost of an individual line is not, or at least need not be, any element in fixing the rates charged upon it, the cost of all the railways in a country or other given area must be an element. For, unless railways on the average can earn average remuneration on their capital, they will not be built; unless they can maintain that average, they will not be improved and extended.

average. And if allocation be impossible as between goods and passengers, *a fortiori* it is even more impossible among the various categories of goods and passenger traffic *inter se.*; while as for an allocation to individual passengers or individual consignments of goods, probably even the hardest of amateur railway statisticians would not attempt it.

Now take another group of railway expenditures: general charges, 2 millions; rates and taxes, 3 millions; legal and parliamentary expenses, £260,000; miscellaneous, £470,000. Here is a total of nearly 6 millions more, as to which allocation is obviously impossible. To traffic expenses, totalling almost 15 millions sterling, the same thing in great measure applies. One large block of traffic expenditure, that namely on signalling, evidently belongs in its entirety to the traffic as a whole. To the station staff at all but the great stations, and to the head-quarter staff of the traffic department in the main, the same thing applies. The services of passenger guards and passenger porters can of course be charged against the passenger traffic. But once more only against that traffic as a whole. It is impossible to say how much is due to ordinary first-class passengers, how much to season ticket holders, and how much to bank holiday excursionists.

There remains between 16 and 17 millions of expenditure to be accounted for. Carriage and waggon repairs, over 4 millions, can of course be apportioned (though our Board of Trade returns do not in fact divide them) in respect of everything except joint establishment charges between goods as a whole and passengers as a whole, but no further. So with compensation, amounting to some £350,000. Locomotive power costs some 12½ millions. Here at length we have an important sum, capable of allocation to a considerable extent. Goods engines do a great deal of work on passenger trains and *vice versâ*. But broadly the two classes might be, though in fact they are not, kept distinct from one another. Once more, however, there the allocation must stop. It is of course possible hypothetically to allocate the expenses per mile of a passenger engine—a sum which in itself is nothing better than an estimate and an average—as between first and third-class passengers, on the basis of the number of seats supplied for the two classes respectively, or the dead weight implied by those seats, or the number of those seats occupied, or in any other way that the fancy of the statistician may suggest. But in the first place such statistics are woefully imperfect; they cannot, for instance, take account of the earnings of the individual train

from mail and parcel post traffic, for which the Post Office only pays under a lump sum contract. Practically they cannot take account of the important revenue derived from the parcels carried by the Company on its own account.

Even if absolute accuracy were attainable, the result would be of no practical value. Suppose it proved, for example, that on a given train mile the locomotive expenses were 9*d.*, and that of this 3*d.*, or one-third, should be allocated on the basis of ratio of weight to the first-class carriages. Suppose it further shown that in the train there was only one first-class passenger, paying at the rate of $1\frac{1}{2}$ *d.* per mile. The statistical conclusion seems obvious, namely, that the first-class traffic is carried at a loss and should be abandoned. Suppose, however, that the railway company acts upon the statistical argument and withdraws its first-class accommodation. The result, as far as locomotive power is concerned, is that the Company saves say 3 lbs. of coal, or one-seventh of a penny on the cost of hauling the train, and sacrifices $\frac{1}{2}$ *d.* per mile, being the difference between the $1\frac{1}{2}$ *d.* which the first-class passenger was paying and the 1*d.* he will pay, now that he is forced to travel in a third-class carriage. Or again suppose the first-class passenger to be travelling not on business but for pleasure, and that, sooner than risk unpleasant company in a third-class carriage, he or she stops at home altogether. The Company then loses $1\frac{1}{2}$ *d.* per mile in order to effect a saving of one-seventh of a penny.

I have deliberately taken a very extreme instance in order to make clear to you the fact that, while the proportion of the total expenses capable of positive allocation even to goods as a whole and passengers as a whole is small, and the proportion capable of allocation to particular categories of goods and passenger traffic is even smaller, the proportion capable of allocation—positive allocation not hypothetical—to individual passengers or individual consignments is so infinitesimal as to be for practical purposes a vanishing quantity. Railways then are the most extreme instances of business conducted at joint cost; their whole capital outlay is incurred on joint account; almost the entire cost of their service is joint; and the extra expenditure incurred specially for any one item of the joint product is extremely small. There are other features of railways as joint cost undertakings which are not without interest. Take a classic instance of joint cost production, say mutton and wool. In Australia mutton is a bye-product of wool; in Oxfordshire wool is a bye-product in the growth of mutton. So it may be with railways.

The Taff Vale was built to carry coal and the passenger traffic is a bye-product. The Metropolitan was built to carry passengers and the coal traffic is a bye-product. Whatever the Taff can earn from passengers or the Metropolitan from coal is broadly speaking pure gain, available either to reduce the rates on the main product or—which for our present purpose comes to the same thing—to increase the dividend. There is another railway bye-product of a still more important kind. Practically speaking a railway is built to serve its local area, and its proprietors calculate on obtaining the local traffic with rates fixed on what may be termed the local scale. Traffic which can only be brought upon the line by low rates—traffic that is which either, owing to its distance from market cannot bear rates upon the local scale, or, owing to its access to competitive and cheaper conveyance, refuses to bear them—is practically a bye-product. The Company gains by securing it at any price above the actual out-of-pocket cost of doing the new business, and that cost is, as we have seen, quite trifling in amount. Further—apart of course from questions of undue preference,—a subject much too complicated to be touched on here—the local customers of the line gain, in that the new traffic contributes, for what it is worth, towards the expenses of the undertaking which otherwise the local customers would have to bear unaided.

There is, however, one important point in which the ordinary joint cost analogies fail us. To so much mutton belongs roughly so much wool. A ton of coal produces as of course so much coke and so much gas. You may no doubt breed primarily for mutton or primarily for wool. If gas is your main object you may disregard the deterioration in the coke from which the last cubic foot of gas has been extracted, while at a Durham coke-oven you may act upon the opposite principle. But the limits within which the one product can be produced at the expense of the other are tolerably narrow. Not so with a railway. Railways turn out what we may call a large number of commodities in variable amounts, some of them, moreover, being mutually exclusive. A district developed as a manufacturing centre or as a shipping port will not be attractive for residential or pleasure purposes. A line crowded with coal trains at a uniform speed of 15 miles an hour cannot deal with 50 miles an hour expresses without either large new expenditure or inordinate reduction of gross carrying capacity. The question constantly comes before railway men in a practical form, as for instance whether the introduction of a workmen's service to some particular residential

suburb will not merely substitute 5 passengers paying $\frac{1}{4}$ d. a mile a piece for one existing passenger paying between say 1d. and $1\frac{1}{4}$ d.

There is another point to be noted at this stage. To no other industry is the law of increasing returns so much applicable as to railways. If a hundred units of traffic cost the Company one hundred shillings for interest and expenses, it is probably a fair estimate to say that a thousand units will cost not 1000 but 325 shillings. The figure is arrived at as follows: interest on capital remains invariable; this, as we have seen, represents one half the total cost. Of the working expenses fully one half, according to estimates made by experts in different countries which largely agree, remain constant. The remaining half are taken to increase proportionately to the increase of traffic. The old expenditure for the 100 units was then $50 + 25 + 25$ shillings. The new expenditure is $50 + 25 + 250 = 325$ shillings. Let me give here just one illustration out of hundreds that might be given of how this law of increasing returns applies. The Lancashire and Yorkshire and the Midland Great Western of Ireland both maintain lines of practically equal length (530 miles). The former Company spends on maintenance of way 8 times as much as the latter. But it carries 40 times the amount of traffic. In other words in the item of maintenance, which, as we have seen, is partly variable and partly invariable, the cost as compared with the increase of earnings increases in the ratio of 1 to 5.

It follows from this that a railway, not merely can afford, but actually gains by making sweeping reductions of rates, if in return they sufficiently stimulate traffic. The fact is often expressed in the formula: "cost of carriage is a function of the rates, not the rates of the cost." It will be seen further that the gap between a rate which is averagely profitable and a rate which is only just better than no rate at all, is an exceedingly wide one. Assume that for a certain category of traffic, say coal, 4s. would be an averagely profitable rate—a rate, that is, estimated to pay its full share of working expenses and its full share of interest on capital at the normal rate. Now assume that, owing to competition, heavy expenses of mining, or for other reasons, the coal traffic cannot be obtained at any rate higher than 1s. 2d. Both the railway Company and its other customers gain by the coal being carried at 1s. 2d. rather than not carried at all. For though this rate pays nothing towards interest on capital and only 2d. towards the fixed expenses, it does pay the entire movement expenses of the coal itself and makes some contribution

even though only 2*d.*, to the fixed expenses which otherwise the remaining traffic would need to bear unaided. If in place of coal, needing trains of its own, we substitute single consignments of goods or single passengers or groups of passengers carried in trains already run for other traffic, we may bring down the minimum remunerative rate from 1*s.* 2*d.* to a figure probably more than adequately represented by the 2*d.*

It is worth while pausing here for a moment to notice that this disposes of the fallacy lurking in the oft-repeated phrases, "carrying at a loss" and "carrying at the expense of other traffic." Take the oft-quoted case of the 25*s.* rate for imported meat from Liverpool to London side by side with the local rate of 45*s.* from Cheshire. Let us say nothing of the circumstances of the two rates, which in fact are sufficient to satisfy a practical man that the 25*s.* rate, not only yields a larger gross profit, but actually a larger profit per ton carried than the 45*s.* rate. Let us assume that the 45*s.* rate is averagely profitable, in other words, that one half of it represents interest on capital and the other half working expenses. Then the 25*s.* rate gives the Company, not merely 11*s.* 3*d.*, total share of movement expenses, but another 11*s.* 3*d.*, total share of fixed expenses, and in addition 2*s.* 6*d.* as a contribution towards interest on capital. Evidently the import rate would need to come down a long way, say at least to 12*s.*, before there could be any question of carrying at a loss or at the expense of other traffic. Evidently moreover we might admit that the 45*s.* rate was more than averagely profitable—left, that is, after paying its own expenses, more than the normal surplus towards remuneration of capital—and yet it would not follow that it was more than reasonably high. For the 25*s.* rate cannot *ex hypothesi* be raised or it would have been raised already. It could be cancelled, but then the Cheshire meat would lose even the 2*s.* 6*d.* contribution which the American meat now pays towards interest on capital, and would have itself unaided to find money for the whole of the interest. Once more of course I leave out of sight here, as not germane to our present question, the exceedingly important and difficult question of undue preference between the competitive meat-growers.

We have arrived then at this point. Though all the rates must be so fixed as to pay all the expenses both of construction and working, separate rates cannot be fixed according to cost of individual service or even according to the average cost of services to traffic in the same group. For in the first place the cost of the service cannot be ascertained. And secondly, if it could be ascer-

tained, it would be of no use as a standard. To charge the average cost would be to drive away a large portion of the traffic and so to increase almost proportionately the average cost of the remainder. This increase would then drive away a fresh portion, and so once more increase proportionately the cost to that still remaining. And so on *da capo*, till passengers to whom time was not essential would economise by once more travelling in post-chaises.

How then are the rates in practice apportioned among the traffic? As I have said the traffic is charged what it can bear. In other words the carriage of every article is regarded as a bye-product in the carriage of all the rest. The process is in practice worked out as follows. First comes classification. The whole of the commodities known to commerce are entered on a list divided into classes, eight in number here, six in France, and about ten in number in the United States. To each class belongs a normal scale of rates, ranging, let us say, from $\frac{3}{4}d.$ per mile in the lowest to $4d.$ per mile in the highest class. The classification undoubtedly takes account of greater or less cost of carriage to the Companies, arising out of differences of packing, liability to theft or damage, proportion of space occupied to weight, &c. But it is safe to say that its main principle is the more valuable the commodity the higher the rate it can afford to pay. Our own new statutory classification for example puts pigs of iron in one class, pigs of lead in another and higher, and ingots of copper in a third and still higher one; or again classifies red mullet higher than grey; and hot-house tomatoes higher than those grown in the open air.¹

A further differentiation is obtained by means of "cumulative rates" or as the French call them "*tarifs à base décroissante*," under which, as the mileage increases, the rate per mile diminishes. Yet once more, traffic, which cannot bear even these rates, but which is capable, given sufficiently low rates, of large increase, is encouraged by special rates which are professedly fixed at something less than the total difference between the production cost at the place of origin and the consumption price at the place of destination. In a word the railway charges rise steadily in amount as the character of the traffic gradually changes from least valuable and for the longest distance to most valuable and for the shortest distance.

¹ It should be noted that, in the case of passengers, though the companies can fix the scales for the several classes, passengers can in large measure classify themselves. But workmen's fares before seven o'clock or excursion fares available only by particular trains, for instance, partake quite as much of the nature of classification as of the nature of special rates.

That such is in practice the method of fixing rates all over the world, whether the railways be State-owned or private commercial undertakings, I have already said. We have now to consider what is the principle underlying this practical action. Professor Gustav Cohn of Göttingen claims for the practice an ethical origin. Railway rates are, he says, very much like taxation. Their governing principle therefore not only should be but is equality of sacrifice, or in German phrase *Leistungsfähigkeit*. As an instance he cites the Imperial German law which requires the railways to reduce rates for food products in times of scarcity. From the premiss that railway rates are taxation Professor Cohn deduces the conclusion that to the State alone can be entrusted the sovereign function of estimating the *Leistungsfähigkeit* and levying the tax. Even granting his premiss the conclusion does not, I think, follow. For doctors also, to quote but one instance, deliberately base their charges on the principle of equality of sacrifice and charge their patients widely differing fees for the same attendance in accordance with their assumed *Leistungsfähigkeit*. And even in Germany doctors are not State officials and doctors' charges are not regulated by public authority. On the other hand Professor Taussig of Harvard maintains that railway rates are adjusted as between themselves by the action of the economic forces of supply and demand. Now it is, I think, neither an accident nor yet due to difference of personal equation that the American economist invokes the principle of supply and demand, while the German economist invokes the principle of taxation. For in Germany less than in any other country have rates been fixed from a commercial point of view. In America not only have commercial forces had a free play unknown elsewhere, but also America offers an almost illimitable field for the development of traffic by the skilful adjustment of commercially justifiable railway rates.

Professor Cohn unfortunately does not work out in any detail his taxation analogy. We can, however, see for ourselves that the analogy can only be with certain taxation. For instance, protective tariffs, deliberately designed, not to obtain revenue but, so to speak, to stop the traffic, or again, direct taxation, such as for instance the death duties, the reduction of which would evidently not stimulate the death rate, can only be very imperfectly, if at all, comparable. A tax like the tea duty furnishes a better analogy. We may fairly say that a Chancellor of the Exchequer reducing the duty on tea has at least the three following motives: (a) to lessen the sacrifice of the consumer, (b) to stimulate con-

sumption and so recoup the revenue, and (c) to some extent at any rate to secure for his own party the gratitude of the consumer. Now I think all these motives operate on the mind of the railway manager, when he, for instance, reduces rates for agricultural produce, or makes workmen's tickets available at a later hour, or abolishes express fares, or brings 3rd class fares down to the Parliamentary 1d. a mile standard.

There is another point where the analogy of the tea duty is worth noticing. We have imagined a *reduction* effected in the duty. Now, broadly speaking, the *imposition* of railway rates is a simple matter, decided in the main on mere routine precedent. When a new branch is opened its rates are practically fixed on a customary scale, and are only concerned with local traffic. Gradually, as the line begins to affect neighbouring traffic conditions, it becomes a question of reductions to develop potential or to attract competitive traffic. It is in these reductions and their relations to other non-reduced or less reduced rates that the real crux of the railway problem lies. For a Government can tap new sources of revenue by imposing new taxation altogether, a match tax, a bicycle tax, and so forth. A railway has taxed every article already. Every article known to commerce is, as I have said, entered already in its classification and is carried therefore, in default of special and individual provision for it, at the normal scale rate applicable to the class to which it belongs. Practically a railway never raises new revenue by increasing rates, or only does so to a negligible extent. To increase revenue it must decrease taxation and so stimulate consumption.

On the whole it does seem to me that the analogy to taxation is a real one. Taxation implies the arbitrary power to fix a scale; and this arbitrary power the railway management does really possess, whether the sovereign railway body, if I may be allowed the expression, be the State or the private owners, or the two in conjunction. Supply and demand fail I think adequately to explain the fixation of railway rates. A gas Company, be it never so rich from its gas revenue alone, cannot escape the necessity of producing coke. But a railway Company, whether because it is too stupid to appreciate the potentiality of wealth involved in potential but non-existent traffic, or too rich to exert itself to increase its income, both can and often does leave entirely undeveloped whole categories of profitable traffic that might by reasonable reductions of rates be brought into existence. Again, having produced its coke, the gas Company has to get rid of it, and can only do so at the market price. The market price is, let

us say, 11s. per chaldron. If the Company fixes and adheres to a price 1s. above that which the natural demand for the article would produce, the coke will simply be left on its hands. If on the other hand it fixes it 1s. below the price that the consumer would be ready to pay, it merely makes him a present of the difference, for it cannot enlarge its production of coke to meet the theoretically stimulated demand. But can any one, in any ordinary sense of the words, speak of the market price of first-class tickets between London and Oxford? For over thirty years to my personal knowledge, and I doubt not for a much longer time, that fare was fixed at 11s. Within the last few months it has been reduced to 10s. 6d. Can any one say that the 10s. 6d. is more or less a demand and supply price than the 11s.? The real fact is that this reduction is only one of many thousands made all over the Great Western system in pursuance of a deliberate and symmetrical scheme which was, we may safely say, inspired partly by a feeling that the superior classes were paying what is popularly though not perhaps scientifically called more than their fair share, partly by the hope of recoupment through increased traffic, and partly by a desire to win popularity and so once more to increase traffic.

I confess that I do not believe that practical experience of the rates office of a great railway would lead any one to think that demand price is an adequate explanation of railway rates. "We send out on the average every day notices of 2,000 new rates from our rates office," was the statement made to me in the last few days by a general manager. Knowing as we do that these rates will probably remain unaltered for a long series of years, can we suppose that they record accurately the result of the higgling of the market? Or, having regard to their quantity, can we suppose that each of them has been arrived at by nice theoretic calculations of the balance of all the economic forces involved? As a matter of practice we do know how the great bulk of these rates are fixed. They are local rates based on precedent. A new station is opened between A and B which are fifty and fifty-six miles from London respectively, and the new rates are accordingly fixed half way between the existing rates in force at A and B respectively. How then did the rates to A and B come into existence? Sometimes as the result of a Parliamentary bargain made forty or fifty years back, but very often as the result one might almost say of sheer accident. To the new station for instance we may be quite sure that the third-class rate from London will be 4s. 5d., and this four-and-fivepenny fare represents a traffic yielding a total

revenue of 24 millions per annum. The penny-a-mile third-class rate was fixed, not by supply and demand in the first instance, but by the Cheap Trains Act of 1844, passed owing to the joint efforts of Mr. Gladstone, then President of the Board of Trade, and Mr. Laing, who only the other day resigned the chairmanship of the Brighton railway, then Parliamentary Secretary of that department. It was fixed as a statutory obligation, which it was then believed the companies could not meet except at a loss, and which was only intended to apply to one train a day. If I am told that, though the price of the one train was not fixed by supply and demand, yet the price of all the other trains since then assimilated to the original one has been so fixed, I can only reply that doubtless supply and demand has had something to do with the matter, but that in my judgment the fact that the British public reckon in pennies and not in cents. or annas or pfennigs has had a good deal more. English railway rates are, I believe, then in the main customary, and it would be at least as true to say that the traffic has been adjusted to suit the rates as that the rates have been adjusted to suit the traffic.

I ought to notice here that Professor Taussig admits that supply and demand do not regulate all railway rates. Of its own local traffic, says he, every Company has a monopoly, and here "the general range of charges may be determined quite without regard to cost or competition on the monopoly principle of getting the largest net return." I confess this seems to me to be still supply and demand, only, owing to the inability of the law of substitution to operate, with the demand for supplies of railway carriage permanently maintained at a higher average level. But I let the point pass because, as I have said, I believe custom to be, here in England at least, the main factor in the adjustment of local rates. Long distance through rates have fallen largely and will continue to fall because the potential increase of traffic may make a low rate ere long more profitable than a high one. Local rates remain unaltered. They are not reduced because it is considered that all the existing traffic does pass at existing rates and there is no potential traffic to be developed by reduction. The reduction of the rates for the carriage of wheat to nil would not enable the farmer to increase his output from four quarters per acre to five. On the other hand they are not increased, though such an increase might be economically justified by an increase, relative if not absolute, in the cost of transacting the retail business, partly because, in the railway world at least, the economic man is not to be found, partly no doubt because the pressure of

positive legislation, to which I alluded earlier, and also of public opinion prevents railway managers from acting, even to the extent which they otherwise would, on economic grounds.

That the desire not to make, and still more not to seem to make, too conspicuous a contrast between through rates and local rates—a motive, which, if not purely ethical, is at least not economic—has also great weight, cannot I think be denied. Indeed one can easily find instances, though of a different kind, where economic motives cannot have had any share at all in governing the decision. Workmen's tickets for example, issued before say seven o'clock in the morning, used only to be available for return after five o'clock in the afternoon. The motive was obvious, in order namely that a class of non-workmen passengers, such as for instance suburban tradesmen going up to purchase their stock in the city markets, might not travel at the workmen's specially cheap fares. Representations were however made to the Companies that the result of the restriction was that a workman, who from wet weather or any other cause was prevented from working the entire day, was tempted to spend the time till his return ticket became available loafing in the public house. The whole of the London Companies have now, I believe, withdrawn the restriction accordingly, and workmen's tickets are available for return at any hour. In other words a reduction of rate has practically been made, the motive for which is purely ethical.

On the other hand, long distance and keenly competitive rates, especially for low class traffic, are really supply and demand rates. The recent stubbornly fought cases before the Railway Commission have shown the importance that both the Midland coal-owners and the Midland Railway Company attach to *2d.* more or less in the rate from the Nottinghamshire coalfield to London. And naturally; for an added shilling would probably divert half the trade to South Wales and Northumberland with their sea access, while a shilling subtracted would probably cause the railway company, not indeed to abandon its existing trade, but to decide to spend no more money on its future development.

The conclusion of the whole matter is, I submit, as follows. Almost the whole railway expenditure is incurred on behalf of the traffic as a whole. Against the traffic as a whole the entire cost must be charged. The apportionment is, and ought to be, made as between the various items and categories of traffic on the basis of what each item or category can bear. The word "can" has however a very elastic signification. Sometimes it signifies "can pay and yet leave an advantage to the customer"; sometimes

“ will consent to pay rather than turn aside to a rival route ” ; sometimes “ has been wont to pay ” ; sometimes even “ ought morally to be asked to pay.” Such is, I believe, a rough analysis of the motives which govern, and economically speaking ought to govern, the practical conduct of rate-making authorities. How far this analysis leads to any and if so to what conclusions as to how those authorities should be constituted and what power should be entrusted to them, is a question which, interesting and important as it is, is much too large and complicated to be raised here.

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