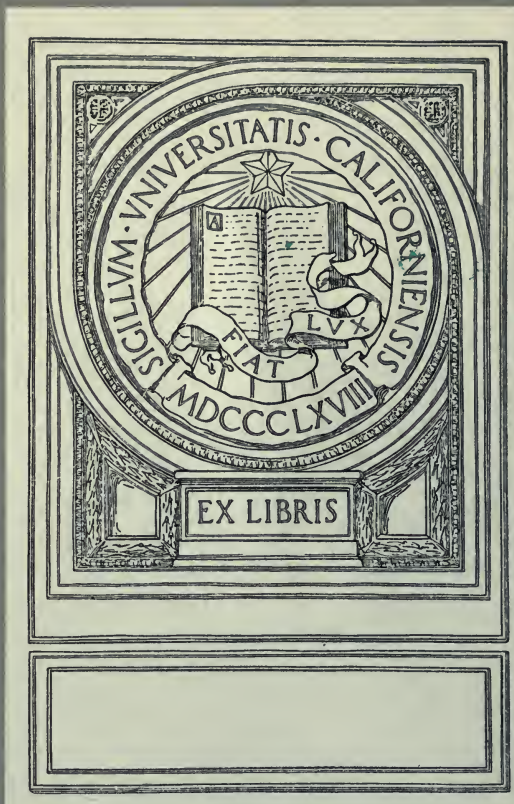
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STANDARDS OF REASONABLENESS IN LOCAL FREIGHT DISCRIMINATIONS

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STANDARDS OF REASONABLENESS

IN

LOCAL FREIGHT DISCRIMINATIONS

BY

JOHN MAURICE CLARK, Ph.D.,

Sometime Fellow in Economics, Columbia University
Instructor of Political Economy in Colorado College

New York
COLUMBIA UNIVERSITY
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PREFACE

HAD the author of this monograph realized from the start the full nature of the problem he was approaching, it is probable he would have turned aside. He has since been consoled by the thought that in such a task, failure was not disgrace. The fundamental purpose of the work is to gather from scientific and popular discussions alike the various ideas as to what constitutes reasonableness as between different localities in the adjustment of freight rates, and to reduce them by analysis to that definiteness which many of them so sadly lack. It was hoped that, without attempting a solution of the enigma, the exact issues involved in some of the present conflicts of interest and ideas might be presented with somewhat of added clearness. However, if the work prove in any degree suggestive or stimulating of thought upon this great problem, it will have accomplished, perhaps, all that could reasonably be expected.

The author cannot express sufficiently his indebtedness to his father, Dr. J. B. Clark, of Columbia University, not only for his direct and invaluable assistance in preparing this monograph; but for the stimulus, guidance and instruction which have made possible whatever the author has achieved or may achieve. Special acknowledgment is also due to Dr. E. R. A. Seligman, of Columbia, to Dr. Emory R. Johnson, of Pennsylvania, and to the members of the Railroad Commission of Wisconsin, especially Dr. B. H. Meyer and Mr. Halford Erickson, for their cordial assistance, criticism and advice.

J. M. CLARK.

COLORADO COLLEGE, COLORADO SPRINGS, APRIL, 1910.

TABLE OF CONTENTS

CHAPTER IV

Private Rates and Public Interest

CHAPTER V

Railway Rates and Commercial Policy

CHAPTER VI

The General Level of Charges

CHAPTER VII

Ideal or "Natural" Systems of Relative Rates

PAGE

CHAPTER VIII

Reasonableness in Decisions of the Courts and of the Interstate Commerce Commission

CHAPTER IX

General Principles of Distance-Tariffs

CHAPTER X

An American Distance-Tariff

INTRODUCTION

"All charges made for any service rendered or to be rendered in the transportation of passengers or property as aforesaid, or in connection therewith, shall be just and reasonable; and every unjust and unreasonable charge for such service or any part thereof is prohibite and declared to be unlawful.....it shall be unlawful for any common carrier to make or give any undue or unreasonable preference or advantage to any particular person, company, firm, corporation or locality, or any particular description of traffic, in any respect whatever, or to subject any particular person, company, etc., to any undue or unreasonable prejudice in any respect whatever."

An Act to Regulate Commerce, as amended June 29, 1906, Sections 1 and 3.

In an atlas it is the unexplored regions that look simplest. In the same way unexplored fields of human knowledge may be neatly covered by a simple word or phrase, whose exact application may, however, be as vague as the dotted lines in the chart of a virgin continent, and about as useful to the explorer or investigator. So when a legislative body creates a commission with the task of enforcing railway charges that shall be absolutely and relatively "reasonable", it is much as if they were sending a band of engineers to develop the mineral resources of Labrador; where the country is explored, to be sure, but not charted with any approach to accuracy. Or it is like a school where teaching is confined to telling the children to be wise and good. Thus, to drop the figure, the whole problem of rate regulation may be expressed as the task of defining accurately and workably the single phrase: "*reasonable charges and services*", or

the one word: "*reasonable.*" It is the problem of setting up concrete standards and rules of reasonableness, and it will be the task of the present work to present and discuss some of the various possible criteria as applied to railway freight rates, and in particular to the relative adjustments as between localities, in such a way as to show the exact issues involved.

In doing this, the writer will not attempt to make a long list of different theories, but will confine himself to studying differences that are both fundamental and important in a practical way. Most fundamental of all is the difference between the two motives that may govern a carrier. There is the motive of private gain which actuates all business corporations, and the motive of public service which shows itself in the policy of state railways; and it is this difference of possible motive that gives the key to the difference between the two kinds of railway administration, the public kind and the private kind.

By this it is not meant that private companies are governed only by their private interest, nor that public railways leave this motive out of all account. Indeed, there is no great railway system where either is carried out in its pure form.[1] Any railway partakes of the two natures and is governed by the two motives. It is both a business enterprise affected by self interest, and a branch of the public service bound to promote the welfare of the community at large; and yet the division already mentioned is a very clear one. On the one hand is the private system with a minimum of public control; —such a system as those of England and of the United

[1] Pauer, *Lehrbuch des Eisenbahntarifwesens*, 1; Seidler & Freud, *Die Eisenbahntarifwesen in ihren Beziehungen zur Handelspolitik*, 1–3.

States. In it free play is given to "economic forces", a phrase by which is commonly meant the forces of private self-interest. Its distinguishing marks as to freight charges are:—rates fixed separately from one station or group of them to other stations or groups, resulting in tariff sheets as numerous as autumn leaves, much elasticity of rates, large forces of traffic men to make them and the freest disregard of distance, resulting in many apparent anomalies. On the other hand there are the public systems such as the German and Austrian state railways where public control is complete. Such systems are characterized by mathematical scales based on distance and governing the local traffic. Through rates are based on these scales, with reductions subject to fairly general rules. Station-to-station rates are not absent,[1] but they are the exception and must justify themselves before some public body. Special and differential rates must bear the burden of proving themselves reasonable, economically necessary or useful from some public point of view. Not that the self-interest of the roads is left in the background. Indeed some foreign writers think it is by far the more prominent of the two motives[2] and that the public motive merely serves to modify the workings of the private motive, the latter being fundamental. On the other hand, fortunately, the "private systems" do not leave the general good entirely out of account. The difference, then, lies in the relative emphasis laid on the two motives.

As to the theoretical basis of their systems, both

[1] Huebner, *Prussian Railway Rates*, *passim*. For general descriptions of all foreign freight-rate systems see *Bulletin of International Railway Congress* for 1905, Section 4, p. 1976 (Eng. ed.).

[2] Pauer, *Lehrbuch des Eisenbahntarifwesens*, p. 2. Seidler & Freud, *op. cit.*, pp. 1–3. Other and older writers disagree.

schools are agreed in a general way. Both go on the principle of covering fixed costs by fixing rates according to the "value of the service" or "what the traffic will bear." But this theoretical agreement does not prevent wide practical differences, and the reason lies simply in the fact that the value principle in its bare form is not a positive but a negative one. As we shall see later, it offers no external standard for judging rates or adjusting them. Of course, rates are phases of value, for they are themselves the money value of particular services. But the economic laws of value take on very different aspects according as a business is public or private in character, or as it is monopolistic, competitive or of mixed nature. So it is clear that an agreement that goes no farther than this is meaningless. All that the "value" principle necessarily means is the policy of breaking away from mileage or "natural" or cost systems in the direction of greater freedom.

In this process of breaking away, the American has gone much further than the German; or rather, the Germans, after an experience of rate-making chaos, have with much difficulty established a system of order and uniformity.[1] And each from his own point of view may well look on the other as backward. The German, perhaps, fails to seize every chance to encourage new traffic which might be made to pay a little something; while the American rates are too complicated,[2] too unstable and place in the hands of private persons an arbitrary

[1] Burmeister, *Geschichtliche Entwickelung des Gütertarifs der Eisenbahnen Deutschlands*, pp. 6–8, 12–15, 48–50.

[2] Possibly it is unfair to compare America with any one European country. In a comparison with tariffs for long hauls through several states in Europe, American rates would hardly suffer as being too complicated.

power over the development and location of industry. Time alone will show conclusively which point of view is nearer the truth, or whether each system is suited to the peculiar conditions of its environment and so each is right. Each recognizes certain ethical elements.

For any law of value, to be accepted and acquiesced in, must of course be ethical. The doctrine of free competition has an ethical principle at the bottom of it, but it can be perverted; and if this happens, justice must be restored if possible by some force other than that of private self-interest. The German believes this to be true of railroad rates, and builds his system on this idea, an idea which the American also accepts, but without carrying its results so far. From a German point of view, the American road is private property, too slightly affected by a vital public interest. From the American point of view, a Prussian road is a public business rendered somewhat less efficient than it might be, by a mistaken idea that the public interest demands mathematical rates based on distance.

As to how far agreement is possible between these ideas, the discussions of the International Railway Congress of 1905 offer interesting evidence. After hearing reports on freight-rate systems from nearly every country, the congress adopted a brief platform representing the unanimous agreement of the delegates, as follows:[1]

Tariffs should be based on commercial principles, taking into account the special conditions which bear upon the commercial value of the services rendered.

With the reservation that rates should be charged without arbitrary discrimination to all shippers alike under like conditions, the making of rates should, as far as possible, have all

[1] *Bulletin of International Railway Congress*, 1905, p. 1972.

the elasticity necessary to permit the development of the traffic, and to produce the most beneficial results to the public and to the railroads themselves.

This is a sort of theoretical highest common factor of all existing systems. On this much at least all systems agree. The platform states that freedom should be allowed only so far as is for the best interests of the roads and public both; and also specifically sets up the principle that all shippers must be charged alike under like conditions.

As to the interpreting of these ideas, however, there is a large range of difference. Under the platform thus set up, the American railroad manager is a strict constructionist and champion of private liberty, while the Continent of Europe shows the opposite tendency.

This shows itself in the forms of the tariffs, for the striking feature of the continental system is the fixing of rates by scales ("*Staffeltarifen*" or "*Barêmes*") based on distance, while in America and England tariffs are fixed separately, from each station or group of stations to every other station or group of stations. In America, the use of distance scales is not unknown for local and even for through shipments,[1] while abroad station-to-station rates and group rates are much used and govern some of the most important traffic. As far as the form of the rate system goes, it may be said that the difference is one of degree and not of kind; a difference in the emphasis laid on the two kinds or rates. But there is more in it than that. For in Germany or Austria all

[1] W. Z. Ripley, "The Trunk Line System, a distance tariff." *Quar. Jour. Ec.*, 1906, p. 183. Considerations of distance are becoming more important in the fixing of railway tariffs, through natural evolution, through the influence of commissions, or from both causes. This topic is treated more fully in chapter x, *infra*.

exceptions must bear the approval of the government as a public certificate of good moral character; while in America for the most part they stand unquestioned, unless by complaint of some shipper they are brought before some overworked regulative commission to be tried for the misdemeaner of being "unreasonable," and held innocent unless and until proved guilty.

It is significant that the platform adopted by the International Railway Congress, to which reference has been made, is most vague as to the most crucial point —that of relatively fair treatment of different shippers. For this is most emphatically not secured by merely undertaking to treat "all shippers alike under like conditions." What proportion of manufacturers hand over their business to the railroads under strictly "like conditions" with their competitors? An unfair discrimination between persons is none the less unfair because those persons happen to ship from different stations. It is merely harder to judge. In the one case justice demands flat equality of treatment; in the other, a difference adjusted fairly to the difference of conditions. Local discrimination is not different from personal discrimination, only more complicated; and its complications may well be said to form the Gordian Knot of the railroad problem.

It is this knot which the German cuts with the knife of a statistical average,[1] and there are signs in America of an increasing tendency toward an effective use of the same weapon. The mathematical *barême* is an efficient statutory definition of "absolutely and relatively reasonable freight rates." It establishes a standard of *automatic justice:*[2] although a skeptic may be allowed to question

[1] Rank, *Eisenbahntarifwesen*, pp. 175–6, 573, *et passim*.

[2] Ulrich, *Eisenbahntarifwesen*, p. 74.

whether its greatest merit is the accuracy and completeness of the justice secured, or the mere fact that it is automatic.

But granting all this; granting that the justice secured is only approximate, the German believes it is a better approximation than would come out of the discretionary power of the fixers of rates acting under the motives of railway self-interest. Such unfairness as exists is at least not arbitrary, and is limited in extent. And conceding the existence of a certain economic loss due to cramping somewhat the freedom of the roads to bid for new business, the German believes it is more than made good by simplicity, stability, and freedom from gross anomalies and from opportunities for favoritism.

Perfection is not claimed for any of these foreign systems. M. Picard[1] allows that in the schedules of the French railways, beside the exceptions made for commercial and competitive reasons, some have to be made merely to give just weight to factors in the cost of service for which the formula cannot allow. And a German writer admits that for the mere promoting of rapid economic growth the mathematical scale is inferior, but he claims compensating advantages. He says: "The economic development of the civilized states would have been perhaps slower, but it would have been also sounder if it had not been for the undue and badly distributed stimulus of arbitrary private rate-fixing."[2] And in closing, the writer may venture the statement, without fear of contradiction by railway men, that there is not, and can never be, a perfect rate system in the sense of one

[1] *Traité des Chemins de Fer.* Quoted in *Bulletin of International Railway Congress*, 1905, p. 229.

[2] Ulrich, *Eisenbahntarifwesen*, p. 102. The translation is my own.

that can be mathematically demonstrated to be economically correct in every given case.

So much for the issue between the two schools, briefly stated. The American system in its machinery of regulation lacks rules and precepts which should constitute a formal definition of the term "reasonable" as applied to freight charges: a lack which the foreigner does not experience to any such extent. A term on which so much depends cannot long remain entirely vague in its meaning. Lacking more complete statutory definition, the accumulated decisions of commissions and courts as concrete cases come up for settlement will furnish a body of common law on the subject. There are indeed three ways in which this vagueness may be resolved. The first is the common-law method already mentioned. Secondly, the legislative bodies may pass more detailed laws as to what the commissions shall do in cases brought before them by complaint. Thirdly, such bodies as our commissions may do a similar thing for themselves by drawing up in advance formal guides to reasonableness; rules of general application. We are gaining by the results of experience along all these lines.

CHAPTER I

RAILWAYS AND THE LAW OF COST

An eminent writer on railway matters mentions having sometime ago encountered the feeling that the educated section of the American people who formed his audience no longer needed to be carefully informed of the fact that a railway was essentially different in its nature from a grocery store or a soap factory, and were well aware that the fixing of its rates differed from the formation of ordinary commodity prices.[1] Consideration of this fact would deter the present writer from taking up the reader's time with the fundamentals of this problem were it not that it has many phases and relations, which have been treated in somewhat different ways, and a comparative and critical view of some of these various treatments may perhaps be found worth while. And in the first place, the railway and the factory do not differ so fundamentally as many have assumed. Their difference is rather one of degree than of kind. Both have large fixed plants, and large "general" or "fixed" or "joint" expenses to deal with, and the cost accounting of both is complicated—more so in the case of the railroad. The crux of the railroad problem is unreasonable discriminations in prices, yet even in a manufacturing business this is not a matter which can with entire safety be

[1] B. H. Meyer, in *Papers and Proceedings of 18th Annual Meeting of the American Econ. Assoc.*, p. 69.

left to the self-interest of the managers.[1] Such a course may too easily allow that kind of "free" competition which is not based on service to society and which leads to monopoly. However, the need of restriction on this power of the managers is not so vital that we have not gotten on fairly well for many years without it. In the case of the railroads the situation is different. The question is not one of preventing a road from using discriminations in its rates to drive its direct competitors out of business at points of contact: that question has been fought out and settled. Direct competition of rates at junction-points is clearly diminishing, in the face of statutes designed to retain it, and its passing need excite no regret. This proposition is so generally conceded that it is not worth further discussion. The vital question with a railroad is the effect of its rates on the conditions of competition in those industries whose products it carries. It is as if a great manufacturing industry had to do with putting certain finishing touches on goods—finishing touches which could add value to any kind of article at all. If the charges for these services could be arbitrarily varied, it can easily be seen that those who carry on this final completing process would hold in the hollow of their hands the producers in all the processes which come earlier in the series. They would have an almost inconceivable power over the whole economic system. Here steps in the possibility of violations of "natural law" which shall be not transient but permanent.

The application of classical principles to twentieth century conditions is just a little like the application of

[1] See whole discussion of unfair competitive discrimination in Clark, *The Problem of Monopoly* and *The Control of Trusts*.

the United States Constitution to twentieth-century problems: it makes them cover conditions which their framers never contemplated, and for which they would doubtless have made specific allowance had they conceived of them at all. In formulating static law it is natural to have in mind some few forms of organization which are typical of the great departments of production. In the past, these typical forms of production could be easily shown to follow the tendencies expressed in the general laws. The concrete examples which naturally come into men's minds could without great difficulty be shown to follow the simple law of competition, at least in a general way. But now we have this peculiar condition before us, that the one biggest single industry of all seems to violate static law irreconcilably—to nullify it completely. Here we have production under conditions foreign to the experience of the classical economists. Their works do not solve the problem of value in this special case, because their world contained nothing quite like it.

Not that the essential nature of it is different from ordinary production of wealth, if we go back to the simplest fundamentals. The place of the railway in the scheme of things is to increase the value of goods by giving them the extra utility of place. Just so the factory takes the raw material and moves the particles on each other till the mass takes a new shape, as in moulding or casting; or it removes unnecessary parts as in planing and turning; or it moves different goods into new place-relations to each other, putting together a machine, a book, a piece of furniture. This process is that of moving quantities of matter from place relations in which they have less utility into others in which they have more. Similarly the railroad takes material goods

and moves them from a place-relation in which they have less utility to one in which they have more. In the one case we are considering the minuter place-relations of matter to other matter and we call it "form." This kind of change gives things the power to satisfy wants they could not satisfy before, different wants from those they were adapted to satisfy and so gives them more value than they had. In the case of the railroad we are dealing with the place-relations of matter to man,[1] chiefly, and we call it "place." This kind of change gives things the power to satisfy wants of greater intensity than they could satisfy before, by putting them where those men can get at them who want them most. and so raises their value. Thus the two kinds of production are essentially alike; the distinction is convenient, but not fundamental. Indeed we may note that some of the difficult problems of manufacturers are connected with the mere transportation of half-finished goods from one operation to the next. The great crane of a foundry, the endless belt carriers of a saw-mill, produce not form utility but that of place incidental to the creation of form utilities.

A railroad is different in another way from the type of manufacturing industry, in that it sells a service and not the article to which its service has been attached. The ordinary factory buys its necessary materials in the market, wherever it can get them cheapest, and markets

[1] The distinction can be considered identical with that between form and place utility. In the case of special machinery moved to a mine, or ore moved to a smelter, we are moving matter with reference, not to man, but to other matter with which it is to be combined. The men who do the work are bound to seek the place where their materials can best be brought together. Still, in every such case the men are indispensable factors; the machinery and ore is being moved to the men who are to use it. So the distinction may stand as made.

the finished product as best it can. The railroad, on the other hand, seldom owns the "raw materials" of its production. It merely handles goods for other producers, and charges what it is to its best interest to charge. The factory competes directly with other factories offering similar things. The railroad competes directly with nobody, for the most part; it must merely make such charges as will enable its customers to compete.

The most oft-discussed peculiarity of railroads, however, is that resulting from the fact of production largely at "joint cost." For convenience this term "joint cost" will be used to express the general condition in which some items in the cost of production, such as the fixed charges and many of the operating expenses of railways, are not directly assignable to any single item or items of the product, whatever that product may be. This is closely connected with the policy of "charging what the traffic will bear." The latter often, though by no means always, results from the former, while the former is almost a necessary condition of the latter. These phenomena are not peculiar to railroads, but are general throughout the field of industry. The manufacturer who shades the price or pays the freight rate for the benefit of his distant customer, or who sets widely different prices on different brands of soap whose cost of manufacture is nearly the same, is following exactly the same law as is the traffic manager, who for business reasons sanctions a specially low freight-rate.

The principle of joint-cost production, as it has been defined above, is different from the classical joint-cost doctrine stated by J. S. Mill,[1] in that the term is given the widest possible interpretation. The case of "by-

[1] J. S. Mill, *Principles of Political Economy*, Book iii, Chap. xvi, ¶ 1.

products," described by Mill, then becomes a special phase of the general problem and indeed one in which the question to be settled is unusually simple. "Joint-cost production" as we shall use the term, is rather the general fact which Marshall developed with the introduction of the well-named distinctions between "prime cost" (special, direct, or variable costs), "supplementary costs" (general or fixed costs) and "total cost."[1] He had in mind the fact that the interest on the cost of a large plant and the operating expenses that are of a general nature are not due primarily to any unit of product, and do not figure in its "prime cost." But they do figure in the "total cost" of the business, so that each unit must bring in a certain quota (supplementary cost) to make up the total. In looking for a simple term to apply to the sums of these supplementary expenses, that of "joint-cost" seems the most available, in spite of the fact that it has been used by J. S. Mill to describe the much narrower concept of necessary by-products.[2] There have been, in fact, three stages in the

[1] Marshall, *Principles of Economics*, pp. 434–5.

[2] The chief objection to the unqualified adoption of Mill's principle as the full explanation of railway charges is that the cases are not parallel. Mill describes the making under competitive conditions of two by-products which must be produced in practically fixed proportion and each sold at one price. But the products of a railway's freight business (services) are of very great technical variety, and (considered as the embodying of place utility in all the different shipments of goods) of still greater economic variety, and produced under conditions of partial monopoly. Moreover, the proportions of the different economic goods (place utilities) that the railway produces can be varied at will. The law, then, of a rather simple special case cannot well cover a more complicated one, even though it is a phase of the same broad principle. One important assumption that cannot well be carried over from the factory by-product to the railway freight-rate, is that competition will tend to secure a total return just covering total cost.

broadening of this concept. The first and narrowest application was that of Mill. He has in mind the case where production of one thing involves necessarily and with little or no extra expense the production of other different things, or by-products, in a *practically fixed proportion*. For a given amount of coal-gas, a definite amount of coke is inevitably produced. The first step in broadening this concept is that taken by Prof. Taussig in applying it to railway services.[1] Not only do these services have a joint cost, but each has a considerable special or prime cost of its own, while the relative proportion in which they are produced can be varied at will—two facts which were true of the older joint-cost concept only in the most limited way.

Another concept, allied to that of joint cost, and still more clearly applicable to the case of railways, had already been recognized by at least one American writer, General Walker. Although he did not give it sharpness by the use of any special terminology, he developed clearly the doctrine that the existence of a large fixed plant may cause market price to differ from normal price. For labor and capital are thereby committed to production, even though the price of the output fails to bring in the normal reward to their "efforts and abstinence."[2] In England, Prof. Marshall, in two books

[1] See Taussig, "A Contribution to the Theory of Railway Rates," *Quar. Jour. Ec.*, vol. v, p. 438 *et seq.*, especially p. 454. See, also, Seligman, *ibid.*, vol. xxi, p. 155 *et seq.*

[2] F. A. Walker, *Political Economy*, 3d ed., p. 105. Walker here refers to the same doctrine as that stated in Marshall's "Economics of Industry," which must have been in preparation at that time, as it was not published until four years later than Walker's third edition. It must not be implied that Walker was the discoverer of the distinction between fixed and variable expenses and its results. In its application to railways it was most fully developed as far back as 1850 by Dionysius Lardner in his *Railway Economy*.

published near the time of the appearance of Prof. Taussig's article, presented the same idea in a more developed form and with an apt terminology, which has already been mentioned. But besides this, he took a still further step toward generalizing the joint-cost concept. For though in using the terms "joint supply" and "joint products"[1] he means primarily by-products, still he does admit railway services under the same concept.[2] For he holds—and this is his contribution to broadening the concept—that in practically all examples of joint products each item is chargeable with some special expense incurred for it alone, and also that in most cases the relative amounts of the different products can be altered at will.[3] He develops fully and clearly the nature and effects of the distinction between prime and total cost,[4] and especially shows by his treatment that this distinction is at the bottom of the peculiarities of "joint cost" production proper.[5] The only difference that remains between the two concepts is that one applies to all production by means of a fixed plant or involving general expenses, while the second applies to the same kind of production only when several different kinds of products are made. Now this distinction does not seem of much significance, nor is it very hard to break through.[6] All it rests on is the fact that in the one case price-discrimination is unnatural and difficult, while in the other it is natural and easy. But the motive to discrim-

[1] Marshall, *op. cit.*, 5th ed., p. 388, or 2d ed., p. 436.

[2] *Ibid.*, 5th ed., p. 392, or 2d ed., p. 440.

[3] *Ibid.*, 5th ed., p. 390, or 2d ed., p. 438. See, also, Marshall, *Economics of Industry*, 3d ed., p. 206.

[4] Marshall, *Principles of Economics*, pp. 434–5, 447.

[5] *Ibid.*, book v, chap. vii.

[6] See E. R. A. Seligman, *Quar. Jour. Ec.*, vol. xxi, p. 156.

inate is the same in both cases, and wherever and whenever it becomes possible to discriminate between different units of a uniform product, there will be discrimination, just as if its products were of different kinds, and produced at "joint cost." A cigarmaker may make only one kind of cigars, but he has only to christen them by a different name in order to sell them at widely different prices. An oil company might sell only one kind of illuminating oil, and yet as between widely distant markets it could make the widest discriminations. The essential thing is the motive to discriminate.

The final step, merging the concept of prime and total cost with that of joint cost was expressed in Seligman's "Principles of Economics" and became the subject of a short controversy between the author and Professor Taussig.[1] The chief point at issue seems to be whether it is proper to apply the law of joint cost to a plant producing a homogeneous output as well as to one whose output is of several kinds. Professor Taussig's reason for excluding the one-commodity plant is his belief that in such a case price discrimination between units of output cannot occur except there be a monopoly. In this Taussig is in agreement with Walras,[2] who develops the idea that it is monopoly that breaks down the one-price system and introduces the practice of grading the price of a single good or service according to the strength of the customer's demand. But Walras differs from Taussig in that he considers the classification of freight an example of this monopoly policy; while Taussig has separated the practice of classification, which he considers a joint-cost phenomenon fundamentally, from those

[1] Seligman, *Principles of Economics*, pp. 251–2, 625–6. *Quar. Jour Ec.*, vols. xx, p. 622; xxi, pp. 151–161.

[2] Walras, *Études d'Économie Politique Appliquée*, p. 203.

discriminations in railway rates, which are the combined result of joint-cost production and partial monopoly.[1] This point of issue has been already treated, and grounds shown for including the making of a single commodity in the joint-cost concept.

Another point brought into the discussion is the propriety of saying that railway rates are governed by the "law of joint cost." With regard to this it seems established that such an expression is inexpedient. The term indicates a cost standard of price. This cannot be applied to single goods, for single prices are divorced from cost except as "special cost" forms the minimum limit of their variations. It is therefore implied in the term, as it is expressed in Mill's application of it, that total returns tend to conform to total cost. But in the case of railroads, whatever may be the ultimate tendencies, there is undoubtedly over long periods a wide divorcing, not only of unit price from unit cost but also of total return from total cost. Professor Taussig of course recognizes this, though he has assumed the opposite for purposes of developing the railroad application of "joint cost," and carried the assumption nearly through his paper before dropping it.[2] But he expressly says that the joint costs have no effect on rates and that the total return is affected by conditions of partial monopoly.[3] This being the case, neither single rates nor total return are governed by any cost standard, except as a minimum or point of departure; and conse-

[1] *Quar. Jour. Ec.*, p. 438 *et seq.* [2] *Ibid.*, vol. v, p. 438 *et seq.*

[3] See chap. ii *infra*, for development of the point that even in the general field of industry the related factors of joint cost and "increasing returns" are enough in many cases and over long periods to divorce total income from total outgo even under perfect freedom and in the absence of monopoly.

quently the use of the word "cost" in framing the law of rates is misleading.

To sum the matter up, "joint cost" is a negative or passive principle, giving opportunity and motive for price-discriminations, but containing in its wording no hint of the method those discriminations will follow.

So, finally it would seem that to a state road which adjusted its total return closely to its total outlay, the term "joint cost" might well be applied as one of the laws governing rates. But as to the fixing of rates under freer conditions, the term had better be avoided in expressing the law of charges, and the compact, if not wholly satisfactory, "value of service" used instead. But by whatever name economists may choose to call it, of the thing itself there is no doubt, and especially as to its application to railway freight charges there is the fullest theoretical agreement on both sides of the Atlantic. In brief, it is agreed that the "special costs" traceable to particular services constitute a minority of the total outlays of railways, and that up to the point where traffic begins to tax the maximum capacity of a well-equipped road, the business is one of markedly "increasing returns." Each rate must cover special cost and make some contribution to the covering of joint outlays, the amount of which contribution is gauged by the value of the service or by what the traffic will bear under the circumstances, considering value of goods, competition of carriers and all other factors that may affect the problem.[1] These terms are somewhat elastic,

[1] Rank, *Grundzüge des Eisenbahntarifwesens*, pp. 12–13. Burmeister, *Geschichtliche Entwickelung des Gütertarifs der Eisenbahnen Deutschlands*, pp. 16–19. Colson, *Transports et Tarifs*, pp. 171, 173, 174.

In American works the doctrine is so omnipresent that references are hardly necessary.

and may cover a policy governed by self-interest and directed primarily toward the earning of maximum profits, or one where in the public interest an ethical standard is set up and the attempt made to charge the traffic what it should reasonably bear.

From the foregoing brief statement the reader may have missed the familiar distinction of "fixed" and "variable" expenses. It was omitted to avoid a possibility of confusion. There are indeed two ways in which one may classify the expenses of railroads in this connection. One may separate the "general" from the "special" expenses—that is, one distinguishes according as expenses are, on the one hand, physically assignable to special shipments or groups of shipments, or according as they cannot be so specifically assigned. Or one may separate the "constant" from the "variable" expenses—those that are practically unchanged as traffic varies from those that vary with the traffic. One writer, Dr. Lorenz, has drawn a rather fine distinction between these two classifications.[1] He holds that the first distinction is always with us. It can never disappear, but it becomes less important as you take into account larger and larger changes in the volume of traffic. The hauling of an extra few hundred pounds in a car that is to move in any case involves little more expense than the actual handling at the terminals. An extra loaded car involves more. Besides the terminal handling of the freight some extra coal is burned in the engine, and yard-switching must be added also. An extra train added to the regular schedule of the road involves almost certainly an increase of rolling-stock, and also the wages of the train and engine crew, fuel, oil, caring

[1] M. O. Lorenz, *Quar. Jour. Ec.*, vol. xxi, p, 283.

for cars and engine after the trip, and, lastly, a percentage for wear and tear of tracks and road-bed. All these are costs directly traceable to the regular trainload of freight. But there are still certain general expenses of operation, costs of maintenance not due to wear and tear of traffic but to time and the elements, and finally the whole body of "fixed" charges proper, the interest on the cost of the permanent investment. All of these expenses can never be assigned to anything less than the whole traffic of the road.

On the other hand, the second classification of costs into constant and variable, Mr. Lorenz says, disappears with time entirely. That is, in the accounts of roads which have developed through a considerable period, one finds that those items usually classed as "constant" have increased at least as fast as those regarded as variable.[1] To this evidence one might now add, that during the recent panic and depression some classes of expenses usually considered as constant fell off more than those classed as variable. This must, however, be regarded as a purely temporary policy of stringent economy, having in view the quick return of better times when the neglected maintenance could be more easily attended to. It does not necessarily prove anything as to permanent policy. However that may be, the distinction drawn by Mr. Lorenz seems unnecessarily fine for practical purposes. The reason why "constant" expenses grow is the growth of traffic beyond the capacity of the existing plant to handle economically.[2] As a result the permanent investment has to be increased. New tracks are laid, curves straightened, grades leveled, yard and terminal facilities increased. The first cost of all these

[1] *Quar. Jour. Ec.*, vol. xxi, p. 291.

[2] Colson, *Transports et Tarifs*, p. 171.

ERRATA

Page 32 change Note 1 to read: *In re* proposed Advances in Freight Rates, 9 I. C. C. Rep., 382.

things, and much of the cost of maintenance, comes under "general" expenses, and yet they are incurred not for the whole traffic, but for a part only, the increase which made them necessary. They are, then, in a true sense, special to that increment of traffic rather than general to the traffic as a whole, even though the latter is the way they are commonly classed. So that when one relates the term "special" cost to a definite increment of traffic one finds that it spreads into more and more kinds of expense in proportion as the traffic increment is increased in size. Any very large increase in traffic does not tend to do away with both classifications of expenses, while with respect to small variations they are both bound to remain. They would seem to express the same fact in a different way merely. The distinction between general and special expenses is the essential fact in the case, the distinction between fixed and variable expenses is the result, showing itself in the accounts of the road.

Possibly the writer is arguing for an unusual interpretation of "special cost." New and enlarged shops, or freight depots, increased yard, trackage, or a reduced grade, once installed, are used for no single items of traffic, and so are in that sense general. But according to the interpretation here used, the increased capital installment, when incurred, was clearly caused by a definite increase or increment of traffic, either existing or expected, and so was economically "special" to that increment without which it would not have been incurred. If certain traffic in soap has caused, directly or indirectly, a growth of expenses, then surely those expenses have been specifically traced, though perhaps by an indirect process, to the soap, and are "special" to it.[1] The

[1] *Quar. Jour. Ec.*, vol. xxi, p. 284.

adoption of this interpretation merges at once the two classifications of expenses. Practically all of them vary if the traffic grows much, and practically all can thus be assigned as "special" to units of traffic if the units are made big enough.

This plunges us into the last point in the discussion of joint-cost production—the factors that in various ways tend to minimize the distinction between joint and special costs, and to include in the cost of single items of traffic a share of the general and fixed expenses. First comes the necessity of increasing the capital investment when business grows beyond the capacity of existing plants.[1] Thus the new traffic involves capital outlay as well as mere "operating expenses." In the case of a railroad this may mean much or little. In the early stages of development or on branch lines where traffic is sparse, a minimum investment in way and structures and minimum outlay for maintenance may be far beyond the demands of existing business, and the growth of the plant to handle increases may for some time be confined chiefly to the locomotives and rolling-stock. A comparatively small increment of traffic may then be specifically chargeable with interest on the cost of new cars and locomotives, but this would still fall very far short of its pro-rata share of the joint expenses.

But as traffic increases still further this state of things undergoes a change. Ultimately, of course, there will need to be a double track, and joint cost goes up with a jump. But aside from this, a fact that strikes the observer is the demand for more or less continuous synchronized improvements as traffic expands. The

[1] Colson, *Transports et Tarifs*, p. 171. Clark, *Essentials of Economic Theory*, pp. 418 *et seq.*

penalty for failure to recognize this fact, being disorganization and loss of efficiency or increased expenses, tends to a certain extent to neutralize the law of "increasing returns."

The standard of up-keep is raised, rolling-stock and rails are made heavier, trestles also must be modernized, longer trains require larger yards as well as more powerful locomotives, improved signaling systems are introduced. Moreover the burden on operating expenses caused by high grades and sharp curves becomes proportionately heavier as traffic grows, and it often becomes economical to invest capital in straightenings and levelings, to reduce the operating cost per traffic unit. An example may be here cited [1] illustrating this general class of facts, of a road on which in ten years the average delays increased from two minutes to one hour and three minutes, while but one train per day was added to the schedule. The average train length, however, was increased forty-five per cent. The conclusion drawn from this case is that the bad results were due to a failure to increase car capacities and to re-organize the yard equipment as the traffic demanded. Common experience during periods of extra rapid growth of traffic, such as that preceding the recent panic, furnishes parallel testimony.

All this means, that if a traffic manager has under consideration a rate, an inter-related schedule of rates or a rate policy that affects *large volumes of traffic*, he must consider, as the special cost of the traffic he is valuing, a large share of items usually classed as general or constant. He must, in order to get an economically correct result, prorate part of his "joint" operating ex-

[1] *R. R. Gazette*, Aug., 1907.

penses and very likely part of his "fixed charges" to the traffic on which he is figuring. There are various ways in which this massing of traffic in large units for the purpose of valuing it, may be brought about. The most obvious is that of *classification*. The changing of a class-rate involves the traffic in many commodities over the haul affected. And since the relation of the classes to each other is fairly constant, a considerable change in in one class rate involves corresponding changes in the others. Moreover, if a commodity be put in a new class, all the rates on that commodity are changed at once.

Another way of enlarging the unit of traffic whose value and cost are estimated in any one act of rate-making is the practice of establishing *constant relations as between different places or different lengths of haul* on the line. The adoption of any kind of a distance-scale accomplishes this result. If a road has adopted a distance-scheme for its local traffic, then in considering a change of rates it is valuing that whole local traffic in one lump. In figuring whether the new rates would be good financial policy the road must charge against the traffic as its "special cost" every expense that can in any way be causally traced to the local freight traffic. This means that large items of maintenance, interest on cost of rolling-stock and structures, etc., etc., must be included. The trunk line percentage rate system,[1] in which the New York-Chicago rate is used as a base and class rates on intermediate hauls fixed at constant percentage of the base-rate, is an example of such a scale.

[1] See W. Z. Ripley, "The Trunk-Line System: a Distance Tariff," *Quar. Jour. Ec.*, 1906, p. 183. Also L. G. McPherson, *Railroad Freight Rates*, pp. 70–78. Also Emory R. Johnson, in his latest book, not yet out, but loaned to the writer in galley form.

By this scheme one operation of rate making fixes the charges made for large volumes of traffic to and from many different points.

But in the great mass of commodity rates there is not very much scope for such groupings. There is, of course, no classification grouping to be considered; and as most of the commodity traffic is "through," there is little application of distance scales. The unit here valued, the traffic covered by a single rate, is that of one commodity only, from one point or limited group of common points to another such point or group. It is, then, in most cases a relatively small traffic unit, in spite of the tremendous aggregate volume of the commodity traffic. Is it, then, economically correct to consider such rates profitable and economically correct down to the point where they cover, in separate cases, only a bare margin above the special costs of the traffic that moves under each separate rate? For example, let there be ten stations on the line, from each of which ten unclassified commodities may be induced to move to a central market. Here are one hundred separate commodity rates to be fixed. If the road figures on each rate separately, perhaps only a couple of carloads a week are involved in each adjustment, and the special cost is very slight, including only labor of loading and unloading and of switching the cars, and an allowance for extra cost of fuel and oil, and a slight allowance toward maintenance, to make good the trifling extra wear on the roadbed. The whole, for a haul of any distance would be easily less than one mill per net ton per mile. Now the question is, if it were necessary to attract the traffic, could the road afford to bid down to that level for it? Many presentations of this subject seem to imply that it could, but the answer of railway practice is that it could not and

would not go anything like so far, except under special and temporary circumstances where something beside the income from that particular traffic was at stake.

For it goes almost without saying that such a policy, applied to each of the ten stations and ten commodities, would result in the road's handling the whole traffic at less than its special cost. For the result would be almost certainly a train a day added to the schedule, with the purchase of new rolling-stock and possibly some enlargements of structures, all of which outlays become a charge on the new traffic, which must earn interest on their cost. And if the number of stations and commodities were multiplied, there would be still more important sections of the fixed charges traceable to this low-grade traffic as a whole. Thus it is conceivable that in following out too freely the oft-expounded principle of bidding down to marginal (special) cost for marginal shipments, a traffic would be developed which would fail to cover the out-of-pocket expenses it occasioned and so would truly be carried at a loss.

All this means is, that in applying the principle of marginal cost to this case, the single shipment is not the correct marginal unit. Rather, the marginal unit is the *whole of the lowest grade traffic*, meaning that traffic which, because of distance, competition, or the cheapness of the goods themselves, contributes the least toward the more general expenses. Under ordinary circumstances this traffic, taken together, forms a very large tonnage, and to it, according to the principle developed above, a considerable share of fixed charges and general operating expenses (though not a full pro-rata share) must be assigned. This concept is, on its face, decidedly indefinite, and must needs be so; but it expresses a real fact, and one to which traffic managers

give effect by prorating to their lowest-grade traffic a material share of joint costs. Thus the practice of prorating fixed charges and "constant" or general operating expenses does not run counter to the theory of general and special costs, as it might seem to do, but if properly handled it may be the only practicable way of making sure that the marginal traffic really earns its keep. Of course, no accountants could devise a prorating system that would do all this with absolute accuracy; but a good working approximation, with a slight margin on the safe side, is easily possible. And in accordance with this we have the fact, recognized by the better organized railway systems, that a thorough, detailed and live system of cost-accounting is prerequisite to the intelligent carrying out of the policy of charging what the traffic will bear.

And this helps to dispose of a criticism of the policy of foreign state roads, to the effect that they ignore to a large extent the law of marginal cost by their extensive use, in cost calculations, of averages of the operating cost of the traffic as a whole, so failing to make the most efficient use of their capacity. Without denying the latter statement, this much may be said;—though valuation by averages is inconsistent with proper valuation of marginal increments in enterprises of diminishing returns, we have seen that they are not entirely inconsistent in businesses of joint-cost and increasing returns, but that on the contrary a certain amount of averaging is necessary for accurate marginal valuation. Granting this, then, the foreigner with his averages may possibly be not much farther from the truth of the matter than a practical man who would say offhand that all rates were profitable provided each covered the evident special cost of the particular shipments to which that rate itself was applied.

CHAPTER II

PLACE OF RAILWAY COMPETITION IN THE GENERAL COMPETITIVE SYSTEM

THE following paragraphs present in the briefest possible form an analysis of competitive disturbances with an attempt to differentiate them systematically according to, first, the economic situation of the competing unit, and, second, the nature of the product about which competition centers. The purpose of such an analysis is to throw light on the nature of dynamic friction, and on the question whether it can under any circumstances become a permanent obstruction to static forces. The significance of this study can of course not be overemphasized, since it bears on the general question whether strict regulation of the foreign type is necessary, or whether it is enough to correct the worst single abuses, and to free the proper and beneficent economic forces from the interference of forces of the opposite kind. For brevity, the analysis is thrown into outline form.

First. Competition ensures a tendency to equal rewards as between competing units at a level not permanently below that of cost. Each competitor is concerned with the relation of his total receipts to his total outlay, and these tend to be equal. Each single, distinct economic process tends to produce value equal to its cost.

Second. This requires that each unit of the product should bring in enough to pay the cost for which that

unit, itself and individually, is responsible. Where joint cost is absent, it makes no difference whether one enterprise produces many things or whether the same things are produced, each by a separate entrepreneur. Each separate economic process still tends to earn what it costs though many are combined under one management.

Third. Where joint-cost exists, the costs of an undertaking can no longer be subdivided in this simple way. The whole cost is no longer represented by the sum of the special costs. If items of product earn only their individual cost, the whole business is run at a loss, for the joint costs are not covered. While if the whole cost is covered, the outlays on joint account must be arbitrarily allotted. The latter alternative is what in the long run tends to happen. Hence competition does not control the ascribing of reward to various productive agents within the competing unit.

A. A business carried on largely at joint cost is a business of increasing returns, within certain limits. If the plant has some capacity unused, it is easy to see that it is more wasteful than if there were no such unused capacity. And to get the greatest efficiency possible, a plant must be big enough to combine the productive factors in the best possible proportions. When this point is reached, the business ceases to be one of "increasing returns," and the resulting special motive to expansion ceases. But this does not straighten out the bookkeeping difficulties caused by the joint-cost feature.

B. When businesses of increasing returns compete with each other, the practice arises of cutting rates to attract new custom while keeping up the general level of prices. This is discrimination between customers: "dumping" is a name that describes it rather well. If

it is done by all the competitors at once it is an economic waste, and leads to "cut-throat" competition. This forces the total returns below the cost level.

C. It is evident that such a condition occurs only when the capacity of the existing means of producing goods is greater than is justified by the demand. This cannot happen permanently, however; the low level of cost will increase the demand until finally we reach the limit of the capacity of the plants to expand with decreasing cost. At this point the violent underbidding for marginal custom begins to diminish, and the prices tend to rise as the demand expands still further. This rise in prices is, however, in most cases limited to something near a cost level by potential competition. A considerable profit might, it is true, be retained; for men do not usually build big new plants unless those already in the business are earning extra good returns, so as to afford them a decided inducement to enter the field. But if the earnings of the plants in the business become very large, new plants will be built, for purposes of industrial blackmail if not for legitimate competition.

D. While the condition of increasing returns lasts, and the tendency to cut-throat competition is strong, it is to the interest of all enterprises to prevent it in any way possible. Where the product in question is fairly homogeneous, as in the case of a flour mill or a woolen mill, the extension of the one-price principle forms a very good means of drawing the line between fair competition and that which "spoils the market."[1] Under this principle, each unit of a homogeneous product is charged with the same share of joint-cost outlays. This equal prorating, however, does not stand as inherently logical

[1] Marshall, *Principles of Economics*, 5th ed., p. 375.

in itself. It rests rather on the business necessity for some such limitation.

E. Where the product, instead of being homogeneous, is very heterogeneous, any such simple limitation as has just been described is bound to fail. In such cases, if the condition of increasing returns lasts any length of time, direct, active competition becomes distintly uneconomical and the chances are very great that it will be done away with entirely. Potential competition will then be the only governor of prices. This to a considerable extent is true of business conditions today. In the case of railroads potential competition is not very efficient, but other forces, generalized under the caption of "market competition" are claimed to have the same effect.

F. But it is only direct competition that can regulate the prices of all the single articles in a composite product. Even when the capacity of a producer is fully utilized so that further production would not fall under the law of increasing returns, still the fact of producing at joint-cost would, within limits, allow considerable discretion as to the manner of sharing the existing general costs. Potential competition and market competition in its more general form if not in all cases, leave such discretion in the hands of the "competitor"; that is, these forms of competition fail as regulators of prices in detail.

We have now in effect made a simple classification of the fundamental phenomena of joint-cost competition, which can be presented in tabular form.

COMPETING UNIT	PRODUCT HOMOGENEOUS	PRODUCTS HETEROGENEOUS
Producer in whose process joint-cost is negligible.	Each unit earns its own cost.	Each unit earns its own cost.
Producer under the law of joint-cost and increasing returns.	Temptation to cut-throat competition easily restrained by the sentiment of producers and the one-price principle.	Active competition runs almost inevitably into cut-throat competition, bringing *general price-level below cost*. This competition tends to destroy itself.
Producers under the law of joint-cost, but working near maximum efficiency so that increasing returns are no longer important.	Temptation to cut-throat competition removed. Joint costs naturally assigned pro rata, as in the case above.	General price-level tends to equal that of cost. Joint-cost items imputed to units of product at discretion of entrepreneur.
All the producers in the district served by a single railroad system.		General level of railroads' charges tends to be lower than monopoly price. Discriminations between different shippers not removed. Beyond this, data insufficient for simple generalization.

Can we pigeon-hole the railroad in the above scheme satisfactorily? It certainly falls in the two divisions that deal with joint cost and increasing returns. But to argue about the railroad, and to deal with it merely as a large manufacturing business producing a very heterogenous product under conditions of joint-cost and of increasing returns unusually long-continued—such a con-

ception, while allowing for many of the peculiarities of railway economics, is still inadequate. There are still further departures from type for which allowance must be made, and which have yet to be thoroughly thrashed out in the field of economic discussion and controversy. By this is meant the "competition of markets" principle as applied to railways, a principle which is certainly different in its workings from typical competition, not only in degree, but in kind. This term is applied to the competition of two or more roads for the privilege of carrying to a common market goods produced on their respective lines, a kind of competition in which the railroad and the producer co-operate.

We have here the last and greatest extension in competing units which we must add to our scheme of variations from the competitive type. For the competition which governs railway rates is now the competition in ultimately marketing the goods which the railroad carries. In this the roads themselves are not directly involved, and those who are directly involved are legion.

In the future competition of railways, if competition we are to have at all, the competing unit will be, not the single line, not even the large railway system, but more broadly the whole economic system of the section which a great railroad system serves. If this broader competition of which I have spoken, is strong enough to count as a regulator of charges, this means that railroad competition as such is merged in the *sectional* competition of industry and enterprise as a whole. This competition centers in transportation services and the charges made for them, but these must always be considered as parts only of the services which are competing; carrying must be studied as a very important incident in this broader competitive process.

To return to our original classification of variations from type, it will be remembered that the third kind of competitor was a firm producing largely at joint cost but at or near the point of maximum efficiency, so that the feature of increasing returns was no longer important. In such an industry, where the product is heterogeneous, the total return tends approximately to equal total cost, but no principle of uniformity is clearly involved by which the items of joint cost are imputed to items of product. Now let us add one more to our list of competing units, one exactly like the last, except that instead of the words "single firm" we write "the totality of all producing interests within the section of country served by a single railway system." The railroad then becomes a mere incident—a delivering agent, if you will—for the true competing interests. It is a very important servant to the more fundamental industries back of it. Under such conditions the problem of value becomes more complicated than ever.

For *the competing unit we are studying is no longer a single economic personality*, but is made up of numberless and entirely independent interests. These interests are not unified; they are competing with each other as well as with those outside. They do not consciously co-operate in the slightest degree. Their only tie of union for the purpose in hand is the fact that in their individual competition with interests outside their section they are all dependent on the same great delivering agent, the railroad system to which their territory is tributary. It is as if within a great factory we had many independent producers working, and one set who attended to the business of carrying things from process to process and from group to group within the factory and also delivered all products to customers outside.

This latter set of workers have a monopoly of this carrying business in the "factory" and charge the others for their services as much as they can get, *in the long run.* Now the limitations on what this carrying monopoly can charge are on the whole rather strict. In the first place, the other producers in the factory are all producing under competitive conditions. Some of them, it is true, have important special advantages, but on the whole they are about holding their own. In the second place, many of the producers are free to leave the factory, if they do not prosper there, and set up in business elsewhere, while the carrying group are tied to their places, practically for good. If any considerable exodus of workers should take place, they could only grin and bear the loss. Finally, to complete the essential analogy and make it correspond more closely to American conditions, we must imagine business in general to be increasing rapidly. New entrepreneurs are constantly coming into the field and looking for a place to set up their business, and they will naturally settle in that factory where they think they can be most prosperous. Other things being equal, they can prosper best in that factory in which the carrying group will bring them their material and deliver their products at the lowest cost. Prospective transportation charges are one of the most important elements in deciding the location of new businesses. Thus the carrying group is seen to be the largest single group in the factory which it serves, while its interest is bound up with the general prosperity of this factory; and it even bids pretty directly by offers of low rates for the patronage which can be given by new producers. But the fact must never be lost sight of that it is these other producers who do the real, direct competing.

If two of these peculiar factories are of about the same general efficiency, that one will be the most prosperous in which the charges of the carrying group are the lowest, on the whole. If the carriers lower their charges to any producer, they place him in a better competitive position, in which his output tends to be greater than it would otherwise have been, thus providing more business for the carrier. On the other hand, if a producer is made to pay a higher rate than his competitors, his business will tend to dwindle, and the carriers will probably stand to lose more than they can gain by the high rate. If he is forced out of business entirely, the carriers lose all the profit they could have gotten out of his business, with no compensating gain. To keep themselves in business, they must keep producers in business in their territory, and keep the business of these producers up to a maximum volume—otherwise they stand to lose their own patronage and so to default the interest on the investment already permanently sunk in their business; and if general competition is sharp, this appears to be a sufficient inducement to keep rates as near a cost level, on the whole, as are those in other businesses.

That is on the assumption that the competing systems are on about an equal footing of efficiency. If one is markedly less efficient, on the whole, than its rivals, we have a modification of the problem. The disadvantage may in the first place be one that is not likely to last, but rather to disappear under proper management. In this case, the carriers can well afford a temporary loss for the sake of helping their customers over the period of weakness, until such time as they can stand on their feet and pay a fair price for their carrying. If the carriers act fairly and wisely in this matter, they hurt nobody and in the end help everybody. They merely

assume the burden of forcing an adjustment of things which will ultimately turn out to be, in a general way, the natural one and best for every one concerned.

This represents, in a most broad and general way, the state of things in an undeveloped section of country; but of course it fails to allow for many very important features of the situation. To mention only one, everybody concerned in opening up new countries, and especially the railroads, are getting their rewards for some time not so much from their own productive activity as from a general increase in the value of property in whch they have invested. This brings in a possible motive to discrimination which the railway exponents of the broader competition doctrine would like to ignore. The whole question will be discussed more in detail later on.

So much at present for a section which is only temporarily below standard of efficiency. But it may happen that one of our allegorical factories is permanently handicapped by location or other cause, and so is placed at a disadvantage that can never be fully made good. In this case both carriers and producers must be content with less than the usual return, and the permanent investment of the carriers in franchise and plant or what not, may suffer a shrinkage in value. Always assuming competition to be very sharp, the carrying agency can no longer permanently earn full interest on this fund which it has sunk in its business. But down to the point where it cannot cover its actual out-of-pocket expenses of operation, it will stay in business and pocket a partial loss of its property. As long as the original investment is worth anything at all[1] in the use it was de-

[1] This ignores, of course, the value of a plant for an alternative use, a factor which in the railway problem is fairly negligible.

signed for, it will be so used, and will be valued only for what it is actually worth in earning power. If this is all that happens—if the process goes no farther—it is entirely justifiable on economic grounds and works no undue harm to anyone. It is a form of bankrupt competition, but one in which there is little danger. The risk of its developing into general cut-throat competition need not be thought of, for the other carrying systems are so much better off that they need not be forced into any such destructive policy. This represents the situation of a section that is being left behind economically, or is relatively somewhat inacessible, like New England. Of course, in making such an application the simple situation of the allegory becomes complicated in many ways. The interference of social and sentimental considerations must be largely taken into account in more detailed study.

We have gone about as far as is profitable with the study of a hypothetical industrial form analogous to the general railway situation. We have revealed a tendency of the general level of rates toward cost, independent of the direct form of railway competition, provided our various railway systems remain separate in interest and so competitive in spirit. Of course, if the carrying agencies in our illustration had formed a union, the whole argument would have fallen through. To prevent any such monopoly from being established, we must trust to legislative opposition backed by popular conviction, and also at present to the personal individualities of the strong men at the heads of our big systems and their attachment to their systems as their personal achievements, leading naturally to an unwillingness to merge. We have reached then only a most general conclusion. The more detailed problems, which are after all the most

significant—those, namely, of relative rates within the systems—demand a more concrete study. It is hoped that the principles of the foregoing discussion may be found to be suggestive as to the nature of dynamic disturbance and friction in the problem before us. At least they will have tended to show that in the "competition of markets" argument we are stirring up something radically new in applied economics. The economic motive is working here through intricate processes which demand thorough concrete study to square them with the principles drawn from less involved cases. The claim is made that "competition of markets" ensures a general cost level of rates, while, as it is not localized at junction points, it is free from the motive to harmful discriminations which vitiated the workings of direct competition. This claim must be examined as minutely as possible and in a thoroughly impartial frame of mind.

CHAPTER III

"VALUE OF SERVICE" AS A STANDARD OF REASONABLENESS UNDER FREE CONDITIONS.

In discussing theories of actual rate-fixing, it is first in order to take up the above overworked and all-inclusive phrase with a view to formulating its meaning more exactly. And not least important is the statement of what it does not mean.

"Value of service" and "charging what the traffic will bear" are constantly used by practical men as sufficient grounds for the practices followed in actual rate-making. But the principle is, after all, quite indefinite. Taken alone as an explanation of rates it does little more than to base rates for the most part on themselves and on each other.

The phrase as used, especially if the term "economic" is included, suggests control by natural laws, an involuntary bowing to irresistible outside forces, and an inevitableness, which are for the most part fictitious. A railway rate is a price, and so is a phase of value; but when one has said this he has not begun to study the special workings of the law of value which constitute the real problem. Certainly he has not proved that this is not one of the cases where value is to some extent dependent on personal judgment, discretion or arbitrary exercise of power. The "value" of a transportation service is sometimes defined as the difference between the price of the commodity in question at the point of shipment

and the price at the destination, and so an external standard is quite strongly suggested, yet the suggestion is altogether deceptive, for the difference in price itself depends on transportation charges.

If the commodity moves at all between the two places, the difference in price tends always to equal the cost of the most expensive means of transportation that is regularly used in the traffic. If a given rate is charged on freight from Buffalo to Albany, then competition will do its best to ensure that goods carried from Buffalo to Albany shall increase in value by just the amount of the rate. Any freight-rate will always be equal to the difference between the price of the goods at the origin and the price at the destination. But this affords no *external* standard to which rates may be conformed. For an instance to illustrate what is meant by this statement, let us suppose that at "X," a western town, it costs on the average ninety cents a bushel to raise wheat, and that the price at Chicago, the natural market, is one dollar. Obviously, barring direct railway competition, the natural value of transportation of wheat from "X" to Chicago is ten cents a bushel. But why is this so? Why is wheat worth one dollar in Chicago? Because the total supply demanded at that price can be brought in from many supply points at that total cost in each case. The price of one dollar which is set on every bushel stands for a certain cost of raising it plus a certain charge for carrying it. From numberless towns over many railways rates are made to Chicago which allow them to ship wheat, while from other towns rates are so high that the business would be unprofitable; and the price of one dollar a bushel at Chicago is, on the supply side, a joint result of all these various rates. This means that the value of the service of carrying wheat

from "X" to Chicago is fixed by the joint effect of the charges made for hundreds of similar services, and the same could with equal truth be said of each of those other charges, so far as they are not more directly fixed by active railway competition.

But not even in this way are rates at all closely fixed. To go back to our town of X where it cost ninety cents a bushel to raise wheat, let us suppose that the road arbitrarily raises the rate to Chicago from ten cents to twelve cents. The cultivation of wheat can certainly not go on under the old conditions, but, almost as certainly, it will not be abandoned. Two things will happen. In the first place, cultivation will probably be carried on somewhat less intensely at "X"; so that the marginal cost of raising wheat, including only wages and interest on capital, will be somewhat lowered. In the second place, the value and the rent of agricultural land at X will surely fall, and this will be the chief effect of the increased railway rate. In the end, if the rate of twelve cents is kept in force, the cost of production of wheat at X, including wages, interest and *rent of land*, will be found to have fallen to eighty-eight cents a bushel.[1] Similarly, if the rate were lowered to eight cents, rents would rise, cultivation would become somewhat more intense, and in the end a new equilibrium would be established. The conditions of production adjust themselves to any fairly long continued level of rates. Thus the railroad, within fairly wide limits, has direct control of the rent of land in places where there is no railroad competition, and so controls the "natural" value of goods at their origin. As H. T. Newcomb puts it:

[1] H. J. Grierson, *Railway Rates, English and Foreign*, pp. 65–6, mentions that railway rate advantages are capitalized, in the long run, into land rents, and that changes in rates take effect on rents.

"Value of service as a standard, what each service is worth, the utility added to the commodity by its transportation—is in itself mainly dependent on the cost of transportation between the localities, and consequently to adopt it as a standard would be to travel in a vicious and unprofitable circle." [1]

Of most railway services it may be said that their values are either self-determined or else they fix each other, They may be fixed arbitrarily if the road is in the position of a monopoly, or they may answer the no less capricious rule of a perverted competition. In neither case is there in the nature of things any force clearly working to set up simple and rational standards toward which rates shall tend.

What the value phrase really stands for is the abandonment of the "cost of service" theory, and the breaking away from rigid distance tariffs. The difference in form between the American and German systems is that the Americans have broken away almost completely, and the Germans only in part. The most cursory survey of foreign rate systems is enough to show the wide range of principle and practice that may be comprehended under the term "value of service." We are concerned now with that form of the theory which is used to justify the practice of allowing a maximum of freedom to private roads in following out their economic motives.

The value of any service may then be defined as that charge which will in the long run bring in, over and above the special cost of the traffic involved, the greatest clear return possible under the special circumstances of each particular case.[2] French writers express this by a

[1] *Pol. Sci. Quar.*, 1896, p. 205.

[2] Gournerie, *Exploitation des Chemins de Fer.*, pp. 125–9.

beautifully simple diagram showing the curves of operating expense and gross earnings and the point of maximum difference.[1] Concretely, then, the question at issue is: does "value of service" as thus defined aud applied, contain, incidentally, any strong forces of social benefit?

In many businesses it may truly be said to contain such a principle: free competition in many cases does work for society's good. But no less certainly have the results of private self-interest in many other cases been more than doubtful from a social point of view. The various prices paid for oil products in this country have long been governed by the laws of value working without state interference, and yet no one has used "value of oil" as a catch-word to justify the company's practices. It would never have pacified consumers who felt the price of oil was too high, nor competing producers who were ruined by local and temporary discriminations to be told that oil was being sold at its economic value. It does not require long scientific treatises to convince the American public that, while the interests of privately-owned railways may coincide with those of society to a certain extent, they are not identical nor nearly so in practice, and that a laissez-faire policy would expose the American public, consumers of railway transportation, to the risk of serious evils. It may practically be taken for granted that "value of service" under laissez-faire

[1] M. Mange (Ass't Traffic M'gr. of Orleans R. R.), *Bulletin of International Railway Congress*, '05, p. 1969. Rank, *Eisenbahntarifwesen*, p. 573, does not agree with this statement, but his conception of "value of service" contains in itself principles of common interest as distinct from private interest, and so is different from the American use of the term. See also, Colson, *Transports et Tarifs*, p. 191. Lardner, *Railway Economy*, p. 249.

stands for a policy of purely private interest to which any public benefits secured are incidental. In one sense this would seem to be self-evident, for it is the bounden duty of railway officials to look after the private interests of their employers, the stockholders. On the other hand, however, stands a moral obligation, recognized by the common law and very generally enacted into statute form and more or less strictly enforced by commissions, to the effect that rates must be made reasonable. But that the mere formal requirement of reasonableness is not enough to ensure this result will be evident to anyone who makes an attempt to put it into concrete and comprehensive form. Let any man try to make out a rule, a set of rules, or a scheme of any sort, which will settle the question of relative reasonableness in the ordinary forms in which it is presented, and he will have a new respect for the problem. For its complexities are amazing and seemingly insurmountable. All the simple principles: cost, distance, etc., would be bound to break down in practice. The solutions that have been evolved by foreign state-owned railways have on the whole worked well, but people are not yet ready, on this side of the water, to accept in full the principles on which they are built. And even the most complete of formal schemes used in the great states of continental Europe fails to cover anything like all cases. Through rates, rates in competition with carriers not under the same administration, export rates, special commodity and development rates, are all made outside the formula of automatic reasonableness.

Thus reasonableness is hard to enforce concretely, and except so far as commissions have made progress in the developing of definite standards, the common-law provision that rates shall be reasonable does not act with any

compelling force to check the railway managers in following any policy they wish, while any unjust or anti-social policy on their part is especially dangerous in that it will be reproduced in multiplied form and extent on the whole face of the country's industry.

The unique position of railways in their power over general business, and the consequent economic problem they offer has been perhaps most concisely stated by Eugen von Philippovich.[1] He says:

> The doctrine of free competition has been much affected by the recent developments of transportation, especially by the railroads. Not alone because they showed in their own case that free competition can lead to monopoly, but chiefly since *through their influence* competition of private industrial undertakings has lost its regulative force. The advantage of low freight rates proved more influential than the industry and natural advantages of local producers . . . . But where the influence of such factors, which are independent of the single competitors, has become so significant, the law of free competition no longer holds. Science has now not merely to study the workings of free competion, but especially to investigate *how the conditions of the competitors can be made once more in large measure equal.* These facts have contributed most largely to the result that today the doctrine of free competition is increasingly complicated and less confined to the simple formulæ of the past. *Out of its very workings, indeed, the principle of state intervention has of itself developed.*

In this place it will be in order to take up some of the arguments of those who hold that purely private rate-making works for the common good. If such a study does nothing else it will at least show what kind of rates,

[1] Translated from the *Archiv für Eisenbahnwesen.* The translation and italics are my own.

in the opinion of these critics, the common good demands.

It has been asserted by some writers that the private theory of rates is identical with that which would be evolved by the most enlightened public servants. Mr. M. M. Kirkman [1] makes this assertion in the following terms:

> The interests of a community and the carriers who supply it are one, and while they will have many differences, they must mutually support and protect each other. Left to their own devices, carriers will, so far as they can, adjust rates so that every interest shall receive some advantage. This is the limit of their power. Interests that cannot conform to this just requirement, without trenching on the just profits of others, are abnormal, artificial, hurtful to a community. Business that cannot be handled under such circumstances should be allowed to die out.

This statement is framed in the terms of economic argument, but it is hardly more than a sweeping general assertion. More is claimed by implication than would stand under a thorough analysis of the rather loose wording of the section. Certainly business that cannot survive under a just tariff is abnormal; but what standard of justice is established? A mere assertion that the roads will, "so far as they can" give "every interest some advantage" will hardly satisfy a mind skeptical as to the infinite wisdom and benevolence of the traffic men who wield the rate-making power.

The attitude of Mr. H. T. Newcomb is more significant. In arguing for the desirability of using existing railway plants to the fullest possible capacity, he says:[2]

[1] Kirkman, *Science of Railways*, vol. viii, pp. *72 et seq.*

[2] Newcomb, *Railway Economics*, p. 87.

Society should not be compelled to continue the production of form utilities with difficulty and under unfavorable local circumstances when the same articles might be made available to consumers in the same locality with a lower expenditure of energy by diverting a part of that employed in producing form utilities to the production of place utilities. Society is forced to accept this unnecessary sacrifice whenever a railroad refuses or is compelled to refuse any increment of traffic, because it cannot be made to contribute what is considered its just proportion of the fixed charges. Sufficient revenue should be secured from each particular item of traffic, . . . as, without preventing the movement of any traffic from which this minimum of revenue (special cost) can be continuously maintained, will in the long run secure in addition from each item the largest practicable contribution toward reasonable remuneration of the expenditures of energy which are incurred for joint account.

This I take to be a representative statement of the belief of those who would leave our system alone, and if it were literally true it would be convincing. But the last sentence seems to the writer to contain two mutually exclusive conditions; for it is impossible to cover fixed charges without preventing the movement of some traffic which could pay the minimum charge. To illustrate this point, let us suppose the rates on woolen cloth from X, the site of a mill, to surrounding stations are such as to give the road a net revenue. Let the rate now be lowered to the minimum level and at once, other things being equal, the output of the mill is increased; that is, new traffic moves. If all rates were placed at the minimum level, traffic would be enormously increased, and once this were done it would be a very exceptional rate which could be raised again without preventing the movement of *some* traffic. Mr. Newcomb's claim, to be

valid, should read, "Without preventing the movement of any more traffic than is necessary in the raising of the fixed charges." So much as to the tendency of a laissez-faire system he can assert without being disputed. But if in order to pay fixed charges, the "largest practicable" contribution over and above operating expenses is secured from each item separately, then what assurance does Mr. Newcomb present that the sum total will be only a "reasonable remuneration" and not very much more? Or if the total remuneration were found to be unreasonably high, what remedy would a laissez-faire system have to offer?

Mr. Newcomb does not claim perfection under laissez-faire. While believing that free competition is a guarantee of progress and the adjustment of rates to conditions,[1] he also lays down principles of reasonableness which the actual practice of the roads has continually violated. He says:[2]

It appears to be socially desirable that energy expended in the business of transportation shall receive the same remuneration as a similar amount of energy expended in other lines of production, and that rates for different transportation services shall vary in accordance with the different amounts of energy required to perform them, in order that society shall have neither too much nor too little transportation. It is believed that in some sections there has been much transportation that was socially undesirable because it actually enhanced the real cost of production.

One could wish this statement were made more explicit. It might seem, and is impliedly claimed by many railroad men, that no rate at which traffic could move

[1] *Moody's Magazine*, January, 1906.

[2] Newcomb, *op. cit.*, pp. 66–69.

with a margin of profit both to road and to shippers could "enhance the real cost of production."

Probably Mr. Newcomb had in mind some of the practices mentioned in an article by Prof. W. Z. Ripley.[1] Among these may be mentioned the successful competition of roundabout routes which take traffic which might go by more direct ones. These indirect routes may belong to one road or to several: in the latter case each line is interested in getting its pro-rata share of the total through rate. Thus traffic may travel around two sides of a triangle or three sides of a square, or may zigzag on an easterly route because diverted by the competition of some north and south cross lines working in connection with a rival east and west route. The roundabout route is especially likely to get the traffic if it is owned by one road which also owns part, but not all, of the direct route. Such a road would rather get the whole rate for the longer haul than part of the rate for the shorter one, and may get the desired result by making its proportional of the joint rate prohibitive. A similar policy may be followed when there is a choice between a shorter through route in which the share of the road in question is small, and a longer route in which its share is larger. Some apparent wastes of this kind are due to entirely legitimate causes, such as congestion of the direct line, or "back-loading" on the roundabout route of cars that would otherwise move empty. But there is undoubtedly much real waste, which could be avoided by the Austrian policy of efficient money pools under which rates are so adjusted that the traffic is largely directed over the line found to be cheapest.[2]

[1] *Pol. Sci. Quar.*, vol. xxi, pp. 381 *et seq.* See, also, Savannah Naval Stores Case, 8 Int. Com. Rep., 376; and Colorado Fuel and Iron Co. *v.* So. Pac. Co., 6 Int. Com. Rep., 488.

[2] Rank, *Eisenbahntariftechnik*, p. 68.

In other cases the same kind of goods travel over the same route at the same time in opposite directions. This may occur as a phase of competition for proportionals of through rates; but also as a result of a sort of mutual "competition of markets" in which the producers in each place keep costly and uneconomical "outposts of competition" in the other man's territory, either for moral effect or in the hope that the business will expand until it justifies itself.

But aside from these evident and direct wastes mentioned by Ripley, may there not be others? Is there not an enhancing of the real cost of production whenever a producer is favored by rates barely above cost of handling, although there are others who would have the business if they were not prevented by relatively higher rates, rates high enough to give the road a considerable profit of operation? Such rates do cause socially unprofitable carriage of goods, and they are the inevitable result of the very competition which Mr. Newcomb believes in. Every time any place is specially and markedly favored in the matter of railway rates, for whatever reason, the way is laid open for just such uneconomical transportation as Mr. Newcomb comdemns. Thus, on his own showing, we have the following alternative. We may try to secure adaptability and progressiveness by continuing to stimulate competition, in which case we must accept the uneconomical discriminations which are bound to result. Or, on the other hand, we may encourage pooling and consolidation, in which case we must trust to the wisdom of the traffic managers to make rates relatively reasonable on the principle Mr. Newcomb suggests, and to their altruism to make the absolute level of rates reasonable.

Mr. Acworth has stated the case in a somewhat different way. He says:

> The real meaning of the phrase (charging what the traffic will bear) is that within the superior limit of what any particular traffic can afford to pay and the inferior limit of what the railroad can afford to carry it for, railway charges for different categories of traffic are fixed, roughly on the principle of equality of sacrifice by the payer. So regarded, what the traffic will bear is a principle, not of extortion, but of equitable concession to the weaker members of the community.

We may consider this, not as a complete or fair statement of Mr. Acworth's whole position, but as representing the position of one who would give the freest play to the roads under the "value of service" theory. As such it may be criticised on several grounds.

In the first place, rates made by the roads are not fixed *on the principle of* "equality of sacrifice" or "equitable concession" primarily. The principle which governs the rate-makers, the motive of their actions, is that of causing their road to earn as much net income as is possible considering all the circumstances under which it works. Equality of sacrifice to the rate payers and equitable concessions to the weaker ones may follow, but are incidental. The law of maximum return may sanction practices not covered by these beneficent rules. To use the analogy of taxation, there might be between railroad self-interest and truly "equitable concession" as wide a difference as that between ancient systems of taxation aiming only at the largest obtainable revenue, and a modern system intelligently based on the taxbearers' ability to pay. Mr. Acworth, however, seems to claim that enlightened self-interest will tend to follow the latter principle. Before settling whether the value

principle is in reality identical with Acworth's propositions, the wording of them will demand some study.

In the first place, who are the payers of rates, and in what sense are their sacrifices equalized? In what sense can we speak of their sacrifices at all? If a transportation service involved a true sacrifice it would never be made. The burdens must be negative, and consist in receiving less benefit than does some one else. Who then bears the burdens or receives the benefits? It would be interesting to learn whether Mr. Acworth referred to producers, as the context would seem to imply, or whether he was thinking of the ultimate beneficiaries, the consumers. There are several rather distinct things which the expression might mean, and it seems likely that a combination of them was in the author's mind. If he had in mind individual producers whose situation, efficiency, etc., may vary, then the meaning would be that the roads should endeavor to keep profits about equally distributed among all producers in any one line. It can be easily shown that this would follow, or at least that it would be the best of the interpretations that could be made to follow from the principle stated. The burden or sacrifice of transportation in the case of any producer lies essentially in the limitation of the market in which he is enabled by the charges to do a profitable business against the competition of rivals. A big industry is so only because transportation rates are such that it can market its product at a distance. A small and profitable industry will inevitable expand its output and the size of its market until the burdens of transportation neutralize the advantages, and any further expansion would involve a true sacrifice. The roads in establishing any kind of "equality" among such producers must act more or less arbitrarily. All they can do, if they avoid favor-

itism, is to grant existing producers such rates as will give them all roughly the same rate of profit, always, of course, keeping within the natural economic limit of charges.

This will involve "concession to the weaker," but will such concessions to the weaker be necessarily "equitable"? Will it not, on the other hand, amount to throwing away entirely one of the great benefits of industrial competition, that is, the struggle for existence with the growth and expansion of the fit and the stagnation or elimination of the less fit or unfit? Will it not be like giving handicaps in a championship race which should be run "from scratch"? If the weak are helped, who knows if the best man wins? A producer may be weak because he has inferior natural advantages or an inferior organization in his business. Is it equitable that he should continue to supply a market when a more efficient producer somewhere else is prevented from doing so only by a heavier burden of transportation charges? If the policy of concession merely retards the natural process of the extinction of such weaker members, allowing them to retire without disastrous loss, in so far it may be beneficial. But if it goes further, goes so far as to perpetuate the inefficient producer, in so far it must check economic progress. And there is nothing in the principle of value of service or maximum net return, *as it is ordinarily applied* in railway offices, to settle this problem in any but the most accidental and haphazard way. To summarize, then:—if "equitable concession" applies to single producers, there is no assurance against the perpetuation of the economically unfit and the weakening of the forces of economic progress.

On the other hand, however, the phrase may refer to producers of certain kinds of goods. The "weaker

members" who are to receive concessions may be those who are weaker because their business is incapable of great expansion under the burden of ordinary rates. Here we have length of shipments limited, not by the competition of localized producers, but rather, to render a German expression, by the exhaustion of the intrinsic capacity of the goods to bear transportation charges.[1] In such a case traffic will fail to move not because the consumers can get the same commodities in some other cheaper way, but because they would rather go without, or use some substitute commodity.

This carries the idea of equality of sacrifice over from the producer to the consumer. If the market for a given line of goods cannot expand as a whole, it is because the burden on the consumer is too great. Coal as an article of direct consumption is an example of a good satisfying a primary want and so important to many, while as a marginal good it appeals to those great masses who are quite low in the economic scale. Hence a sufficient reduction in price will cause the movement of large quantities, benefiting the roads and at the same time the people, especially the poor. This is merely the principle of classification, in which it cannot be disputed that the interests of the roads and of society are in general most harmonious.

But it can be easily seen that in any widely applied classification system we have the roads valuing their traffic, not item by item but in totals and averages. The probable volume and desirability to the road of the whole traffic in any one article must be estimated in giving that article its place in the classification. In so far

[1] Rank, *Eisenbahntarifwesen*, *passim*. Launhardt and others also make this distinction.

classification is the kind of policy a foreign public road would adopt. Strictly, it is not always to the interest of a road to follow a uniform classification system. If there were no uniform classification, and if every traffic manager made rates as he thought best for the road, the results would be in a general way like the existing system, but there would be no uniformity, no semblance of order. Further, direct competition, tending as it does to hammer rates down to the special-cost level, combats the classification principle, as happened, for example, in those rate wars which temporarily annihilated classifications in the trunk-line section. However, under comparative laissez-faire the roads have in fact progressed steadily toward a practicable uniform classification in the face of the most tremendous difficulties. In so far, they have used their private taxing power on the faculty principle, as the most enlightened state might have done. So that Mr. Acworth's claim, that the roads tend to follow a policy of equitable concession to the weaker, seems thoroughly justified as far as it regards freight classification. Further than this, however, it would seem that the writers quoted have scarcely made out a convincing case. A skeptical mind would hardly be persuaded that the roads could be wholly trusted to carry out a satisfactory social policy. The fact is recognized in the various discussions, that there are such social standards, but as to their identity with the workings of railway self-interest there is still room for doubt.

The standard of reasonableness, so far as it has been unearthed, is the expression of the right of any market to the services of those producers who will satisfy its wants at the lowest social expense. That is, rates should be such as to give the competitive markets to the most efficient producers, including in the calculation of effi-

ciency the actual cost of any transportation involved. This we may call the *comparative cost standard* of reasonableness. Another has also been suggested, which we may call the *established interests standard*, and which requires in its mildest form that producers' markets shall not be so limited as to destroy the value of actual invested capital, if such a result can possibly be avoided. Sometimes the vested-interest idea is extended to cover the expectation of an averate rate of growth. The latter standard is comparatively easy to apply, while the former or comparative cost standard is difficult if not impossible.

CHAPTER IV

PRIVATE AND PUBLIC INTERESTS, AS TO RELATIVE RATES

Let us now study somewhat more in detail the value of service policy. The common statement of it can be quite briefly summarized. The value of any given transportation service is not rigidly fixed. Customers' estimates of it vary, just as their estimates of the utility of anything.[1] A road, then, tends to charge in each case the rate that will bring in the greatest possible addition to its net earnings, that is, the greatest possible return above all costs that are special to the traffic involved. The fixed charges and all truly "general" expenses, then, do not figure in the making of isolated rates.[2] The point of maximum net return may be a true monopoly price in the case of local traffic, and be governed by the usual tendencies and limitations of monopolies.

In this situation, as indeed in general, a higher rate will tend to be charged on things of high specific value than on things whose value per bulk is low. This is one of the principles of classification. Another general principle is that, aside from the effects of competition, long distance traffic, like low grade traffic, must be given a rate much nearer the special-cost level than that which will pay on short distance traffic. One other appreciable force is that of public opinion, which works in a general

[1] Colson, *Transports et Tarifs*, p. 191.

[2] *Ibid.*, p. 174.

way for a tariff based on distance. But where two roads compete directly for the same traffic, it will pay either to take it from the other by cutting rates, down to the level of the special cost of the traffic involved.[1] In such cases rates may go temporarily below that level without any definite minimum limit.

However, in such "through" traffic the ultimate competitive rate is never reached except in short wars, ending in agreements or understandings. "Competitive" rates, then, are fixed somewhere between the level of special cost on the one hand and the higher quasi-monopoly level of the local rates on the other; and between these limits the level of rates is determined by the binding force of purely extra-legal agreements and the efficiency with which these can be enforced. It may be added that the stronger the roads are financially, the easier of enforcement are the agreements; and that it is highly probable that the most important voice in the making of an agreement would be that of the road which would be most formidable in case of war, namely, the financially weak road.

Moreover, even when roads are actively competing and thus favoring shippers at the junction-points above their rivals at local points, a policy of purely private interest will not even guarantee equal treatment as between the former. For roads have found it wasteful to make a low published rate and charge it to all alike; moreover, such a policy made concealment impossible, and all competing lines would know just what they had to meet, and act accordingly. For these reasons it was often better tactics to "give one hustler a special rate, and let him scoop the business." The reasonableness of

[1] Colson, *Transports et Tarifs*, p. 173.

this needs no discussion. As to the prevalence of it, less than a decade ago: "Such discriminations in the case of grain . . . had gone so far that each railroad reaching into the grain district had eliminated all competitive dealing"—among the middlemen who operated in the grain which it carried.[1]

Thus it comes about that direct competition of railways acts, or at least seems to act, with varying degrees of intensity and thus to fix rates at different levels in different cases. This appears inconsistent with the essential nature of competition, but common observation testifies that it is a fact.[2] The explanation must lie in the further fact that the rates are not truly competitive, but are the semi-monopolistic truces of an anomalous competition. These truces are harder to maintain where there are many competitors or where some are financially embarrassed.[3]

Thus we have two main types of situation under which rates are made, not so far distant from each other as complete monopoly and "free" competition, but still decidedly different in their nature, and affording the commonest cause of local discrimination. For while the competition for through traffic is decidedly imperfect, so also is the road's monopoly power over the local traffic incomplete, since it is limited by the forces we have treated under the name of "competition

[1] U. S. v. Mich. Cent. R. R., 122 Fed. Rep., 544 (1903).

[2] E. R. Johnson, in lectures at Wisconsin University in July of 1909, stated that competitive forces were more powerful at New York than at Philadelphia. See, also, Hilton Lumber Co. v. Wilmington & Western R. R., 9 I. C. C. Rep., 17; and 21st annual Report of Interstate Commerce Commission, p. 161.

[3] R. R. Commission of Kty. v. L. & N. R. R. Co., 13 I. C. C. Rep., 300. McLaughlin Bros. v. Adams Express Co., 12 I. C. C. Rep., 489.

of markets." By this is meant, as will be recalled, the force which compels the road, under penalty of losing traffic, to give such local rates that the producers on its line can ship to common markets in competition with producers on other lines.

By some the "competition of markets," or better, perhaps, the sectional competition of producers, is regarded as a sufficient force to ensure a reasonably low general level of rates. The idea is of comparatively recent growth though it is new not so much in its nature as in the application of it and the emphasis laid on it. President Hadley's book contains some treatment of it, but the author did not think it important enough to modify the general proposition that railway competition properly so-called is limited to the direct form and localized at junction points.[1] More recently, however, there has been a significant change of emphasis, which may be found to be important enough to modify very radically the conclusions of the earlier writers. For this view not only tends to minimize the difference in situation between the local and the so-called competitive point, but it does more. It appears to provide as a substitute for the disastrous direct form of competition a new form which shall be more uniform and less extreme in its effects, thus avoiding the two great objections to railway competition as Hadley has stated them. This change in attitude corresponds to a change in the character of rates. The distinction between the local and the competitive rates is being minimized in practice by a growing tendency toward uniformity. Possibly we are beginning to gain by experience the far-seeing attitude which Hadley himself predicted, while deploring the short-

[1] Hadley, *Railroad Transportation*, p. 114.

sightedness which prevailed at the time he wrote. He said:[1] "We have not learned to look ten or twenty years ahead. The managers of our largest enterprises still invite competition by high rates instead of forestalling it by low ones, and still handicap their best customers by discriminations instead of developing their trade by equality of charges." But though the problem of discriminations may have been helped somewhat by an increasing recognition by the roads of their long-run interests yet the problem is certainly not solved; it is still with us.

These discriminations form, as all are aware, probably the knottiest part of the railway problem. The various bodies of men who have studied the problem have been hard put to it to draw the dead-line between good practices and bad ones, and would have given much for any simple principle or principles, according to which they could be classified. Dropping for the moment the difficult "comparative cost" standard, there is a much simpler way in which at least one kind can be distinguished from the rest; namely, those which result from direct competition of carriers at junctions.

Such discriminations are due to the same motive as all others; to increase net earnings. Every low rate is made to enlarge the traffic of the road that makes it; but this can be done in either of two very different ways. The first way is to induce shipments that would not otherwise have been made at all:—"to develop new business." Now on account of the division of railway costs into fixed and variable charges, any discriminating rate that really creates new business—that increases the volume of traffic handled by the existing railway plants

[1] Hadley, *Economics*, p. 175.

of the country—any such rate increases the efficiency of the roads as producers of wealth. Such rates are good economic policy, with one limitation. In increasing their own efficiency as producers, railroads must not injure the efficiency of the other producers serving society; that is, they must not interfere with the proper workings of the competitive system, on which we believe the productive efficiency of our society is based. They must not, in helping one shipper, injure or drive out of business some other in another place who has an equal or better right to survive by virtue of his productive efficiency. This leads logically to the "comparative cost" standard of reasonableness, already mentioned.

The second way of increasing a road's business is to take it from some other carrier; say some other railroad. Doing this does not appreciably increase the business or efficiency of the roads as a whole, and if it injures other industries as a whole by vitiating the true operation of the law of competition, then it should be condemned as anti-social. Where a discrimination, results from the action of two carriers, both bidding below the average cost of their services, not to stimulate new business but for the mere purpose of getting existing traffic away from each other, there the good effects of discriminations are wholly absent and only the bad remain.

But how about the practices of roads under conditions of monopoly or of competition of the indirect kind? Leaving out of account for the moment the general level of charges, already discussed, is there any natural tendency here to adjust rates relatively to each other on something like the "comparative cost" principle? The railway officials themselves, rather than any outside body, are best equipped with the information necessary to follow such a policy out, provided they have the motive.

If this question be approached in an a-priori way, such a motive can be deduced, while an inductive study develops facts that give the lie to the results of such a deduction.

In this bit of a-priori reasoning, we must exclude competition between lines having common termini, as this of course violates the comparative-cost rule at every point. But if we consider the road as a monopoly, then it could in the long run, get the largest margin of monopoly profit out of the producers who (including transportation expenses) are most efficient. Thus it would be false policy to burden those producers so heavily as to put them at a disadvantage as compared with less efficient ones. Similarly if we take the hypothesis of "market competition" by which the road is forced to co-operate with the producers on its line in their struggles for the open markets; in so far as a road is run in a far-sighted way it will tend to fix rates so as to develop the most efficient producers, because out of their traffic it can in the long run get the largest net earnings. If the road favored weak producers, it would have to keep on favoring them, and could never get as large profits as by letting that firm or those firms which had naturally the most advantages grow to the fullest possible extent. Figures could be drawn showing how in any case where the issue was clear, the road could make more profits out of the shipments of the competitor who was economically the stronger; that it would pay the road to give this man such rates as to enable him to underbid his competitors.

[Let B and C be producers on the line leading to the common market A, and let the price of their common product be fixed in that market by outside competition at 12c.

A		B		C	
B's unit cost of production	8 c.		C's unit cost of production	3 c.	
Cost of carriage, B to A	2 c.	10 c.	Cost of carriage, C to A	5 c.	8 c.

Case (1)

Rate from B to A	5 c.	Rate from C to A	9 c.
R. R.'s profit	3 c.[1]	R. R.'s profit	4 c.
Price at which B can sell at A.	13 c.	Price at which C can sell	12 c.

Case (2)

Rate	4 c.	Rate	10 c.
R. R.'s profit	2 c.	R. R.'s profit	5 c.[1]
Price at which B can sell	12 c.	Price at which C can sell	13 c.

In this case C is the fitter to survive of the two producers, for the social expense of his service is 8c while that of his rival's is 10c. Moreover, the road can make more profit out of a policy of letting C take the business away from B than out of the reverse policy, for in the first case the profit would be 4c and in the latter 2c.

However, there is a third course open, and one to which common observation points as the most probable, namely, that of fixing rates so that neither shipper can drive the other to the wall, but both are put on an equal footing. Such a policy may be represented by the following figures:

Case (3)

Rate from B to A	4 c.	Rate from C to A	9 c.
R. R.' profit	2 c.[2]	R. R.'s profit	4 c.
Price at which B can sell	12 c.	Price at which C can sell	12 c.

This illustrates the fact that the deductive line of argument is subject to many qualifications. Indeed, there is

[1] This profit could not be gotten permanently, as the shipper would go out of business.

[2] The traffic furnished by each shipper might be less than if he were favored at the other's expense, but that of both together would presumably be increased.

an interesting analogy between the doctrine of comparative cost as applied to railway rates and as applied to international commercial policies. The gap between "static" theory and actual practice shows a good deal of similarity in the two cases. In the first place, if "B" and "C" represent two factories, the violent driving of either out of business is a destruction of capital which the road would try to avoid. The ideal adjustment would seem to be that which would discourage B and cause him to move but give him time enough to do it without any considerable loss. But what road would or could make so nice an adjustment? Rather would the tendency be, as suggested in the preceding chapter, to charge nine cents for the haul from C and four cents from B, thus equalizing to the two competitors the total expense of laying their goods down at A, permitting each producer to "meet" the competition of the other and so preserving both established interests.

Another complication also appears. The calculations of the railroad are governed, not by the actual costs of production and carriage in the two cases, but by prospective costs. In other words, the "infant industry" reckoning applies with the fullest force. "C" may be in a new and undeveloped locality, with capacities for cheap production which are not yet realized, so that the low costs in the table may be in the future tense, actual costs being much higher. In such a case the road is likely to stimulate the infant traffic even though making temporarily less on it than on that from older centers. But if expectations are not fully realized—and the wonder would be if they were—then plants, industries and "interests" of all kinds have been established which could not survive the test of competitive net efficiency ("B's" factory in the illustrative diagram). In this case

the "established interests" standard demands that the adjustment between the producers be preserved, as the lesser of the two losses.[1] Here again a comparison with customs-tariff policies is interesting.

Still another disturbing element is due to the fact that the managements of railways are not interested purely and solely in transportation. So far as this is true, it destroys one of the tacitly assumed premises of our argument, for it brings in a motive for pure favoritism, without any standards more scientific than the wish to further the outside interests with which the road is allied.[2] And, finally, it is not true in practice that the rates of a large railway system can in all details contribute perfectly and exactly to some unified centralized policy. Such a state of things would require, not a traffic department made up of many finite human beings, but rather a single Argus-eyed and omniscient traffic manager. The organization of a railroad does not form an absolutely perfect machine, even for the finding-out and following-out, in the very best way, of advancing its own interests, complicated as these are.[3] One cannot help wondering whether the partial adoption of uniform rules, like the German or Austrian, might not so sim-

[1] "Missouri Rate Case" (Burnham, Hanna & Munger Dry Goods Co., etc.) decided June 24, 1908; appealed to U. S. Circuit Court; injunction issued, and made permanent Aug. 24, 1909. Also Paper Mills Co. of Baltimore v. Penn. R. R. et al, Oct., '07. Also "Hutchison Salt Case," 5 Int. Com. Rep., 299.

[2] This, as recognized in the legal battle over the "commodities clause" of the Hepburn act, constitutes a separate and most difficult problem of regulation, and to discuss it would lead the present argument too far afield.

[3] See Quimby et al. v. Clyde S. S. Co. et al., 12 Int. Com. Rep., 92. In this case after a consolidation certain rates were raised, with the result that a water carrier took most of the traffic.

plify matters as to prove a real boon to the roads without any commensurate losses. At least one prominent American railroad president, Mr. A. B. Stickney, long ago voiced this opinion,[1] saying that tariffs could be mathematically constructed which would follow the comparative cost principle, and would be "symmetrical, equitable, and satisfactory." But until some such policy is generally followed out, the proof of the actual relation between "market competition" and discriminations must be sought in actual practices in concrete cases.

It is not hard to cite cases in which this kind of competition seems to act very unreasonably, and these cases may, after a fashion, be classified. For instance, where the railroad is the only efficient outlet to market for some product of natural resources, agricultural or mineral, there is a strong tendency for the charge to absorb the whole of the clear rent or royalty. This tendency is interfered with in cases when the station in question draws traffic in that particular commodity from lands or ore-beds of varying grades of productiveness or from farms of varying fertility or distance from the line. Here a change of rate would affect the margin of cultivation, and the road can do best by making a rate which allows considerable rents or royalties on the richest ore veins and the most fertile and accessible farms.

The writer was once told of an incident illustrating this principle as affecting mine products. In this case the price of the ore at the market rose suddenly, and the mine owner, who expected the usual rate on his next large shipment, was told: "Your ore is worth more than it was, and can afford to pay more. Your rate will be so much," naming a figure that would

[1] *Railway Age*, Sept., 1905, p. 399.

absorb the entire rise in value of the ore. Argument was useless; the rate was fixed. But the owner was both angry and resourceful. He chartered a sailing vessel and sent a large cargo of ore around Cape Horn. Then the traffic men at once came to him, saying: "Why didn't you tell us what you were going to do? We'd have made you a better rate. We will make you one." And they did.

This case suggests a kind of rate-fixing under the value principle to which the people as a whole would be very loth to trust themselves. Much the same thing would be true of other kinds of produce than ore. Louisiana farmers have made complaints because rates on potatoes to New Orleans were fixed from time to time as the price varied, at levels that absorbed all the possible net returns to the growers. Under such conditions the tendency of competition to cause society to be served by the cheapest possible producers is seriously interfered with. The self-interest of the roads in such varying circumstances does not tend to produce that equality of treatment which society's interests demand.

In the cases so far taken, the situation is such that the volume of shipments will not vary much with moderate variations of rates. Land and natural resources cannot move and are almost bound to be utilized, and the problem is thus made unusually simple. In the case of products of manufacturers, finished or unfinished goods, things are more complicated. In such cases, the traffic may vary very much with slight changes in rates. Capital can move, the existing industries may succeed or fail in securing any given market, they may prosper or be wiped out, while potential investments of capital are absolutely free to go where they please and increase the traffic of the line that makes them the best terms. This

indirect competition which acts at local points does then work in varying grades of intensity. In general it may be said that rates from local points to common markets on products of mobile labor and capital feel its effects in the most definite and compelling way, especially if the industry used potential competition as a weapon and made a bargain as to future rates before establishing itself.

In the case of products of natural resources, where clear ground rent or royalty is a large element in the cost of production, the margin of choice left to the railway in fixing its charges is much wider, the "competition" is less immediate and compelling, the loss of traffic due to high rates is less in quantity, or at least is more remote in time. The money saved the shippers by low rates goes in considerable part to the owners of natural resources as clear rent. As such, it contributes to the prosperity of the region, to its purchasing power, and to its general attractiveness to settlers and to new capital; but in no such immediate way as if the money went for paying wages and interest to labor and capital which would otherwise not settle, or would be forced to move away. The fear of a definite immediate loss cannot fail to be a stronger motive than the hope of vague gain in the indefinite future. So, just in proportion as the commodity in question is the product of a natural resource bearing a clear rent or royalty, is the force of "market competition" weakened. Similarly the rates to these local points on the raw materials of production may be regarded as complementary to the out-bound rates on the products, and subject to the same influence in each case.

The local rates (or final portion of a through rate) on consumption goods to the local points on a railway con-

stitute the largest class of cases remaining to be covered under the general head of "indirect competition." These affect the cost of living and general attractiveness of a locality. Thus they are one of the considerations which a manufacturer who thinks of settling must directly or indirectly take into account. But the road would, of course, never use such rates in making a definite bargain with a prospective industry or in nursing along an existing one. It would be wasteful, and the effect so vague as to be hardly felt at all. So these rates must be classed with those affected by the weaker motive of desire for a prosperous constituency rather than under the stronger one of active market competition for a particular line of traffic. It might seem that these last cases should not be separated from the others, as they are merely the same processes seen from the other end. Carrying goods to a market where they must be sold under competition is the same process, whether you sit at the mill and watch them go, or sit at the market and watch them come. But there is a real difference between what may be called the "efferent" and the "afferent" types of market competition. In the latter the market is a local point, and while many producers may compete for it, they must all use the local line to reach it. So that the road need use no concessions to attract this traffic, either by making low locals from its own producing points, or by accepting low proportionals of through rates. Indeed there may be a special motive for the road to make the proportion of the through rates even higher than its locals for the same distance[1] in order to keep the "home market" for producers on its own line, and perhaps get

[1] Blackwell Milling and Elevator Co. v. M., K. & T. Ry. Co., 12 Int. Com. Rep., 23, declares this latter practice unreasonable.

a more profitable haul for itself. Such a practice, of course, violates the comparative-cost standard, for a through haul normally costs less than the sum of the local hauls. To the forces governing this kind of traffic, as well as that in products of clear gifts of nature, the term "competition," with whatever qualifications used, is misleading.

Another source of discrimination under market competition is the natural attitude of a traffic man who sees no difference between developing the fittest producers on his line, and giving special favors to some few chosen ones and so giving nobody else a chance.[1] It is the same attitude already alluded to, and expressed by a railroad official in the days of rebates when he said in substance, of the trunk-line competition for grain, "It's no use to lower the published rates for everybody. What helps our traffic most is to pick out one good hustler, give him a special rate and let him scoop the business." Thus the big company still has an undue advantage in bargaining under "market competition" and may obtain on the "infant industry" pretext a protection to which it has no economic right.

Finally the adjustments of market competition, once made, tend to ossify. They probably suited fairly well the conditions existing when they were made, but as conditions change and rate adjustments do not, the latter may become anomalous. Such adjustments are of two main types. On the one hand, there are those aiming to divide the field and give each road, system or section control of certain markets or of the sale of certain goods in common markets. And on the other hand

[1] Texas Cement Plaster Co. v. St. Louis & 'Frisco R. R. Co., 12 Int. Com. Rep., 68, illustrates the delicate problem of deciding whom to favor effectively and where to draw the line.

are those aiming to put the competitors on an equal footing over a considerable area which each considers his logical market.

As an instance of the first kind, what amounted to a widespread sectional discrimination has resulted from an adjustment intended to secure to each of two sets of roads the traffic in the products to which its region was at that time particularly suited.[1] In this case the rates on the numbered classes, covering most of the manufactures and merchandise, were in 1878 made unusually high as compared to the rest of the schedule on lines from the central section to the south. The purpose of this was to give lines from the East all the traffic in such articles, and those from the central section that in foodstuffs and other low-grade goods. According to the announcement of the manager of the Southern Railway Association, the rates on manufactures from the central section were meant to be prohibitive. But in the fifteen years which followed this adjustment, the centers of production, both manufacturing and agricultural, moved westward. The central section began to manufacture, and the bulk of food production moved farther west, while the central manufacturers were hampered in seeking their natural markets by the dead hand of an outgrown competitive bargain in rates. In suiting rates to existing conditions, the roads had suited them admirably to the blocking of normal progress.

Another very suggestive case is that of the Lincoln Commercial Club against the Rock Island Railroad.[2]

[1] "Cincinnati Freight Bureau Case," 6 Int. Com. Rep., 195. Overruled on grounds of lack of jurisdiction in "Maximum Rate Case," 167 U. S., 479.

[2] Lincoln Commercial Club v. C. R. I. & Pac. Ry. Co., 13 Int. Com. Rep., 319.

This illustrates the practice of "just meeting" existing competition and the anomalies it leads to, especially as conditions of production change. The case deals with rates on certain products from points in Kansas and territory south and west of the Mississippi, which were made higher to Lincoln, Neb., than to Omaha, though the distances and costs of hauling were in each case substantially the same. These rates were made in competition with products coming from the east, and had "just met" that competition in both of the markets in question, accepting the existing differential, which was a natural one for shipments coming from the east, but quite unnatural for shipments from the south. It appears then that in competition for several different markets in the same region the differentials likely to prevail are those made by the older route, which had the bulk of the traffic when the competition began. The shipments by the other line begin as "outposts of competition," uninvited guests who slip in with as little disturbance as possible and take things just as they find them. They accept an adjustment that is anomalous for them, but natural for the bulk of the traffic.

But now conditions change and centers of production move until the interloper carries the bulk of the traffic; and now a small volume of shipments is carried at naturally adjusted rates and an anomalous differential is imposed on the bulk of the traffic. This is what happened to some of the articles in the case referred to, so that here again competition of markets caused a violation not only of the comparative-cost principle, but of ordinary common sense.

Indeed, the practice of "just meeting" existing competition regularly causes departures from this principle of reasonableness. It means that the weaker producer

regularly gets a lower rate to put him on a level with the stronger, and the road serving the latter seems often unable to prevent this.[1] Apparently the producer's very strength is a source of weakness in bargaining with the roads. For he will get along somehow and market a fair volume of goods even if others get special rates, so that to the road he deals with, it is a question of a slight increase in the volume of a traffic that is fairly satisfactory as it is. But to the roads serving the weak producers it is a question of some traffic or none at all, with perhaps a ruined business and a bad "black eye" for the towns on their line. The latter motive is the stronger; it is the old story of the weaker member proving the more formidable in competition through his very weakness.

To summarize, then, market competition provides a motive to develop the most efficient producers on the line. This could be done by a general application of the comparative cost standard, with exceptions in favor of "infant industries." But in practice it is found, first, that this competition applies principally to one special kind of shipments, namely products of mobile labor and capital, (manufactures mostly) moving to markets where railroad competition exists. To other kinds of traffic it applies only with homeopathic force. Moreover it leaves discretion, and hence room for favoritism, in the treatment of local producers, especially in the use (legitimate in some cases) of an "infant industry" policy which must violate short-run standards of reasonableness. Further, in stimulating its own producers a road may unreasonably hamper shipments coming from other lines and the practice of "adjusting rates to industrial condi-

[1] "Eau Claire Lumber Case," 5 Int. Com. Rep., 264. Also Hutchison Salt Case, 5 Int. Com. Rep., 299.

tions," when it takes the form of dividing the field, tends to keep the industries rigid when conditions call for change; while the alternative practice of "just meeting" existing competitition over a considerable area also leads in a different way to violations of reasonable standards which get worse as centers of production move. And in particular, it appears that in market competition as in the direct kind, between a poor road and a rich one, the weaker producer may through his very weakness be the stronger competitor and so again standards of reasonableness may be violated and the fittest lose his just rewards. Thus the question whether market competition affords in itself a guarantee of fairly reasonable rate adjustments seems answered decidedly in the negative.

CHAPTER V

RAILWAY RATES AND COMMERCIAL POLICY.

One further phase of the conflict between public and private interests in rate fixing may be mentioned here: namely the bearing of railway rates on the protective tariff system of the nation. Volumes might be written on this subject alone. Even in Continental Europe the rates are regarded as very imperfect from the point of view of furthering the commercial policies of the nations,[1] while in our own country the import-rate policy of the roads runs directly counter to the government's policy of high protection. It goes without saying that these two phases of the cost of international commerce, viz., railway rates and tariff duties, are of necessity intimately bound up with one another; and that a nation which possesses a well-defined tariff policy cannot overlook the question of railway charges, if that policy is to be systematically carried out. On this question one German work takes a rather extreme position,[2] and develops to its fullest extent the possibilities of a railway rate system as a supplement to a modern protective tariff. The present Continental freight-rates do co-operate in some respects with the Imperial commercial policy, say the authors, but only in single measures, lacking unity and not adapted to further such policy in a systematic and

[1] Seidler & Freud, *Die Eisenbahntarife in ihren Beziehungen zur Handelspolitik*, 1904, pp. 4–6 *et passim*.

[2] Seidler & Freud, *op. cit.*

effective way. In support of the need for such close co-operation, Bismark's letter to the Bundesrath, Dec. 15, 1878, is quoted, voicing the need of a revision of railway tariffs concurrently with that of the customs duties. Since that time, it is claimed, there has been little progress toward that ideal.

Concretely, several faults are pointed out in the German system. In the first place, imported goods receive the same classification as those of home manufacture.[1] One must needs wonder why this is such a heinous fault, especially since a discrimination in classification against foreign-made goods would result in giving the highest protection to those home producers who serve markets far from the frontier and who thus need it least. Secondly, where imported goods travel far inland and get the benefit of the falling scale of rates on the long haul, protection is thereby neutralized.[2] Thirdly, it is urged that the benefits of the *Ausnahmetarife* ought to be denied to imported goods instead of being general.[3] And fourthly it is maintained that concessions granted to foreign goods and not to home goods, even though made necessary by direct competition, should either be withdrawn or made general.[3] This applies to all import-rates which charge less for the inland section of a long through haul than would be charged, according to the distance-scales, if the shipment originated at the frontier. Thus the writers are protesting against the familiar practice of making the through rate less than the sum of the included locals, when that policy is applied to import-shipments. However, that principle does seem to have

[1] Seidler & Freud, *op. cit.*, p. 26.

[2] *Ibid.*, p. 27. [3] *Ibid.*, p. 28.

been somewhat excessively applied, as in the following instance [1] of rates on grain.

Haul.	Distance.	Stückgut.	5,000 Kg.	10,000 Kg.
Sissek to Vienna (foreign grain)	507 km.	218 Heller	218 Heller	218 Heller
Lobosits to Vienna (Austrian grain)	495 km.	384 Heller	284 Heller	284 Heller

However, one can hardly imagine an American protesting against any such mild reduction in favor of the import-traffic, since in Hungary, from which the case is taken, the through rates are fixed less arbitrarily than with us and according to definite rules. Either the two locals are added and one "terminal-charge" subtracted, or else, if some shorter competing line, figuring in this same way, work out a lower rate, such a lower rate of an actual competing route may be taken over bodily. Of course, in such a case, the inland proportional of the rate might easily be so low as to violate the long-and-short-haul principle. But even so, the discrimination is not nearly so great as is possible under the American system, since the charge bears a definite relation to the sum of the local charges over the shortest route.

However, there are other practices common in Europe which tend to reinforce, rather than weaken, the tariff barriers. Such are reductions granted only to goods of home production. These often take the form of special rates from definite points of origin to all destinations or to single stations or groups. These can be so managed that the foreigner secures no benefit. Specially low ex-

[1] Seidler & Freud, *op. cit.*, p. 36.

port rates are another means of warfare, tending to neutralize the adversary's tariff. In short, the situation suggested is one of tariff wars of railway rates as well as of customs duties, with the inevitable result that such railway rates must become material for commercial treaties and so become involved in politics to an indefinite extent.

In reading this argument, or prediction, one cannot help recalling the story of the man who attempted suicide by poison, shooting, hanging and drowning all at once, and was frustrated by the completeness of his preparations. If not only customs duties but railway tariffs also be involved in the protective system, will it not become too unwieldy, complicated and obscure? Is it well that the exact amount of protection should be so lost in the mazes of rate-differentials as to be virtually impossible of human discovery? And is it a uniform and consistent means of protection to burden the foreign shipper with higher mileage-charges, which hamper him but little at points near the frontier but are increasingly felt as he penetrates the interior? Does not this discriminate against the home producer who is situated near the frontier, and also against the consumers dwelling in the central parts of the country? It may be that special and definite concessions in the matter of railway rates are more convenient than more general ones, as pawns in the chess-game of commercial treaties—that it is possible to do better bargaining by grading one's concessions carefully and dealing differently with different countries instead of being forced to extend to all the "most favored nations" concessions made to any one of them. And as a result, it may be that the European powers will make railway rate discriminations subjects of international agreement in order to have something

with which they can bargain freely.[1] But on the other hand, if it is freedom in balancing concessions which is desired, would it not be possible to secure this by merely adopting the American interpretation of the "most favored nations" principle? As is well known, European nations hold that a concession granted to any nation is automatically and freely extended to all who are on a "most favored nations" basis. America, on the other hand, reserves the right to *sell* special concessions to any country whatsoever, and holds that it is merely bound to offer the "most favored nations" the chance to *buy the same concessions at the same or an equivalent price* in the shape of return favors. Some think that Europe is tending to adopt this latter interpretation,[2] and if that be true, it would seem to offer all necessary freedom for the convenience of the international commercial bargain-counter.

Moreover, protective tariffs are avowedly matters of interference with natural economic forces, which is just what railway charges, for the most part, strive to avoid. If there are any general economic principles on which rates can be based, and if the rates in any given country are based in a general way on such principles, is it not better that any variation from such general principles should not be incorporated in the rate system, but be kept separate, to the end that the extent and nature of the artificial protection may be more clearly seen and wisely handled?

So far we have been considering the distortion of rate systems to supplement and coöperate with protective tariffs. In the United States the problem assumes the opposite shape. It is claimed that the discriminations in favor of import traffic tend to neutralize the protective

[1] Seidler & Freud, *op. cit.*, p. 145 *et passim.* [2] *Ibid.*, pp. 152–3.

tariff by giving the foreigner very markedly lower rates than the home producer. This has of course two bad sides. If the tariff were merely high enough, on a basis of equal treatment in rates, then by these special favors protection would be made insufficient. And on the other hand, if the tariff were too high, that fact would be partially neutralized and thereby concealed, so that the public might continue an iniquitously framed law because they had been prevented from feeling the full effects it would have wrought, if the foreigner had not been granted neutralizing concessions.

In this connection the fact of most significance is: to what extent do the import rates actually neutralize the tariff? In this matter a rough and rapid calculation which the writer once made may prove suggestive if not conclusive.[1] A list was made of 32 articles and groups of articles on which, in 1903, commodity rates were quoted from the seaboard, and for these articles the average differential between the import and domestic rates to eight representative cities was taken, also the duty per 100 pounds, as nearly as could be quickly estimated, on each of these articles. The following were the results obtained: Firstly, the domestic rates exceeded the import rates by percentages varying from 8½ per cent. to 70 per cent., and averaging (unweighted) about 37 per cent. Secondly, the domestic rates exceeded the import rates by amounts averaging (weighted) approximately 4 cents per 100 pounds on dutiable goods and 6 cents per 100 pounds on those goods in the list which were duty-free. Thirdly, with regard to the average amount of duty paid by the goods in question,

[1] Data taken from 57th Cong., 2d sess., Senate document no. 207. Data for weighting averages and transposing duties taken from *Monthly Summary of Commerce and Finance* for corresponding date.

the difficulty of reducing the schedules to commensurate terms, of cents per 100 pounds, was so great that only a rough approximation was made. However, it may be said that the average duty per 100 pounds paid by the dutiable articles in this list was certainly not less than 19 cents nor more than 25 cents. Thus it appears that the import rates neutralized something between 16 per cent. and 21 per cent. of the tariff duties.[1]

Such an amount is appreciable but not startling. As far as the calculation proves anything, it furnishes an instance of the fact that the private interest of the railroads does run counter to the national policy of protection, and weakens it perceptibly.

[1] It is not claimed that this is accurate, but merely a rough approximation. The translation of the duties into terms of 100 lb. units would of itself prove an almost endless task if exact accuracy were sought, while the choice of the "representative" cities to which the rates were taken, offers further chance for error, in that the choice could not be made the fairest one for all the separate cases.

CHAPTER VI

THE GENERAL LEVEL OF CHARGES.

HAVING now considered the natural or free workings of economic forces under present conditions and found them wanting from the point of view of reasonableness, the question naturally occurs—can any system be devised which could pass such a test perfectly—which could be shown to be right in every case or even in most cases? Does the "natural system" exist in the realm of the possible? In attacking this question, it may be best to get out of the way at the start the largest and most fundamental question—that of the natural or reasonable total return, inasmuch as it has some bearing on the question of relative charges.

The almost universal answer is that gross earnings should be such as to cover all outlays: total returns should equal total cost, including of course interest on the investment. This proposition seems so obvious to most people that it may be worth while mentioning that it is not completely self-evident. In the first place, it is not always easy to strike just the correct balance between the two public motives involved—that of a public business enterprise and that of a public servant.

When a community goes into the business of transportation and becomes an entrepeneur, it has, as an entrepreneur, exactly the same motives as any private person. This fact has been very practically demonstrated in the

matter of relative rates wherever state roads have come into active competition with private carriers, has happened, for example, in Belgium before the purchase of the private roads by the state which began in 1870. Far from following a purely public policy, the state lines were forced to meet the private roads on their own ground, and to imitate their discriminations and competitive practices in general. Under competition, the self-interest of the road as such is paramount.

Wherever competition is absent, however, a state road is freer to choose its own policy, and to balance its own interest as a producer against the other motive it has in view: namely, the interests of the body of citizens as producers and consumers. But it will never forget its interest as a business corporation. The public here plays two opposing rôles, that of the producer of transportation and that of the consumer, and the balancing of its interests in these two aspects is not absolutely simple. Various policies are followed, as everyone knows, in the various public and quasi-public services, policies which run all the way from that of high monopoly profits to that of free gift, supported by taxes. And in transportation itself we find side by side with each other systems of free highroads, canals on which the tolls pay for maintenance and operating expenses but nothing toward interest, and railroads whose earnings run up to the point of considerable net profits over all expense.

In the broad realm of public finance, of course, the element that decides the issue between a gift policy and a price policy is the fact that some services are of "general" rather than "special" benefit. That is, the direct benefits may accrue to certain people only in such a way that the recipient can be made to pay and so support the enterprise. If this is not the case, the benefits are

general, and must be borne by the general public out of its common treasury. Then there are cases where there are not only special benefits, but also further ones of a general character, and in these cases the service may be partly supported by charges or fees for special services, and partly out of the common funds.

From this point of view, it is pertinent to inquire whether there is any difference between transport by canal and by railroad which justifies a different policy of charges. In one way of looking at it there is no such difference, or if there is one, it is of opposite nature to the one we are looking for. The general benefits of rapid communication of intelligence and the diffusion of culture and of social solidarity are more closely associated with railroad than with canal services. Probably the benefits of canals are more narrowly limited to the mere increase in value of the goods carried. But, on the other hand, the railroad has an advantage in being practically able to adjust its charges so as to absorb a much larger part of the value it adds to the goods carried. The canal is not able to cut into consumers' surplus by its system of charges to the same extent as is the railroad, and this for the reason that the principle of classifying traffic according to what it will bear has nothing like the scope in canals that it has on a railway. There cannot be any effective value-classification in the tolls charged different barges for the use of the waterway, while competition of barge operators keeps the carrying charges for bulk freight also near a level fixed by the cost of handling, and without much variation for the value of the particular services.

This means that the services whose utility to the consumers is greatest—those which would bear the highest charge—need pay only about as much as those

which are barely induced to move. That is, if the rates are put low enough to let any considerable volume of traffic move, the "consumers' rents" are very great. But the railroad's system of classification and charging what the traffic will bear means a cutting into these high "consumers' rents" right and left, and an absorbing by the charges of a far larger fraction of all the special utilities it creates. So that it is much easier for a railroad to pay its own way without cutting down too much the use that is made of it. This furnishes an argument for selling canal transportation at less than cost, even though railroad rates be kept up. It will be noticed that this distinction is based on the tacit assumption that the canal carries a varied traffic, as it would if it were the only efficient carrier in the district it served. In the case of a canal which competes with or supplements a railroad, especially if there is traffic enough for both, the contention of this paragraph fails to apply with the same force. Where there is rivalry, the best results demand that the charges of both carriers should be governed by the same principles.

But to return to the question at issue: that, namely, of how much should be charged for transportation by a road run purely in the public interest; it would appear to be in order to investigate the total of benefits conferred on the community and compare these with the cost of conferring them. For this purpose various foreign writers have undertaken the somewhat Protean task of calculating in terms of money the total net economic benefits to the community of the freight services of railways. In one case this is done by the simple process of subtracting the sum total of what the community pays for its railway service from the sum total it would have to pay for the same services if performed by carts on the common high-

roads.[1] This of course gives a fantastically large answer. A more moderate and reasoned estimate was made by Dr. Wm. Launhardt.[2] He applies the above simple process only to the traffic which the railroads actually took away from the highroads. On the new traffic called into existence by the railroads themselves, he calculates society's surplus, or the consumers' rents, by subtracting the actual charges from the (estimated) extreme charges which this traffic would, intrinsically, bear. In making this estimate, the highest charges that transportation did bear under the old highway system, as measured by the cost of cartage for the longest distances to which these goods were "*transportfähig*," are taken as the basis for calculating the net benefit to society of the new transportation called into existence by the lower charges of the railways. By the former and simpler calculation the net "benefits" of the German railways footed up to 3.96 times the total freight receipts for the period up to 1878, or twenty-five per cent on the capital of the roads. The second method naturally gives a much smaller result, even though Dr. Launhardt uses as a subtrahend the cost of producing transportation instead of the gross receipts, so that he includes the road's net profits (above interest) in the total of economic benefits. His result is only about twenty-eight per cent as large as Engels'. In either case, however, the conclusion is to the effect that the income or benefit of society due to railways is vastly greater than the income of the railways themselves, for the more conservative calculation shows a clear consumers' surplus exceeding in amount the sum total of transportation charges. In this conclusion everyone will

[1] Engel, *Zeitalter des Dampfes*, p. 156, cited in Ulrich, *Eisenbahntarifwesen*, p. 142.

[2] *Zentralblatt der Preussischen Bahnverwaltung*, 1883, p. 27.

probably agree, although the process on which it is based is in this instance crude and seems to the writer fallacious. As a means of finding the total increase of producers' and consumers' surplus due immediately to goods carried and embodied in them alone, both processes give too high an answer.[1] However, these calculations deal with only a part of the social surplus due to railways, with that part embodied as added utility in the goods actually transported. But a very large part of the benefits of railways takes the shape of increased values of land and of more permanent kinds of improvements, while as for the general national and social benefits resulting from the more perfect unification of peoples and races into a solid economic organism, and the whole civilizing influence of cheap transportation of goods, these, though great, can hardly be measured at all. We can then readily agree that the income of society due to railroads is greater than that of the roads themselves, and that on the average shipment the total of the community's gains far exceeds the price paid. This points

[1] Engel assumes that the benefit from newly created traffic can be expressed as follows:

Let V equal the volume of newly created traffic.

Let A equal gross earnings of such traffic.

Let B equal highest charges per unit of freight formerly collected for cartage.

Then; Net Benefit = V B — A.

This involves the error of assuming that the total utility of a sum of services is equal to the product of the number of units by the greatest utility of any single one,—the utility of the service to the man who wants it most. We are considering units of traffic which *would not move at the rate B*—hence their utility was not B, but something less. In fact it ranged all the way from B down to the level of the actual rates collected by the road. Thus the total utility of the railways' transportation services, as far as it is embodied in the goods carried, is magnified, and *that part* of society's surplus is accordingly overestimated.

in the direction of a policy of enriching the consumers of transportation at the expense of the producers, in the expectation of largely increasing traffic and so giving society a net benefit far greater than the financial loss to the railroad administration. This loss could then be made good by taxation and society still be the gainer by a substantial amount. This is, of course, identically the same principle that governs in the case of highways, bridges, etc., and is there carried to its logical conclusion of free service.

However, in attacking the problem concretely, the exact calculation of past benefits, even if it could be made, would not be conclusive evidence. For the question is one of benefits to be secured at present, by a policy which will change the existing volume of traffic and earnings, and the only things that need measuring are the benefits and costs of that particular change. We are measuring changes at the margin of things as they are now, and the measurement must be a marginal one and not an historical sum total or an average. To put it algebraically, it is not the proportion of X to Y that is wanted, but of Δ X to Δ Y.

Dr. Launhardt has presented this argument in very exact form.[1] What is the result of a decrease of rates? As regards the traffic carried already, the only effect is to transfer wealth from the carrier to the shipper or to the final consumer. But the decrease will be bound to call forth some new traffic also. On this traffic, down to the point where it pays only its prime cost, the road makes a profit, while the shippers or consumers also receive some surplus. The total wealth of society, con-

[1] Launhardt, *Theorie der Tarifbildung, passim.* See also criticism in *Archiv für Eisenbahnwesen*, 1892, pp. 10 *et seq.*

sumers and producers together, is increased, then, by lowering rates down to the point where they cover only prime cost. To use this argument, however, as supporting a policy of running railways which earn only bare operating expenses, and canals that pay no interest on their first cost, is to run against several objections, some of principle and some of expediency.

First there is the practical difficulty of making a tariff based on operating costs. Any simple scheme, such as Launhardt proposes in the form of a distance tariff based on the average cost, would be bound to vary considerably from the facts in innumerable cases.[1] Such mistakes would in one way be worse than any that are made now, for they would result in carrying much traffic at an actual loss, instead of merely at an unusualy small operating profit. A critic might also be compelled to doubt Dr. Launhardt's estimate that the then existing traffic could have been increased fifty per cent by the proposed policy.[2] The chief practical objection recognized by the author of the theory is the difficulty of raising large funds by taxation. Dr. Launhardt admits that this reverses the whole result of his argument. The plan would mean easing a burden that is comparatively little felt and increasing one that is felt much more heavily. So that even if the change increased the wealth of the community, it would still be *felt* as an added burden. When one considers the recent dissatisfaction with the financial situation in Germany, one cannot but conclude that for Prussia to renounce the comfortable earnings of the state railways and seek for some form of taxation to make good the difference, would probably from the fis-

[1] E. Offenberg, *Archiv für Eisenbahnwesen*, 1892, pp. 11–12.

[2] *Ibid.*, pp. 13–14.

cal point of view have all the aspects of a national calamity.

Of course there would be one easy way out of the difficulty. The tax could be made indirect, and the base chosen could be the buying of transportation. This would be by far the most convenient and least disturbing method to follow, with the single drawback that it would mean abandoning the whole object sought, and arriving back at the identical system on which we are seeking to improve. Indeed for many purposes the most illuminating way of regarding rates is the following, namely, to consider that each charge is made up of two parts, a price and a tax or special assessment. The first part covers all costs that can be in any way traced to the traffic in question, and would be by no means insignificant. The second part is a contribution toward the truly "general" expenses, and can very profitably be regarded as nothing more nor less than a phase of indirect taxation for a public purpose.

But further than all this, there is a more fundamental objection to any scheme of selling transportation at less than cost. The whole argument of the case rests on the assumption of an existing plant capable of taking care of the extra traffic without any additions, and the lowering of rates to the level of the operating expenses would be limited by the condition that the traffic thus called forth does not exceed the capacity of the existing plant to handle, At that point, even in Launhardt's argument, all further increase of traffic would have to be stopped, by raising the rates, until such time as it would pay the whole cost of installing aud operating such new plant as might be necessary. It is one thing to lower rates in order to use to advantage the extra capacity of an existing plant; it is quite another thing, even from the

social point of view, to sink new capital in a commercial enterprise, knowing that it can never earn interest.

One more weakness remains to be pointed out in the philosophy of selling transportation at less than cost. If the arguments used were applied in exactly the same way to other businesses they would be found to give substantially the same results, and here in the last analysis is the *reductio ad absurdum* of the whole process. One may venture to assert that the total economic benefits of most modern machine industries, as compared to the hand processes they displaced, would prove to exceed the present cost of production by quite as satisfactory a percentage as was shown in the case of railways. Cotton gins or harvesters no less than railways could be shown to be worth far more than they cost, and hence deserving of the same kind of treatment. The same argument which Dr. Launhardt applies to increments of railway traffic could be applied to any industry needing large fixed plants, provided always there were some unused capacity in the plants as they stood. Shoes or cotton goods could just as well be sold at prices which would merely cover the special cost of the extra output that would be demanded, and the net economic benefit to society could be just as clearly shown.

The question then comes down to one that cannot be answered exactly in the existing state of human knowledge; namely, to the question whether the "general" benefits of railways are enough greater than those of other industries to warrant any markedly different treatment. To this question, common sense gives a fairly clear answer, if we can judge by the policies actually followed. If the road is the first one in a section, a pioneer developing agent, the general benefits come in the form of very greatly increased values, and the building-up of

a truly specialized industrial system where nothing but scattered and self-sufficing communities existed, or the making possible of settlement where none existed at all; in a word, the industrial annexation of new territory, the extending of the social and economic frontier. These ends are important out of proportion to the special values of the special services, and justify the selling of transportation at less than cost. And in such a case, natural forces nearly always see to it that for a considerable time transportation will be sold at less than cost.

But where a section is already industrially annexed, the conditions are different. The extension or improvement of existing railway facilities produces many general benefits, but so also does the establishment of any new industry. Any such industrial happening means an increase of land values, and a general increase of values in all businesses engaged in supplying either the material wants of the new industry itself or the needs of the increased population which it tends to attract. Thus there are no marked differences, once a section has been even passably supplied with railway facilities, between putting new money into mills, or farm improvements, and putting it into more railway equipments. Hence it would be uneconomical to cause capital invested in railways to earn markedly less than that invested in other enterprises, entirely aside from the financial problem of making good the deficit.

To sum up, then, certain arguments have been brought forward tending to show that the general economic benefits of railroads could be increased by selling transportation as a whole at less than cost. But on closer examination these were found to present practical difficulties, and to fail fundamentally to make good their case. The general benefits of railways (connected with

the freight service) may be greater in proportion to the "special" benefits than is the case in other industries, and this would of itself justify selling at less than cost. But in the first place, this difference is not measurable, nor is it very great, except in the case of the first line tapping a new country, and in that case transportation usually must perforce be sold at less than cost for some time. In the second place, to make good any deficit which public policy might impose there is no more just or suitable means than the quasi-taxation involved in the existing systems of "charging what the traffic will bear," provided this is administered as tax systems should be, wisely and for the public good.

CHAPTER VII

IDEAL OR "NATURAL" SYSTEMS OF RELATIVE RATES

VARIOUS "natural" systems of railway charges have been developed and even experimented with, and the practicability of such a system is well worth study. The principle which underlies them is the one already mentioned as the principle of comparative cost, and it may be remarked in starting that it is essentially a static idea, and one which underlies the whole competitive system of industry. As the law is so fundamental it may prove profitable to isolate it and trace it, singly, to its ultimate outcome, in order to see whether a system of rates can possibly be built on this alone. Should this prove possible, we would have secured, barring dynamic disturbances and friction, the system which secures at once the most efficient production and most just distribution of wealth. The line of argument in developing the idea of a "natural" system is something like the following:

In order that society shall serve itself most efficiently, shall get the most wealth for the least effort, it must buy each commodity from the man who produces and delivers it at the lowest total cost. To secure this result, each producer must get the full benefit of his abilities *and natural advantages*. Now, arbitrary discrimination in railroad rates may prevent that thing; it may enable one man to sell cheaper than his rival although his goods actually cost society more in labor and interest than do those of the other man. For instance, suppose two mills each one hundred miles from a market for which they

are competing. Say, mill A is the less efficient, its goods cost more to make, but for some reason it has gotten a special rate from the railroad. If the rate is low enough, mill A can undersell mill B and take the market. Just what does this mean? Presumably the two hauls of equal length would cost the railroads equal amounts. Then the goods from the mill B, delivered at the market town, have cost society less than those from mill A which the market patronizes. Society is poorer because a less efficient agent does some of its work which a more efficient one stood ready to do, and the producers at mill B have virtually been deprived of part of their product, which was handed over to mill A.

This is one line of argument which underlies current ideas of what constitute "reasonable" rates. They are those rates under which no producer, actual or potential, competing for the right to serve society, shall be put at an undue advantage or disadvantage from the above point of view with respect to any and all other producers. This is little more than a premise, a point of departure, a line of attack; but at least it is a logical one,—"*vom gemeinwirthschaftlichen Standpunkte.*" Following this premise, if any want of society or any of its members can be satisfied in alternate ways, one or both of which involve transportation services, then the charges for such services should be such that the means of satisfying the consumer's want whose money expense to him is the less shall be also the means whose true cost is less. This could be done if every charge could be made equal to the cost of the services involved, but it does not require such an absolute cost-system. What is required is that the charges for all transportation services which compete with each other should be so adjusted that differences in charge shall equal differences in the assignable cost of

carriage. Incidentally, there should logically be no break of continuity in passing to the limiting case in which the distance and cost of transportation involved are zero, in other words, the case in which the goods do not use the railroad at all. Each freight-service is a part of a process of production, which competes with other processes for the right to supply society with a particular thing,—let us say furniture. Thus the routes by which the rival products can reach common markets are in fairly direct competition with each other. Not only this, but all the separate carrying services involved in getting raw materials to the factories, in moving all the auxiliary capital goods necessary, and in moving the raw material of those capital goods themselves, and so on in a practically endless chain;—all these various services are competing with each other in a real sense when John Smith's order for furniture is sent to the factory offering the lowest price. Ideal perfection then requires that in every case where an identical want can be satisfied in more than one way, the intricate systems of carrying services involved in the rival processes should be loaded each with the same contribution to the general expenses, irrespective of distance, for only in this way can the comparative-cost idea be fully carried out.

One theoretical complication had best be ruled out at the start, because the problem is already intricate enough. To a certain extent the furniture-maker and the rug-maker, the butcher, baker and candlestick-maker, are all competing for the patronage of John Smith's marginal dollars, so that to make sure that those dollars are best spent, the comparative-cost principle would have to be applied to everything John Smith consumes, that is, universally. But this must be thrown out of court. In the first place, it means the introduction of the Launhardtian

system, which was discussed in the preceding chapter, and dismissed as impracticable, and in the second place, such "competition" between John Smith's particular wants for satisfaction, taking place within the mind of John Smith, is so largely governed by his particular personal tastes, fads and habits, and so little by any slight variations in the cost of satisfying different wants, that the cost element can fairly be left out of account in considering it. A slight difference in price may settle which of two brands of automobile John Smith will buy, but it is not likely to decide whether he buys an auto, a sailing-yacht or a motor-boat, and a slight shift in the classification of meat and vegetable food-products would hardly make much impression on his particular carnivorous, vegetarian, or Fletcheristic habits of diet. Mr. L. E. McPherson has presented very forcibly the insignificance of single freight rates in settling a consumer's choices between different goods.[1] But in settling the combats of rival producers in the same line small differences become decisive. Insignificant as compared with total prices, they loom large against the margin of profit on the turnover. So we may confine ourselves to the problem in which a nice adjustment counts and let the other settle itself.

Even from the point of view of equalizing the situations of strictly competing producers, however, the only system that will be perfect is practically that of Dr. Launhardt, or one which would charge for each unit of traffic only the special cost of carrying it. Any other system would break at some point the rule of comparative cost. We may, if we like, construct an imaginary system which

[1] McPherson, *Railroad Freight Rates*, chap. vi. Mr. McPherson, however, fails to compare the selling price of any commodity with the sum total of transportation charges that have to be debited against it.

should carry out this idea. In order to raise fixed charges and other general expenses a tax could be added to the freight-rate, a tax which should not vary with distance, though it would vary with the value of the goods. This would have to be supplemented by an equal tax on goods sold in places which have access to railway carriage, but which goods have *not* been carried on a railway. This would be necessary to preserve the logical continuity of the cost-difference system of rates. If it were not done the short-distance traffic would be killed, and an undue number of producers would arise, each supplying his own town, and protected by the high fixed tax from the competition of somewhat more efficient producers in his more or less immediate neighborhood. It may seem strange that such men should be taxed for railroad services which they do not get, but, after all, they are not injured with respect to others, for all, apart from and above the cost of any railroad service they get, pay the same tax. Only, if one of them is not that most efficient producer who should supply his home market, the fact will be ascertained and the article will be supplied by some more efficient man who was previously debarred by railway charges which were uneconomically apportioned. Of course such a scheme, like that of Herr Launhardt, presupposes unlimited governmental control, and is fantastically unlike anything we are likely to see, but it is the logical result of the application of an economic principle, and it may be suggestive to examine it more closely.

The tax would be apportioned to different goods on the general principle of classification. There are, however, different goods so related to each other that they do compete with each other for railway carriage in a very real sense. Such are raw materials and the finished

goods made from them. The location of a mill often depends on the relative charges for the raw materials. If the charge on the raw material is unduly low, then the mill will be located with reference to being near its customers, and probably farther from its supplies of raw materials and of coal, (which for this purpose is analogous), than is economical for society. If for any strange reason the charge on the raw materials is higher than that on the product made from them, the mill will be located too near the sources of supply and too far from the customers to secure the most economical results as regards the true cost of the total process of production.

It will probably be impossible to apply any definite rule to govern such cases, since they are so complicated and inter-combined. Steel, lumber, leather, etc., are raw materials for the manufacture of so many different kinds and qualities of manufacture that no adjustment is possible that will meet the perfection-test for all of them at once. In many cases there come into the figuring rates on so many complementary raw materlals, as well as on several different finished products, that any application of the comparative-cost rule is hopeless. In general, the actual practice of placing manufactured goods in higher classes than raw materials may be said to have a slight tendency to locate factories nearer the market and farther from the sources of raw materials than is economically desirable.[1] But in the simplest cases raw materials should bear the same tax over cost of carriage as the products made from them; a bushel of wheat and the flour normally made from it, or live-stock and the cor-

[1] This might not hold true in cases where the raw material was much greater in bulk than the product into which it was made. Moreover, most raw materials are cheaper to handle than finished products, and so must be placed in somewhat lower classes to fulfil the law of "comparative cost."

responding dressed meat, should bear the same fixed loading for profit over and above the cost of carriage.

What would be the effect of such a system as is here outlined on the railway business? If rates (including the "tax") were set at the average level at which they now are, there would still be a large increase in the effective demand for transportation.[1] Railroads with capacity to spare would be more freely made use of; and on these lines natural advantages would be more important than now, and location less so, in determining the local distribution of industry. We may note that this tendency is claimed by railroad men to be one of the great points of superiority in present methods of rate-making. The proposed scheme would accomplish the desired result consistently, systematically and to a greater degree than the present system.

Another effect would be that roads would be worked more nearly up to their full capacity than they are now, in an average year, and those whose capacity is now well used would become greatly congested. This would mean a general increase in the variable costs of carriage,[2] and a corresponding increase in rates, tending to check the growth of traffic. But the profits of the roads would have largely increased. This under government control would not be permanently allowed, and the tax levied to pay fixed charges would be reduced. This would have only a slight tendency to increase traffic, as it would apply to all production whether with or without the use of railroad transportation. Thus we should have traffic increasing, special costs increasing and general costs diminishing. This process would culminate with any road if it reached the full capacity of its track, when the

[1] Due to the peculiar burden of the excise on non-shipping producers.

[2] See *supra*, pp.

cost specifically traceable to any further traffic taken would *include* interest on the cost of the increase of plant necessary to handle it.[1]

At this point a curious dilemma presents itself. Traffic cannot be allowed to keep on growing, because new traffic will cost more than it brings in, and it is contrary to the theory assumed as the basis of this policy to take on any traffic for less than the cost traceable to it. But the only way to prevent traffic from growing so as to demand the investment of more capital is to raise the transportation-charges (at the same time lowering the amount of the quasi-tax charge). That is, the principle of making the rate-differentials equal to differences in traceable costs would be abandoned and the rates be loaded with a charge toward strictly general expenses. As the natural demand for transportation increased in strength, the rate would have to be still further raised, until at the point where the demand was so strong that new traffic could be made to pay, within reasonable time, for the plant necessary to move it, the existing traffic would be paying its full cost in the rates and the fantastic quasi-tax would have dropped out of the system as no longer needed. But by the same token the naturalness of the system, from the standpoint originally taken, has been destroyed by the apportionment of general expenses among separate units of traffic.

Seeing that this process of apportionment is something which even an imaginary "natural" system cannot escape, it follows that there can be no "natural" system of rates unless there is some "natural" method of apportionment. That there is no such method which will answer the strict demands of the standard of comparative special

[1] For treatment of the results of this general situation see Clark, *Essentials of Economic Theory*, pp. 423–4.

costs can be easily shown. Let us suppose the general expenses to be apportioned among hauls of different distances according to the special costs, so that each rate on a given article would be a fixed percentage, say, 200 per cent more than the special cost of the carriage involved. Then as between a producer who ships a long distance and his competitor who ships a short distance, the former will be at a greater disadvantage in transportation charges than the difference in measurable costs warrants. Or if each article paid a fixed assessment toward general expenses regardless of distance, then as between a man who ships a short distance and one who does not have to ship at all, the former is clearly prejudiced in a most unjust and uneconomical way. The attempt to square any system absolutely with this standard seems then hopeless, and the "natural" method of apportioning joint costs, if there be one, would seem to be thrown back upon some less exacting and more practical test of justice or social utility.

But here comes to the rescue the principle, already discussed,[1] by which the "special" cost of large units of traffic properly includes an apportioned share of much of the "general" expense. The disturbing element is the large amount of untraceable expenses. Now if one takes single shipments as units, this elusive element would far outweigh the traceable expenses, and the difference between total outlay and the sum of the special costs is tremendous. But if larger units be taken, as would in practice be the case if the road were debating the readjustment of its local scales for, say, all its short-distance traffic, then it is economically correct to include many more items. If the traffic be divided into such large units, the sum of the traceable costs will much

[1] See latter part of chap. i.

more nearly equal the sum total of outlays, and the disturbing element of untraced expenses would diminish.

Now what is being considered in this case is for the most part just such *large units* of traffic. The classification has already been made and the relation the classes should bear to each other settled. Moreover, the fullest cost-statistics must have been obtained. What is now at issue is a classification by distance, so that the unit considered is, say, all the road's third-class shipments of seventy miles or thereabouts, which are being compared with the forty-mile and the one-hundred-and-fifty-mile shipments, to see what loading for general expenses each should bear, as compared to the others. These units of traffic are fairly large, and so could correctly be charged with their share of many expenses which could in no sense be traced as "special" to single shipments. For instance, some part of the capital charges, represented by investments in motive power and rolling stock, might well be traced to such a large ton-mileage movement as is here considered, so that the vitiating element of untraceable costs is far smaller than one would suppose, but it is still large. Remains therefore the problem of a "natural" rule for apportioning expenses that are hopelessly general.

The answer to this question can probably best be seen by imagining a state railroad which wishes to try the peculiar policy outlined in the earlier part of this chapter, but finds that to do so means the development of more traffic than it can handle. Such a road must needs seek two things, namely, the full use of its plant short of congestion, and the least possible violation of the cost-difference principle of relative justice on which the whole system is based. Aside from these general principles, it would be governed by various, and perhaps conflicting, considerations of public policy.

CHAPTER VIII

REASONABLENESS IN DECISIONS OF THE COURTS AND OF THE INTERSTATE COMMERCE COMMISSION

In analyzing standards of reasonableness perhaps the most important are those contained in the decisions of the commissions and courts, but they are not easy to formulate into a consistent scheme, especially as some of the factors affecting reasonableness are admittedly conflicting.[1] In the following treatment some attempt will be made to generalize the standards set up, and, if possible, to estimate their relative importance and validity in different classes of cases. In doing this we may first take up the interpretations of the common law, limiting ourselves as closely as possible to the question of single rates in their relations to each other. However, the rules for determining whether a rate is reasonable "in and of itself" cannot be omitted, for the reason that, after all, the above phrase simply means "in its broader relations." It means a rate on a given item of traffic which loads that item with a "reasonable" share of the total costs, as compared of course with the sum total of all other items of traffic.[2] Thus it states a problem of the same sort, though far more complicated, than that of determining if a rate is reasonable as compared to certain other specific rates. More things have to be

[1] Beale & Wyman, *Railroad Rate Regulation*, p. 312.

[2] *Ibid.*, p. 478.

considered. The material of court decisions bearing on this is so meagre, that even the common law must look chiefly to decisions of the Interstate Commerce Commission for its precedents.

In the first place, as to the connection between single rates and total earnings, the financial necessity of a road cannot justify any and all practices which might bring up the earnings nearer to a reasonable level.[1] If the general rate of earnings is unreasonably low, a strong presumption is created against holding any rate unreasonably high, but nevertheless a public service company cannot lawfully charge in any event more than the services are "*reasonably worth*" to the individuals, even if charges so limited would fail to produce a fair return to the company upon the values of its property or investment.[2] Thus the courts assume the power to compel carriage at less than cost over parts of a system provided the return for the system as a whole covers cost,[3] or even in special cases where the whole system must be run at a loss. The rule of total cost works always against the railways, but not always in their favor.

Where this is done, the most definite standard that can be used to modify that of total cost is probably that of rates charged for similar services rendered by other carriers under substantially similar conditions. For example, "The Eureka Springs Railway Company received . . . . about nine times the average amount received by the railway companies operating lines in said States and Territories so grouped, because of similarity of, or in re-

[1] Jerome Hill Cotton Co. v. Mo. K. & T. Ry., 6 I. C. C. Rep., 601.

[2] Mr. Justice Savage, in Brunswick & Topeham Water District v. Marine Water Co., 99 Me., 371.

[3] Railway Co. v. Gill, 54 Ark., 112.

spect to, density of population, topography and nature of the country, character of industries served by railways and other characteristics affecting the question of the cost and reasonable compensation for railway service."[1]

In the matter of relative rates over different parts of a large system, the doctrine of comparative cost is followed in the decisions, subject to the above qualification. On branches unwisely or very disadvantageously located, reasonableness may require rates that fail to cover cost, while the profitable part of the line may not be allowed to make good this deficit.[2] But apart from this, branches or divisions on which because of high cost of construction or sparse traffic or other conditions the cost of carriage is high, should normally adjust their rates accordingly;[3] that is, in a general way the law of comparative cost should be followed. The same principle is to be followed in settling the reasonableness of extra high local rates which are justified by high costs of handling,[4] but in this, as in the case of whole branches where traffic is sparse, there is a tendency to consider that the difference of charge to be reasonable must be less than would be justified by the difference in cost if that alone were considered.[5] Such a doctrine clearly corresponds to the "infant industry" policy which modifies the law of comparative cost in the field of international trade. "Where a costly plant is built with the purpose of supplying a

[1] Cary v. Eureka Springs Ry., 7 I. C. C. Rep., 286; case decided in favor of complainant. See, also, Int. Com. Com. v. Louisville & Nashville Ry., 118 Fed., 613.

[2] Steenerson v. G't. Northern Ry., 71 Minn., 353.

[3] Wellman v. Chi. & Gd. T. Ry., 83 Mich., 592. Smyth v. Ames, 169 U. S., 466.

[4] N. Pac. Ry. v. Keyes, 91 Fed., 47.

[5] Beale & Wyman, *op. cit.*, 450.

large future population, the customers served before the full development cannot be forced to pay the full expense. The . . . company must recoup itself, if at all, by charging these losses to construction account as part of the cost of establishment."[1] By this system of bookkeeping the infant, if he ever matures, pays automatically the cost of his own rearing. The inclusion of such necessary losses as part of the necessary capital investment is practiced by commissions.

Having disposed of the question of apportioning the costs as between freight and passenger traffic, and secured theoretically at least a separate freight service with its own distinct earnings and expenses, the problem next arises of applying the cost standard to separate shipments. In this several methods are possible. The special costs may be traced, so far as this is possible, and compared with each other; and this method is the most nearly correct in theory and the least practicable. For if only those items were included which were directly traceable to single shipments or small units of traffic, the result would be invalid; it would be too small to be economically correct.[2] A variation of this method would be to apportion the more general operating expenses to the particular traffic involved, each item of expense being apportioned according to the particular service-unit which has the most direct effect on it and with which it varies most closely. For instance, renewals of rails might be apportioned according to the gross-ton-mileage and the cost of renewal per gross-ton-mile could be found. Then if the gross-ton-mileage due to the par-

[1] Beale & Wyman, *op. cit.*, p. 451. See Mr. Justice Holmes in San Diego Land & Town Co. v. Jasper, 189 U. S., 439.

[2] See latter part of chap. i, *supra*.

ticular traffic is known, its share of that class of expense is a matter of simple arithmetic. Other expenses might be apportioned according to net tonnage, or to train or engine mileage, and then reapportioned on to the traffic in question, according to the number of net tons, or to the engine miles which are in the long run special to it. This method gives a very close approximation to the costs which are in the long run special to each considerable category of traffic, and which are therefore the ones that should govern in rate-making. Allowance for special service conditions, size of cars, etc., may be made as minutely as railway statistics will allow. This, then, is the most satisfactory method on the whole; but it requires most minute knowledge of the railway's affairs, such as the courts are not in a position to obtain. Moreover, once the apportionment of costs to service units is made, it stands as the basis to which any cases coming up may be referred. This method is more suited to use by a rate-making commission with the broadest powers than by a court enforcing the common law.

A simpler and less accurate method, but an easier one, is that of apportioning all costs on some one simple traffic unit, as the ton-mile, for instance, thus getting an average. The variation of any particular service from that average can then be estimated, reference being had to the special costs that are easily measurable, both for the purpose of deciding how much the given traffic varies from the average, and of furnishing a definite minimum as a check to the rough estimates. This method is the most nearly suited to the limitations of the ordinary court.

Another method easily open to a tribunal having specific cases to consider is to ascertain only those special costs most clearly traceable to the traffic involved in

the particular case, and to add a tentative loading for other operating costs apportioned roughly on the basis of the costs already found. If the traffic has been charged with its full share of certain expenses, as wages of trainmen, cost of fuel, oil and waste, renewals and repairs of engines and cars, and if these items make up 40 per cent of the road's whole cost of operation, then $\frac{10}{4}$ or 250 per cent of the traced costs would furnish a rough approximation to that traffic's pro-rata share of the operating costs.[1] This furnishes some guide as to whether the contribution toward capital expenses made by the traffic in question is more or less than the average, and how much.

Obviously such a standard is so inaccurate that it cannot be used as a quantitative or an independent standard of rates. It can only be "considered along with other factors" and it establishes little more than that "the carriage of some goods is known to be more expensive than that of others."[2] Thus the scope of the cost standard of reasonableness under the common law is narrowly limited. Between rates that will be held to be entirely unremunerative, and those that are so high as to be held unreasonable *per se*, there is a sufficiently wide margin for almost any kind of practice. In judging of the reasonableness of the net earnings secured from any rate, further standards are afforded by "comparison with other rates," by "commercial conditions," and finally by the general standards of tax-policy, regarding the rate, or net-earnings portion of it, as a "tax imposed by a public servant for the performance of a quasi-public

[1] In Re Advances in Freight Rates, 9 I. C. C. Rep., 382, 397.

[2] Beale & Wyman, *op. cit.*, p. 462.

duty."[1] All of these standards in application fail somewhat in definiteness.

So far we have been considering the doctrine of reasonableness by itself. We may now go on to the more definite doctrine of discrimination or of relative reasonableness. This is an addition to the legal concept of reasonable charges, growing out of the situation of competing producers, to whom a slight difference in rates means business life or death.[2] It seems to be based legally on the obligation to serve all comers alike,[3] which can of course be nullified by discriminating charges, and by very slight discriminations if the customers are competing producers. Thus in either case justice as between competitors is the only consideration which can well be used to declare small discriminations illegal. This doctrine applies most easily, of course, to personal discriminations. In passing to local discriminations, definiteness is lost, and it becomes difficult to establish with certainty that there is a disproportion which is clearly important in amount, and for which the responsibility rests clearly with the carrier rather than with some circumstance of service or of commercial situation which is beyond his control.[4] In general, the presumption is bound to be in favor of the practice of the roads, so that against local discriminations the common law is ineffective.

Indeed, almost all practices may be justified by competition, *i. e.*, all which are necessary, *bona fide*, to se-

[1] In Re Proposed Advances in Freight Rates, 9 I. C. C. Rep., 382, 434.

[2] Beale & Wyman, *op. cit.*, p. 679.

[3] Fitzgerald v. Grand Trunk Ry. Co., 63 Vt., 169, and other cases.

[4] Commercial Club of Omaha v. Chicago & N. Ry., 7 I. C. C. Rep., 386, 404.

cure any traffic which can be made to contribute anything to net earnings. But the question whether real competition exists,[1] and whether the rates in question are not so low as to be unremunerative and an actual burden on the rest of the traffic, are matters of fact to be settled by the tribunal. If competition of this nature were found, the earning of reasonable dividends on the whole business would be evidence that the local rates were unreasonably high.[2] Thus a certain limitation is placed on the extent to which competition of rates may go. Otherwise, the settling of problems of local discrimination seems to rest on the fact that the lower rates may have considerable weight as evidence that the higher rates are in and of themselves unreasonable.[3]

To sum up, then, the results of a search for standards in the common law, the cost standard is prominent, but prevented from being used definitely by the absence of any regular method of apportionment, and by the lack of detailed statistics suited to the purpose. There appears also the "established interests" standard and the "infant-industry" standard.

The various state and federal statutes furnish a further source of legal standards of reasonableness, and especially the cases settled by commissions acting under these statutes are valuable for this purpose. In the present study space permits only some consideration of the federal statute law. In the general enforcement of reasonable rates and prevention of undue preferences, the law adds little to the principles already developed. It is

[1] Judge Taft in E. Tenn., Vir. & Ga. Ry. v. Int. Com. Com., 99 Fed., 52, 39 C. C. A., 413.

[2] In Re Chicago, S. & P., K. C. R. Co., 2 Inst. Com. Rep., 137, 2 I. C. C. Rep., 231.

[3] Int. Com. Com. v. Southern Ry., 117 Fed., 741.

interesting to note that rates must always be regulated downward if at all, and never upward, even though they may be ruinously low. Under such circumstances, the commission would logically be justified in reducing any other rates that might be found unreasonably high, even though total earnings were thereby made unreasonably low. On these general rulings the statute and common law are the same.[1]

In the matter of discrimination, however, and especially of local discrimination, the wording of the statutes and the powers of the commission have given opportunity for regulation which is impossible under the common law. Moreover, the nature of the problem admits of more definite and satisfactory settlement, for such cases are simpler than those involved in deciding whether rates are reasonable "in and of themselves." The emphasis is laid on fewer and simpler considerations.

Passing at once to the question of local discrimination, we find the comparative-cost standard a prominent one. For instance, in the matter of raw material and finished product, where the carriage of these two truly competes, the law stands that, "the proper relation should be determined from the cost of the service, and if the difference in this respect between two competitive articles can be ascertained, such rate should be fixed for each as corresponds to the cost of the service."[2] One of the standards of reasonableness which in practice is most prominent in modifying the cost standard is that of equalizing competing producers and so enabling the market served to get the benefit of more active competition, while increasing the number of producers who get

[1] Beale & Wyman, *op. cit.*, § 918, pp. 845–6.

[2] Squire v. Michigan Central Ry., 4 I. C. C. Rep., 611.

a chance, at least, at the market. On this question the common law is indefinite. It allows the practice within limits, but the limits are no more definite than the various opinions of separate judges on the question what, in particular cases, public policy demands. It is hard to say definitely what standard of public policy lies back of this practice. Perhaps the clearest is the one that might be called the "symmetrical development" standard. "A considerable extent of territory containing a large number of mines, quarries or manufacturing establishments, has frequently been given identical freight rates upon the ground that otherwise the more distant points would be driven from the market and thus important industries might be ruined, resulting indirectly in serious loss of revenue to the road."[1] Here we have the "established interests" standard, already noted;[2] but there is surely more in it than that. For no argument from "established interests" could apply where such group rates are used in the developing of a new section, or of new business in an old one. Probably the widespread practice of grouping destinations is in part due to the fact that of the possible methods of compromising a too fierce and direct competition between roads for common markets, the grouping practice affords the method least suggestive of "restraint of trade." As compared to the practice of dividing the field, it certainly seems to promote rather than limit competition of producers, and does not make it quite so obvious that the competition of railways has been settled by an agreement. It makes a show, at least, of widening rather than stifling competition.

[1] Howell v. N. Y. L. E. & W. Ry., 2 I. C. C. Rep., 272, 2 Int. Com. Rep., 162.

[2] See *supra*, p. 63.

But the grouping of points of origin must be based on a different principle; there is a certain public policy involved. Where it is a question of using up natural resources this is quite clear. Ultimately, it may be assumed, all these resources will be needed and developed down to those of lower grade and more inaccessible than are now worked. A tariff sticking close to cost might easily give the best located ones such an advantage that they would be worked hard and worked out comparatively soon. Then the more poorly-located fields would come into requisition and an unnecessarily wasteful shifting of population and capital would have to be made. This would involve economic loss which would be avoided by anything which would cause the two grades of resource to be developed at the same time, each less intensively. Such a policy would clearly pay, even though for the time being labor and capital were used in ways less immediately advantageous than the best that could be found. For example, such a shifting of the source of supply occurred when the northwestern white pine forests were used up, and the southern yellow pine, which had formerly been burdened with relatively high rates, became a chief source of supply. Such a shifting of centers of production causes many complications and may well cause wastes of capital. Plants for the manufacture of sash, doors and blinds, established in Oshkosh, to work up the northwestern lumber, are now forced to bring their raw material from the southwest. They are thus badly located for the present conditions of production, and the resulting waste is directly traceable to the fact that different centers of supply have been developed successively.[1] Clearly, a policy making for a symmetri-

[1] McPherson, *Railroad Freight Rates*, p. 135.

cal development of many areas at once without quickly exhausting any, would tend to reduce this waste and so be of economic benefit.

A similar line of argument might be used to support the building-up of an industry or of agriculture, in places in which the growing demands of society will ultimately call them forth in any case, but where for the present they are under a slight, but decisive, disadvantage. Thus the "symmetrical development" standard in a certain way corresponds with the infant industry argument, and in so far as it does so it could hardly be used to justify a permanent policy. Further than this, however, there is a well-founded and general belief that it is well, on other than purely economic grounds, to spread population and prosperity as uniformly as possible, and especially to bring it about that our centers of industry, trade, wealth and the culture and prestige which go with them, shall be many and scattered, rather than few and concentrated.[1] This idea has played a considerable part in railway rate regulation policies; as, for instance, in Texas, under the influence of Judge Reagan.[2] In that state the "common-point" system was evolved, a system peculiarly suited to the scattering of the jobbing business in small centers, and a system distinctly at variance with the "comparative cost" idea.

As to the limitations put upon this equalizing policy in the way of keeping somewhere near a comparative cost basis, they seem in some cases to be very slight. The maximum limits are the points at which the rate to the farther station is unremunerative, or where that to the nearer point is unreasonably high *per se*.[3] This

[1] Ross, *Social Psychology*, chap. xi. [2] McPherson, *op. cit.*, p. 94.

[3] Howell v. N. Y., L. E. & W. Rr., 2 Int. Com. Rep., 162, 2 I. C. C. Rep., 272.

would be true even under the common law. Most commissions would be far more strict, and would declare group rates unreasonable if they equalized any very decided and substantial natural differences. However, even commission regulation is a trifle indefinite on this point. The Interstate Commerce Commission will consider only cases in which the towns involved are neighbors, similar in size, situation and volume of competing traffic.[1] But such complete similarity is rather unusual, and in general it may be said that where the roads have refused to equalize existing disadvantages they are not forced to do so,[2] and where they have done so voluntarily they will not within fairly wide limits be forced to undo their work. In its early days, it is true, the commission was inclined to consider equal mileage rates as *prima facie* reasonable, and held in one case that any departure from such rates must bear the burden of proving itself reasonable.[3] This attitude, however, has since been abandoned, and the burden of proof that any rate is unreasonably high rests upon the complainant.[4] However, the Interstate Commerce Commission has repeatedly held that where it can be shown that a road has deliberately equalized existing inequalities in natural advantages for production, as between places so located that valid comparison can be made, such practice is unreasonable.[5] In such cases, of neighboring localities

[1] Eau Claire Board of Trade v. Chicago, M. & St. P. Ry., 4 Int. Com. Rep., 65, 5 I. C. C. Rep., 264.

[2] Freight Bureau v. Cincinnati, N. O. & T. P. R. Co., 4 Int. Com. Rep., 592, 6 I. C. C. Rep., 115.

[3] Commissioner Veasey in Logan v. Chicago N. W. Rr. Co., 2 Int. Com. Rep., 431, 2 I. C. C. Rep., 604 (1889).

[4] Lincoln Creamery v. Union Pac. Ry., 3 Int. Com. Rep., 794.

[5] Eau Claire Board of Trade v. Chicago, M. & St. P. Ry., 4 Int.

under generally similar conditions, distance, it is held, should govern. Thus the standard of symmetrical development at expense of present equality of treatment gets little recognition from the Commission, but it will, if it can, prevent the smoothing-out of natural inequalities.

In a general view of the work of the commission, two broad characteristics of policy stand out. In the first place, it is making no attempt to apply a universal scheme of rates, a rule or rules of automatic reasonableness. Even were its members to work out for their own guidance some such system, they would not attempt to impose it upon the country. In the language of one of their own recent decisions:[1]

> The Commission . . . must deal with the interstate rates of this country, which have not been established upon any consistent theory, as it finds them . . . Unless therefore the general result of all rates is to yield an undue revenue to the carrier, the Commission should not reduce a particular rate simply because it might think, if establishing that rate de novo as part of a general scheme, that it ought to be somewhat lower or somewhat higher in proportion to others. The rate attacked must be so out of proportion as to be unreasonable or must be unlawful for some other special reason.

Not perfect adjustments, but the righting of the more considerable maladjustments, then, is the aim of that body.

Indeed, the "established interests" rule of reasonable-

Com. Rep., 68, 5 I. C. C. Rep., 264. Freight Bureau v. Cin. N. O. & T. P. Ry., 7 I. C. C. Rep., 180. Central Y. P. Association v. Vicksburg S. & P. Rr., 10 I. C. C. Rep., 193, etc.

[1] Corn Belt Meat Producers' Ass. v. Chicago, B. & Q. Ry. Co. et al., 14 I. C. C. Rep., 376.

ness itself compels such conservatism. Thus, for instance, in dealing with a case in which relative distance was disregarded in the "meeting" of market competition, the commission acquiesces in the general practice, but holds that distance must govern the rates *on that route over which the greatest volume of traffic moves.* The case was one in which a region enjoyed competition of producers shipping from the east and also from the south. But as between different points in the region, the differentials originally fixed by the eastern lines were adopted by all the others, so that the southern and western lines made higher rates to the more western towns, regardless of distance. Thus shipments from southern points to Lincoln, Neb., cost more than to Omaha, though distances and costs were substantially the same. It is obvious that if the practice of "just meeting" competition or of meeting it with equal forec over a considerable area, is to be followed, one or the other set of competing rates, or both, must thus disregard distance. The upshot of the decision in this case was, that the smaller competitor (in volume of traffic) may reasonably make disproportionate rates in going to meet the larger one, but the larger shall not so go to meet the smaller.[1]

Somewhat similar is the ruling that roads engaging in competition may take things as they find them and meet the competition already existing, but may go no farther in twisting their rates out of shape than is necessary to do this.[2] Once the new road is in the business,

[1] Lincoln Commercial Club v. Chicago, R. I. & P. Ry. Co. et al., 13 Int. Com. Rep., 319.

[2] Grain Shipper's Ass. v. Ill. Central Ry., 8 I. C. C. Rep., 158. Cannon Falls F. E. Co. v. Chicago G. W. Ry., 10 I. C. C. Rep., 650, etc.

no one will say that the force of competition tending to lower rates has not been increased, and no one can measure the increase. The Commission is well aware of this,[1] but adopts its ruling as a measure calculated to limit the amount of war discriminations without hampering the roads so as to prevent any one from competing for any traffic which it can move efficiently. In this ruling there is evident a desire to limit direct competition in rates and center it on service, and also a trace of the established-interests or established-adjustment idea.

This care of established interests is in general given less weight by the Commission than by the courts. In its most limited and most clearly valid form, the doctrine merely forbids any action which would needlessly destroy the value of existing capital by rendering its product unmarketable. Aside from this it recognizes no vested right to do business or to have expectations of growth fulfilled. Still this wider interpretation appears to be the controlling motive in the recent circuit-court decision by which the Interstate Commerce Commission's order in the Missouri Rate Case was suspended by injunction. It is hard to see how otherwise the "laying of artificial hands" on business adjustments appears in this case in any different sort from its occurrence in other rate rulings, though of course the results are here unusually far-reaching. The hands of the Commissioners are no more artificial when fixing the Mississippi-to-Missouri River proportional than when fixing any other rate, even if they are conceded to be a more artificial variety of hands than those of the railway traffic men. It seems clear, then, that it is not the artificiality of the adjust-

[1] "St. Cloud Case," 8 Int. Com. Rep., 346.

ment, but the vested interests of the businesses affected, and the extent to which they would be disturbed, which governed the minds of the majority of the circuit court in this case.

A second general feature of the Commission's work is the emphasis which it seems necessary to lay on the cause or motive of a practice complained of, rather than the substance of the practice itself, in deciding whether it is unlawful. For instance, the fact that a road can get reshipments and a longer total haul out of traffic moving to one market than to another, taken in connection with the fact that its rates are disproportionately fixed so as to favor the former market, is a strong bit of evidence that the adjustment is selfish and arbitrary and hence unreasonable.[1] And, similarly, an adjustment obviously intended to "divide the field" and assign the products of one section to one market, and those of another to another, is an evident creating of artificial differences in market conditions, and is arbitrary and unreasonable.[2] Preferential treatment of a city which has subscribed to the building of the road is held unlawful.[3]

Such emphasis on motive is natural and really necessary, but the impression cannot be escaped that it is more suited to the punishment of personal crimes or misdemeanors than to the enforcing of a far-reaching economic policy. For the latter should be judged by economic results, not by good intentions or extenuating

[1] In Re Export Rates from Points East & West of Miss. River, 8 I. C. C. Rep., 185.

[2] Savannah Bureau of Freight & Trans. v. Louisville & Nashville Rr., 8 I. C. C. Rep., 377.

[3] Lincoln Board of Trade v. Burlington & M. R. Rr., 2 Int. Com. Rep., 95, 2 I. C. C. Rep., 147.

circumstances; the policy of a public agent of such vast importance as a railway system should if possible be so firmly under control as to be superior to such considerations of conflicting private interests. Whether such control would be worth what it would cost us, in the abolishing of our remnants of railway competition, is another question; but at least the weight given to disturbing circumstances in our Federal rate regulation is, as far as it goes, a confession of inability to enforce a policy aimed consistently at a purely economic goal.

'We may sum up in a sentence the standards governing in the regulation reviewed above.' The central one is that of comparative cost; modified toward conservatism, especially in the courts, by consideration of established interests; slightly modified by the "infant section" idea; and imperceptibly if at all by the standard of symmetrical development; but modified most of all by necessary concession to the practices which must needs go with private competitive rate-making, especially that of making "blanket rates" or others which "just meet" competition over a wide area.

CHAPTER IX

GENERAL PRINCIPLES OF DISTANCE-TARIFFS

Of rates based on mathematical formulæ there are three main kinds: First and simplest is the flat rate, proportioned directly to distance, with or without the addition of a fixed terminal charge. Such rates form the basis of the German system, being applicable to all the regular classes (with the exception of *Stückgut* and *Spezialtarif III*). However, on account of the numerous exceptions and commodity-rates, a majority of the traffic and the most important goods move under tariffs of different form.[1] Elsewhere in Europe, this form of distance-scale is little used. In America it furnishes a convenient basis for figuring purely local rates for short hauls, in the absence of any considerations to the contrary. And, as is well known, the class-rates in the trunk-line section are roughly based on this principle.

Secondly, there is the zone-system of rates. The distinguishing marks of this system are, first, the measuring of distance in very large units or "zones," often progressively large ones; and secondly, the fixing of a point beyond which the rate ceases to increase, no matter what the distance.[2] In other words, in adjusting the distance-units, which may be of variable length, the final one simply extends to infinity, or to the borders of the

[1] Seidler & Freud, *op. cit.*, p. 22.

[2] Albert Pauer, *Lehrbuch des Eisenbahntarifwesens* (Vienna, 1900), p. 8.

railway system. The term includes also the limiting case in which there is only one "zone," *i. e.*, the postage-stamp system. Indeed, Rowland Hill, the father of England's penny postage, is also credited with being the father of the zone-system of transportation charges. The zone-system proper, contrary to general impression, is not in use at the present time for freight. It has been used in Hungary since 1889, but for passengers and baggage only. As to the Austrian passenger tariff of 1890, the use of distance units of 10, 15, 20, 25 and 50 kilometers justifies the use of the term "zone-tariff" in describing it, but it lacks the characteristic mark of a zone-tariff proper, in that there is no distance beyond which charges no longer increase—no final zone extending to infinity. It is thus not a zone-tariff of the extreme type.[1]

Finally and most important is the falling *barême* or *Staffeltarif*, sometimes called in English the system of tapering rates. This is now the customary basis of European freight tariffs, and is used for passenger and baggage rates as well. In this form of tariff the rate increases with the distance, but at a diminishing rate. For the first 50 kilometers, let us say, the rate per kilometer remains constant, but from 50 to 100 kilometers a lower rate rules, and from 100 to 200 kilometers a still lower one. There are two ways of applying this principle. For a haul of more than 50 and less than 100 kilometers, the rate may be found by adding together the regular rate for 50 kilometers and the lower rate on the excess over 50 kilometers. Or the lower rate may be applied to the whole distance, provided only it does not come to less than the regular 50-kilometer rate, in

[1] Pauer, *op. cit.*, p. 25.

which case the latter will be taken. The second method of calculation is, of course, less satisfactory than the first, for it produces "groups" or "zones" with no logical reason for their existence. Shipments of considerably more than 50 kilometers may pay only the 50-kilometer charge, for no economic reason, but purely because of the arbitrary choice of this method of calculating the degression of the rate. By the other method, every kilometer costs something, and no arbitrary groupings are made. The fifty-first kilometer costs as much as the ninety-ninth. The scale would thus be represented graphically by a broken line, always ascending, but less and less steeply after each break. The former system of figuring, on the other hand, still further breaks the line by interposing horizontal sections, and is an inferior form of *Staffeltarif*.

What now is the economic basis of such a scale of rates? The claim is made for it that it is based on the value of service principle; a claim which many American railroad men would be slow to admit. Indeed, as compared to straight mileage rates, the *Staffeltarif* is surely a step towards a value-of-service system. But if it is regarded as embodying in itself the fulfilment of that principle, the term must be used in a somewhat different sense from that common in American discussions. What, then, is the foreigner's idea of "value of service?"

As to the fundamentals of value, there is no marked peculiarity in the viewpoint on which the *Staffeltarif* is based. Rank, for instance,[1] cites Jevons, Menger and Wieser as authorities. Value is something psychological, an individual estimate of usefulness, and it diminishes as the individual's supply increases. Applying this

[1] Rank, *Eisenbahntarifwesen*, pp. 153 *et seq.*

to railway services, their values vary with the commodity shipped, the time when shipment is made, the place to which it is made, the shipper by whom it is made, and the consumer who ultimately receives the benefit. Beside these are, of course, the important variable elements of speed and regularity of service, which are of far more importance in some cases than in others. Thus practically no two shipments have the same value—subjective value, that is. But there is no stopping here, and it is not "subjective value" which governs railway charges, at least not the subjective values of individual shipments.

In the first place, no service can be rendered whose value does not exceed its cost, and the continental methods of computing costs for rate-fixing purposes involve far more of averaging and prorating of general items than do American methods. Moreover, the European is inclined to be stricter in the matter of granting single rates, which will not contribute their pro-rata share toward the general outlays, whereas on American railways all that is required is that a given class of traffic should, in the long run, cover its pro-rata share of all the operating expenses, and also give what seems, all things considered, a reasonable contribution toward the fixed charges. If the general result is thus satisfactory, there is little disposition to apply the pro-rata test too sharply to individual concessions.

The more enterprising of American roads in the matter of cost statistics, as the Santa Fé, have very full and accurate figures of the average ton-mile cost of handling freight on the various divisions of the system. The tremendous task of tabulating systematically the amounts by which particular items vary from these averages, is not yet attempted. As they stand, however, the averages

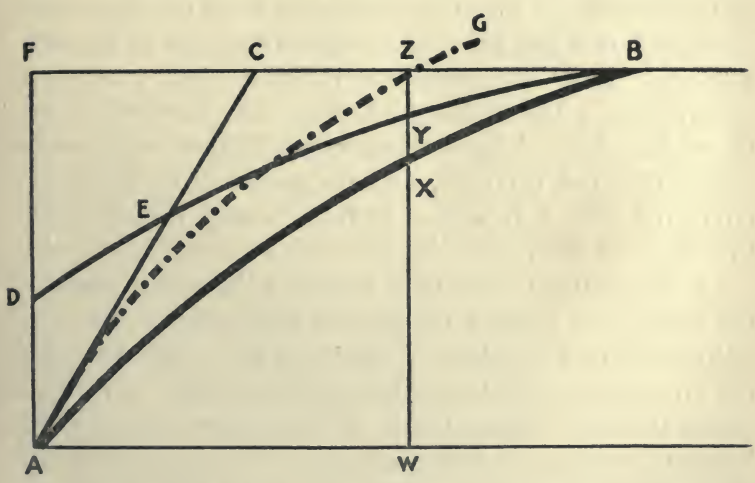
are useful in guiding the making of rates, for they furnish a check on undue concessions. The statistical office can be in constant touch with the traffic department, and can call attention to any rate which approaches dangerously near the cost line, with the result that attention is focussed on such rates, and that it is less likely that unprofitable ones should be continued, merely for lack of careful scrutiny.

In a word, then, by their more formal methods of reckoning cost, the continental European railway rules out many possible shipments having a low "subjective value" as being worth less than the *average* cost of carriage for shipments of their general class, whereas the American road is inclined to make reductions to attract such shipments, stopping only at the *marginal* cost of carrying them. But the foreign idea of "value of service" is something different from mere subjective value. It is expressed, by Teutonic writers especially, as the result of averaging up the many subjective values, and the result is given by Rank the name "objective value" to distinguish it.[1]

This concept of "objective value" may be interpreted somewhat after this fashion. Every shipment that moves is worth more—has greater subjective value—than the price charged. If rates were fixed at cost, every shipment would give rise to a certain social surplus going to the producers and consumers directly concerned. Now if, on all the shipments covered by a particular rate, these consumers' and producers' surpluses can be averaged, we will have in this average a fair definition of the "objective value" which figures in the speculations of the theoretical champions of the *Staffeltarif*.

[1] Rank, *op. cit. passim*; Also Ulrich, *Staffeltarife und Wasserstrassen*, p. 135.

This idea is plainly quite different from the "value of service" which governs under a private economy, namely, the point of maximum net earnings. The "objective value" idea leads to conclusions more or less similar but far from identical.[1] As to classification, both ideas lead to the same results, the one in order to make a maximum profit, and the other in order (while making a reasonable profit) to absorb in every case a reasonable and fairly uniform share of the average consumers' and producers' surplus, as defined above.



The matter may be expressed in a diagram in which distance is measured on the horizontal axis, and values and costs per unit of commodity on the vertical axis.[2] Let the curve A X B represent the manner in which the cost of carriage increases with the distance, so that for

[1] Rank, *op. cit.*, p. 573.

[2] The diagram is the writer's own version of the attempt to apply the doctrine of average value to the problem of local discrimination.

any distance A W, the cost is measured by the altitude W X. Let the height A F represent the highest value which anyone, wherever situated, puts on the service in question. (Competition of railroads is here disregarded, and the distance A F may represent the cost of local manufacture of a substitute commodity.) Then the maximum consumers' and producers' surplus arising to anyone out of any shipment A W is represented by the distance X Z. The average of all such surpluses (the "objective value" of the service), may be represented by the distance X Y. Then the locus of all points similar to Y will be a line giving the objective value of the service for any distance, and it will take a shape somewhat like the curve D E Y B. Now if A C represents the cost of carriage from A by the best method that may be substituted for rail carriage, we have as the value of service curve the line A E Y B, which is exactly the form approached by the typical *Staffeltarif*.

In the matter of carrying out this theory of striking the average of a large number of subjective values, four points are to be noted. First, it is physically impossible to discover all the subjective values and strike an exact average. Secondly, it is nevertheless possible to know the volume of traffic moving at existing rates, and to estimate roughly the effects on traffic of changes in rates, down to cost or up to a point where traffic would cease. Thirdly, what fixes the maximum limit of charges is not, usually the local production of a substitute commodity, but the competition of similar goods shipped from some other large producing center, so that the limit is much more irregular than the ideal line F B. Fourthly, if the limit at B represents the competition of a producer of this kind who ships over the rails of the same company, it will not pay the road to reduce its

profits to a minimum merely to stimulate shipments from A. Rather it will raise the rate above the point B, and let that market be served by some producer out of whose shipments it can make some profit. In choosing between a long haul and an alternative short one, a road may accept the long one at a lower ton-mile rate of profit, but never at a lower absolute profit than the short haul would afford. Hence the *Staffeltarif*, to avoid actual wastes, should never approach and reach the curve of cost. It should rather tend constantly away from cost or at most run parallel with it in its upper sections. Thus the tariff might be expected to take the shape of the curve A G rather than that of A E Y B in the diagram,[1] and any reductions necessary to guard against the competition of other roads may be made as exceptions without affecting the curve. And in fact the curve A G, rather than the other, is the type of the actual tapering distance, tariff.

Finally, it must be noted that the "objective value of service," which is allied to the principle of equal sacrifice, is a very intangible quantity, and that the effect of a rate as seen in the profit account is a much more tangible one and one which must needs be taken into account. Moreover, on the assumption that there must be some kind of a scale, the *Staffeltarif* is the one which comes nearest furnishing maximum profits for a given burden laid on the shippers, or a given desirable profit with a minimum burden on the shippers.

[1] *Cf.* Huebner, *Annals of Amer. Acad. of Pol. and Social Science*, March, 1907, p. 84. Certain German *Ausnahmetarife* are here described, composed of two parts. One, the transportation-charge proper, increases continually with distance, and the other or "fixed" charge increases with distance up to 100 km., but not beyond. Such a charge, added to a transportation charge truly representing the curve of cost, would produce a result virtually identical with the curve A G in the diagram.

Of course no scale would accomplish this in all cases and under all circumstances; merely in the average of the ordinary cases. Thus no treatment of the principles of such scales would be correct which failed to mention the system of exceptions, as under direct competition the fundamental basis of the scale falls through, it is no longer correct to make such shipments pay as a minimum a pro-rata share of all the operating expenses. Any road under the competition of agencies not subject to the same regulations, may be forced to accept shipments down to the special-cost limit.[1] This concession, to the German or Austrian theorist, is a regrettable but necessary violation of "scientific principles," and should not be extended to intermediate stations. Such a policy would only make discrimination worse by increasing the number of people specially favored, while it would unjustly lay on the road itself a heavier sacrifice than the act of competing makes necessary.[2] Accordingly, in Austria the long-and-short-haul principle is not applied to rates in competition with waterways or foreign carriers, nor to seaport competition, nor to direct competition of one road with another having a shorter route between common terminals.[3] It would be entirely arbitrary to give the shorter haul a lower rate merely because it happens to be included in the longer haul, while refus-

[1] Rank, *Eisenbahntarifwesen*, p. 404.

[2] *Ibid.*, pp. 424–428. Rank, *Eisenbahntariftechnik*, pp. 55–63.

[3] Rank, *Eisenbahntariftechnik*, p. 61. A.....B.....C.....D. If A, B, C and D are stations on a continuous rail route, subject to competition at the termini, then the road may lower its rates for the haul A D, even though the rate A D thus becomes lower than A C. But the road may not go further and make the rate A C lower than A B. Moreover, the road controlling the shortest route must commonly stick to its scale and not grant any special reduction. This is far from permitting anything like the American "basing-point" system.

ing such a rate to other local shippers over similar distances whose routes are not included in a specially favored stretch.[1]

Further exceptions may be made for various causes. On stretches where operating cost is high, or where the capital investment per mile is far above the average, a "schedule mileage" greater than the true distance may be used.[2] This is hardly an exception to the principle of the scale, but may be regarded as a means of basing it more nearly on the true curve of cost instead of on the false curve which results from assuming that all like distances cost alike. If a road owns two routes between the same two points, it may for convenience adopt on the longer route the schedule distance of the shorter.[3]

Through or joint rates give rise to another whole class of exceptions. Such rates may be made by simply adding the locals; and where the locals themselves are exceptions to the regular scale, this simple course is usually followed. The through rate may be reduced below the sum of the locals. Where terminal charges are used, one of them may be subtracted from each local rate, leaving the distance-scale otherwise untouched. Or special scales may be granted to through shipments, lower than those used for local hauls. Or, finally, if the through shipment is subject to special competition, a special rate of the station-to-station sort may be granted.[4] As to the reasons for such reductions; aside from the competitive reason just mentioned, they conform to the general principle of reducing ton-mile charges as distance increases and may merely extend this principle beyond the limits of a single railway

[1] Ulrich, *Staffeltarife und Wasserstrassen*, p. 34; Rank, *op. cit.*, p. 58.
[2] Rank, *op. cit.*, p. 8. [3] *Ibid.*, p. 7. [4] *Ibid.*, pp. 66-72.

company's lines. Further than this, such rates are used to further agreements to divide traffic. Such agreements, not being forbidden as in the United States, are extensively used, and it is almost indispensable that rates should be so fixed that the traffic will surely move over the agreed route. To do this the rate must, of course, be less than the sum of the locals by any other route, and also it should preferably be enough less so that any possible fluctuations of local scales on the different lines will not disturb the adjustment.[1] Such an adjustment may produce discrimination, but clearly of a very mild type compared to those resulting from unrestrained competition.

Still another cause for exceptional rates is furnished by market competition. This appears most markedly, perhaps, in export rates, but it affects intrastate traffic also, and it even results in exceptions to shippers whose competitors are situated on the lines of the same company.[2] Still other causes of exceptions are a purpose to stimulate business undertakings which are at a geographical disadvantage, to stimulate industry and agriculture in general and increase traffic, and to relieve cases of special distress or special need.[3]

[1] Rank, *op. cit.*, pp. 66–72.

[2] Rank, *Eisenbahntarifwesen*, p. 429.

[3] Seidler & Freud, *Die Eisenbahntarife*, etc., p. 24.

CHAPTER X

AN AMERICAN DISTANCE-TARIFF

THE foregoing brief analysis should have indicated first, the general principles underlying scale-rates and, secondly, their adaptability and the elasticity possible under them. The question of greatest interest is how far this method could be introduced into the United States, as a solution of some at least of our discrimination problems. The application of a single uniform system of this kind or of any kind is of course not to be thought of, save in some possible far distant future when conditions shall have changed and adapted themselves slowly during a process of gradual approach to the final goal. It would, of course, be many times more difficult than the preliminary problem of uniform classification, which baffles the experts today. Moreover, it would require to be voluntarily introduced by a national railway consolidation in private hands, or if imposed by the government, the extent of regulation needed would be virtually incompatible with private ownership, by Americans at least. The mere problem of uniformity over such a large and varied area, a problem held hopeless in Europe, would hardly be much easier of solution here, and would involve the question of continuing or destroying the present varieties of rate structure, which adapt themselves to the traffic conditions of the different regions.

But this is far from saying that it is impossible for America to make any practical use of foreign experiences

and methods in the matter of distance tariffs. Such tariffs are indeed in use in various states, in much the same forms as the foreign ones. The Trunk Line rate system is familiar as an example of an approximate distance tariff; but other experiments have gone farther in the development of exact scales, increasing with distance at a falling rate and based on calculations of the average cost of the different kinds of traffic. Perhaps the most interesting work of this kind has been done by the Railroad Commission of Wisconsin. This able body of men has been entrusted with wide powers of rate-fixing, and has worked out, for its own guidance as a standard of reasonableness, what amounts to a system of distance tariffs. This is based on very full calculations of the average cost of moving traffic under various conditions of loading and for different distances.

The general mode of procedure is as follows. The freight expenses of the road in question are separated from the passenger by the method laid down for all railroads in the Interstate Commerce Commission's memorandum on that subject. In further analyzing freight expenses the principal problem, that of apportioning the various items of general expenses, is met for the most part by dividing them in the same ratio as the special items which can be directly apportioned. First, all expenses for terminal handling are separated and the average terminal cost per ton is obtained. Similarly, the movement expenses are separated and the average movement cost per ton-mile is found.

But here differences of operating conditions have to be allowed for, and the chief of these is the difference between the way train and the through freight. Accordingly, the average difference in cost per ton-mile of these kinds of traffic is calculated and the way freight is

found to be somewhat more than twice as expensive as the through freight. The average length of the way-freight haul is also estimated in round numbers. Here, then, are all the materials for a *Staffeltarif* with a falling scale. For the average ton-mile movement expense can now be broken up into the two averages giving the expense for hauls of less than way-freight distance, and the expense for all further distances. For every mile up to the length of the way-freight haul, the average ton-mile cost of way-freight movement is charged. For every added mile beyond this distance, the (lower) average ton-mile cost of moving through-freight is charged.

Thus we have a table showing without material error the cost of moving a ton of freight any distance, under average conditions, on the assumption that it bears its full quota of all general outlays including a reasonable return on the capital invested. And this table is in the form of a *Staffeltarif* with a terminal charge and a mileage charge which starts at a high level and falls to less then half its original rate after passing the point representing the limit of the relatively expensive way-freight haul.

This scale is, of course, only a grand average, based on the assumption that all commodities should contribute the same percentage above the cost of handling, and also on the assumption that all goods are equally expensive to move. It remains to make allowances for these factors. First, added scales are made, calculated to give different rates of return on the capital investment of the road (*i. e.*, provided they were to be applied to the whole traffic). Thus if a tariff of rates 100 per cent. above the average cost of operation would (on the entire traffic) yield 8 per cent. to the owners, then a tariff three-fourths as high would yield 4 per cent., one five-eighths as high would yield 2 per cent. and one twice

as high would yield 24 per cent. This furnishes a basis for classification, in so far as this can be based on the value of goods alone. If it be assumed that the general run of existing classifications are reasonable in this respect, then a close examination of them furnishes data as to what percentage of operating profit goods of any given value are normally made to pay, and this may be adopted as *prima facie* reasonable.[1]

There remains the problem of allowing for differences in cost. One of the most important factors affecting this is the ratio of "dead weight" to "paying weight" in any particular case. In this connection it is estimated by the commission that movement expenses vary most nearly in proportion to the gross ton-mileage (including weight of rolling-stock). The average cost per gross-ton-mile can be easily obtained and then the cost per cwt. of paying freight can be calculated for all varieties of rolling-stock and all loads up to the full capacity of the cars. Thus a car loaded to half its capacity costs less to haul than one fully loaded, but more than half as much, so that the cost per cwt. of paying freight will be perhaps thirty-five or forty per cent greater according to the weight of the car and its capacity. The commission has very full tables of this kind, adjusted for the differences between way and through freight.[2] The figures of cost for empty cars are also useful, since any regular back movement of empties must be paid for by the traffic which makes it necessary. Thus a large percentage of live-stock cars must return empty, and the ascertained

[1] Pulp and Paper Manufacturers of Wis. *v.* Chi. & N. W. Ry. Co. (1908); decision of the Wisconsin Commission, no. 89, pp. 44–46.

[2] Mentioned in Houser *v.* Chi., S. & P., Minn. & Omaha Ry. Co. (1907); decision of the Wisconsin Commission, no. 59, pp. 20, 30.

cost of this backward movement may be prorated on to the paying haul of live stock.[1]

Still other circumstances have, of course, to be allowed for, such as special cars and services rendered, difficulty of handling, density of traffic, speed, grades, risk and commercial circumstances, including both direct and market competition. But the fact stands out that such considerations, so far as they affect cost, are much more definitely treated as variations from a known average than if there is no such working basis. It is evident in the proceedings of the Wisconsin Commission that the railways carry the burden of proving that such special conditions exist. It may, for instance, be claimed that charges are higher than those in neighboring states, but in the absence of figures showing the effect of this either in the higher rating of the engines or in the lighter weight of trains, the claim is given scant attention.

But will not the introduction of rates based on such formulae fail to allow for industrial needs? Will it not be too inflexible? Will it allow sufficiently for the developing of traffic? How about the principle of group rates? In one way the tariffs as they stand make special concession to young sections of country. For they do not differentiate between the main line and the branches, except as the branches carry a larger proportion of short-distance traffic which moves at relatively high rates. But the branches, on account of their relatively sparse traffic, have often much higher operating costs than the main lines, so that their net earnings are relatively low. This practice is upheld by the commission on "infant industry" grounds, and as a means of building up the sparsely-settled districts. Further than this, the formulae

[1] Houser *v.* Chi., St. P., Minn. & Omaha Ry. Co., *op. cit.*, p. 21.

are departed from whenever sufficient cause is shown, but they are so well constructed that departures of more than ten or fifteen per cent. are not necessary.

As to the group-rate principle, a distinction is made between agricultural and manufactured products. In the latter case, where roads have given competing producers at different distances identical rates to market, the commission has usually let the adjustment stand, on the principle of the "established interests" argument. The decisive thing, however, is the sum of all the transportation charges borne by the factory in question, so that a lowering of the rate on raw materials may offset a raising of that on the finished product and vice versa.[1] On agricultural products on the other hand, this "vested interests" argument does not apply, at least not under the conditions prevailing in Wisconsin. On soil of which the products can barely find a profitable market, there is not likely to be enough capital sunk in the shape of improvements to cause a material loss if the rates were to be made a trifle less favorable. Such changes affect the local margin of cultivation somewhat, and have their chief influence on ground-rents, which are not "vested interests" within the meaning of the term as used in this connection. Both justice as between land owners and the most economical use of soils demand, if possible, a "natural" adjustment of rates as between localities.

And, finally, as to the practical usefulness of such scales, it may be sufficient to cite the voluntary introduction of similar tariffs by the railways of Wisconsin, and the widespread use of somewhat similar tariffs in

[1] Pulp and Paper Manufacturers *v.* Chi. & N. W. Ry. Co., *op. cit.*, pp. 15 *et seq.*

other states. It is true that the use of such rates is easier in states like those of the Middle West, where there are no marked contrasts in topography, so that operating conditions are fairly uniform. It may well be that in extending the system to states which, like Colorado, contain both plains and mountain regions, the use of schedule mileages would be necessary in order to bring comparative charges somewhere near comparative costs.

In this connection it seems to the author that there may be room for further experimentation. Schedule-distances are used to allow for high operating cost on certain sections and also to allow for high capital cost, such as is involved in bridges, tunnels, fills, etc. Now, granting that both kinds of allowance should be made, would it not be possible to let each bear on that part of the charge to which it is directly related? Tariffs like those of the Wisconsin commission fall naturally into two parts, the figures for operating expenses and the loading for return on the investment. Would it not be possible to separate these clearly, and if a section of road showed operating costs 50 per cent above the average, let each mile count as one and one-half miles *in the calculation of operating expenses alone.* Or, if on another section of road, tunnels made the capital cost per mile triple the average for the whole line, let each mile count as three in making up the *loading for return on the investment.* This would merely apply the principle of special bridge-tolls in a far more complete way. It is quite probable that the complications it would introduce would outweigh any gains in convenience and accuracy, but as a possibility it is worth noting.

One of the most serious indictments brought against the whole scheme of distance tariffs is that they tend to crush out local jobbing centers because the double haul

involved is always more costly than a single through haul. This fact is unmistakable, but without going into the question in detail, two contrary considerations may be suggested. First, are those local jobbing interests worth what it costs to maintain them? Are they not, some of them, wasteful survivals, bolstered up by rate-favors and increasing the real cost of production of society's goods and services? The recent discussion of the high cost of living has focused so much attention on middlemen's profits that the "local jobber" argument against distance rates may well lose much of its popularity.

Secondly, what is the alternative? It seems to be either the "basing-point" or the "basing-line" system. The former involves violations of the long-and-short-haul principle which cannot be justified once the competition which caused them has ceased to be a compelling force. The latter system involves the arbitrary selection of "basing-line" stations which are given a chance to develop as jobbing centers, and an equally arbitrary discrimination against points not so selected. The westbound rates to points west of the Mississippi are made by combining the rate to the nearest intermediate basing-line station with the local rate from there to the destination; that is, by a "combination on" the intermediate point,[1] let us say, St. Louis. This means that the jobber at the particular point chosen pays no more for his two hauls than a through shipper for his one, but jobbers anywhere else must pay more. All other towns which are or could become jobbing centers have cause of grievance. The recent complaint of Denver illustrates this point, and also the further fact that if every just

[1] McPherson, *Railroad Freight Rates*, p. 115.

complaint is to be satisfied by the creation of new combination-points, there is no limit possible until the system breaks down of its own weight. Thus the champions of local jobbing interests have, to say the least, some weak points in their own case.

In final summary the main contentions of this monograph may be said to be the following. Firstly, the causes leading to the discriminations are not peculiar to railways, nor do they in the long run justify such a wide range of inequalities as many writers have suggested. Secondly, the private interests of roads cannot be shown to be identical with the public interest, and in particular indirect or market competition, as well as direct or junction competition, contains motives which lead to discriminations. Thirdly, while a system embodying perfectly the "natural" relation of rates based on "comparative cost" is impossible, still that principle is at the basis of relative reasonableness as between localities. Fourthly, other standards have been more or less definitely worked out by commissions and courts, to be used in connection with that of "comparative cost." Fifthly, distance tariffs, while based on the "comparative cost" idea, are still flexible enough in use to allow for all the other necessary considerations. Foreign systems of this kind furnish good models, so far as they are based on purely economic grounds, and not involved in international commercial rivalries. And, lastly, scientifically constructed distance tariffs are being tried in the United States with results which justify the prediction that they have here a useful future before them.