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TRANSPORTATION
Principles and Problems

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TRANSPORTATION

Principles and Problems

BY

TRUMAN C. BIGHAM, PH.D.
Professor of Economics
University of Florida

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TRANSPORTATION: PRINCIPLES AND PROBLEMS

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To

MY FATHER

The dominant economic fact of our own age is the development not of the manufacturing, but of the transport industries.

MARSHALL, *Principles of Economics* (1922).

Preface

THIS book deals with the economics of transportation in the United States. Special attention has been given to the needs of teachers and students in universities and colleges. Its primary objective is to promote the establishment of more rational transportation policies.

The first four chapters are designed to provide a background for the discussion of important questions. The next four chapters give an account of state and federal transport legislation. Nine chapters are then devoted to rate making. The last seven chapters take up service, security issuance, combination, labor, public aid, government ownership, and the general improvement of public policy.

Broadly conceived, the term "transportation" embraces innumerable plant conveyers. But in common usage it refers to revenue carriers or to private means closely related thereto. Even under this interpretation of the word the field of transportation is very large; so large and complex, indeed, that the author deems it advisable to center attention here upon the following intercity carriers: railroads, inland and coastwise waterways, pipe lines, highways, and airways. Street railways and overseas shipping are touched upon only incidentally.

The different forms of transportation are treated jointly in these pages from a functional point of view as parts of a whole. Something is to be said for individual treatment, but it would seem that all types of carriers are so closely interrelated as to be handled best together, even though the difficulties of organization are increased. The book was begun because of the need for a text which would cut across transport agency lines and which, while emphasizing railroads, would devote more than the usual attention to other means of transportation.

In order to keep the length of the book within reasonable bounds, it has, of course, been necessary to limit the discussion at many points, but the author trusts that the analysis will prove adequate for all essential purposes. It has also been thought wise to utilize footnotes rather extensively. Perhaps the explanatory data therein and the continuity of thought facilitated thereby will compensate the reader for such inconvenience as may occur.

In preparing this study the author has assumed that private ownership and operation, with public regulation, is an acceptable policy,

although government ownership has not been ignored. He hastens to add, however, that the mixed system is in his opinion not perfect, and suggestions for its improvement are set forth in the last chapter. These recommendations refer principally to promotional and regulatory action by public authorities, but it is recognized that the companies can play an equally if not more important role in the future of transportation.

Professor W. H. Joubert of the University of Florida has read several chapters of the manuscript. To him special acknowledgments are due. Professors D. M. Beights, J. W. Dietz, and O. E. Heskin of the University of Florida have read certain sections. To them the author is also obligated. In addition the author wishes to express appreciation for the assistance of the Bureau of Transport Economics and Statistics and of Secretary W. P. Bartel of the Interstate Commerce Commission. But the author assumes complete responsibility for the faults of this book. For its merits, if there be any, he is indebted primarily to many inspiring teachers and to authorities on transportation too numerous to mention.

TRUMAN C. BIGHAM.

GAINESVILLE, FLA.,
April, 1946.

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CHAPTER - - - - - - - - - - - - - - - - - ONE

Contribution of Improved Transportation

EFFECTIVE transportation is indispensable to economic progress. No nation can reach an advanced stage of development without adequate facilities for moving goods and people. In a large country of varied resources such as the United States transportation is especially important. Little more than an appendage of Europe until improved transport made possible the conquest of her vast inland empire, this country has written its economic history as an independent nation in terms of successive improvements in means of transportation: flatboat, Conestoga wagon, steamboat, canal barge, railroad train, automobile, and airplane. As one economist has said, "Historians have generally failed to appreciate the importance of this factor in American development. Much more attention has been given to the growth of manufactures, to currency and the banking system; but none of these matters has exerted a tithe of the influence upon our economic growth that has come from improvements in transportation. In fact since 1815 our most conspicuous economic achievements have depended directly upon this factor."[1]

Magnitude of the Transport Service

The transportation system of the United States consists of numerous agencies, some furnishing a general service and others acting as specialists. The principal competitive intercity carriers are railroads, waterways (coastwise, intercoastal, and inland), pipe lines, highways, and airways.[2] Collectively these facilities constitute a large portion of our wealth, give employment directly and indirectly to millions of people, and contribute substantially to the national income.

Though accurate information is not available, the total investment in the transportation industry has been estimated to range from $35,000,-

[1] Callender, G. S., *Selections from the Economic History of the United States*, p. 345 (Ginn and Company, 1909).

[2] Street railways are local in nature, and overseas shipping constitutes an extension rather than a part of the domestic transportation system. With the exception of overseas carriage by air, foreign or offshore deep-sea transportation also represents in part at least the sole means of shipment between origin and destination.

000,000 to $90,000,000,000, depending upon the facilities included in the computations.[1] The smaller figure, reported by the Board of Investigation and Research as of 1940, referred to the depreciated investment in the route facilities of airways, highways and streets, pipe lines, railways, and waterways. The larger figure, computed by Prof. Healy as of 1936, covered the cumulative investment in all facilities, including local transportation. An intermediate estimate of $53,000,000,000, published by the Interstate Commerce Commission as of 1937, related to the depreciated investment in intercity facilities only, including equipment as well as route.[2] Over $24,000,000,000, or 45 per cent of the foregoing figure, was represented by rail transport alone.

According to the census of 1940, the persons employed by railroad, trucking, water, express, air, and pipe-line companies numbered 1,785,000.[3] Over a million of the employees worked for the railroads. Including street railways and busses, taxicabs, warehousing, incidental services, and transportation not specified, the number of employees was 2,178,000. This exceeded the number in any one of the following industries: amusement and recreation, business and repair services, construction, finance, government, and mining. Should the figure have covered the numerous forces indirectly employed in transportation, such as laborers producing equipment, fuel, and supplies, it would have been much larger.

The operating revenues of common carriers reporting to the Interstate Commerce Commission in 1944 were nearly $13,000,000,000.[4] This is indicative of the order of magnitude of shipper outlays for transportation. Carrier expenditures were also numbered in billions, huge sums being spent for wages, fuel, and supplies. The Commission figures covered, of course, only a portion of the transport industry, contract and private carriage being omitted.[5] If private transportation were included, revenues and expenditures would be much greater.

Improved means of transportation are really significant, not because of what they invest or spend, but because of the service they render in creating place and time utility. Expressed in traffic units that take account of the weight (or number) and average distance of hauls, the service of the principal intercity carriers, public and private, excepting coastwise

[1] Board of Investigation and Research, *Annual Report for 1943*, p. 5 (1943); Interstate Commerce Commission, *The Transportation System and Service in the United States in 1937*, p. 2 (Mimeographed, 1939); Wilson, G. L., *The Transportation Crisis*, p. 29 (1933); and Healy, K. T., *The Economics of Transportation in America*, p. 37 (1940).

[2] Prof. Wilson's estimate, published in 1933, was about $61,000,000,000.

[3] *Statistical Abstract of the United States*, 1943, p. 117.

[4] *Annual Report of the Interstate Commerce Commission*, 1944, p. 5.

[5] The figures included the following common carriers engaged in interstate commerce: steam railways, railway express, the Pullman Company, electric railways, water lines, pipe lines, busses, and trucks.

and intercoastal water lines, amounted in 1943 to 1,021,000,000,000 ton-miles and 271,000,000,000 passenger-miles.[1] Although these figures should be taken as rough approximations only, they represent in terms of human energy an almost incalculable contribution. If each of the 25,000,000 males in the United States of age twenty to forty-four carried 100 pounds of goods 20 miles each weekday of the year, it would take all the men more than a century and a quarter to equal the freight movement alone, to say nothing of the passengers.[2] And the cost per unit of service would be infinitely greater than now. Even though an estimated 15 per cent of the national income is paid to transportation companies,[3] the payment per ton-mile is generally measured in mills.

Effects of Improved Transportation

In explaining the effects of improved transportation we shall have in mind primarily the results of reductions in its unit cost, though an improvement may take the form of increased speed, safety, or flexibility.[4] The results can be set forth conveniently, even if somewhat arbitrarily, under three heads: economic, social, and political. The social and political consequences might well be disregarded here, but to pass over them would be to understate the importance of transportation. The discussion will relate for the most part to the advantages of cheap transportation, yet one should not be unmindful of the disadvantages.

Economic Effects

A reduction in the unit cost of transportation makes it possible for either passengers or goods to move a given distance at less expense. So far as passengers are concerned, this facilitates travel wanted for its own sake as well as travel necessary in the production of goods. With respect to goods, a reduction in the outlay required for transportation has at least four important results.

1. The consumers of a modern community normally enjoy the benefits of many goods that could not be produced in the immediate vicinity, on account of unsuitable climate, lack of raw materials, or other limiting factors. Such goods are acquired by means of an exchange of things that can be produced locally, and the exchange is made possible by cheap

[1] *Annual Report of the Interstate Commerce Commission*, 1944, p. 6. Ton-miles can be computed by multiplying the total tonnage of commodities transported by the average distance of commodity hauls. Passenger-miles may be ascertained in a similar manner.

[2] *Statistical Abstract of the United States*, 1942, p. 23.

[3] Moulton, H. G., *Railway Age*, vol. 101, p. 719 (Nov. 14, 1936).

[4] An increase in the speed of transportation extends the market for perishable products, helps equalize the supply of goods, reduces the average volume of goods in transit, makes possible smaller inventories, shortens the productive process, and enhances the comfort and freedom of movement of passengers. A disadvantage is greater risk.

transportation. A good illustration of this advantage is the variety of wares of other climes to be found in a large department store. Most of the articles are probably of necessity drawn from remote sources, even from foreign lands, and are available only because low freight rates have enabled them to stand the cost of transportation from the places that possess the resources required for their production.

Communities without cheap transportation must be largely self-sufficing; and since the means of producing many important commodities are not evenly distributed, the people of such a community are denied the benefits of diversified consumption. It is to overcome the limitations of local production that many improvements in transportation are made. The need for highly prized spices led to a better route from Europe to the East and the discovery of America.

2. A corollary of the diffusion of goods is equalization of their supply in different markets. Goods tend to move from points where the supply is large in relation to demand to places where it is small in relation to demand. The cheaper the transportation the easier the shift; hence, the more nearly is the supply equalized. In industries such as agriculture, where output is difficult to control, cheap transportation is therefore particularly advantageous. Here it minimizes famines and reduces the waste from overproduction. It also stabilizes and equalizes prices, for the lower the cost of freighting the broader the market, and the broader the market the less extreme the fluctuations in price. The prices of wheat, which has a broad market, are interrelated nationally, or even internationally, and tend to vary among separate producing points largely according to differences in the cost of shipment to primary markets. On the other hand, the prices of fresh vegetables, which have more restricted markets, are subject to much greater variation.

3. The most important effect of cheap transportation is that it reduces the cost of goods to consumers. The reduction may arise through the intensification of competition that is sometimes caused by an improvement in transport, but the chief way in which it is brought about is by lessening the cost of producing goods. Through encouraging large-scale production, improved transportation may in the long run promote monopoly rather than competition. But some industries are not well adapted to large-scale production, and in such instances improved transportation tends to increase the number of sellers or buyers in the markets.

Since the movement of goods is as much a part of cost as their fabrication, the statement that transportation lowers the cost of production might appear at first sight to be erroneous. It has been argued, in fact, that transportation increases the cost of production, is a waste, and that society would gain if industry were decentralized so as to eliminate much transportation. In general, however, larger expenditures can be made for

transportation, and still consumers can secure goods at less cost than would be possible without the transportation. This can be readily demonstrated. Let *A* and *B* be producing centers, either of which can supply *C*, a consuming center, with a manufactured good that it needs. If the cost of manufacturing is $10 at *A* and $7 at *B* and if the charge for transportation is $2 from *A* to *C* and $6 from *B* to *C* (a longer distance), *A* will supply the market at a price of $12. Two dollars will go for transportation. Assume now a reduction of 50 per cent in freight rates. Under the changed conditions *B* will supply the market because its product can be laid down for $10. But the amount spent for transportation will be $3, whereas before it was $2. The consumers pay $2 less for their goods, but $1 more for transportation. The explanation is the lower cost of manufacturing at *B*, which has more than offset the increased expenditure for shipping. Transportation costs have been substituted in part for the excess in manufacturing costs at *A*, to the great advantage of consumers.

Such is apparently the normal result of improvements in transportation. As freighting costs are lowered, relatively more labor and capital tend to be devoted to transportation than to extraction and fabrication. Evidence of such tendency during the last fifty years is the more rapid growth in the physical volume of transportation than in the output of either agriculture or manufacturing. In fact, transportation has now so pervaded the productive process that few goods find their way to the consumer without requiring this service somewhere in the course of preparation, as the reader may see by tracing the course of practically any article of common usage.

We do not mean to imply that increased outlays for transportation are advantageous as such. On the contrary, the less the cost of transportation the better. Transportation is a part of production, and low rates tend to be passed on to the consumer in the form of lower commodity prices. It is easy to see that if the reduction above had been 75 per cent instead of 50 per cent, consumers at *C* would have had to pay only $8.50 for the manufactured article. Other things being equal, a cut in rates will affect prices most where the demand for a good is inelastic, or where the supply is elastic. The immediacy of the effect will depend upon the state of the market and the ease with which supply can be readjusted, but in the end consumers will pay lower prices if the good is competitively produced.

a. The foregoing illustration points to one of the two basic ways in which improved transportation has its effect upon the cost of production, *i.e.*, by facilitating the geographical division of labor.[1] A community that specializes in production turns out only one or a limited number of prod-

[1] Prof. F. W. Taussig said that "all agencies of transportation are but means of furthering the geographical division of labor." *Principles of Economics*, vol. 2, p. 390 (1923).

ucts. To do this it must have access to markets for its own goods and to sources of supply for other goods. By extending the area over which it is economical to move products, efficient means of transportation provide the necessary markets and sources. Before days of cheap transportation, farm products generally had to be consumed where they were produced, so that farming was of necessity more diversified than later.

Territorial specialization may mean that a territory (district, region, country) is producing a good at a cost less than would be possible in the locality with which the territory trades. But it may also mean that the territory is importing a good that could be produced more cheaply at home, and is specializing in the production of another good which it can turn out to better advantage in the light of the local resources which, did it not specialize, would have to be diverted to the production of the import. In either case, however, there is an over-all gain from specialization. Power, raw materials, labor, capital, and business enterprise are utilized to the best advantage, according to location. Goods are made available to society at less total cost.

To illustrate: We gain decidedly from the localization of crop growing —wheat in the West North Central states, cotton in the South, citrus fruit in California, Florida, and Texas. Likewise beneficial is the concentration of manufacturing in certain centers—steel in Pittsburgh, automobiles in Detroit, furniture in Grand Rapids, shoes in Brockton, meat packing in Chicago. Many of the goods could be produced, and often are produced, outside the territory or center of concentration; but on the whole an equal quantity could be had only at a much greater cost under a system of local self-sufficiency. And such a system would be in effect were adequate transportation unavailable. High costs of transportation, like high tariffs, tend to deny to society the benefits of specialization. It is for this reason that people are continually seeking lower rates. They wish broader and deeper markets in order to reap the advantages of specialization, especially the use of machinery.

It is possible that transportation exerts a greater influence upon industrial location than any other force.[1] For transportation cost is not only an independent factor affecting the location of productive activity, but is also an element in other locational factors such as nearness to market, raw materials, and fuel or power. Its significance varies, of course, in different industries, largely according to whether transportation costs constitute a substantial portion of the total cost of production or final value of the goods produced. In manufacturing, industry will tend to locate with reference to the source of raw materials and the market for

[1] Lynch, E. S., *The Influence of Transportation on the Location of Economic Activities* (Mimeographed, National Resources Planning Board, 1941).

the finished product where the aggregate transportation charges on incoming and outgoing goods are the least. Controlling factors here are the relative rates on raw materials and finished products and the loss of weight in manufacturing. In mining, forestry, and agriculture, transportation costs also tend to determine where production takes place, even though the location of activity might seem to be governed entirely by the natural resources concerned. Although they could often be produced elsewhere, truck crops, which cannot well stand long-distance transportation, are generally grown relatively close to consuming centers. Wheat and cotton, on the other hand, stand transportation better and are grown at great distances from markets.

b. Hand in hand with the division of labor is large-scale production —the second basic result whereby the cost of production is reduced by transportation. Large-scale production, like specialization, depends upon the extent of the market and therefore upon efficient transportation. It is held by some, indeed, that the broadening of the market through improved facilities for transportation and communication is the fundamental cause of the movement toward large-scale production; and it is significant to note in this connection that the shoe industry as well as other businesses progressed from the handicraft stage only after the construction of a network of railroad lines in various parts of the country. But whether the underlying cause of large-scale production be the one given, or technological improvements, it is clear that transportation has made such production possible for many industries. The demand in the immediate neighborhood of a large plant is seldom sufficient to absorb the entire output of the plant. Neither is the local supply of raw materials likely to be adequate. The automobile industry, among many others, markets its products in foreign countries and obtains its raw materials from the "corners" of the earth.

It is generally agreed that with large-scale production have come real economic gains. The advantages are attributable in part to the increased scale of operations, in part to the larger scale of organization; and they may be summed up under the head of lower costs. The specific advantages—purchases and sales in large quantities, specialization and the use of machinery, utilization of by-products, and the like—need no elaboration here. We may call attention, however, to the relation between the improvement of transportation and the ability to manage, which is one of the principal factors limiting the scale of production. Efficient transportation makes it easier to manage large enterprises because it promotes the movement of goods and facilitates cheap and rapid communication either through travel or by mail.

7. Improved transportation affects not only the production of income, but also its functional distribution. The relation to economic rent, and

therefore to land values, is especially significant.[1] Since location is an important factor determining rent, and as distance is primarily a matter of the cost and time of movement rather than of miles, it is clear that improvements in transportation influence that share of the total income of society which goes to landowners. On the basis of abstract reasoning, it would seem that better transportation tends to reduce the total amount of this share, insofar as rent depends upon location and to the extent that efficient transport does away with location as a force in rent. However this may be, it cannot be doubted that improvements in transportation generally readjust the distribution of rent. Except when it is impossible to increase the output of a product, the rent from some lands is decreased while that from others is increased. Those owners of natural agents who enjoy the advantages of better locations with respect to the market, and therefore higher rents, before the improvements are made, see their returns reduced after the improvements; and those individuals farther from the market find their former low rents increased. On this point we have the testimony of history. The construction of the Erie Canal and the Trunk-Line railroads increased agricultural rents and land values in the Ohio and Mississippi river valleys, but lowered agricultural prices and reduced rents in the older sections of the country. As the railroads developed, thousands of acres of farm land in New England went out of cultivation because they could not be made to yield a rent in competition with the much better lands to the west. Similarly, the coming of the automobile has enhanced suburban rents and land values.

Social Effects

Improved transportation has profound social effects. First, it largely determines the concentration and spread of population. The early settlements in this country were made where facilities for transportation existed, *i.e.*, around good harbors and along navigable rivers; and the subsequent betterment of the means of transportation laid the basis for the development of locations into large cities like New York and Chicago, which now depend for their very existence upon an adequate transportation system. In their dispersion over continental United States the people were directed by the rivers and railway extensions. And the newer agencies of transport, the automobile and the bus, have facilitated the movement of people into suburban communities, where life is generally said to be more attractive than in the city proper. Second, better transportation raises the standard and changes the mode of living. Our housing, clothing, recreation, even the food we eat, are improved. Occupations, habits, and thinking are radically affected. The tempo of life has been

[1] The value of a piece of land depends fundamentally upon its net rent and may be estimated by capitalizing the rent.

quickened since the perfection of the automobile, the airplane, and the streamlined train. The spanning of the continent in a few hours has brought about a new concept of time and distance. Third, efficient transportation promotes culture and intelligence. The enlargement of the surplus above the minimum of subsistence increases leisure; and the wide distribution of the mails together with the establishment of personal contacts over broad areas furthers education and the incentive to progress. In social contacts, the contribution of the automobile is especially outstanding. The passenger car has given to citizens in practically all classes of the population a freedom in travel never before known. It has virtually destroyed rural isolation and has made possible stronger, consolidated schools.

Political Effects

Efficient transportation has at least two very significant political effects. First, it promotes national unity. Students of government generally agree that a country as large as the United States (3 million square miles) could not be held together without an adequate system of transportation and communication. On this point there is concrete evidence in the separatist tendencies of the isolated western territory soon after the Revolution and in similar experiences in other parts of the world. Washington once wrote that the West, looking toward Spain, was hanging by a thread; and he and others urged the building of national highways which would tie together the East and the West and thereby assure union. The construction of the Erie Canal was said to be indispensable to the preservation of the integrity of the government, and analogous considerations later weighed heavily in the public encouragement of railroads, highways, and airways.

An effective transportation system creates a need for national unity. In making the different sections of the country economically interdependent through promoting the geographical division of labor, transportation makes political unity essential in order to guarantee freedom of trade and effective control of industry. Unity, in turn, calls for a strong central government. This was recognized by the framers of the Constitution, and it is strikingly illustrated by the assumption on the part of the federal government of the preponderant authority over railroads and other agencies of interstate commerce. As the powers of the central government grow, the interest of the people in the government naturally increases.

Transportation makes it easier to maintain national unity, by fostering social homogeneity. The multiplication of contacts which follows the cheapening and quickening of transportation has aided in the assimilation of the millions of immigrants who have come to this country

and has tended to make us one in language, customs, dress, etc. It is easier to "hang together" when we live alike and think in more or less common terms. Transportation has thus bound us so closely together that the Union has become practically indissoluble. It is a fact taken for granted.

The second political effect of efficient transportation is a strengthening of national defense. The importance of transportation in this connection has long been recognized. Military and imperialistic considerations were doubtless uppermost in the construction of the Roman roads, and similar motives have often played a large role in the promotion of transportation in modern times. This was true of a number of famous railroads: the Union Pacific and other transcontinental lines in this country, the Trans-Siberian Railway in Russia, the Cape to Cairo project in Africa, and the Berlin to Bagdad scheme in Germany.

As has been said, the science of war breaks down into strategy, tactics, and logistics, the last of which is concerned with transportation and supply. The significance of transportation was clearly demonstrated during the recent world wars. Transportation by sea, threatened by the submarine, was a decisive factor in the success of the Allies in both conflicts.[1] Transportation by railroad over a well-conceived railway system was a great source of German strength in Central Europe, while that over a weaker system worked strongly against Russia in the first war and against the invading Germans in the second.[2] Transportation by highway and air revolutionized military procedure. The motor vehicle was more mobile and less vulnerable than the railway train. Similarly, the airplane had greater mobility, range, and speed. It was effective in moving troops and supplies as well as in combat; it strengthened the defense of some countries, while it weakened that of others; it both augmented and eliminated the element of surprise in war; and it opened up the prospect of easy attack on centers of civilian population. The phenomenal development of this new tool of war (and of commerce) has stressed as never before the desirability of furthering in every practicable way the cause of world peace.

But the significance of transportation in time of war is not to be judged solely in terms of combat. It is the means through which the entire resources of a country can be mobilized and directed toward military ends. Production cannot meet the insistent demands of war unless the facilities for transportation are adequate to handle the greatly

[1] In 1943 General Marshall reported that it took an average of six measurement tons of cargo space initially to equip each man overseas and one ton per month to maintain each man. *The New York Times*, Sept. 9, 1943, p. 24.

[2] See Stolper, Gustav, "German Military Transport," *Proceedings of the Academy of Political Science*, vol. 20, pp. 148–159 (January, 1943).

increased movement of materials and passengers characteristic of war periods. It was to ensure their adequacy that the government took over the railroads during the First World War and created the Office of Defense Transportation during the Second.[1]

Summary

Through the "annihilation of distance" improved transportation has far-reaching results. It makes possible a better distribution of goods and an increase in wealth. It transforms the organization of industry. It creates great cities. It raises the standard of living and promotes culture. It unites us politically and provides a means of national defense. Unfortunately, these benefits have not been realized without cost; there is another side to the picture. On the reverse side must be counted, among other things, less elasticity in the economic structure, deadening effects of routine, greater insecurity of workers and investors, loss of life, crime, and destructiveness of war. Transportation probably has been responsible in no small degree for business fluctuations.[2]

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[1] These measures are discussed more fully in a later chapter.

[2] See Isard, Walter, "Transportation Development and Building Cycles," *Quarterly Journal of Economics*, vol. 57, pp. 90–112 (November, 1942).

CHAPTER - - - - - - - - - - - - - - - - - TWO

From Indian Trail to Airway

THE earliest transportation in America was dominated by the forces of nature. It was therefore very inefficient. Bays, streams, and lakes provided ready ways upon which the Indian could employ the canoe, pirogue (log dugout), or raft; but in their natural state the waterways presented many serious obstacles to transportation: swift currents, floods, shifting channels, sand bars, ice, snags. The land afforded mere wilderness courses. Here the Indian was forced to travel by trail on foot, carrying his meager store of goods on his back, or sometimes on travois. There were no good roads and no wheeled vehicles. Between this primitive state and the fleet carriers of today lies a challenging improvement in transportation which would require volumes for full description. In this chapter we attempt only a brief outline of the major steps in the process.

Colonial Transportation

The American colonists were not much better equipped for transportation than the Indians. Confined to the Atlantic coast by the Appalachian Mountains, the people faced east for nearly two hundred years and made little provision for domestic commerce. A gradually increasing travel and trade gave rise to some improvement of transport facilities during the colonial era, yet not until after the Revolution was real progress made. The chief means of transportation utilized were the natural waterways near which most of the settlements were located. For the traffic of the day the existing waterways were reasonably adequate without improvement, while the construction of good roads required more of the limited supply of labor and capital than the few people could afford to divert from more essential tasks.

In the beginning the settlers employed the Indian's method of transportation by water.[1] The canoe and pirogue were of small capacity, however, so bateaux were early introduced. Bateaux were large flat-

[1] Ringwalt, J. L., *Development of Transportation Systems in the United States*, pp. 9–15 (1888).

bottomed skiffs of about one ton burden, propelled with "sweeps" (oars) or poles by crews of three to six men. The bateaux, in turn, were displaced by the more efficient flatboats and keelboats.[1]

The flatboat or "broad horn" was a large wooden vessel, 10 to 20 feet wide and 20 to 60 feet long, with a flat bottom, square ends, slightly flaring sides, wholly or partly covered, guided by oar, and propelled by current. Its shallow draft of a foot or two, its large capacity of a hundred tons or more, and its low cost of construction made the flatboat the most important type of river craft employed. Downstream, the direction taken by the bulk of the freight, it was slow but relatively economical. Scanty records indicate that it took about a month to float downstream from Pittsburgh to New Orleans;[2] and estimates place the average charge for downstream service on the Mississippi River before the steamboat at 1 cent per ton-mile, which is about what the railroads receive per ton-mile today.[3] Upstream the flatboat was ineffective because of the impracticability of propulsion against the current. The boat was usually broken up at the end of the downstream journey and sold for lumber. Members of the crew made their way back by land, in small boats, or on steamers. The owners, of course, seldom realized more than a fraction of the cost of their dismantled craft.

Keelboats, barges, or Durham boats were smaller and much trimmer than flatboats; hence, they could be turned to account upstream as well as downstream. The usual method of propulsion upstream was primitive. Along each side of the hull were running planks from which setting or push poles were maneuvered. The boatmen set their poles on the river bottom near the bow of the boat and walked along the running planks toward the stern, bearing hard upon the poles. Before the effort of the first pair of polemen ended, the work was taken up by a second pair, thus "walking" the boat slowly upstream. Under favorable conditions square-rigged sails were used to assist the polemen. Sails, however, could seldom be relied upon for long stretches of navigation because of changes in the direction of the channels.

Though it could be moved upstream, the keelboat did not provide a cheap means of transportation. Its capacity was frequently only 15 or 20 tons, and its operation was slow and costly, especially when the current was swift. A round trip between Cincinnati and New Orleans took 6 months or more,[4] and the average charge upstream on the Mississippi

[1] For a good description of the various kinds of river craft see Dunbar, Seymour, *A History of Travel in America*, Chaps. 16–17 (1937).

[2] Gephart, W. F., *Transportation and Industrial Development in the Middle West*, Columbia University Studies in History, Economics and Public Law, vol. 34, p. 61 (1909).

[3] Dixon, F. H., *Traffic History of the Mississippi River*, pp. 13–14 (1915). Flatboats were operated successfully even after the introduction of the steamboat.

[4] Ringwalt, *op. cit.*, p. 14.

River and tributaries is said to have been about 7 cents per ton-mile.[1] After the perfection of the steamboat, the keelboat gradually disappeared.

Overland transportation was unavoidable from the first, at least to a limited extent, in reaching the waterways; and it increased in importance as the people pushed inland. Until roadways were cleared, land transportation was confined to trails. These ran between the larger towns in the East and followed the natural routes to the West. The only practical way of traveling the trails was on foot or horseback.

Freight was carried by pack horse, a type of transportation that by 1750 had become an established business. The pack horses, led by a driver, usually traveled single file in trains, each animal tied to the one in front. Strips of iron were frequently bent around the bodies of the horses so that barrels and kegs might be secured to bars on each side. In this way furs and other articles of high value were brought eastward to be exchanged for salt, iron, and other goods that were indispensable to the pioneer. The pack-train operators opposed the construction of good roads, just as the stagecoach drivers and canal men later resented the building of railroads. They argued that the mail could not be carried so rapidly in coaches as by horse; that the introduction of the stagecoach would throw hundreds of people out of employment; and that the American horse was not strong enough to draw heavy coaches and wagons.[2]

In time the more traveled trails were transformed into roads by local authorities, but the few roads in existence before 1790 hardly deserved the name. As a rule they were narrow earthen wagon paths from which the trees had been cut. The stumps were left standing, the rocks undisturbed. No attempt was made at grading or surfacing. Where possible the roads followed the bases of the hills so as to avoid grades. Consequently, colonial roads were almost inevitably crooked, deep with mud in the winter, laden with dust in the summer, and more or less dangerous at all times. A crossing of the mountains was described by one traveler as "a succession of miracles." Crossing streams was also hazardous. There were no bridges over the largest rivers until long after the Revolution; it was necessary to ferry across. The smaller streams were usually forded. It is not surprising that the wretched state of the roads found expression in the names of towns, such as Long-a-coming, N. J., or Mudholes, Ind.[3]

Improved road vehicles were scarce. Private coaches, chaises, or landaus were to be found in larger towns by 1760, but their number was kept down by the high price of steel. Sometimes, as in Boston, coaches

[1] Dixon, *op. cit.*

[2] Gephart, *op. cit.*, pp. 43–46.

[3] MacGill, C. E., in Meyer, B. H., *History of Transportation in the United States before 1860*, p. 62 (1917).

were frowned upon as works of the devil.[1] The conveyances generally employed were of the crudest sort. The stagecoaches of the day were rough boxes swung on wheels by leathern straps instead of springs, with seats for a few passengers and space for a small amount of baggage. The wagons, usually of the linchpin type, were ponderous and unwieldy. Some of the more primitive had wheels made from the cross sections of trees, which were centered to roll on wooden axles.[2]

Transportation by pack horse along trails or in crude vehicles along dirt roads was even less effective than transportation by water. The freighting charge from Philadelphia to Pittsburgh by pack horse appears to have been as high as $11 per 100 pounds, or at the rate of 70 cents per ton-mile.[3] In 1852 the average rate for transporting grain by wagon is said to have been 15 cents per ton-mile, and prior to 1824 it required 20 days to make a wagon trip from Buffalo to New York.[4] On the poorest roads the charge was of course still greater and the speed still slower. As for passengers, a stage journey from New York to Boston in 1793 took 4 or more days and the fare for ordinary travel was 6 or 8 cents per mile, including board and lodging.[5]

The foregoing data indicate clearly that colonial transportation was dangerous, slow, and expensive, whether by water or by land. Unfavorable weather conditions often made travel practically impossible. At best, average speeds were never more than a very few miles per hour. And costs were prohibitive for long distances, especially upstream and overland. The cost of transportation by land was so great, in fact, that only livestock (which could be driven) or goods of high value in small bulk could stand the charge. Transportation costs therefore bore most heavily upon the cheap articles of common use. Corn in the interior had to be turned into whisky before it could be carried profitably across the mountains to the coast. Salt was five or six times as valuable 300 miles inland as it was at the seashore.[6]

Turnpikes

After the Union became firmly established, America faced west and transport facilities were improved and expanded. The Concord coach replaced the primitive box stage, and the large, picturesque Conestoga wagon, drawn by six horses, superseded the wooden-wheeled vehicle of

[1] Faulkner, H. U., *American Economic History*, p. 310 (1924).

[2] Cleveland, F. A., and Powell, F. W., *Railroad Promotion and Capitalization in the United States*, p. 4 (1909).

[3] Ringwalt, *op. cit.*, p. 27.

[4] *Ibid.* The cost of transportation by wagon had changed little over a long period of years.

[5] *Ibid.*, p. 61.

colonial days.[1] More important, turnpikes were constructed. These were improved roads, generally built by private corporations and financed by means of tolls.

The first important road of the kind was the Philadelphia and Lancaster Turnpike, completed in 1794 from Philadelphia to Lancaster, Pa., 62 miles.[2] Paved with stone overlaid with gravel and built at a cost of $7,500 per mile, it was a first-class highway at the time and proved so successful that it led to a craze for turnpike construction. Between 1794 and the capture of long-distance traffic by canals and railroads, several thousand miles of turnpike were laid down, frequently with the aid of subsidies from the states. Among the other turnpikes was the famous Cumberland Road, or National Pike, which was built between 1806 and 1844 by the federal government at a cost of about $7,000,000. As in-

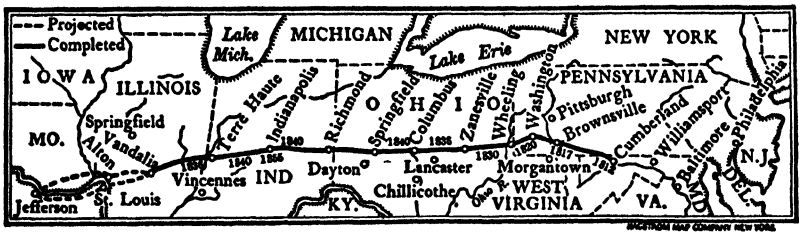


FIG. 1.—The Cumberland Road. (*From Bogart, Economic History of the American People, Longmans, Green and Company.*)

dicated by the accompanying map, it extended from Cumberland, Md., to Vandalia, Ill., thereby providing a through route between the East and the Middle West.[3] It was first a free route, the road being maintained from Congressional appropriations. Later, after it was turned over to the states, tolls were collected.[4]

Turnpikes had obvious advantages over the ordinary local dirt roads. For example, the Cumberland Road is said to have reduced the running time from Baltimore to Wheeling by nearly two-thirds and the cost of freighting by half. Even so, transportation by turnpikes was comparatively slow and expensive. Coaches could normally make only 50 or 60 miles during the day, and wagons could travel about one-third as far. Freighting charges appear to have averaged about 13 cents per ton-

[1] The Conestoga wagon seems to have appeared first during the decade between 1750 and 1760.

[2] The charter provided for tolls varying for each 10 miles from 6 to 25 cents per designated unit. MacGill, *op. cit.*, p. 68.

[3] Construction was not complete beyond Springfield, Ohio, and the last portion was merely a dirt road. At the eastern end connection was made with Baltimore by private turnpike.

[4] Gephart, *op. cit.*, p. 53.

mile.[1] There could be no really great improvement in overland transportation until mechanical power was substituted for animal power.

Turnpikes were no match for canals and railroads. Competition from the latter, together with overconstruction, poor organization, and excessive indebtedness, brought financial failure for most of the turnpike companies. In time their roads were abandoned or were turned over to state and local governments to be absorbed into public highway systems. Through highway transportation was not revived until after the invention of the automobile. This illustrates the declines that have more than once occurred in established transport industries.

Practically the only early improved roads opened up after the first decade of the railroad era were designed primarily as feeders to other modes of transportation. Among these were plank roads, which were usually constructed by private companies and financed by means of tolls, as in the case of macadamized turnpikes. The first plank road was built at Syracuse, N. Y., in 1837; and between that date and 1860 several thousand miles of such roadway were laid down, chiefly in the South and West.[2] Under the conditions then prevailing, plank roads were advantageous. Since lumber was plentiful, they were cheaper and easier to construct than macadamized turnpikes, canals, or railroads, and they offered less friction to wheels than the ordinary highway. In addition, unlike the dirt road and the canal, the plank road was open to traffic at all seasons. Upkeep, however, was expensive; and as the railways were extended, plank roads went out of use.

Steamboats

The introduction of the steamboat constituted the next significant advance in transportation. Practical steamboat navigation began in 1807 when Robert Fulton perfected the "Clermont," but his was not the first steamboat. As in the case of the locomotive, the automobile, and the airplane, the steamboat was a product of gradual evolution. Prominent in its development were John Fitch, John Stevens, and Oliver Evans. In 1786 Fitch operated a steamboat propelled by an endless chain of paddles, and in 1789 he made a model driven by paddles in the stern, which attained a speed of 7 miles an hour. In 1804 Stevens operated a small boat propelled by a high-pressure steam engine attached to twin screws. In 1804 Evans built a self-driven steam dredge.[3]

[1] MacGill, *op. cit.*, p. 208; also Ringwalt, *op. cit.*, pp. 33–34.

[2] MacGill, *op. cit.*, p. 299. The cost of the first road varied from $1,000 to $2,400 per mile, exclusive of earthwork, bridges, etc.

[3] Bureau of the Census, *Tenth Census*, vol. 4, *Report on Steam Navigation in the United States*, part 1, pp. 1–4 (1883); also McMaster, J. B., *History of the People of the United States*, vol. 3, p. 487 (1907). Some of the early steamboats are described by Dunbar, *op. cit.*, Chaps. 19–21.

The "Clermont" made its first successful run on the Hudson River from New York to Albany and back in August, 1807. Fulton described the trip in a letter: "My steamboat voyage to Albany and back has turned out rather more favorably than I had calculated. The distance from New York to Albany is one hundred and fifty miles. I ran it up in thirty-two hours, and down in thirty. I had a light breeze against me the whole way, both going and coming; and the voyage has been performed wholly by the power of the steam-engine. I overtook many sloops and schooners beating to windward, and parted with them. The power of propelling boats by steam is now fully proved."[1] Although it was a clumsy side-wheeler of only 160 tons, the "Clermont" was indeed practical enough to secure for Fulton and Robert Livingston (an associate) a 20-year monopoly from New York as well as a similar concession on the lower Mississippi River from Louisiana.

Steamboats were soon launched on other waters of the country, but developed slowly. On lake and ocean the steamboat was for a number of years less efficient than the sailing vessel.[2] Not until 1837 was the first steamer, the "Great Western," built for ocean service. On rivers the early steamboats had difficulty in stemming the currents and avoiding obstructions, the channels being virtually unimproved except for marking. Practical steamboat operation did not begin on the Mississippi River and its tributaries until 1817, when the "Washington" made the round trip between New Orleans, La., and Louisville, Ky., in 41 days. Other retarding factors were monopolies, such as those of Fulton, which were in force until the Supreme Court decided in 1824 in Gibbons *v.* Ogden that the monopoly granted to Fulton by New York constituted a regulation of interstate commerce which was beyond the powers of the states to make.[3]

Following the decision in Gibbons *v.* Ogden, steamboat transportation on the rivers increased rapidly.[4] With the exception of the Civil War period, expansion was continuous until 1880, though at a diminished rate after 1850. In 1840 New Orleans was the fourth port in the world.

Great Lakes shipping began to grow substantially during the fifties. About that time the iron-ore and grain regions near the Lakes were opened up, and a canal was constructed around the rapids at Sault Ste. Marie.[5]

[1] Faulkner, *op. cit.*, p. 316.

[2] About two-thirds of the tonnage of vessels on the Great Lakes during the fifties consisted of sailing vessels.

[3] *9 Wheaton* 1.

[4] Between 1820 and 1850 the tonnage of documented vessels (self-propelled or sailing vessels operated under the American flag) on the Western rivers increased elevenfold. Bureau of the Census, *op. cit.*, p. 13. By 1856 over 600 steamboats had been built.

[5] Iron ore was discovered in Michigan about 1844. The "Soo" Canal was opened in 1855, and the Welland Canal, constructed between 1824 and 1832, was opened in 1829.

Once begun, transportation on the Lakes grew steadily through the years, except for occasional declines caused by business depressions affecting ore and coal shipping.[1]

The success of the steamboat was of course attributable to the increase in the speed and the decrease in the cost of transportation which it brought about, especially in upstream service. Vessels on the Mississippi and Ohio rivers in 1840 averaged 10 or 12 miles per hour downstream, about 6 miles per hour upstream.[2] This was slow when compared with railroads, but fast when contrasted with flatboats or keelboats. Steamer charges varied widely from place to place and from time to time, but were said to range between ½ and 1½ cents per ton-mile, or much below the cost of upstream service by keelboat.[3]

Canals

Canals constituted another early improved means of transportation.[4] These were built for the most part by the states, primarily to supplement natural waterways. Since canals required a large investment and offered remote returns, it was generally only through state participation that construction was feasible. National aid might have been invoked, but the hands of the federal government were tied by constitutional limitations. There were no specific provisions in the Constitution for federal participation in internal improvements, and strict constructionists blocked most of the efforts to enlist the aid of the central government. Congress granted land to the states for canal purposes, gave the states various sums from the sale of public lands, and subscribed to the stock or loans of a few canal companies, but it did not authorize direct federal construction. It was at a later date that the federal government built canals in connection with the improvement of rivers.

The first canal of great commercial importance was the Erie, constructed by the state of New York and opened in 1825.[5] Originally the Erie was 364 miles long, contained 83 locks, and had a ruling depth of 4 feet.[6] As shown by the map below, it followed the Mohawk River from the Hudson River to Rome, thence westward along the most level route

[1] Consult the *Annual Reports of the Chief of Engineers of the United States Army*. See also U. S. Department of Commerce, Bureau of Navigation and Steamboat Inspection, *Merchant Marine Statistics*.

[2] Dixon, *op. cit.*, p. 28.

[3] MacGill, *op. cit.*, p. 574.

[4] Canals and canal transportation are described at some length in Dunbar, *op. cit.*, Chaps. 35–38.

[5] A number of short canals, principally around river obstructions, were opened before the Erie, and many more had been projected. Among these was the Middlesex in Massachusetts, 27 miles in length and completed in 1808. Cleveland and Powell, *op. cit.*, p. 41.

[6] Some writers give a slightly different length.

through Syracuse, Rochester, and Lockport to Buffalo. The distance from Buffalo to New York via the canal and the Hudson was about 507 miles.

Despite the dire predictions of opponents, "Governor Clinton's big ditch," the Erie, was an immediate success. The tolls collected from the steadily increasing traffic defrayed the entire cost of the canal (about $8,000,000) within 10 years.[1] This was because the Erie, occupying a favorable route and connecting natural waterways, provided a cheap means of transport between large areas of dissimilar production.[2] The average freight charge between 1850 and 1872, including tolls, appears

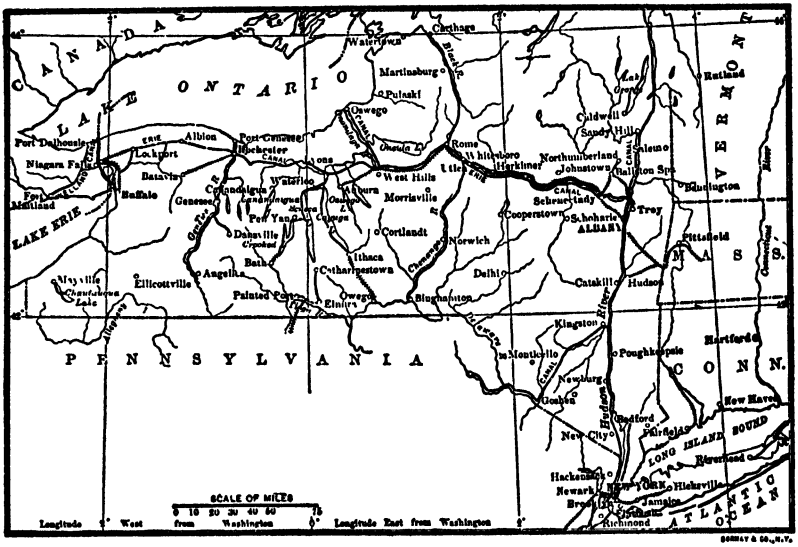


FIG. 2.—The Erie Canal. (*From Johnson and Van Metre, Principles of Railroad Transportation, D. Appleton-Century Company, Inc.*)

to have been about 1 cent per ton-mile, or far less than the cost of early overland transport. It has been said that the Erie reduced the cost of transportation between Buffalo and New York by nine-tenths. The gain in speed was less pronounced, the horse-drawn boats moving at only 3 or 4 miles per hour.

The success of the Erie established, at a time of great need for cheaper

[1] For traffic data consult the *Statistical Abstract of the United States.*

[2] The main object in constructing the Erie was to reach the grain fields of western New York, but owing to its connection with the Great Lakes, and through additional channels, with the Ohio River, its influence extended far beyond that state. Partly on account of the Erie, the internal commerce of the United States began to flow predominantly eastward instead of southward. Fairlie, J. A., *Quarterly Journal of Economics*, 14, p. 213 (February, 1900).

transportation, canal building began apace. The enthusiasm for artificial waterways was so great that canal construction developed into a brief speculative boom which was not unlike the stock, oil, and real-estate booms of more recent times.[1] By 1830 there had been built about 1,200 miles of canals; by 1840, 3,300 miles; and by 1850, 3,700 miles. Most of this mileage was in Pennsylvania, Ohio, Virginia, Indiana, Maryland, and New Jersey. The principal canals may be classified as those built further to connect the East and the West, to facilitate coastwise trade, and to join the interior rivers and lakes.

Pennsylvania, Maryland, Ohio, and Indiana were especially active in construction. Fearful of the Erie's diversion of the western trade from Philadelphia to New York City, Pennsylvania built the ambitious but unsuccessful Pennsylvania Public Works (1826–1834).[2] Maryland began the never-completed Chesapeake and Ohio Canal. Ohio and Indiana constructed a system of canals to join the Ohio River and the Great Lakes; Illinois opened the Illinois and Michigan Canal from Chicago to the Illinois River; Michigan built the "Soo" Canal; and Wisconsin attempted to connect the Great Lakes with the Mississippi River.

The financial results of canals other than the Erie were usually unfavorable. Although the canals served a useful purpose for a time, very few projects yielded revenues sufficient to cover both capital and maintenance charges, and by the time the speculative bubble burst during the crisis of 1837, the states found themselves hopelessly in debt. Many of the states defaulted on their obligations. Indiana, Maryland, Michigan, and Pennsylvania, among others, repudiated their debts. As a result the states turned away from transport enterprises. The subsequently adopted state constitutions almost invariably contained clauses prohibiting the use of state funds or credit for internal improvements. The states might have been unwilling to go so far in tying their hands had not the railroads held out greater promise than canals. The states could have gone into

[1] In Pennsylvania and Michigan it was predicted that canal tolls would defray the entire cost of state government.

[2] This consisted of the Philadelphia and Columbia Railroad from Philadelphia to Columbia, 81 miles; an eastern canal from Columbia to Hollidaysburg, 173 miles; the Allegheny Portage Railroad from Hollidaysburg to Johnstown, 36 miles; and a western canal from Johnstown to Pittsburgh, 105 miles—all told nearly 400 miles. The passage across the Alleghenies was accomplished by a series of five inclined planes and five level stretches on each side of the mountains. Giant cradles carried the canalboats across in sections. Built in less favorable territory at a greater cost than the Erie, this project was not a success and played a minor role in the commerce of the country. Poor states that the eastward traffic over the portage railroad never exceeded 20,000 tons annually. The main line of the system was sold to the Pennsylvania Railroad in 1857. Between 1825 and 1831 a number of other canals were completed in Pennsylvania by private companies, primarily to transport anthracite coal from the northeastern coal fields to tidewater. Poor, H. V., *Manual of the Railroads of the United States*, 1881, p. xvii.

the railroad business, of course, and a few did; but private capital was available, and most of the states did not see fit to construct railroads. They followed the example of the federal government and withdrew from direct participation in internal improvements. Many of the states sold their canals to private concerns.

Decline of Canal and River Transportation

After 1880 transportation by water, except on the oceans and the Great Lakes, rapidly declined, notwithstanding the abolition of tolls.[1] Between that date and 1920 the volume of traffic on the New York State Barge Canal (Erie) and the tonnage of documented vessels on the Western rivers fell to the levels of 1840. By 1889 about half the 4,800 miles of canal originally built had been abandoned, and within a decade or so steamboats had practically disappeared from the rivers.[2] The old towpath and packet boat went out of use, and the charming life so interestingly described by Mark Twain in *Life on the Mississippi* became a thing of the past. Only on the Ohio River, where there were near-by "heavy" industries, was river transportation able to hold its own; and even on the Ohio shipping did not keep pace with railroad traffic.

The subsidence of canal and river transportation was largely attributable to the development of the railways.[3] Other factors were the shifting of the sources of supply of commodities especially adapted to transportation by water, natural obstructions to navigation, poor organization of the water transport business, and relatively more favorable investment opportunities outside the water transport industry.

In competing with railroads, water carriers labored under three natural disadvantages, just as they do today. In the first place, the waterways could reach directly only a portion of our vast territory. Rivers and lakes were confined to fixed locations; and canals had to seek reasonably level routes in order to avoid prohibitive construction costs. It followed that water carriers either could not participate at all in shipments between producing and consuming centers situated away from their routes, or they could participate only at the added expense of transshipment. In the second place, on the line haul, water transportation was normally slower than rail. At high speeds the friction of the water became excessive; on canals much time was required in passing through locks; and on the riverways transport was frequently roundabout. The distance from Minneapolis to New Orleans, for instance, was increased

[1] Tolls were removed on the Erie Canal in 1883 and on the rivers in 1884.

[2] See *Report of the Commissioner of Corporations on Transportation by Water in the United States*, part 1, p. 44 (1909). Estimates place the mileage of canals now in use at 700. Most of this mileage consists of modern barge or ship canals. Locklin, D. P., *Economics of Transportation*, p. 32 (1938).

[3] Traffic was also diverted from the Mississippi River by the Erie Canal.

hundreds of miles by the meandering of the Mississippi River. A third handicap of the waterways was susceptibility to variations in the weather, which caused greater costs of maintenance and frequent interruptions to traffic. Waterways in the North were closed for about half the year and could therefore generally be employed only in shipping goods that could be economically stock-piled or stored, such as iron ore, coal, and grain.

Added to these natural disadvantages were artificial handicaps. In some instances the railroads secured control of the canals, steamship lines, or water fronts, and thus were able to subjugate water transportation to their own interests. Railroad rate policies frequently worked to the disadvantage of water carriers. Recouping their losses by high charges on noncompetitive traffic, the railroads could reduce their rates in the presence of water competition to levels which the water carriers, having less noncompetitive traffic, could not profitably meet.[1] Prior to 1906 there was little effective regulation of the railroads, and the Interstate Commerce Commission had no authority to fix the minimum level of railroad rates until 1920. Sometimes the railroad companies refused to enter into joint arrangements with the water carriers for the establishment of physical connections, joint rates, and through routes. This was a serious handicap to the water lines, for they depended chiefly upon interchange traffic. Probably less than a third of their business today is port to port. In recent years steps have been taken to place the railroads and the waterways on a more equal footing.

Railroads

Before the turnpike and canal movements ended, the far more important railroad era had begun. The earliest railways, from a technical point of view, were known as "tramways," which consisted of wooden, plated, or cast-iron rails upon which trams (cars) were drawn by gravity, horses, or stationary engines.[2] Tramways, however, were merely plant facilities and were therefore of limited utility, even though they employed the important principle of using smooth rails to ease the movement of wheeled vehicles.

[1] It should be noted that the reduction of water rates to unremunerative levels sometimes arose as much from rate cutting by water carriers as from rate cutting by railroads. In fact, water lines were legally freer to act than railroads.

[2] Tramways were used in England as early as 1630. The first line in America was probably that built up Beacon Hill, Boston, near the close of the eighteenth century; but the most famous was the Quincy "Railway," constructed in 1826 to carry stone for the Bunker Hill Monument from the granite quarries at Quincy, Mass., about 4 miles to a landing on the Neponset River. Additional lines, some of greater length, were laid down during the early nineteenth century in Pennsylvania for transporting coal, Ringwalt, *op. cit.*, p. 69.

Invention of the Locomotive

Had horses and stationary engines been the only motive power, the railroad could never have been much more than an improved highway and a weak competitor of the waterways. It was the steam locomotive that made the railroad. The first steam vehicles to move under their own power were designed to run on land, not on rails; but in 1804 Richard Trevithick of England, and in 1826 John Stevens of the United States, constructed and operated rail locomotives.[1] Both engines were experimental in character.[2]

The "Rocket," usually credited to George Stephenson, was the first practical locomotive. This engine was one of three tried out in 1829 at Rain Hill, England, on the Liverpool and Manchester Railroad, then nearing completion. Undecided as to motive power, the directors had offered a prize for a locomotive which would meet certain specifications; among others, to weigh less than 6 tons and be capable of drawing a gross load of 20 tons at a speed of at least 10 miles an hour. The "Rocket" won easily, completing the trial at an average speed of 15 miles an hour and attaining a maximum speed of 29 miles an hour. Dramatizing the promise of the railroad as a future means of transportation, this was a notable achievement, though in comparison with modern giants of power the "Rocket" was a feeble contrivance. It weighed only about 4 tons; its boiler was 6 feet long and 3 feet in diameter; and its firebox was 2 feet wide and 3 feet high.[3] Nevertheless, the "Rocket" embodied two features fundamental to the success of the locomotive: the multitubular boiler and the steam exhaust draft. For these Stephenson was greatly indebted to others less widely heralded than himself—to Evans for the multitubular boiler; to Hackworth, a competitor at Rain Hill, for the idea of using steam to create a draft; and to Trevithick and others for practical experience.[4]

[1] Steam-driven highway carriages were constructed in Europe by Nicholas Cugnot in 1769 and by William Murdock in 1784. An amphibious machine was built and operated in the United States by Oliver Evans in 1804. See Smiles, Samuel, *Lives of the Engineers*, vol 5, p. 77 (1904); also Van Metre, T. W., *Early Opposition to the Steam Railroad*, p. 12 (Pamphlet, undated).

[2] Trevithick's locomotive of 1804 drew 10 tons of iron 9 miles at a speed of about 5 miles per hour. Another, the "Catch-me-who-can," was exhibited in 1808 in Euston Square, London, where it ran on a circular track at a speed of 12 or 15 miles an hour.

[3] A locomotive of the 4-8-8-4 type built for the Union Pacific in 1941 was 133 feet long, weighed 1,197,800 pounds, and had a tractive power of 135,375 pounds. *Railway Age*, vol. 111, p. 519 (Oct. 4, 1941). Locomotives are now classified according to the number of wheels used for front trucks, for drivers, and for rear trucks.

[4] Prof. Usher states that the "Rocket" was built by Robert Stephenson in consultation with his father and with Booth, the secretary of the Liverpool and Manchester Railway. George Stephenson, however, was the first to perceive the importance of grade and curve resistance to the economy of locomotive operation. Usher, A. P., *A History of Mechanical Invention*, p. 318 (1929).

Early Experiments in Railroading

As a public carrier, the railroad in the United States is generally said to have originated with the Baltimore and Ohio, chartered in 1827 and opened to the public on May 24, 1830, from Baltimore, Md., to Ellicott's Mills, a distance of about 13 miles.[1] The second railroad, and the first to use steam power from the beginning,[2] was the Charleston and Hamburg, or South Carolina Railroad, chartered in 1827 and made accessible over a portion of its line in 1831.[3] When completed, the Charleston and Hamburg, 136 miles in length, was the longest railroad in the world under one management, and it was looked upon as a marvel.[4] As in the case of many other railroads, both the Baltimore and Ohio and the Charleston and Hamburg were encouraged by the rivalry of trade centers.[5]

For 20 years subsequent to the opening of the Baltimore and Ohio, railroads remained secondary in importance to waterways. Before the railroad could become a really effective means of transportation, it was necessary to overcome public and private opposition to the new type of carrier and to solve numerous problems of railroad technology, management, and finance.

One group of unanswered questions related to plant and equipment. In its early days the Baltimore and Ohio, for example, bore only a remote resemblance to the modern railroad, with respect to both roadbed and rolling stock. The first rails were wrought-iron strips fastened to stringers. Slightly more than half the first section of track was laid with sleepers and string pieces of wood; the remaining portion with sleepers and stringers

[1] The first such carrier in England was the Stockton and Darlington, opened in 1825 to carry coal for the public from the mines around Darlington to Stockton on the River Tees. Daggett, Stuart, *Principles of Inland Transportation*, pp. 64–67 (1934).

[2] The train operated at the opening of the Baltimore and Ohio was drawn by horses, for the steam locomotive had not then demonstrated its success in America. See Hungerford, Edward, *The Story of the Baltimore and Ohio Railroad* (1928).

[3] Phillips, U. B., *A History of Transportation in the Eastern Cotton Belt to 1860*, Chap. 3 (1908). This railroad is now a part of the Southern.

[4] Compared with the Santa Fe of today, 13,000 miles in length, it was of course insignificant.

[5] The Baltimore and Ohio was organized by citizens of Baltimore, Md., as a means of attracting a larger portion of the Western trade, the lion's share of which New York had obtained through the construction of the Erie Canal. Baltimore's Cumberland Road was no match for the Erie, and engineering difficulties stood in the way of a competing canal. The Charleston and Hamburg was projected by citizens of Charleston, S.C., in order to secure the trade of Augusta, Ga., and other upland cities of the cotton belt. Charleston vied with Savannah, Ga., for this trade, and the railroad was a means of overcoming the competitive advantage Savannah possessed by virtue of her location at the mouth of the Savannah River.

of stone. Not until it introduced the iron T rail, when building the Washington branch (1835), did the Baltimore and Ohio hit upon the relatively flexible modern type of construction, which is firm yet yields enough to lessen the damage to rolling stock.

The earliest cars were hardly more than road vehicles transferred to rails. Those for freight, crudely constructed, were designed to carry about 7,000 pounds.[1] The passenger cars were usually open affairs or, if closed, were mere wooden boxes with seats arranged around the sides. An improved form of passenger car resembled a stagecoach with an upper deck covered by an awning and surrounded by an iron framework. The capacity of the carriage was 30 persons, including the driver.[2] Passenger coaches of the modern type were not introduced on the Baltimore and Ohio until 1834.

Equally crude were the first locomotives. The Baltimore and Ohio even tried sails, of course without success.[3] Another strange device tested was a horsepower locomotive. A horse was placed in a car and forced to walk on an endless belt in order to communicate motion to the wheels. This also proved unsatisfactory. The first steam locomotive used on the Baltimore and Ohio, the "Tom Thumb," was a 1-ton model of about 1 horsepower that barely won a spirited race with a horse. However, it showed that a locomotive could draw a train around curves and up grades, an accomplishment which doubters had believed to be impossible. It was thought that the engine would leave the track when rounding curves and that the adhesion of smooth rail and locomotive tires would not provide sufficient tractive power.

Another problem involved the use of the roadway. Should it be operated as a public highway on a toll basis, or should the railroad be privately owned and operated in all respects? In the early years it was commonly believed that the toll-road method would be followed, and many railroad charters required the lines to be left open to any user who would comply with the necessary rules and pay the assessed tolls.[4] Although this plan had the advantage of making railroad transportation less monopolistic, it proved to be impractical, especially after the introduction of the steam locomotive. Customers could ordinarily not afford to supply their own rolling stock, and management encountered serious difficulties in regulating the use of the roadway. Rolling stock could have been owned, or owned and operated, by concerns other than the proprietors of the railroad lines, and this was occasionally the scheme fol-

[1] The average freight car now has a capacity of 50 tons.

[2] The average passenger coach now has a capacity of about 77 persons.

[3] Sails were also tried on the Charleston and Hamburg.

[4] The Philadelphia and Columbia, now a part of the Pennsylvania, was originally a public highway.

lowed; but better policy generally dictated complete control of all facilities by one management.

Still another vital question was how to finance the railroads. The limited supply of capital in the United States pointed to government financing, but the federal government was estopped by strict constructionists of the Constitution, and many of the states had suffered disastrous experiences with internal improvements. The question of finance was therefore generally answered in favor of private enterprise, frequently, however, with the aid of land grants, public subscriptions to stock, guarantees of bonds, donations of cash, exemptions from taxation, etc., especially when the lines were long or were built in sparsely settled country. Only a few states and a smaller number of cities actually constructed lines. Among the states were Pennsylvania, Georgia, Illinois, Michigan, North Carolina, and Virginia. Instances of municipal enterprise were those of Troy, N. Y., and Cincinnati, Ohio. Eventually most of the publicly owned railroads became parts of private systems.

It was difficult to raise capital, even with government aid. Most people had hazy notions concerning the railroad and viewed it with mistrust. An incident illustrating the ignorance and prejudice was related by Senator Oliver H. Smith of Indiana.[1] His opponent in the campaign of 1826, in declaring himself in favor of the newfangled device, stated in an address that railroad trains were run 30 miles an hour in England and predicted that they would be run still faster in America. This was too much for one listener, who cried out that the speaker was either insane or regarded his hearers as fools; that a man could not live a moment at such a speed. The audience felt as the heckler did, and the day went to Senator Smith. Better informed people did not fear such dire consequences but believed nevertheless that the railroad would prove to be impracticable and uneconomical. They placed their faith in canals, at least for the transportation of freight.

More serious than ignorance and prejudice was the active opposition of vested interests, especially that of canal companies. The beginning of the Baltimore and Ohio precipitated a bitter controversy with the promoters of the Chesapeake and Ohio Canal, which was started about the same time. Another case of opposition from vested interests occurred in New York, where the state itself had invested in canals. In 1835 the canal commissioners of New York reported that "Experience has gradually developed the relative utility of canals and rail-roads for the transportation of property. We think the period is not distant, if it has not already arrived, when the superior advantages of a canal over a rail-road, as a means of conveying property, will be indisputably demonstrated."[2]

[1] Bogart, E. L., *Economic History of the American People*, p. 340 (1930).

[2] Van Metre, *op. cit.*, p. 42.

That the canal interests had strong support is indicated by the experience of the Utica and Schenectady, whose charter forbade the transportation of any freight whatsoever, except passenger baggage. An amendment to the charter permitted the railroad to carry freight during the suspension of canal navigation, but on condition that the company pay into the canal fund the tolls that would have been collected had the goods moved by canal. Similar tolls were required of the Syracuse and Auburn, the Utica and Syracuse, and the Auburn and Rochester. Not until 1851 did the legislature abolish these charges levied upon the railroads.

Development of the Railway System

The accompanying diagram shows that the railway mileage of the United States grew slowly until 1850; increased very rapidly between 1850 and 1890; increased at a declining rate between 1890 and 1920,

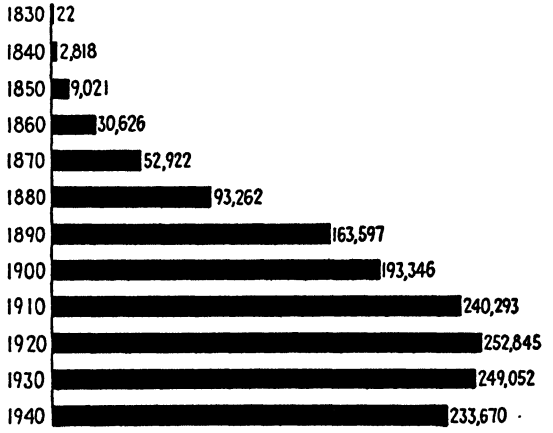


FIG. 3.—Miles of steam railway in the United States by decades.

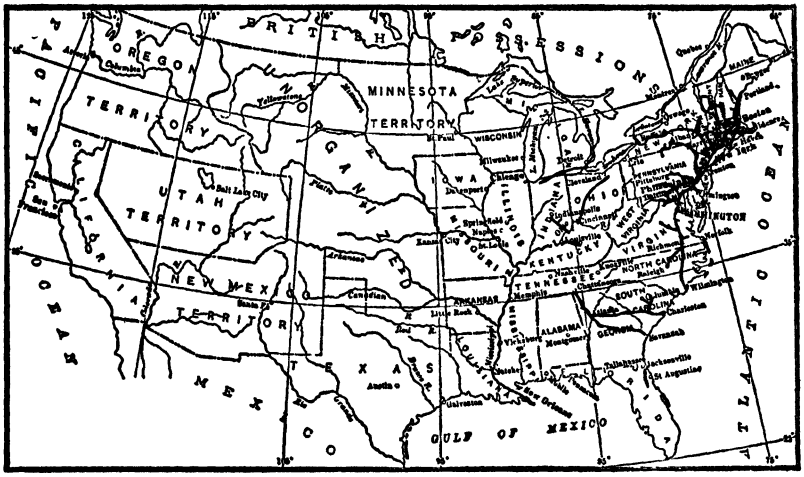
especially during the last 10 years; and actually decreased after 1920. Miles of track and property investment increased until 1930 but declined slightly thereafter.[1]

Partly because of the undeveloped state of the country and partly because of the undeveloped state of the railroad itself, there were built during the two decades beginning with 1830 only about 9,000 miles of line, or fewer than 500 miles per year. The accompanying map of the railroad system in 1850 shows nine-tenths of the construction confined to the more densely populated parts of the country, especially New

[1] Figures are taken from the *Annual Reports of the Interstate Commerce Commission* and from the *Statistics of Railways in the United States*. See also *Statistical Abstract of the United States*.

England, where the demand for service was greatest and where labor and capital were most plentiful. Ohio was the only state west of the Appalachian Mountains with as many as 500 miles of railway. West of the Mississippi River there were no lines at all.

Among the more important early railroads, besides the Baltimore and Ohio and the Charleston and Hamburg, were those of Pennsylvania, New York, Massachusetts, Georgia, and Ohio.[1] In Pennsylvania the Philadelphia and Reading, chartered in 1833, was constructed to provide an outlet for the anthracite coal fields. The Pennsylvania Railroad, today


BRITISH POSSESSIONS
OREGON TERRITORY
MINNESOTA TERRITORY
WISCONSIN
IOWA
ILLINOIS
INDIANA
OHIO
MICHIGAN
KENTUCKY
VIRGINIA
MAINE
UTAH TERRITORY
NEW MEXICO TERRITORY
CALIFORNIA
MISSOURI
ARKANSAS
TENNESSEE
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
ALABAMA
MISSISSIPPI
LOUISIANA
TEXAS
GULF OF MEXICO
MEXICO
Salt Lake City
Santa Fé
Austin
New Orleans
Charleston
Savannah
Jacksonville
St. Augustine
Washington
Richmond
Boston
Portland
Quebec
Montreal
Chicago
Cincinnati
Louisville
Nashville
Memphis
Little Rock
Vicksburg
Mobile
Pittsburgh
Philadelphia
New York
Baltimore
Wilmington
Raleigh
Columbia
Augusta
Milwaukee
Detroit
Buffalo
Albany
Springfield
St. Louis
Kansas City
Natchez
Galveston
Toronto
Kingston
Halifax
St. John
Hartford
Providence
Concord
Burlington
Ogdensburg
Rochester
Syracuse
Utica
Troy
Harrisburg
Wheeling
Lexington
Knoxville
Huntsville
Montgomery
Pensacola
Tallahassee
Wilmington
Norfolk
Petersburg
Lynchburg
Fredericksburg
Alexandria
Annapolis
Dover
Trenton
Newark
Lake Michigan
Lake Superior
Lake Huron
Lake Erie
Lake Ontario
Lake Champlain
Lake Winnipeg
Lake Winnipeg
Lake Winnipeg

was one of the few outstanding examples of state ownership of railroads.[1] Two other railroads of significance in Georgia were the Georgia Railroad and the Central of Georgia, both chartered in 1833. The Georgia Railroad extended west from the Augusta terminus of the Charleston and Hamburg to Atlanta, which it reached in 1845. The Central of Georgia, Savannah's rival for the Charleston and Hamburg, completed a line to Atlanta over the rails of the Macon and Western in 1845. Situated at the southern tip of the Appalachian Mountains, Atlanta was to become the great railroad center of the Southeast. In Ohio the first railroad opened out of Sandusky in 1838, and the Mad River Railroad joined Sandusky with Dayton in 1848. With the Little Miami, completed in 1846 between Springfield and Cincinnati, the Mad River formed a through line from the Ohio River to Lake Erie.

After 1850 the railroad builders advanced boldly into the undeveloped territory of the West, staying construction only during times of business depression or war. Within 40 years the framework of our railroad system had taken shape. Many miles of road were subsequently built, but these generally filled in blank spots in regions already tapped, as shown by a comparison of the accompanying map of the railroad system in 1890 with that opposite page 63, which outlines the principal routes at present. An important factor promoting rapid expansion was the increase and westward movement of population and industry.[2] From 1850 to 1890 the population of the country increased 171 per cent, the value of manufactures ninefold,[3] and the output of wheat and cotton fourfold. A second force was the increasing division of labor. Manufacturing developed in the East; grain growing began in the Middle West; and cotton culture rose in the South. A third factor was the improvement in railroad efficiency.[4] A fourth was public assistance, primarily in the form of land grants.[5]

During the fifties all the states east of the Mississippi River were connected by railway, and the Atlantic seaboard was linked with the Western rivers and lakes. In 1851 the New York and Hudson River completed a road from New York City to Albany, and the Erie finished its line from New York Harbor to Dunkirk, on Lake Erie. Including the roads which had been built from Albany to Buffalo, there were then two lines of railroad between New York City and Lake Erie. In 1852 the Pennsylvania reached Pittsburgh, on the Ohio River; and in 1853 the Baltimore and Ohio entered Wheeling, on the Ohio. Four years later

[1] The line is now leased to the Nashville, Chattanooga and St. Louis Railroad.

[2] Expansion was a cause as well as a result of the growth in population.

[3] 1849 to 1889.

[4] Cf. p. 36.

[5] Public aids to railroads are discussed fully in Chap. XXII.

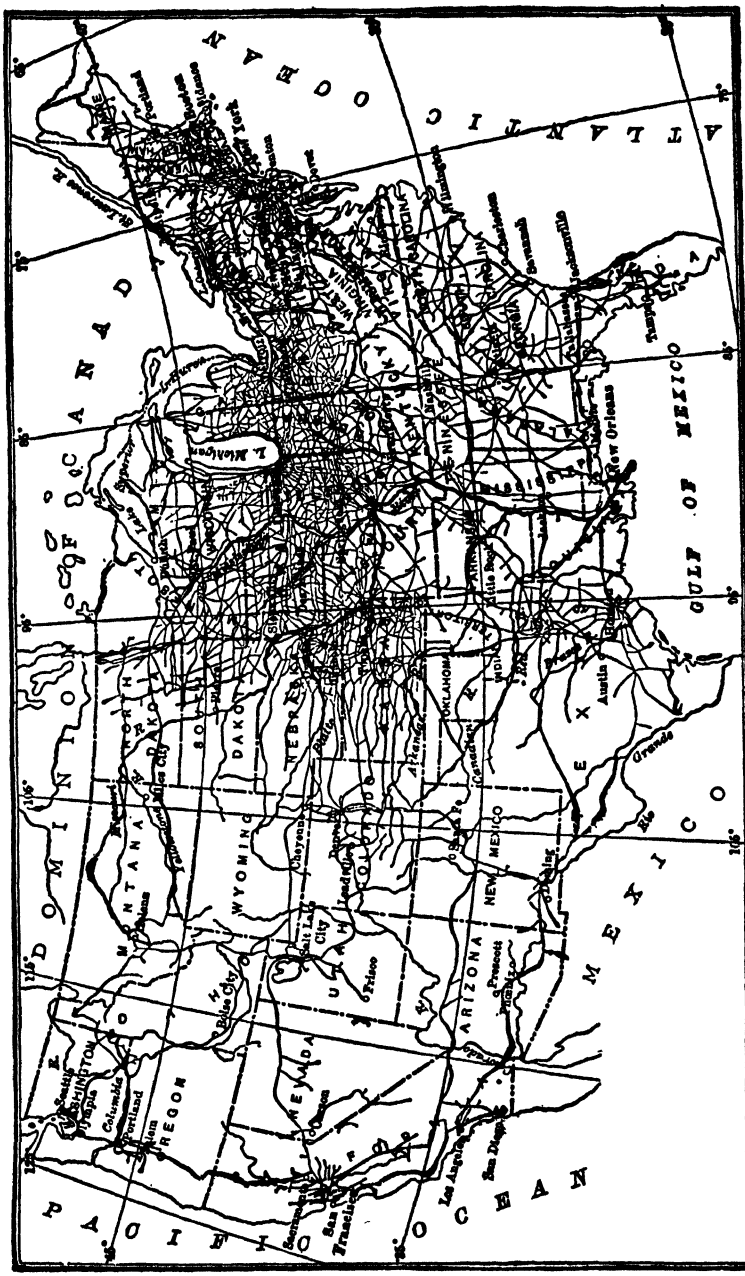


FIG. 5.—Railroads in the United States in 1890. (*From Johnson and Van Metre, Principles of Railroad Transportation, D. Appleton-Century Company, Inc.*)

the Baltimore and Ohio reached St. Louis, on the Mississippi River; and in 1851 the Western and Atlantic opened a line between Atlanta and Chattanooga, on the Tennessee River. Atlanta had been connected with the Atlantic coast in 1845.

Interconnection also took place between the rivers and lakes in the Middle West. In 1851 and 1852 a second and a third route between Lake Erie and the Ohio River were made available, respectively, by the Cleveland, Columbus, and Cincinnati and the Cleveland and Pittsburgh. In 1852 the Michigan Central and the Michigan Southern connected Lake Erie with Chicago, on Lake Michigan;[1] and during the next year, after a line had been built between Cleveland and Toledo, railroad communication was first established between Chicago and New York City.[2] Rail connection between Chicago and the Mississippi River was made by the Chicago and Rock Island in 1854; and between the Mississippi and Missouri rivers by the Hannibal and St. Joseph in 1859. It was on the latter road that the present type of railway mail service was first introduced (1862).[3] Farther south (1859) the Memphis and Charleston reached the Mississippi; New Orleans was connected with Jackson, Tenn., by the New Orleans, Jackson and Northern; and the Mobile and Ohio was opened between Mobile and Cairo, Ill. The last railroad provided a through route from Chicago to the Gulf of Mexico, since the Illinois Central had been completed between Chicago and Cairo in 1856.[4]

The process of interconnection was greatly facilitated by the end-to-end combination of two or more short lines originally built for local purposes. Beginning with the New York Central, organized in 1853 to unite 10 independent roads between Albany and Buffalo, many such combinations were created. Prominent among them were the Pennsylvania, the Erie, the Chicago and Rock Island, the Chicago and North Western, the Chicago, Burlington and Quincy, and the Chicago, Milwaukee and St. Paul. Combinations of this type were formed largely in order to control interchange traffic and to promote a speedier and more economical service. They were therefore generally in the public interest. After the Civil War, however, combinations led to cutthroat competition and were frequently accompanied by financial excesses.

Between 1860 and 1865 less than 5,000 miles of line were built. Practically all of this mileage lay in the North; in the South much equipment was destroyed, and construction came to a standstill. The longest of the railroads built during the Civil War, the Atlantic and Great Western,

[1] These two roads were begun and partly built by the state of Michigan.

[2] The companies forming the route between Chicago and Buffalo were the Buffalo and State Line, Erie and Northeast, Michigan Central, Michigan Southern, Cleveland and Toledo, and the Cleveland, Painesville and Ashtabula.

[3] Railroads had of course carried mail at a much earlier date.

[4] See Poor, *op. cit.*, p. xxiv.

ran from Salamanca, N. Y., to Cincinnati, Ohio.[1] Connecting with the Erie on the east and with the Ohio and Mississippi rivers on the west, this road provided a continuous rail route between New York and St. Louis.

The Civil War ended, railroad construction proceeded twice as fast as during the fifties. By 1873, or at the end of only 8 years, the mileage of the railway system stood at 70,268. Included in the enlarged system was the first transcontinental line. The two roads comprising the line, the Central Pacific, building eastward from Sacramento, Calif., and the Union Pacific, building westward from Council Bluffs, Iowa, effected a junction at Promontory Point, near Ogden, Utah, on May 10, 1869.[2] This event, marked by elaborate ceremonies, had great meaning. The East at last joined the West, with all that this implied economically and politically. A task of enormous difficulty had been completed within four or five years, to the great credit of the promoters and builders of the two roads.[3] The Union Pacific had constructed 1,086 miles of line, and the Central Pacific 690 miles, across uncharted territory occupied by hostile Indians. Materials and supplies had to be brought from the East around Cape Horn or up the Mississippi River, and laborers had to be imported from China. But this is the bright side. The financial aspects of the project were not so praiseworthy. Though the risk was great, the records indicate that the profits earned by the two construction companies were very large.[4] The capitalization was excessive. According to one authority, the Union Pacific created a total capitalization of $111,000,000, to raise $74,000,000 of cash, to build a road that actually cost about $60,000,000.[5] All of the stock and some of the bonds represented water. Overcapitalization afflicted many, perhaps most, of the western railroads. The result was frequently financial failure.

Other important railroads begun or extended between the close of the Civil War and 1873 were the Chicago and North Western, the Chicago and Rock Island, the Chicago, Burlington and Quincy,[6] the Milwaukee and St. Paul, and the Missouri, Kansas and Texas. The Chicago and North Western entered Council Bluffs in 1867, and the Chicago and Rock

[1] Faulkner, *op. cit.*, p. 388.

[2] On these railroads see Reigel, R. E., *The Story of the Western Railroads* (1926); White, H. K., *History of the Union Pacific Railway* (1895); Sabin, E. L., *Building the Pacific Railway* (1919); and Cleveland and Powell, *op. cit.*, Chap. 16.

[3] Associated with the Union Pacific were Messrs. George F. Train, Thomas C. Durant, and Sidney Dillon. Among the leaders of the Central Pacific were Messrs. T. J. Judah, Leland Stanford, Collis P. Huntington, Mark Hopkins, and Charles Crocker.

[4] The Crédit Mobilier of the Union Pacific and the Contract and Finance Company of the Central Pacific.

[5] White, *op. cit.*, pp. 35–36.

[6] On the Burlington see Overton, R. C., *Burlington West* (1941).

Island and the Chicago, Burlington and Quincy reached this point in 1869. The Chicago and St. Paul (now the Chicago, Milwaukee, St. Paul and Pacific) connected Chicago with St. Paul, Minn., in 1867. The Missouri, Kansas and Texas crossed the Red River into Texas in 1872, and during the next year joined the Houston and Texas Central, which had been built north out of Houston, Tex.

During the depression of the seventies construction activity moderated sharply. From the close of 1873 to the beginning of 1879 the average annual increase in mileage amounted to about half that of the 8 years preceding 1873. But once business had recovered, there ensued an expansion unparalleled in the economic history of any country in the world. Railroad mileage grew from 81,747 in 1878 to 163,597 in 1890, *i.e.*, doubled in 12 years at the rate of 6,820 miles per annum. In the year 1887 alone there were constructed 12,876 miles, the equivalent of five times the air-line distance across the United States. This record has never since been approached.

Among the more important railroads completed during this period of rapid expansion were additional transcontinental lines. The second such line was formed when the Atchison, Topeka and Santa Fe (chartered in 1859) reached Deming, N. M., and connected there with the Southern Pacific in 1881. The Santa Fe opened its own rails to the Pacific coast in 1884, secured an outlet to the Gulf of Mexico in 1886, and entered Chicago in 1888. In the meantime (1883) the Southern Pacific, after joining with the Texas and Pacific in 1882, combined several companies to provide a through route under common control from San Francisco to New Orleans. To the north the Northern Pacific (chartered by Congress in 1864) pushed westward from St. Paul.[1] It reached Portland, Ore., in 1883, and completed a line to Seattle in 1887.

Between 1890 and 1920 railroad development was essentially intensive rather than extensive in character, because the main lines of railway had already been built. The mileage of road increased, reaching an all-time peak in 1916 of 254,037; but construction usually took the form of branches, feeders, and cross lines. Among the few large new routes established were the Great Northern, between St. Paul and Everett, Wash., on Puget Sound, in 1893; the San Pedro, Los Angeles and Salt Lake, from Salt Lake City to Los Angeles in 1905; the Chicago, Milwaukee and St. Paul, from the Missouri River to Tacoma and Seattle in 1909; and the Western Pacific, between Salt Lake City and San Francisco in 1909.[2]

During the decade after 1910 fewer miles of line were built than during

[1] The promotion of this railroad by Jay Cooke and Company caused the banking house to fail, precipitating the panic of 1873.

[2] The Chicago, Milwaukee and St. Paul was notable for the electrification of its mountain divisions.

the fifties. In 1917 more miles were abandoned than constructed; and by 1943 the total mileage of line had fallen to 227,999, or 26,000 miles less than in 1916.[1] Abandonments authorized by the Interstate Commerce Commission from 1920 to 1943 are shown graphically by the following chart. Throughout the period total authorized abandonments exceeded 29,000 miles.[2] In the case of Class I carriers, which were responsible for

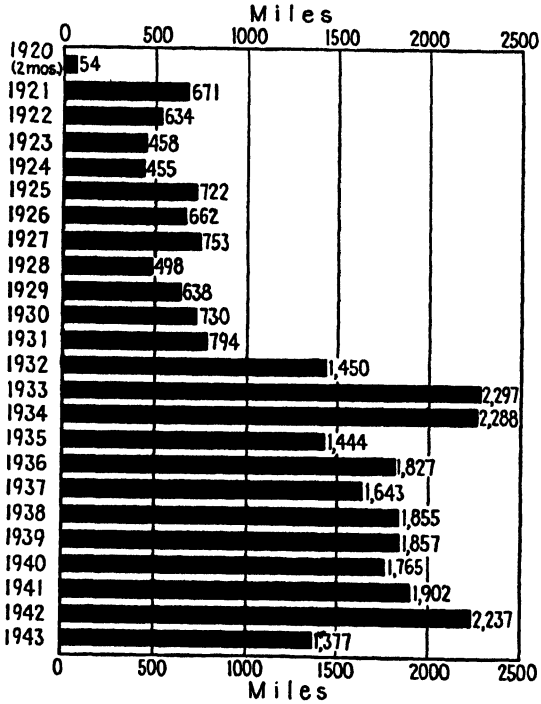


FIG. 6.—Railroad abandonments authorized by the Interstate Commerce Commission.

about two-thirds of the mileage, abandonments usually consisted of branches, although some main-line routes went out of use.[3] Abandonments by the so-called "short lines" frequently meant the discontinuance of entire systems.

The dominant cause of abandonments during the years 1935 to 1943 was highway competition. Other causes were exhaustion of natural resources, rationalization of railroad plant, relocation of industry, and

[1] Interstate Commerce Commission, *Statistics of Railways in the United States*, 1943, p. 147 (1945).

[2] Interstate Commerce Commission, *Railroad Abandonments 1920–1943*, p. 4 (1945).

[3] For a definition of Class I carriers see p. 67.

competition other than highway. These factors varied in significance from territory to territory. For example, motor competition was most evident in New England and least evident in the Western region. Exhaustion of natural resources was especially important in the South but relatively insignificant in New England.

The extensive abandonments of the recent period seem to indicate that a portion of the railway system has become obsolete from a commercial point of view. Taking an annual ton mileage of 100,000 per mile of line as the minimum traffic density for continued operation in a depression year, Dr. Moulton and his associates concluded that in 1932 obsolete lines amounted to about 39,000 miles.[1] Of this mileage, 28,000 belonged to Class I railways. Though this was merely a rough estimate, it points to the probability of further readjustment.

Technical Progress in the Railway Industry

Railway plant has been greatly improved as well as extended. Improvements of roadway have been better ballasting, reduced grades, straightened curves, stronger structures, and more durable ties, rails, and fastenings. During the eighties the standard gauge of 4 feet 8½ inches became practically universal.[2] Steel rails began to displace iron rails in 1863, and by 1890 the vast majority of the railroads utilized the superior rail altogether.[3] The first steel rails were light, weighing less than 50 pounds per yard, but these have gradually been replaced by heavier rails. Some rails now weigh 140 pounds or more per yard.[4]

Locomotives have increased in weight, power, and efficiency, thus allowing realization of the economies of large trainloads. In 1890 no locomotive weighed as much as 100 tons, whereas today some locomotives weigh 598 tons.[5] In 1903 the average tractive power of locomotives was 22,000 pounds.[6] In 1943 the average was 52,000 pounds, and in individual instances tractive power was as great as 135,000 pounds. Steam locomotives are now commonly equipped with superheaters, improved mechanisms for controlling the draft, boosters, roller bearings, etc., all of which tend to reduce fuel consumption.[7] It took 162 pounds of coal (or equiva-

[1] Moulton, H. G., and Associates, *The American Transportation Problem*, p. 163 (1933). A density of 100,000 seems too low for profitable operation on the average. The average traffic density of Class I railroads in the last prewar year, 1939, was 1,427,000 revenue ton-miles per mile of road.

[2] Ringwalt, *op. cit.*, p. 358.

[3] The use of steel rails was retarded until after prices dropped during the seventies.

[4] Committee on Public Relations of the Eastern Railroads, *A Yearbook of Railroad Information*, 1940, p. 15.

[5] Cf. p. 24.

[6] Interstate Commerce Commission, *op. cit.*, p. 147.

[7] Making starting and running resistance less, roller bearings also increase the availability of a given amount of equipment.

lent) to move 1,000 tons of freight and equipment 1 mile in 1921, while the same work was done in 1943 with 114 pounds of coal.[1] If the capacity of structures, weight of rail, curvature of track, and volume of traffic are adequate, modernized steam locomotives produce substantial savings, even though the original cost of the new locomotives is high.

Where traffic is unusually heavy, or steep grades exist, the steam locomotive has sometimes given way to the electric locomotive, which exerts a more constant drawbar pull, requires less maintenance, and is more flexible. In numerous instances, especially in terminal areas, the steam locomotive has also been discarded for the diesel engine. The latter is likewise more flexible than the steam locomotive. In addition, it tends to increase the availability of motive power, reduce maintenance costs, and save fuel.

Cars have been improved. As already stated, the first freight cars were built of wood to carry about 7,000 pounds. In 1897 steel cars went into use, thereby increasing safety, reducing the cost of car maintenance, and making possible the construction of larger cars.[2] By 1903 the average capacity of freight cars was 29 tons, and by 1943 it was 51 tons.[3] This increase in capacity lowered the ratio of dead weight to paying load and reduced the number of cars required to handle a given tonnage. The reduction in car requirements, in turn, permitted increased trainloads and savings in repair costs, track room, and switching charges per ton hauled. Better constructed, more capacious passenger cars have also been introduced, with similar results.

Cars have grown not only in capacity but also in variety. Freight cars designed to handle particular kinds of traffic include box, flat, gondola, hopper, refrigerator, stock, and tank cars. The refrigerator car was patented in 1867 by Mr. J. B. Sutherland.[4] Specialized passenger coaches include day, chair, sleeping, dining, lounge, and observation cars. The Pullman "palace" car was first built by Mr. George M. Pullman in 1864, and in 1868 the first railroad dining car was constructed.[5] More recently the railroads have put into service air-conditioned cars and streamlined trains, which are models of luxury. One of the first streamlined passenger trains was operated by the Union Pacific in 1934.

Advances have also been made in control devices. The Westinghouse automatic air brake, patented in 1872, facilitated the safe operation of

[1] Eastern Railroad Presidents Conference, *A Yearbook of Railroad Information*, 1944, p. 80.

[2] Recently experiments have been made with lightweight metals.

[3] Interstate Commerce Commission, *op. cit.*, p. 147.

[4] Committee on Public Relations of the Eastern Railroads, *Railroad Data*, vol. 17, no. 24, p. 48 (July 8, 1938).

[5] The railroads used sleeping cars as early as 1836. Dining cars have been extensively used since about 1890.

heavier trains. Hump yards equipped with power switches and car retarders have made switching more economical. The use of double or multiple tracks, the telegraph and telephone, block signals, cab signals, and centralized traffic controls have improved the movement of trains over the road. One of the most recent developments has been the introduction of train communication systems.

Better roadways, more powerful locomotives, larger cars, and improved control devices have made for greater economy of service, primarily by permitting larger trainloads. The bigger the trainload the fewer the number of train-miles required to produce a given ton mileage, and the less the train mileage the lower the wage and fuel bill. The figures in Table I show that railroad revenue ton-miles per train-mile have more than quadrupled since 1890.[1] Ton-miles per train-mile in 1943 were 1,028.[2]

TABLE I.—RAILROAD REVENUE TON-MILES PER TRAIN-MILE, 1890–1940

Year	Ton-miles
1890	175
1900	270
1910	380
1920	639
1930	699
1940	764

Another indication of greater economy is the increase in the average carload. According to Table II, cars were loaded half again as heavily in 1940 as in 1901.[3] The figure for 1943 was 31.

TABLE II.—RAILROAD REVENUE TON-MILES PER LOADED CAR-MILE, 1901–1940

Year	Ton-miles
1901	16
1910	19
1920	26
1930	24
1940	25

Since the increase in the average load per car has not been so great as the increase in the average trainload, it is evident that the gain in trainload has been due in large part to an increase in the number of cars per train. In 1921 the average freight train contained 37 cars, in 1943 over 52 cars.[4]

It is largely because of increased economy of service that rates have

[1] Interstate Commerce Commission, *op. cit.*, p. 151.

[2] *Ibid.*

[3] *Ibid.*

[4] Eastern Railroad Presidents Conference, *op. cit.*, p. 74.

been reduced, although other factors such as competition have played a part in the reduction. As indicated in the following chapter, the average freight revenue per ton-mile has declined over the years. It is now less than a cent. Passenger fares have also decreased. Had not services been so substantially improved, it is possible that rates would be still lower.

Technological improvements have also made for greater speed and safety of service. The average speed of freight trains of Class I railways increased from 11.5 miles per hour in 1921 to 16.7 miles in 1939; and the net ton-miles per freight-train-hour, an index of loading efficiency as well as of speed, increased from 7,506 in 1921 to 16,995 in 1943.[1] The average speed of passenger trains had risen by 1941 to 37 miles per hour, and over-all speeds of 60 miles per hour were scheduled on important runs.[2] Annual loss and damage to freight have been reduced substantially below the levels of the twenties, and passenger-miles per passenger fatality have increased from 207,000,000 in 1920 to 700,000,000 in 1941.[3]

Pipe Lines

Pipe lines are employed in the transportation of crude oil, gasoline, gas, water, and other products. We shall confine our discussion to the transportation of crude oil and gasoline, for gas and water lines do not enter into direct competition with the other intercity carriers.

The first successful oil pipe line in the United States was put in operation in 1865 in western Pennsylvania from the Pithole oil field to the terminus of the Oil Creek Railroad, about 4 miles.[4] Though the project met with violent opposition from teamsters, it was a success; and other short lines were soon constructed. In 1875 a line 60 miles long was laid from the Titusville fields to Pittsburgh. This was followed by a line 111 miles long from Bear Creek to Pittsburgh. But prior to 1880 not many pipes were needed, because refineries were located almost entirely in the neighborhood of the oil wells. Such location facilitated the use of oil for power purposes and saved the cost of shipping the waste materials of crude oil. The refined product was transported by railroad.

After 1880 the methods of pipe-line construction were improved, and the refineries came to be located at tidewater, or near large inland consuming centers such as Cleveland, Pittsburgh, and Buffalo. This relocation of refineries of course required more lines. The petroleum could have been carried to the refineries by the railroads, and some was, as it is today;

[1] *Ibid.*, p. 76. Because of war the average speed declined in 1943 to 15.4.

[2] Running speeds are frequently in excess of 100 miles per hour. Passenger-train speed has been reduced since the outbreak of war.

[3] Computed from Interstate Commerce Commission, *op. cit.*

[4] Federal Trade Commission, *Report on Pipe-line Transportation of Petroleum*, p. 2 (1916).

but it was more economical to employ the pipe line, at least for large shipments moving long distances.

The first significant addition to the pipe-line system was the construction of a line from the oil fields of northwestern Pennsylvania to tidewater at Bayonne, N. J., in 1879.[1] By 1892 some 3,000 miles of line were in operation from these fields. The next important development occurred in the Mid-continent oil fields. Pipes were laid here on a large scale about 1903, and by 1915 the companies operating in the Mid-continent fields had constructed over 10,000 miles of gathering and trunk lines.[2] In the meantime oil was discovered and pipe lines were constructed in the Far West. A few short lines were laid down in California during the nineties, but rapid development came with the drilling of the San Joaquin Valley wells about 1900. The total mileage of trunk and gathering lines of interstate carriers throughout the United States had gradually increased by 1910 to 40,000.[3]

Between 1910 and the First World War the network of pipe lines expanded very slowly, but after 1918 the growth in crude-oil mileage was rapid, primarily because of the great increase in the demand for gasoline.[4] During the period 1924 to 1940 total mileage increased from 82,832 to 116,900.[5] As the system expanded, trunk lines became relatively more important than gathering lines, and a larger portion of the traffic crossed state lines.[6] In 1940 the mileage of trunk and gathering lines operated by companies reporting to the Interstate Commerce Commission was 94,384, or 80 per cent of the total. Growth of the interstate mileage is indicated by the chart[7] as shown on page 41.

A new development in the oil industry, made possible by improved methods of joining pipes, is the use of pipe lines for the transportation of gasoline. Though pipes had been employed for this purpose in and around refineries since the beginning of the industry, the first long line used to move gasoline from refinery to market was a crude-oil line of the Standard Oil Company of New Jersey, which carried its first cargo of

[1] Some writers say 1878.

[2] The Mid-continent field was discovered about 1860. It includes oil pools in Kansas, Oklahoma, northern Texas, and northern Louisiana.

[3] Interstate Commerce Commission, *War-built Pipe Lines and the Post-war Transportation of Petroleum*, p. 2 (Mimeographed, 1944). Data covering all carriers are not available for the period prior to 1924.

[4] Between 1916 and 1929 the production of petroleum increased more than threefold. Federal Coordinator of Transportation, *Freight Traffic Report*, vol. 2, p. 47 (1934).

[5] Interstate Commerce Commission, *op. cit.*, p. 4.

[6] In 1900 trunk lines were 38 per cent of the total, whereas in 1923 they were 51 per cent.

[7] Figures have been taken from Interstate Commerce Commission, *op. cit.*, and from Association of American Railroads, *Report by Subcommittee on Pipe Line Transport.* The figure for 1930 was estimated by the author from data for 1928.

gasoline in 1930 from western Pennsylvania 371 miles to New York Harbor.[1] Subsequently, lines were constructed especially for gasoline. By 1940 the mileage of trunk line had risen to 9,000.[2] Companies reporting to the Interstate Commerce Commission operated 5,772 miles, or 64 per cent of the total.

During the Second World War the shortage of tankers led to the construction of a number of additional petroleum and refined-oil lines. In 1944 private companies built 2,874 miles of crude- and 2,692 miles of refined-oil lines,[3] and from June, 1942, to April, 1944, the Petroleum Administration for War authorized the construction, respectively, of 4,729 and 3,467 miles.[4] In addition 1,515 miles of pipe line were converted from

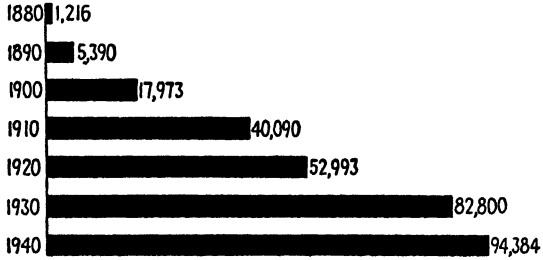


FIG. 7.—Miles of interstate crude oil trunk and gathering pipe lines in the United States by decades.

natural-gas to crude-oil service and from refined to crude, or vice versa. The direction of flow was reversed in 3,400 miles of line. The total cost of the war program exceeded $240,000,000, of which $161,000,000 was supplied by the government.[5]

Like the railroads, pipe lines have been improved in numerous ways. Pipes have been increased in size, thereby making possible savings in capital and operating costs per unit of output. Seamless pipes have been installed, so as to increase capacity by permitting higher pressures. The screw joint has been replaced by the welded joint, thus facilitating the laying of pipe lines. The coating of pipes has reduced corrosion.

REVIVAL OF TRANSPORTATION BY WATER

After 1920 transportation by water revived.[6] Important factors promoting its revival were government aid, favorable regulation, and tech-

[1] Bowie, C. P., "Transportation of Gasoline by Pipe Line," *United States Department of Commerce, Bureau of Mines, Technical Paper* 517, p. 1 (1932).

[2] Interstate Commerce Commission, *op. cit.*, p. 4.

[3] *Ibid.*, p. 47. These figures are incomplete but are the most comprehensive available.

[4] *Ibid.*, p. 50.

[5] For a fuller description of these projects see Interstate Commerce Commission, *op. cit.*, and Association of American Railroads, *op. cit.*, pp. 14–18.

[6] For figures on the volume of water-borne traffic see p. 82.

nical improvements in the water-carrier industry. Other factors were rising rail rates, occasional congestion on the railroads, and the pressure of sectional interests.

Government Encouragement

Government promotion of water transportation can be explained in large part by the pressure of sectional interests, but it has also been advocated by unprejudiced people. The arguments for and against public improvement are explained in Chap. XXII. It is an issue of continuing significance, exemplified at present by the St. Lawrence project.

The movement for public improvement first became really active during the nineties. In 1895 the International Waterways Convention was held in Cleveland, and 6 years later the National Rivers and Harbors Congress met in Baltimore. These two conventions stimulated interest in the waterways, and by 1906 agitation had reached a high pitch. Other meetings were held; and in 1907 President Theodore Roosevelt appointed the Inland Waterways Commission, which recommended that the waterways be developed in keeping with a coordinated plan under the supervision of a central board.[1] Accordingly, in 1909 Congress created the National Waterways Commission, which made reports in that year and in 1912. The two reports were none too favorable to waterway development, but public agitation continued until the outbreak of the First World War directed attention elsewhere. After the war the movement for improvement revived. The major projects called for the creation of improved waterways from the Great Lakes to the Gulf, from the Great Lakes via the St. Lawrence River to the Atlantic Ocean, along the Atlantic and Gulf coasts, in the Ohio River Valley, on the Missouri River, and on the upper and lower Mississippi River. In addition, there were hundreds of minor projects. The Florida ship canal is one of the most recent.

Agitation bore fruit in three ways. First, it led to large appropriations, chiefly by the federal government, for the deepening and widening of channels and lock chambers, the improvement of terminal facilities, and the establishment of aids to navigation. Congress had appropriated $75,000 for the removal of obstructions in the Mississippi River in 1824, but after 1890 numerous waterways were improved on a lavish scale. By 1940 the mileage of improved waterways had risen to 28,000. Projects were generally carried out under the direction of the Board of Engineers for Rivers and Harbors, which was created in 1902, within the department of the Chief of Engineers of the Army, for the purpose of investigating the engineering and economic feasibility of the various improvements. The total amount spent on waterways is indicated in Chap. XXII.

[1] Inland Waterways Commission, *Preliminary Report*, Senate Document no. 325, 60th Cong., 1st Sess., p. 25 (1908).

The second concrete result of the movement for better waterways was the passage of favorable regulatory measures. We have already called attention to the abolition of tolls on the navigable rivers. Additional measures will be discussed in Chap. VIII. Certain provisions of the Panama Canal Act of 1914, the Transportation Act of 1920, the Denison Act of 1928, and the Transportation Act of 1940, were especially significant for water transportation.

The third result was government operation. This was begun in 1918 by the United States Railroad Administration, at the time of railroad traffic congestion growing out of the First World War.[1] To provide relief, the Director General of Railroads ordered the establishment of freight service on the lower Mississippi River and on the Warrior River.[2] A federal manager was appointed and authorized to commandeer all available craft and, if necessary, to construct a new fleet. Upon the termination of federal control in 1920, the government facilities thus secured were transferred to the Inland and Coastwise Waterways Service of the War Department, an arrangement that remained in effect 4 years. Congress then decided to make permanent plans for government ownership and operation on a larger scale, ostensibly in order to demonstrate the practicability of economical river transportation. Federally owned equipment was already on hand, and no large common carriers were operating on the rivers. Since a government corporation could handle water transportation better than a government department, Congress created the Inland Waterways Corporation (1924). The Corporation was authorized to issue $5,000,000 of capital stock, to be subscribed by the Treasury, and all equipment owned and used previously by the Inland and Coastwise Waterways Service was transferred without cost to the Corporation. The authorized capital stock was increased in 1928 by the Denison Act to $15,000,000, so that additional equipment might be purchased and service extended. The total investment in properties used and useful as of 1941 was approximately $24,000,000.[3] This represents the only important direct venture of the federal government in the field of domestic transportation since the First World War, excepting the ownership of certain ocean-going vessels.

Technical Improvements in Water Transportation

Modern water transportation is quite different from that of the prerailroad era. On the oceans and lakes side and stern wheelers have largely given way to screw-driven, specialized carriers. On the rivers and

[1] See Dimock, M. E., *Developing America's Waterways* (1935).

[2] Service was extended to Minneapolis in 1926, to Chicago in 1934, and to Kansas City in 1935.

[3] *Annual Report of the Inland Waterways Corporation*, 1941, p. 14.

canals the steamboat and horse-drawn barge have been replaced by much larger power-driven barges, or by molded self-propelled craft of greater speed and stability. Power units have been made more efficient through the use of streamlined hulls, electric welding, twin-screw propellers, the Kort nozzle, and the diesel engine.[1] Streamlining reduces water resistance; electric welding makes lighter and stronger hulls; twin-screw propellers increase power and maneuverability; the Kort nozzle provides better traction by feeding unbroken columns of water to the propellers; and the diesel engine saves space, fuel, and labor.

Highway Transportation

The expansion of highway transportation is probably the most significant twentieth-century development in the entire field of inland transportation. Among its effects are the following: an enormous increase in the volume of and market for transportation; extension of effective transportation facilities to many unserved locations; destruction of the virtual monopoly of intercity transport long held by the railroads; a radical alteration in the policies of railroad management; creation of difficult problems of coordination among the various carriers; and a notable modification and extension of public regulation. Automobiles and highways are not alone accountable for these things, but theirs is a heavy responsibility.

Motor Vehicles

Modern highway transportation began with the invention of the motor vehicle. The automobile created a demand for improved roads, especially of surfaced types, and these in turn stimulated the use of the automobile. There were roads, to be sure, before the automobile—some of them good ones—and there were road vehicles; but most of the roads were of low grade, and the vehicles were drawn by horses. With the exception of the turnpike era, highways had been used almost exclusively for local transportation.

Since the automobile is defined as a self-propelled land vehicle not operated on a fixed track, one might say that it originated in the steam wagons of the late eighteenth century, which were described earlier in this chapter. Thus the carriages of Cougnot, Murdock, and Evans could be called the forerunners of the automobile as well as of the locomotive. Steam coaches, in fact, were used in regular service on the highways in and around the larger cities of England at about the same time loco-

[1] War Department, Office of the Chief of Engineers, *Rationale of Inland Waterway Transportation*, Sec. VIII (Mimeographed, National Resources Planning Board, 1941).

motives were first employed.[1] The coaches were too heavy for successful operation upon the roads, however, and the coach companies were greatly hampered by restrictive legislation.[2]

The significant beginning of the automobile is to be found in the adaptation of the internal-combustion gasoline engine, not in the early experiments with steam. An internal-combustion engine was patented in England by Street as early as 1794; a machine run by coal gas ignited by an electric spark was operated in France by Lenoir about 1860; and a four-cycle gas engine was finally put into effective form in Germany by Otto in 1876. But the first engine to embody the essential features of the modern, high-speed motor was perfected by Daimler (German) in 1884. The manufacture of motor vehicles then began in Germany under Daimler's direction. Manufacture was begun in France by the firm of Panhard and Levassor, which had secured the French rights to Daimler's invention in 1887.[3] Levassor designed the system of clutch, gears, and differential so familiar today, and the automobile became a reality.[4]

At first the automobile was regarded as a toy, and driving was a form of sport. Not until numerous road races had been held were the practical uses of the motor vehicle demonstrated. And not until manufacture was improved could it be widely utilized. Commercial production of automobiles did not become practicable, of course, until advances had been made in allied arts, such as metalworking, spring suspension, lubrication, chassis building, ignition, and tire construction. Prominent in the commercial development were Duryea, Haynes, Olds, Winton, Stanley, Ford, White, Maxwell, and many other Americans.

The increase in the number of motor vehicles in the United States has been phenomenal, primarily because the automobile has outstanding advantages in transportation. As roads were improved, these advantages were realized, thereby increasing the demand for cars. The increase in the demand for cars, in turn, made possible large-scale methods of production, which reduced the cost of manufacturing and lowered prices. Automobiles were brought within the range of the purchasing power of millions of people. The growth in registrations is indicated below. With the exception of 1935, every year shows a much larger number than the year before. Between 1920 and 1930 the number of vehicles increased nearly threefold. Registrations declined moderately during the depression after 1930, but in 1941 a new high of 34,383,167 was reached. In 1944 total

[1] Between 1831 and 1838 nearly a dozen companies were organized in England to operate lines of steam coaches. Daggett, *op. cit.*, p. 128.

[2] There were limitations as to speed, number of operating employees, etc. One law required that each vehicle be preceded by a man carrying a red flag during the day and a red lantern at night.

[3] Some authorities say 1889.

[4] On the history of highway transportation see *Encyclopaedia of the Social Sciences.*

registrations amounted to 30,479,306. This amazing number was equal to two-thirds of the entire world's registration. No country is nearly so well supplied as ours with this modern agency of transportation. On the average there is a motor vehicle for every four inhabitants in the United States. So numerous are the motor vehicles that in some localities the capacity of the highways and streets is threatened. Easily first in number are passenger cars.[1] In 1941 there were 29,418,000 of these, as compared with 4,876,000 trucks and 88,000 busses.[2]

TABLE III.—MOTOR-VEHICLE REGISTRATIONS IN THE UNITED STATES AT 5-YEAR INTERVALS, 1895–1940[a]

Year	Number
1895	4
1900	8,000
1905	78,800
1910	468,500
1915	2,445,666
1920	9,231,941
1925	19,937,274
1930	26,545,281
1935	26,227,276
1940	32,025,365

[a] Automobile Manufacturers Association, *Automobile Facts and Figures*, 1942, p. 46.

Motor vehicles have been greatly improved in design. Busses, as well as cars for private use, are today larger, faster, safer, cheaper to operate, and more comfortable than formerly. Trucks have been specialized; refrigeration has been introduced; and trailer combinations have been perfected. The modern motor car is not only a lower cost machine but also a better one.

Highways

The movement to improve the highways began during the eighties, largely because of the demands of farmers and bicycle riders. "Good roads" conventions were held, as in Iowa City in 1883, but the first definite step toward improvement was the creation of state highway departments. Theretofore road building had been in the hands of local authorities, who functioned independently and depended upon inadequate taxation or forced labor.

New Jersey led the way toward centralization in 1891. She provided that the localities might invite the aid of the state in construction; and upon invitation, the state laid out the plans, supervised the building,

[1] Including taxis. Recent figures were supplied by the Public Roads Administration.

[2] Automobile Manufacturers Association, *Automobile Facts and Figures*, 1942, p. 46. Certain types of busses are not segregated from passenger cars and trucks in most states. After making the necessary segregations, the bus figure for 1941 was 147,780. *Ibid.*, p. 53.

and became responsible for one-third the cost of highways. Other states followed New Jersey's example, so that by 1917 every state in the Union had enacted state-aid highway laws. The original plan of New Jersey was eventually improved upon in most cases, in that the states assumed full responsibility for the financing as well as for the construction and maintenance of state highways.

Near the close of the century the federal government reentered the highway field.[1] In 1893 there was created within the Department of Agriculture the Office of Road Inquiry (now the Public Roads Administration), the duties of which were primarily of an educational nature. The federal government was slow in making appropriations for actual construction, provision for monetary aid being first made in 1916, when Congress passed the Federal-aid Road Act. This act authorized federal aid on post roads up to half the cost, provided the contribution of the national government did not exceed $10,000 per mile, exclusive of bridges more than 20 feet long.[2] To secure federal aid, each state was required to assent by legislative action to the provisions of the act and to create a state highway department, properly empowered and equipped to supervise construction. State participation was emphasized.

The legislation of 1916 was supplemented in 1921 by the Federal Highway Act. This law authorized the Secretary of Agriculture to designate 7 per cent of the then existing mileage of interstate and intercounty roads within each state as federal-aid routes, and limited the contributions of the national government to these routes.[3] The roads built were to be properly maintained either by the states or by the local governments. If not so maintained, federal aid for new construction could be suspended. Another law, the Hayden-Cartwright Act of 1934, removed the $20,000 limit of 1919, allowed federal aid on secondary roads and municipal extensions of the federal-aid system, and discouraged the use of motor-vehicle revenue for purposes other than the construction and maintenance of highways.[4]

During the thirties the federal government made provision for highway improvement under various relief measures. Acts of 1930 and 1932 authorized loans to the states, for the purpose of matching federal appropriations, and later the obligation to repay these loans was removed. The National Industrial Recovery Act of 1934, the Hayden-Cartwright Act, and the Emergency Relief Appropriation Act of 1935 abandoned

[1] It will be recalled that the federal government built the Cumberland Road.

[2] The $10,000 limit was raised to $20,000 in 1919. The first appropriation amounted to $75,000,000.

[3] The apportionment of funds to the states was on the following basis: one-third according to area, one-third according to population, and one-third according to mileage of rural post roads and star routes.

[4] *48 Statutes at Large* 993 (1934).

the matching basis and made outright grants for highway purposes. Half the sums appropriated under the act of 1935 were earmarked for the elimination of grade crossings.[1] In 1936 the matching basis was resumed.

The federal government has also encouraged highway transportation by research.[2] In cooperation with the state highway departments, the Public Roads Administration conducts both engineering and economic investigations. The Administration has initiated state-wide highway planning surveys, in connection with which it has submitted to Congress a master highway plan for the country as a whole.[3] This plan provides for a system of direct interregional highways designed to meet the requirements of national defense as well as of commerce.[4] Construction of the highways has been proposed as a means of promoting postwar prosperity.

Federal aid has of course greatly stimulated highway expenditures, especially since the beginning in 1920 of the rapid increase in automobile registrations. In 1904 only about $80,000,000 was spent for construction and maintenance in the entire United States, but by 1930 the amount spent yearly by federal, state, and local governments had risen to $1,680,000,000.[5] Total outlays are indicated in Chap. XXII. Considerably more than half the expenditures have been made by the state highway departments. Aside from federal aid, which has varied from a fourth to a third of expenditures, most of the state funds for construction and maintenance have been derived from motor-vehicle license charges and gasoline taxes. Licenses, first introduced by New York in 1910, were universally required as soon as the automobile definitely passed the experimental stage; and the gasoline tax, levied initially by Oregon in 1919, was adopted within 10 years by every state, and in 1932 by the federal government.[6] The license charge provides a means of policing the highways, and the gasoline tax is paid in small amounts substantially in accordance with the benefits derived from good roads.

Expenditures are reflected in Table IV showing the miles of improved

[1] Grants for this purpose are apportioned one-half on the basis of population, one-fourth on the basis of railroad mileage, and one-fourth on the basis of federal-aid highway mileage. Grade-crossing work is not confined to any one road system, and funds therefor need not be matched by the states.

[2] See Public Roads Administration, *The Provision of Highway Facilities* (Mimeographed, National Resources Planning Board, 1941).

[3] *Toll Roads and Free Roads*, House Document, no. 272, 76th Cong., 1st Sess. (1939).

[4] Public aids to highway transportation are further discussed in Chap. XXII.

[5] These figures are of necessity estimated.

[6] The prevailing state gasoline tax rate in 1940 was 4 cents per gallon, although in some cases the rate was as high as 7 cents. The federal rate was 1½ cents. On carrier taxation see Board of Investigation and Research, *Carrier Taxation*, House Document no. 160, 79th Cong., 1st Sess. (1945). This report was prepared by Dr. R. B. Welch.

(surfaced) highway. According to these figures, in the last quarter of a century the mileage of surfaced highway has increased fivefold, the mileage of high-type surfaced highway thirteenfold. Nevertheless, it is significant that in 1940 less than half the 3,000,000 miles of rural roads had a surface of any kind, and only about 6 per cent had a surface of high type. Even though the improved roads comprise the main arteries of traffic, many miles of highway are yet to be improved. Nearly a third of all roads are not graded, and only a few highways are designed to accommodate more than two lanes of traffic.

TABLE IV.—MILES OF IMPROVED RURAL HIGHWAYS AT SELECTED TIMES[a]

Year	Surfaced	High-type surface
1904	153,530	144
1914	257,291	14,442
1921	387,457	36,038
1934	974,949	141,775
1940	1,328,000	191,000

[a] Mileages given are only approximate. Data for 1904, 1914, 1921, and 1934 are taken from Federal Coordinator of Transportation, *Public Aids to Transportation*, vol 4, p. 4 (1940). The high-type surface mileage shown for 1934 is for the year 1931, since figures for 1934 were unavailable. Data for 1940 were furnished in Public Roads Administration, *The Provision of Highway Facilities*, p. 3 (Mimeographed, National Resources Planning Board, 1941).

Better surfaced highways reduce the cost and increase the speed and reliability of road vehicle operation. Records of rural mail carriers in Iowa and Indiana reveal average operating costs of 8 cents per mile on earth roads, 5 cents on gravel, and 3½ cents on pavement.[1] A study of four identical vehicles, two driven on gravel roads and two on concrete pavement, showed the following results after 260,000 miles of operation: gasoline costs 10 per cent higher on the gravel roads, oil costs 40 per cent higher, tire costs 100 per cent higher, and car repairs 150 per cent higher.[2] Cylinder-bore wear was twice as great, main-bearing wear three times as great, and connecting-rod-bearing wear almost four times as great.

Better designed highways also mean greater economy of operation. A comparison of operations on the Merritt Parkway and the old Boston Post Road demonstrated that for the trip between Pelham Manor, N. Y., and Milford, Conn., the gasoline cost would be the same at 52 miles per hour on the Parkway as at 25 miles per hour on the Post road; and that the Parkway trip, though 2 miles longer, would save 40 minutes.[3]

[1] Public Roads Administration, *op. cit.*, p. 37.
[2] *Ibid.*, p. 38.
[3] *Ibid.*, p. 40.

Airway Transportation

Air transport is at once the newest and the least important, as regards volume of traffic, of all the forms of inland transportation. Power flight was not successfully accomplished until 1903, and a few ordinary freight trains could carry as much cargo in a single trip as all the commercial airplanes in the United States now carry in a year. Aviation is developing steadily, however, and nobody knows what the future holds. It seems certain that planes will be used increasingly for the transportation of express as well as people.

Carriers by air are of two types: heavier-than-air and lighter-than-air. They may operate over scheduled or nonscheduled routes. We deal chiefly with the heavier-than-air carriers operating over scheduled routes, for these are responsible for most of the air traffic.

Early Experiments in Flying

Flight has appealed to the imagination of man for ages.[1] The legends of Ancient Greece, Rome, Scandinavia, and the East contain fables of winged flight. Roger Bacon wrote scientifically on the subject in 1250, and two hundred years later Leonardo da Vinci designed various winged flying machines. In 1676 Besnier suggested a contrivance consisting of two rods pivoted on the shoulder and equipped fore and aft with collapsible surfaces (like a book opening downward) to be operated by the hands and feet. Each upward stroke closed the surfaces, each downward stroke opened them. In 1742 the Marquis de Bacqueville, using an apparatus with flapping wings, is said to have flown from his house on the Seine to the garden of the Tuileries. But this was not power flight.

Marked progress did not occur until Sir George Cayley became interested in aircraft in 1796. He built many successful gliders, but even more significant than his practical experiments were his theoretical and scientific contributions. He became convinced that only the lack of a suitable engine prevented the attainment of power flight. Cayley was followed by Wenham, Stringfellow, Pilcher, Lilienthal, Chanute, and Montgomery—all of whom contributed to the art of gliding during the last half of the nineteenth century. Stringfellow built a plane which actually flew. It had an elevator and a rudder and was propelled by a small steam engine. But it would not carry a man. The solution of this difficulty occupied the attention of Samuel Langley. Beginning during the eighties, Langley tried year after year to accomplish his objective, finally becoming dis-

[1] See Manufacturers Aircraft Association, *Aircraft Year Book*, 1919, p. 310; Vivian, E. C., and Marsh, W. L., *A History of Aeronautics* (1921); Edwards, I. A. E., and Tymms, F., *Commercial Air Transport* (1926); Kennedy, T. H., *An Introduction to the Economics of Air Transportation* (1924).

couraged. But President McKinley, appreciating the military importance of the plane, urged Langley to continue experimentation. The inventor finally succeeded, building a steam-driven, double biplane which could lift an operator. The plane was wrecked, however, at the first trial on Dec. 8, 1903, and Langley's work came to an end. His ideas were vindicated in 1912 by Curtis, who flew Langley's plane.

Orville Wright made the first successful airplane flight at Kitty Hawk, N. C., on Dec. 17, 1903. Orville and his brother, Wilbur, who were bicycle manufacturers in Dayton, Ohio, had become interested in aeronautics in 1896. They first made numerous gliders, and by 1903 they believed their gliders to be sufficiently stable for a motor. Fortunately, the gasoline engine had recently been invented, and the Wrights installed a small 16-horsepower motor in the biplane which made the first flight. The controls were mounted in the front and rear; the two propellers were behind; and the pilot sat forward, with the motor at his side. Orville described the initial flight as follows: "After running the motor a few minutes to heat it up, I released the wire that held the machine to the track, and the machine started forward into the wind. Wilbur ran at the side of the machine, holding the wing to balance it on the track. Unlike the start on the 14th, made in a calm, the machine, facing a 27-mile wind, started very slowly. Wilbur was able to stay with it till it lifted from the track after a forty-foot run. One of the life saving men snapped the camera for us, taking a picture just as the machine had reached the end of the track and had risen to a height of about two feet. The slow forward speed of the machine over the ground is clearly shown in the picture by Wilbur's attitude. He stayed along beside the machine without any effort.

"The course of the flight up and down was exceedingly erratic, partly due to the irregularity of the air, and partly to lack of experience in handling this machine. The control of the front rudder was difficult on account of its being balanced too near the center. This gave it a tendency to turn itself when started, so that it turned too far on one side and then too far on the other. As a result, the machine would rise suddenly to about ten feet and then as suddenly dart for the ground. A sudden dart when a little over a hundred feet from the end of the track or a little over 120 feet from the point at which it rose into the air, ended the flight. As the velocity of the wind was over 35 feet per second and the speed of the machine over the ground against this wind ten feet per second, the speed of the machine relative to the air was over 45 feet per second, and the length of the flight was equivalent to a flight of 540 feet made in calm air. This flight lasted only 12 seconds, but it was nevertheless the first in the history of the world in which a machine carrying a man had raised itself by its own power into the air in full flight, had sailed for-

ward without reduction of speed, and had finally landed at a point as high as that from which it started."[1]

Development of Aviation

Public recognition of the airplane was slow, as in the case of the automobile. Its potentialities were not envisaged, even by the farsighted, until Bleriot crossed the English Channel in 37 minutes in a monoplane in 1909. From that date until the European war, progress, though not very rapid, was steady in America as well as in Europe. During this period aviation developed primarily as a sport. Flying was popularized by aviation meets and races. Among the latter was the Gordon Bennett race of 1911, which was won for America in England by a West Indian driving a French plane. This is indicative of the international aspect of aviation.

The First World War gave a tremendous impetus to aviation. So important were airplanes as weapons of warfare that the belligerent countries bent every effort toward their construction and perfection. It has been said that more technical progress was made during the 4 years of conflict than would have been made in 15 normal years. By the time the war was over, a new industry had been born; surplus airplanes were available, and a corps of fliers had been trained. Out of this favorable setting grew commercial aviation. The Benoist Air Line carried a few passengers between St. Petersburg and Tampa, Fla., in 1914.[2] The Post Office Department opened an air-mail route between New York City and Washington, D. C., in May, 1918, and during 1919 and 1920 a few companies established passenger transport lines.[3] One of the first lines operated between Miami, Fla., and Nassau, Bahama Islands. But without air-mail revenue these early passenger lines could not operate at a profit.

Commercial aviation began in a significant way in 1926, when flights on contract air-mail routes and regularly scheduled passenger and express services first occurred.[4] It was greatly encouraged by the Kelly Act

[1] Manufacturers Aircraft Association, *op. cit.*, p. 308.

[2] Warner, E. P., *The Early History of Air Transportation*, p. 4 (1937). Aircraft had been used in commercial service in Germany in 1910.

[3] David, P. T., *The Economics of Air Mail Transport*, p. 12 (1934). Until August, 1918, the War Department carried the mail, the Post Office Department taking full charge at that time. Service was opened between New York and Chicago in 1919, and between Chicago and San Francisco in 1920. Regular night flying began in 1924. Operation by the Post Office Department continued until 1927. Experiments with air-mail service were conducted as early as 1911.

[4] Arrangements for organized air express service were made in 1927 between participating air lines and the Railway Express Agency.

of 1925,[1] as supplemented by the Air Commerce Act of 1926.[2] The Kelly Act provided for the operation of the government mail routes by private companies on the basis of contracts; and the Air Commerce Act authorized the formation of an Aeronautics Bureau within the Department of Commerce for the purpose of legal control and the provision of various aids to aviation, such as the establishment and maintenance of landing fields, route lighting, weather reporting, and radio communication. The practical effect of the two acts was to subsidize commercial service, insofar as payments to the carriers exceeded the cost of the service. Under the Kelly Act compensation to contractors depended upon air-mail rates and the volume of air mail, but in 1930 the Watres Act changed the payment for carrying mail from a weight basis to a space basis.[3] This made more flexible the allocation of subsidies.

Public aid has been a most significant factor in the development of transport aviation. In fact, the industry could not have reached its present state so quickly as it has without such aid.[4] Additional factors promoting the service have been the spectacular flights of Lindbergh and others during the late twenties, the eagerness of investors for the securities of the aviation industry, reductions in passenger fares, increased safety of operation, and the spread of aeronautical education.

Technological improvement has been marked in connection with the plane itself and in connection with aids to navigation. Planes have been enlarged and equipped with engines that develop more power per pound of gross weight, thereby permitting greater pay loads. More powerful engines and the reduction of air resistance, through the use of cantilever wings, smoother plane surfaces, improved engine cowls, and retractable landing gear, have made possible higher speeds with relatively less fuel consumption, especially when gasoline of higher octane content is burned. These developments tend to increase the hazards of flying by reason of higher landing speeds, longer runs for take-off, and lower rates of climb; but such adverse tendencies have been in part offset by other improvements in the plane, including constant-speed and variable-pitch propellers and wing flaps and slots. Additional modifications promoting safety have been the installation of multiple motors, automatic pilots, and de-icing devices.[5] Important aids to navigation have been the radio

[1] *Public Law No. 359* (1925).

[2] *Public Law No. 254* (1926).

[3] *Public Law No. 178* (1930).

[4] Aids are further discussed in Chap. XXII.

[5] Technical progress may be illustrated by comparing the Ford tri-motored plane of 1929 with the twin-engine Douglas DC-3 which was widely used in 1940. The Ford plane had a wing load of 16.2 pounds, 0.093 horsepower per pound of gross weight, a cruising speed of 120 miles per hour, and a landing speed of 65 miles per hour; while the Douglas had a wing load of 25.5 pounds, 0.098 horsepower per pound of gross weight, a cruising

range stations, radio marker beacons, rotating beacons, altimeters, two-way radiotelephones, meteorological services, air-traffic regulations, auxiliary landing fields, and lighted airports. An important contribution to safe flying during the Second World War was the introduction of radar. Such aids have done more to improve the safety and reliability of aviation than changes in plane design.

The growth of the airway system is shown graphically by the accompanying chart.[1] It will be observed that the mileage of domestic airway

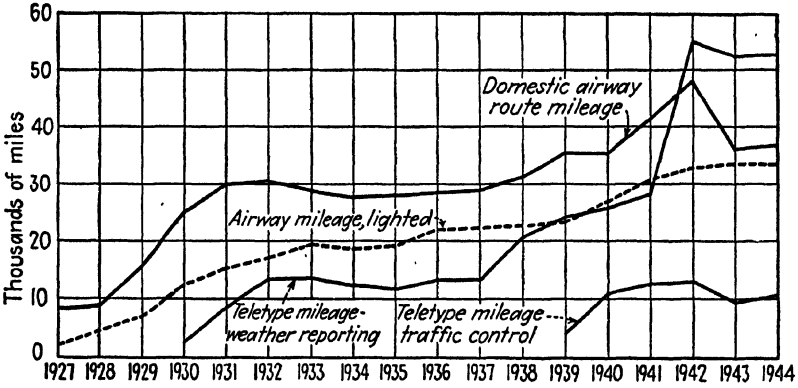


FIG. 8.—Growth of the domestic airway system of the United States.

route increased from 8,252 in 1927 to a maximum of 47,703 in 1942. Total mileage then declined to 36,982 in 1944, but the mileages lighted and furnished with weather reporting continued to gain.

GENERAL COMMENTS ON TRANSPORTATION IMPROVEMENTS

The developments outlined in this chapter have revolutionized transportation. In the course of a century and a half, improved facilities have been extended from the natural waterways of colonial times to all parts of the United States by railroad, highway, and airway, and to the coasts and central sections of the country by waterway and pipe line. Cost of service has been reduced from the exorbitant figure of the pack horse to the moderate charge of the railroad, or from the high rate of the keelboat to the even lower charge of the bulk freighter. Speed has increased from that of the horse-drawn vehicle to that of the airplane. Flexible services suited to a great variety of needs have been established.

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speed of 170 miles per hour, and a landing speed about as low as the Ford. Knowlton, Hugh, *Air Transportation in the United States*, p. 34 (1941).

[1] Bureau of Air Commerce, *Civil Aeronautics in the United States*, Aeronautics Bulletin No. 1, p. 4 (Apr. 1, 1934).

These improvements have permitted the exploitation of the natural resources of the United States even when the materials have been remotely located in relation to markets. They have gone far to create of this country one of the largest, most highly specialized free-trade areas in the world. And they have had other highly significant effects, as explained in Chap. I. Great though the gains have been, still greater progress can be made if management and labor are awake to the opportunities and if public policy rises to the challenge. The demands for service which grow out of the advantages to be realized from more efficient transportation seem capable of an indefinite expansion, as witness the large increases in traffic accompanying each major improvement. The accumulation of capital and the technological innovations that make possible better facilities give little evidence of having reached their limits.

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CHAPTER - - - - - - - - - - - - - - - - THREE

The Transportation System and Service

THIS chapter describes the principal transportation agencies as they are today, the distribution and character of their traffic, the advantages of each mode of transport, and intercarrier devices for coordinating service.

Major Transportation Routes

The competitive intercity transportation system of the United States comprises approximately 1,747,000 miles of improved route, distributed by type of carrier as shown in Table V.

Table V.—Improved Transportation Routes in the United States[a]

Agency	Miles of Route
Highways	1,328,000
Railways	228,000
Pipe lines	126,000
Airways	37,000
Waterways	28,000
Total	1,747,000

[a] This table sums up the figures already given for each agency. Highways refer to surfaced highways in 1940; railways to steam railways in 1943; pipe lines to crude-oil and gasoline lines in 1940; airways to domestic scheduled lines in 1944, and waterways to improved inland waterways in 1940.

The extent and location of these means of transportation can best be appreciated by examining the accompanying maps. Each agency of course embraces much more than the way itself. It includes, in addition, terminals, stations, shops, warehouses, offices, power units, and carrying equipment such as cars, trucks, busses, planes, and barges. Estimated total investments in 1937 were railroads, $24,085,000,000; highways and highway vehicles, $20,800,000,000; water lines, $3,782,000,000; airways, including ports and planes, $171,000,000; and oil pipe lines, $945,000,000.[1]

Highways

As Table V shows, the highway system is more extensive than the other means of inland transportation combined. Counting only surfaced

[1] Interstate Commerce Commission, *The Transportation System and Service in the United States in 1937*, p. 2 (Mimeographed, 1939).

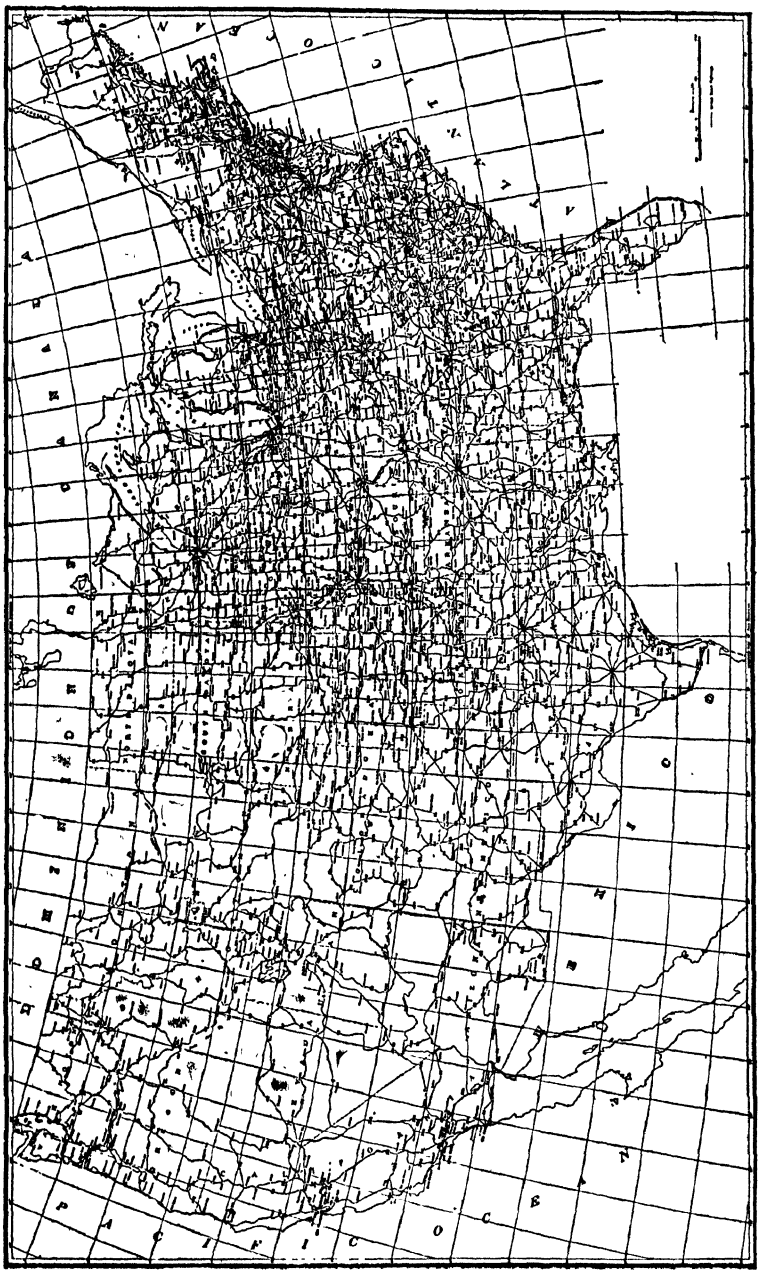

FIG. 9.—United States highways. (*From National Resources Planning Board, Transportation and National Policy, 1942.*)

highways, the total length of the system in 1940 was 1,328,000 miles, or more than five times the length of all railroads. Including nonsurfaced roads, the highway mileage was nearly 3,000,000, or thirteen times the mileage of railroads. However, only 191,000 miles of highway had high-type surfaces, and of these a negligible number had multiple lanes.

The densest mileage of highly improved roads is located in the more populous sections of the country. The five states with the largest surfaced mileage in 1941 were, in order, Texas, Ohio, New York, Pennsylvania, and North Carolina.[1] New York, Illinois, Pennsylvania, Texas, and Ohio led in surfaced roads of high type. For the country as a whole there were 446 miles of surfaced highways per 1,000 square miles of land area; 10 miles per 1,000 population; and 41 miles per 1,000 registered motor vehicles. Comparison of these data with corresponding figures for 1904 shows that the people are four times as well supplied with good roads today as at the beginning of the century. But to meet modern needs, many of the highways must be redesigned.

The principal intercounty and interstate roads are included within the state primary highway systems. Comprising 335,000 miles, the primary systems represent only 12 per cent of the total road mileage but carry 72 per cent of all motor-vehicle movements.[2] The more important state roads, in turn, constitute the interconnected federal-aid highway system. This system, shown on the map, had in 1940 a length of 235,000 miles, or about the same as all railroad routes. Its roads reach directly practically every city of 5,000 or more inhabitants and are so chosen that, if zones 10 miles wide were marked off on each side, there would be embraced the homes of 90 per cent of the population. The majority of the state and federal-aid roads are surfaced. They are general-use highways, as contrasted with land-use highways, which for the most part serve local needs. This distinction is not always easy to draw in specific cases, but it is important because of its relation to methods of highway finance.

Railroads

The railroads do not "blanket" the land so completely as highways, but they reach into every section of the country, north, south, east, and

[1] *Statistical Abstract of the United States*, 1943, p. 436. In terms of square miles of area, the mileage of Texas would be comparatively small.

[2] *Public Roads*, vol. 23, p. 215 (July, August, September, 1943). This reports the results of the highway planning surveys. See also Public Roads Administration, *The Provision of Highway Facilities*, p. 4 (Mimeographed, National Resources Planning Board, 1941). The total mileage under state control, 539,000, included 335,000 miles of primary system, 88,000 miles of secondary system, and 116,000 miles of state-controlled local roads. There were 2,426,000 miles of county and local roads and 304,000 miles of city streets. For slightly different figures, as of 1938, see Interstate Commerce Commission, *Federal Regulation of the Sizes and Weight of Motor Vehicles*, House Document no. 354, 77th Cong., 1st Sess., p. 12 (1941).

west. Their total length in 1943 was 227,999 miles. Inasmuch as the United States is a wealthy country of "grand distances" and relatively sparse population, the mileage of line is comparatively small in terms of square miles of territory, but large in terms of the number of inhabitants. There are 78 miles per 1,000 square miles of area and 1.7 miles per 1,000 inhabitants. The former figure is much less, the latter much greater, than corresponding mileages in either Great Britain, Germany, France, or Italy.[1] The opposite is true, of course, when comparison is made with Canada and Australia. As the map facing page 63 shows, the distribution of railway mileage is very uneven, the density being greatest in the thickly populated Eastern states, such as New Jersey and Massachusetts, and least in the thinly populated Western states, such as Nevada and Wyoming. But even in the Western states there is a railroad for every important city.

The railroad system may be divided, according to the principal traffic routes, into several fairly distinct groups of lines. In the eastern half of the United States four groups are found: the Trunk-Line, the Piedmont, the Atlanta-Northwest, and the Mississippi Valley. In the western half six leading groups appear: the Granger; the Southwestern; the Northern, Central, and Southern Transcontinental; and the Pacific coast.

The Trunk-Line roads lie on the northeast, roughly within that territory north of the Ohio and east of the Mississippi rivers, including New England, and connect such cities as Chicago and St. Louis with the North Atlantic ports. Operating along the busiest traffic route in the United States and in an area of dense population, these railways carry more than half the entire country's railroad freight tonnage and passengers. They move west a large part of our imports, coal, and the manufactures of the North Atlantic states; eastward they transport coal, raw materials, and food products from the Mississippi Valley, for both domestic and export purposes. Export grain has been especially significant. In tonnage the eastbound traffic tends to exceed the westbound.

Leading Trunk-Line carriers are the New York Central, the Pennsylvania, the Baltimore and Ohio, the Chesapeake and Ohio, and the Erie. The New York Central and the Pennsylvania are the most important. In 1943 the New York Central operated over 10,700 miles of line—the largest mileage of any single railroad in the eastern United States.[2] It connects Chicago and New York via Albany; and through two of its subsidiaries, the Cleveland, Cincinnati, Chicago and St. Louis and the

[1] See *Statesman's Yearbook*. Figures for the United States are based upon mileage and population in 1940.

[2] Interstate Commerce Commission, *Statistics of Railways in the United States*, 1943, p. 331.

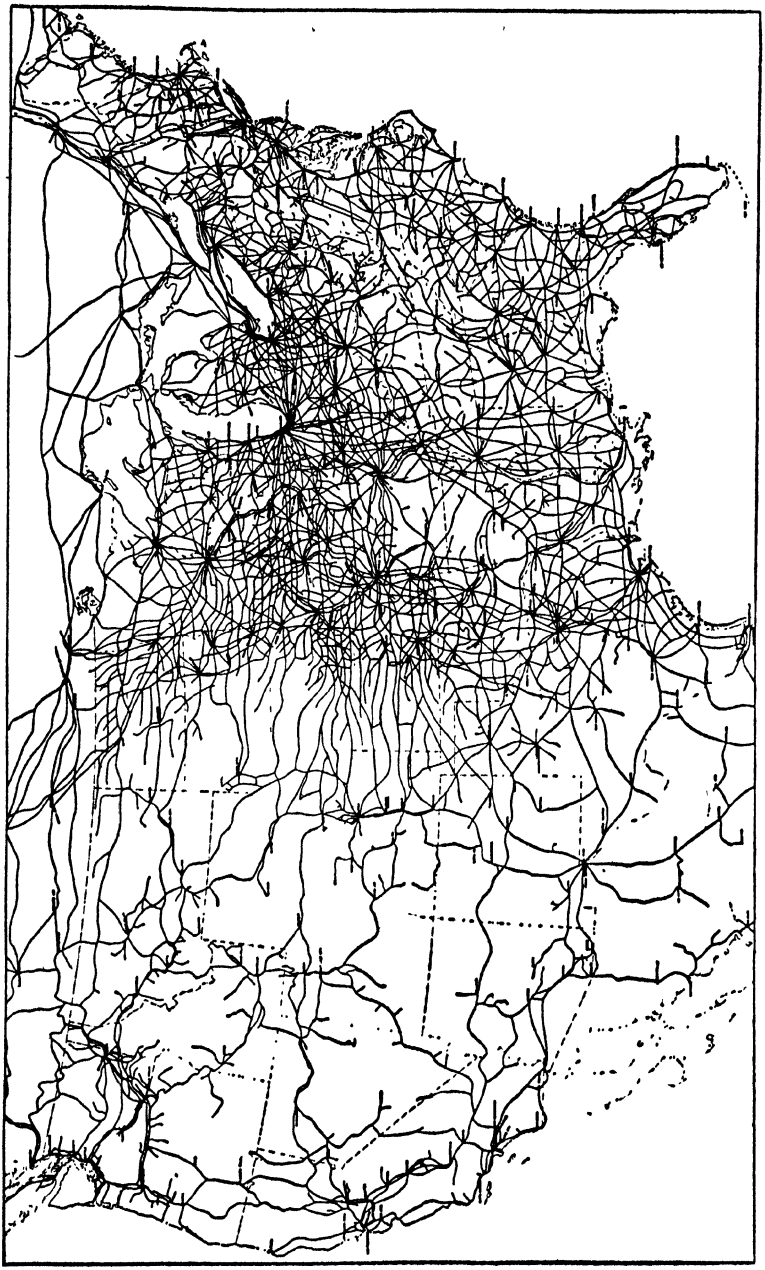

FIG. 10.—Railroads in the United States in 1940. (*From National Resources Planning Board, Transportation and National Policy,* 1942.)

Michigan Central, it reaches St. Louis, Cleveland, Cincinnati, and Buffalo. Another subsidiary, the Boston and Albany, extends into New England. The Pennsylvania and the Baltimore and Ohio also serve Chicago, St. Louis, and New York, and in addition Philadelphia and Baltimore. Including all its operating subsidiaries, such as the Pittsburgh, Cincinnati, Chicago and St. Louis and the Wabash, the Pennsylvania controlled in 1931 about 24,000 miles of line. The Baltimore and Ohio system embraces the road with this name, the Alton, the Buffalo, Rochester and Pittsburgh, and others. These are great coal-carrying roads. The Chesapeake and Ohio runs from Chicago to Chesapeake Bay, the Erie from Chicago to New York.[1] The Chesapeake and Ohio and the Erie formerly belonged to the tremendous 29,000-mile Van Sweringen group, which also included, among other roads, the Nickel Plate (New York, Chicago and St. Louis), the Wheeling and Lake Erie, the Pere Marquette, the Chicago Great Western, the Denver and Rio Grande Western, and the Texas and Pacific.[2] As would be expected, competition among the Trunk-Line railroads is keen.

The Piedmont railways connect with the Trunk-Line roads at Richmond, Washington, or Norfolk, and are confined largely to that territory naturally marked off to the east by the Appalachian Mountains. Their main stems extend from ports in Alabama and Florida parallel to the Atlantic coast. Northward over these lines are moved cotton, lumber, fruit, and vegetables from the South; while the return traffic, smaller in volume, consists mainly of coal and finished goods. The passenger business is highly seasonal.

The largest of the Piedmont railways are the Southern, the Atlantic Coast Line, the Seaboard Air Line, the Central of Georgia, and the Florida East Coast. The Southern is more than a Piedmont road; including subsidiaries such as the Georgia, Southern and Florida, and the Cincinnati Southern, it traverses every state south of the Ohio and Potomac rivers and east of the Mississippi River except West Virginia. As has been said, "The Southern serves the South." It reaches northern gateways at Washington and Cincinnati; western gateways at St. Louis and Memphis; and tidewater at Norfolk, Charleston, Savannah, Brunswick, and Jacksonville, on the Atlantic coast, and Mobile and New Orleans on the Gulf coast. Other important cities served are Atlanta, Birmingham, Louisville, and Chattanooga. The Atlantic Coast Line has northern termini at Richmond and Norfolk, southern termini at Jackson-

[1] Maps of the various important railroad systems are to be found in *Moody's Steam Railroads*.

[2] See *Regulation of Stock Ownership in Railroads*, House Report no. 2789, 71st Cong., 3rd Sess., part 1 (1931). The data in this chapter on ownership groups are taken in part from this report. See also *Statistics of Railways in the United States*, 1943 (1945).

ville, Tampa, and Fort Myers. Like the Southern, it also touches numerous other important cities in the South. The Seaboard Air Line occupies the same states as the Atlantic Coast Line—Virginia, North Carolina, South Carolina, Georgia, Alabama, and Florida—and connects practically the same important centers. In addition, the Seaboard serves the cities of West Palm Beach and Miami on the east coast of Florida. The Central of Georgia, a part of the Illinois Central system, runs from Savannah through Augusta, Atlanta, Athens, and Macon to Chattanooga, Montgomery, and Birmingham. The Florida East Coast operates entirely within the state of Florida, from Jacksonville along the east coast to Miami. It was formerly significant as a connecting link in the trade with Cuba.[1]

The Atlanta-Northwest route extends from Chicago to Atlanta. The carriers of this group, in active competition with those of the Piedmont and the Mississippi Valley, transport to the Southeast manufactured goods, grains, and meats; and to the Northwest products similar to those that flow from the South to the Northeast. In contrast with the Piedmont route, the bulk of the traffic moves southeast. Since the railroads here do not run all the way from Atlanta to Chicago, most of the traffic is interchanged at Ohio River crossings with carriers in Trunk-Line Territory, such as the Chicago and Eastern Illinois, the Chicago, Indianapolis and Louisville, and the Chesapeake and Ohio.

Important individual systems south of the Ohio River are the Louisville and Nashville and the Southern. The Illinois Central, with a line from Chicago to Birmingham, is also sometimes listed as one of the railroads in this group; but it is likewise considered as a Mississippi Valley carrier. There is some overlapping, of course, along many of the railroad routes. The Louisville and Nashville, a subsidiary in the Atlantic Coast Line system, operates an extensive group of lines second in length only to that of the Southern in the South. Its rails interconnect St. Louis, New Orleans, Cincinnati, Louisville, Atlanta, Birmingham, Memphis, Nashville, Knoxville, Mobile, and Pensacola.

The Mississippi Valley route parallels the Mississippi River. With termini at Louisiana and Alabama ports, the carriers in this territory, like the Trunk-Line roads with which they compete, participate heavily in the foreign trade of the country. They carry north the agricultural products of the South, as well as imports such as coffee, sugar, tropical fruits, and fertilizers from South and Central America. The southbound traffic consists of goods not greatly different from those moving toward the Southeast.

The chief Mississippi Valley roads are the Illinois Central and the Gulf, Mobile and Ohio, on the east side of the Mississippi River, and the

[1] Car ferries plied between the mainland and Havana, Cuba.

Missouri Pacific on the west side. The Louisville and Nashville also claims part of the business of this route. The Illinois Central has a line extending from Chicago south through Cairo and Jackson to New Orleans. This line is joined near Cairo by another from Birmingham. Other extensions run southwest from Chicago to St. Louis, and west from Chicago to Omaha and Sioux City. The Gulf, Mobile and Ohio operates primarily between St. Louis and Mobile. The Missouri Pacific's Mississippi Valley line extends from St. Louis through Memphis and Little Rock to Lake Charles and New Orleans. Since the Illinois Central is the only Mississippi Valley carrier that operates over its own rails all the way from Gulf ports to Chicago, part of the traffic of this group of roads is interchanged with other railroads; for example, with the Wabash and the Chicago and Eastern Illinois, which have lines from St. Louis to Chicago.

The Granger railways, as the name implies, occupy the states of Illinois, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota. They collect the grain and animal products of the Granger territory and transport them southward to the Southwestern and Mississippi Valley routes or eastward either to termini of the Trunk-Line roads or to Duluth for transshipment on the Great Lakes. The westbound traffic consists largely of manufactures, lumber, fruit, and other consumption goods.

Important Granger railways are the Chicago, Burlington and Quincy and the Chicago and North Western. Some of the Transcontinental roads and the Chicago, Rock Island and Pacific also operate in Granger territory. The Chicago, Burlington and Quincy is one of the strongest roads west of the Mississippi. It reaches from Chicago to St. Louis, Minneapolis, Kansas City, St. Joseph, Denver, Cheyenne, and Billings, with a dense network of lines in western Illinois, northern Missouri, and southern Iowa and Nebraska. The Chicago and North Western lies for the most part north of the Chicago, Burlington and Quincy. The main line runs due west from Chicago to Omaha, although there is an important extension north to Lake Superior. These and other Granger carriers constitute in a sense an extension of the Trunk-Line railways; they act as a connecting link with the so-called "Transcontinental" roads.

The Southwestern railways extend from Chicago, St. Louis, and Kansas City southwest across Illinois, Missouri, Oklahoma, Arkansas, and Texas to ports on the Gulf of Mexico. Southward they transport grain, manufactured goods, and various foods; northward, petroleum, live stock, lumber, fresh fruits and vegetables, and other products from the Southwest.

The largest of these railways are the Chicago, Rock Island and Pacific, the St. Louis-San Francisco, and the Missouri-Kansas-Texas. The Atchison, Topeka and Santa Fe and the Missouri Pacific also serve the South-

western route. The Chicago, Rock Island and Pacific, which is embraced in the "Frisco" system, operates lines from Chicago and St. Louis to Denver, Dallas, and Fort Worth. The St. Louis-San Francisco ("Frisco") has northern termini at St. Louis and Kansas City and extends to Birmingham in the Southeast and to Dallas and Fort Worth in the Southwest. The Missouri-Kansas-Texas also terminates on the north at St. Louis and Kansas City and runs through Parsons, Muskogee, Denison, Fort Worth, Dallas, and Waco to San Antonio, Houston, and Galveston. Another railroad to be mentioned in this group is the Kansas City Southern. Its line from Kansas City to the Gulf of Mexico is the most direct of all lines in the region.

Strictly speaking, the Transcontinental railways are not transcontinental, *i.e.*, they do not extend from coast to coast. They connect on the east with other railroad routes, either over their own rails or over lines of the Granger and Southwestern railways. From these connecting points they stretch across the western plains to the Pacific coast. The traffic of the Transcontinental carriers varies from line to line, but consists for the most part of lumber, live stock, fresh fruit, and canned goods moving east, and coal, cotton, steel, automobiles, and miscellaneous manufactures moving west. In normal times the eastbound traffic generally exceeds the westbound in tonnage. The passenger business, which is of considerable importance, is primarily of the long-distance type.

The Northern Transcontinental railways are the Chicago, Milwaukee, St. Paul and Pacific, the Great Northern, and the Northern Pacific. All three terminate in the west at Seattle, on Puget Sound, but only the first extends to Chicago. The Great Northern and the Northern Pacific have their eastern termini at Minneapolis and St. Paul, and enter Chicago over the rails of the Chicago, Burlington and Quincy, which they jointly control. The Great Northern is notable as one of the few large railways of the country never to have been reorganized. The Chicago, Milwaukee, St. Paul and Pacific ranks close to the Santa Fe and the New York Central in mileage of line operated.[1] Its system reaches from Lakes Michigan and Superior through Minneapolis, Butte, and Spokane to Seattle and Tacoma. Other lines extend to Kansas City and Omaha.

The Central Transcontinental route extends west from Chicago, St. Louis, and Kansas City via Denver and Salt Lake City to San Francisco, but the roads here, the Union Pacific, the Denver and Rio Grande Western, and the Western Pacific, make use of the Granger and Southwestern lines in reaching Chicago. The Union Pacific terminates in the east at Omaha. From this point lines run west to Salt Lake City, where they branch. One branch goes to Puget Sound, another to Los Angeles. The Union Pacific system includes, in addition to the Union Pacific proper,

[1] In 1943 its mileage was 10,742.

the Los Angeles and Salt Lake, the Oregon Short Line, and the Oregon-Washington Railroad and Navigation Company. The Denver and Rio Grande Western, with a line from Denver to Ogden, is important as the middle link in a transcontinental system completed by the Chicago, Burlington and Quincy and the Western Pacific. The former carries the system to Chicago, the latter to San Francisco.

The Southern Transcontinental route is served by two of the longest railroads in the United States—the Atchison, Topeka, and Santa Fe and the Southern Pacific. In 1943 the former operated 13,000 miles of line. Its rails extended from Chicago on Lake Michigan to Los Angeles and San Francisco on the Pacific coast and to Houston and Galveston on the Gulf of Mexico. The lines of the Southern Pacific reach south from Portland through San Francisco to Los Angeles, thence east through Yuma, El Paso, San Antonio, and Houston to New Orleans.

Another route of some significance extends along the Pacific coast through Washington, Oregon, and California, although most of the traffic in these states moves east and west over the Transcontinental lines. Unlike the other railroad routes, this route does not connect large areas of generally dissimilar production. The principal carrier on the Pacific coast is the Southern Pacific. Water competition is intense.

The aforesaid division of the railways does not coincide with the groups formed through combination, and it differs from the classifications used by the Interstate Commerce Commission for statistical or rate-making purposes.[1] It also ignores numerous minor railroad systems. But the division brings out better than the other classifications the major overland routes of the United States.[2] Highway and airway traffic is concentrated in considerable degree along the same routes.

Pipe Lines

The total length of pipe lines in 1940 was 126,000 miles.[3] Of this total, 116,900 miles were crude-oil lines and 9,000 miles were gasoline lines.[4]

[1] Combinations are discussed in Chap. XX. For statistical purposes the Commission classifies the railroads on the basis of annual operating revenues as follows: Class I, more than $1,000,000; Class II, $100,000 but not over $1,000,000; and Class III, less than $100,000. The Commission recognizes three major districts: Eastern, Southern, and Western. Subdivisions in the Eastern District are the Great Lakes, Central Eastern, and New England regions; in the Southern, the Pocahontas and Southern regions; and in the Western, the Southwestern, Central Western, and Northwestern regions. Class rate territories are described in Chap. XII.

[2] For a more extended discussion of traffic flows see Daggett, Stuart, *Principles of Inland Transportation*, Chaps. 12–15 (1934).

[3] Interstate Commerce Commission, *War-built Pipe Lines and the Post-war Transportation of Petroleum*, p. 4 (1944).

[4] Construction during the Second World War substantially increased these figures. Although accurate data are unavailable, there were constructed during the period 1941–1944 about 7,600 miles of crude- and 6,200 miles of refined-oil lines.

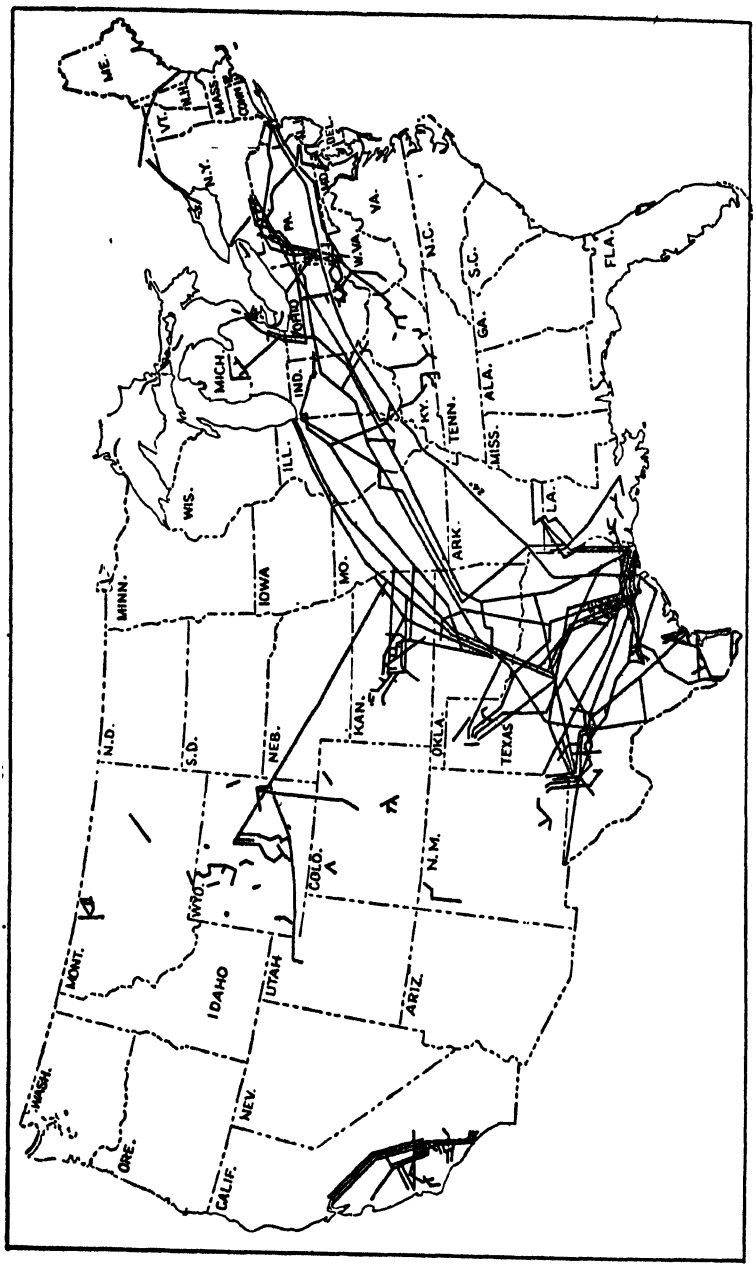

FIG. 11.—Crude-oil trunk pipe lines in the United States. (*From Association of American Railroads, Report by Subcommittee on Pipe Line Transport, 1944.*)

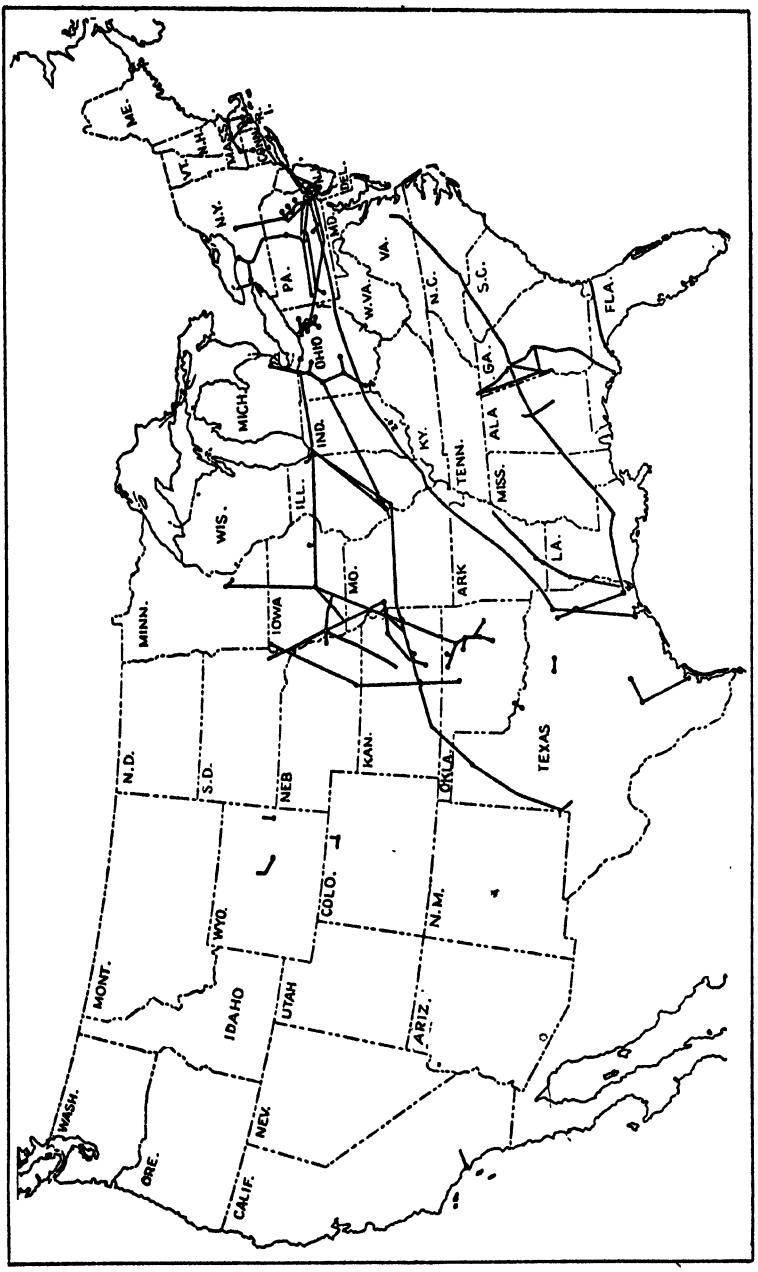

FIG. 12.—Gasoline pipe lines in the United States. (*From Association of American Railroads, Report by Subcommittee on Pipe Lines to Transport, 1944.*)

Somewhat more than half the crude-oil mileage consisted of trunk lines, while the remainder comprised smaller gathering lines.[1] Since pipe-line routes are largely determined by the location of oil fields and refineries, crude-oil and gasoline lines are highly concentrated geographically. Nearly half the total mileage lies in Texas and Oklahoma. From these states, as well as from the smaller oil fields in California and Pennsylvania, the pipe lines radiate to large refining, shipping, or consuming centers, many of which are several hundred miles from the oil wells.[2]

In 1940, according to the accompanying map, crude-oil trunk lines connected the tank farms of the Mid-continent fields with Salt Lake City in the west, Chicago and Lake Erie ports in the northeast, and Gulf ports in the south. California had an interconnected system joining San Pedro and San Francisco. During 1942 and 1943 a line, 24 inches in diameter, was built in the interest of national defense from Longview, Tex., to the New York and Philadelphia area, about 1,388 miles.[3]

In 1940 gasoline pipe lines extended from the refineries in Mid-continent territory to Kansas City, Omaha, Sioux Falls, Minneapolis, St. Louis, Chicago, and Toledo; from the Pennsylvania fields to Cleveland, Buffalo, Philadelphia, and New York; from Baton Rouge and Port St. Joe to Greensboro and Knoxville; and from refineries in interior California to the Pacific coast. The gasoline line from Tulsa, Okla., to St. Paul and Chicago, 2,134 miles in length, represented a fourth of all gasoline pipeline mileage. In 1943 a 20-inch line, 1640 miles long, was constructed between Beaumont, Tex., and New York Harbor, in order to relieve the gasoline shortage in the East. Another line was laid across the peninsula of Florida.

Airways

The mileage of scheduled air routes in 1944 was 36,982. The trunk lines and their connecting links comprise the network of airways shown on the accompanying map.[4] There are three transcontinental lines and three major north-south systems. It will be noted that air routes now connect practically every large city in the Union. The great majority of small cities, however, are not served by air lines.

As in the case of the railroads, the leading routes from the standpoint

[1] Trunk lines generally range between 6 and 12 inches in diameter, and gathering lines are commonly 2 to 4 inches in diameter. The "Big Inch" and "Little Inch" have diameters of 24 and 20 inches, respectively.

[2] Pressure is maintained by pump stations located some 30 to 35 miles apart, according to the topography of the land and the viscosity of the oil.

[3] *The New York Times*, p. 1 (Oct. 29, 1942).

[4] An airway is a marked route usually equipped with beacon lights, radio markers, radio-range beacons, and communication facilities. It is said to be 10 miles wide and has intermediate landing fields about every 50 miles.

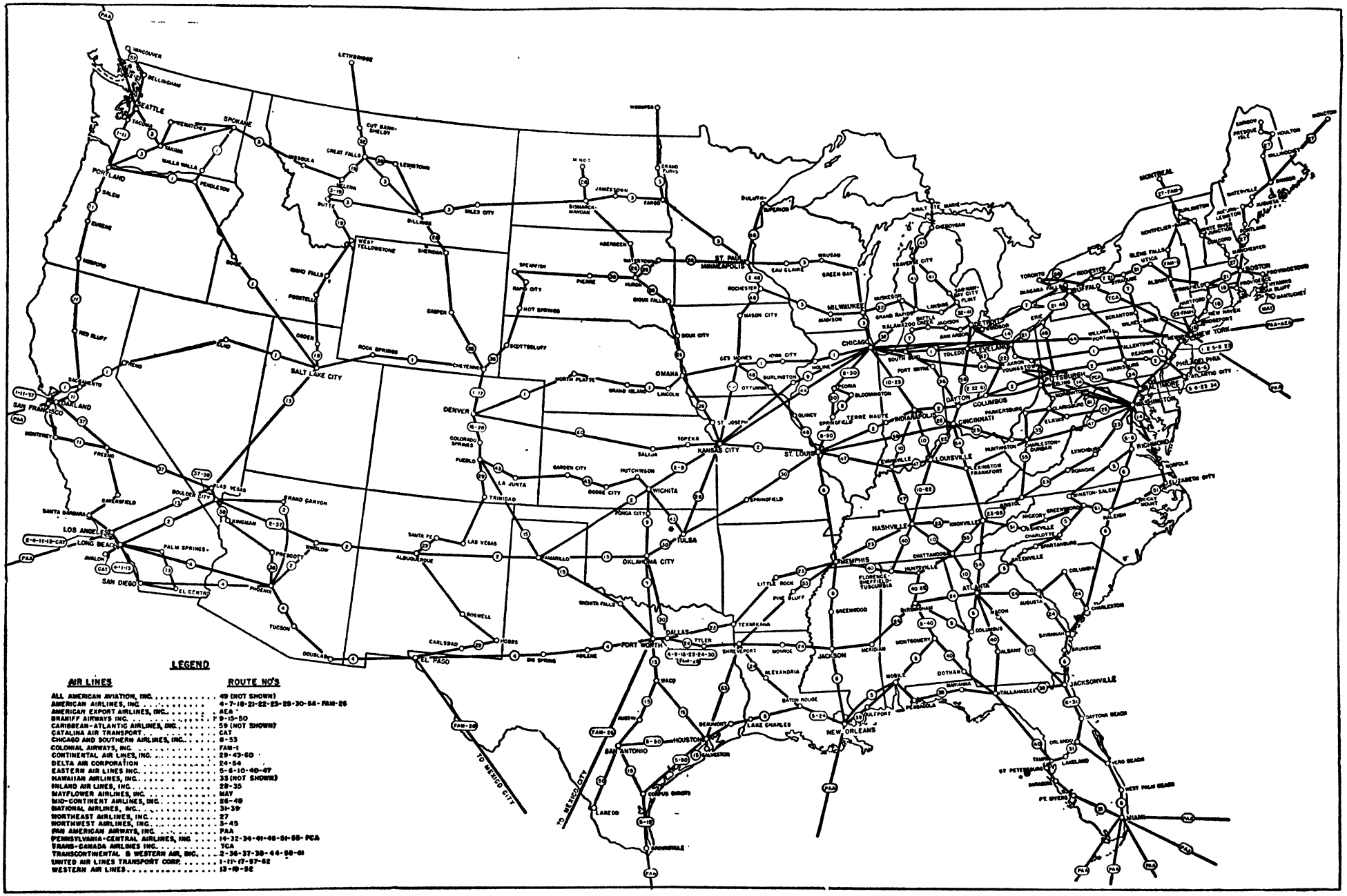

FIG. 13.—Certified air-transport routes in the United States.

of traffic lie north of the Ohio and east of the Mississippi rivers. Passenger-traffic density is greatest between Boston, New York, Washington, D. C., and Chicago. Most of the routes carry mail, and mail traffic is less concentrated than passenger travel. The nonmail routes are disconnected and are inferior to the contract lines both in mileage and in traffic. Applications pending before the Civil Aeronautics Board call for many miles of new route, largely of a feeder character.

Waterways

The waterway system of the United States consists of the Atlantic, Gulf, and Pacific coasts; the Great Lakes; the Mississippi River and its tributaries; the New York State Barge Canal; coastal rivers; the Intracoastal Waterway; and various isolated canals. Excluding the coasts but including the Intracoastal Waterway and the natural channels of the Great Lakes, 28,000 miles of the waterways in 1940 were improved.[1] About two-thirds of these (indicated on the accompanying map) were of limited capacity, having a ruling depth of less than 9 feet; and approximately 9,000 miles were improved to an authorized depth of 9 feet or more. Some 6,000 miles were in the Mississippi River system, upon which regular barge service has been established.

The Atlantic, Gulf, and Pacific routes together constitute the most extensive of the navigable waterways. Because of their length (12,000 miles) and numerous harbors, the seacoasts provide water routes accessible to a substantial portion of the population.[2] Many of the largest cities are located thereon.

The Great Lakes form one of the most important fresh-water transportation systems in the world. This is due primarily to two factors. In the first place, the Lakes are strategically located. Reaching from Minnesota to New York and from Indiana to the Canadian border, they lie between the iron ore and grain regions to the northwest and the steel and coal territory to the southeast. The Lakes are thus in the line of a large-scale movement of products adapted to water transport. In the second place, the Lakes are virtually ready-made for shipping. Their waters have a surface area in excess of 95,000 square miles; they are deep; and they are interconnected either by nature or by comparatively inexpensive artificial channels.[3] Lakes Superior and Huron are united by the short "Soo" Canal; Lakes Huron and Erie by the St. Clair and Detroit rivers; and

[1] War Department, Office of the Chief of Engineers, *Rationale of Inland Waterway Transportation*, Sec. II, p. 3 (Mimeographed, National Resources Planning Board, 1941).

[2] The "general" coast line is about 5,000 miles in length and the tidal shore line has a length of about 7,000 miles.

[3] The total shore line of the Lakes exceeds 8,000 miles.

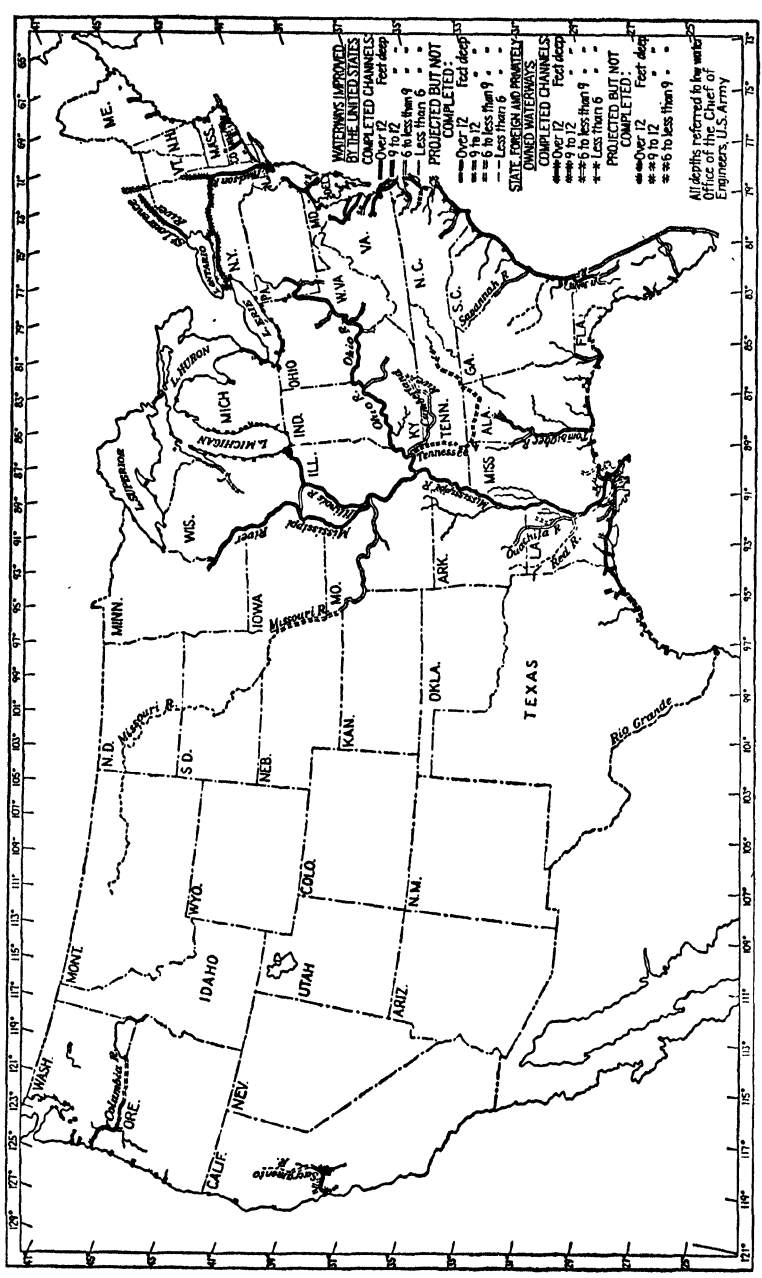

FIG. 14.—Principal waterways of the United States. (*From Chief of Engineers of the United States Army.*)

Lakes Erie and Ontario by the Welland Canal.[1] No inland waterway of importance requires so little for capital and maintenance charges as the Great Lakes. The principal expenditure is for harbors.

The Mississippi River system interconnects a large and fertile territory. It embraces the navigable portions of the Mississippi, the Ohio, the Missouri, and the Illinois rivers, together with certain tributaries—all told about 13,000 miles. Approximately 4,000 miles have a ruling depth of at least 9 feet. A channel 9 feet deep or deeper extends from Chicago via the Chicago Sanitary and Ship Canal and the Illinois River to the Mississippi River, thence down the Mississippi to the Gulf of Mexico, a distance of about 1,626 miles. The last 240 miles of the Mississippi have a depth of not less than 35 feet. There are also 981 miles of 9-foot channel in the Ohio River from Pittsburgh to Cairo. Additional channels, 9 feet or more deep, extend 635 miles up the Mississippi River from the mouth of the Illinois River to Minneapolis, and channels between 6 and 9 feet deep extend 767 miles up the Missouri River from its mouth. Closely connected with the Mississippi River system is the waterway extending along the Warrior River and Lake Pontchartrain from the coal and ore district of Alabama to New Orleans.

The New York State Barge Canal and the Intracoastal Waterway may be given brief mention. The first is chiefly important from a historical point of view, and the second is not yet complete.[2] The main stem of the Barge Canal, with terminals at Troy and Buffalo, is about 340 miles in length. Counting the branches to Lakes Ontario, Champlain, Cayuga, and Seneca, there are 525 miles of canal 12 feet or more deep. Along the Intracoastal Waterway, 435 miles of route have a depth of less than 6 feet, 898 miles a depth between 9 and 12 feet, and 975 miles a depth of 12 feet and more. Part of the route to the North Atlantic ports is exposed to the open ocean.

Distribution and Character of Traffic

The relative importance of the different means of transportation in terms of volume of traffic is indicated by Table VI, which shows the ton-miles and passenger-miles of all intercity carriers, public and private, except coastwise and intercoastal water lines. Data are given for 1939, a more or less normal year, and for 1943, a year that reflects the effects of war. Totals and percentages are for the nation as a whole and may not indicate the significance of a given agency in a particular region.

[1] The "Soo" Canal is less than 2 miles long, while the Welland Canal is about 27 miles in length.

[2] The old Erie Canal was thoroughly reconstructed in 1903. It has also been improved at various other times. Moves were under way in 1942 to complete the Intracoastal Waterway, in order to provide a safer route for coastwise shipping then being menaced by submarines.

In order of importance as carriers of freight, the various agencies ranked as follows in 1939: railways, inland waterways, pipe lines, highways, and airways.[1] In 1943 the rank was the same, although the railroads had gained. Total ton-miles increased from 540,375,000,000 in 1939 to 1,020,875,000,000 in 1943, or 88 per cent. Although all agencies contributed toward this increase, the railroads contributed most. The traffic and percentage figures for 1943, of course, reflected unusual conditions created by war. Freight which would normally have moved by other means of transportation was transported by railroad, and the average rail haul lengthened substantially.

TABLE VI.—DISTRIBUTION OF INTERCITY TRAFFIC AMONG TRANSPORT AGENCIES IN 1939 AND 1943[a]

Agency	Ton-miles				Passenger-miles			
	1939, millions	1943, millions	Per cent of total		1939, millions	1943, millions	Per cent of total	
			1939	1943			1939	1943
Railways	336,100	734,715	62.2	72 0	23,669	89,865	8.7	33 1
Waterways	96,249	141,652	17 8	13.9	1,486	1,927	0.6	0 7
Pipe lines	65,015	96,257	12.0	9.4				
Highways	43,000	48,199	8.0	4.7	245,891	177,810	90 5	65 6
Airways	11	52	[b]	[b]	678	1,632	0 2	0 6

[a] *Annual Reports of the Interstate Commerce Commission*, 1941, p. 9; 1944, p. 6. The figures are of necessity partly estimated, especially in the case of highways. Both steam and electric railways are included. Waterways cover inland waterways and the Great Lakes. Pipe lines include refined as well as crude-oil lines. Highways embrace private automobiles. Airways refer to domestic revenue carriers.

[b] Less than 0.1 per cent.

Total ton-miles of all agencies from 1929 to 1943 are shown graphically below.[2] It will be observed that business declined substantially during the depression years but that the general trend has been upward, reaching a peak in 1943 much above the prosperous year of 1929.

In order of importance as carriers of passengers, the rank of the various modes of transportation in 1939 was highways, railroads, inland water-

[1] According to the *Annual Report of the Board of Investigation and Research*, p. 7 (1942), the distribution of freight traffic in 1939 was as follows: railroads 58.5 per cent, Great Lakes 13.33 per cent, pipe lines 11.35 per cent, highway vehicles 8.95 per cent, intercoastal water carriers 4.39 per cent, and inland waterways 3.48 per cent. This estimate included intercoastal water carriers and is not strictly comparable with that of the Interstate Commerce Commission. However, it indicates less importance for railways and more importance for highways.

[2] Figures were obtained from Interstate Commerce Commission, *Post-war Traffic Levels* (1944).

ways, and airways. Here-too-the rank was the same in 1943, with the railroads gaining. Total passenger-miles were 271,724,000,000 in 1939 and

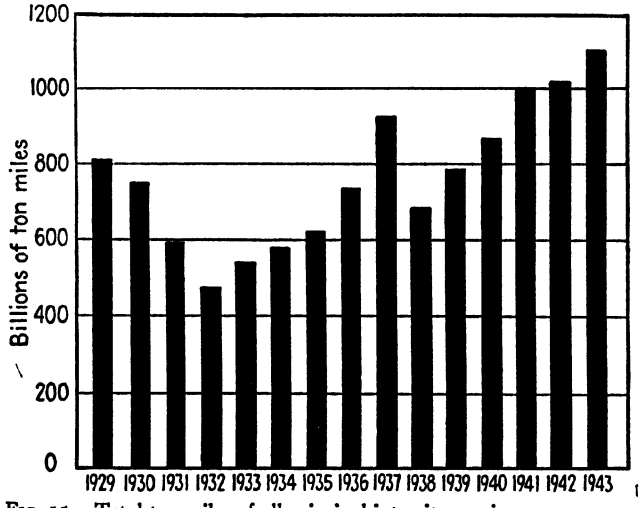

FIG. 15.—Total ton-miles of all principal intercity carriers, 1929–1943.

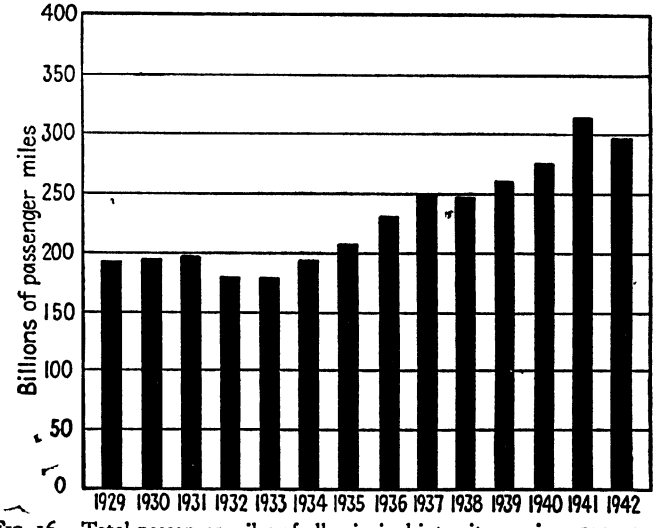

FIG. 16.—Total passenger-miles of all principal intercity carriers, 1929–1942.

271,234,000,000 in 1943, or virtually the same; but the passenger-miles of the railroads rose from 23,669,000,000 to 89,865,000,000, an increase of 279 per cent. Highway passenger-miles decreased sharply. Most of the

decline was probably due to restrictions on private transportation arising from shortages of tires and gasoline, for the commercial business increased.

Total passenger-miles of all carriers from 1929 to 1942 are indicated by the accompanying chart, which shows that passenger traffic is steadier than freight.[1] This is due largely to the overwhelming importance of the private automobile, to which owners cling with tenacity even during periods of economic depression.

Railroads

In 1943 the railroads produced more than seven-tenths of all tc miles. They were responsible for less than 34 per cent of the passenger-miles; but excluding travel by private automobile, the railways were also first in the passenger business. The commercial traffic was shared as follows: railways, 72 per cent; busses, 25 per cent; inland waterways, 2 per cent; and airways, 1 per cent. Over 95 per cent of the freight and passenger business of the railroads was handled by Class I carriers.[2]

TABLE VII.—RATIO OF ACTUAL RAILWAY-TONS TO POTENTIAL RAILWAY-TONS, CLASS I RAILWAYS, 1930–1941

Year	Ratio		
	Carload	Less than carload	Total freight
1930	97.6	89.5	97.4
1931	94.4	86.4	94.1
1932	87.6	73.2	87.2
1933	87.9	64.0	87.2
1934	89.1	59.2	88.2
1935	86.7	54.0	85.8
1936	86.3	51.0	85.3
1937	85.9	50.0	84.9
1938	78.6	49.2	77.7
1939	79.4	44.3	78.4
1940	80.3	39.4	79.1
1941	85.7	42.5	84.5

Although the railroads now provide more of the commercial transportation than their competitors, it should be emphasized that they normally move relatively less traffic than formerly. The ratio of actual railway-tons to potential railway-tons of carload and less-than-carload freight of Class I roads from 1930 to 1941 is set forth in Table VII prepared for the Bureau of Transport Economics and Statistics of the Inter-

[1] *Ibid.*

[2] *Annual Report of the Interstate Commerce Commission*, 1944, p. 129. These carrier operated 95 per cent of the miles of road.

state Commerce Commission.[1] By "potential" railway-tons is meant the number of tons the railroads would have carried each year if in each period the railway tonnage had been the same proportion of total production in the United States as it was in 1928. It does not refer to the tonnage which the railways might obtain by more solicitation or by offering lower rates, but includes also the tonnage irrevocably lost to other transportation agencies and that lost because of industrial changes such as the substitution of water power for steam power.[2] The question arises whether actual railway tonnage should be compared with tonnage produced or with tonnage sold, but comparison on the latter basis appears to make no substantial change in the ratios except slightly to reduce their variations from year to year.[3]

Several important conclusions can be drawn from Table VII. With the exception of the last 3 years, total railway traffic steadily declined relative to production.[4] In 1938 the total traffic ratio was only about three-fourths as great as in 1930. The most serious decline occurred in less-than-carload traffic. Here the ratio fell by 1940 to less than half the 1930 figure. Carload traffic held up better and responded more readily to business prosperity. In general, the percentage share of the railroads in production seems to decline more rapidly during business contraction than during expansion.[5]

These railroad losses can undoubtedly be attributed in great degree to competition from other means of transportation, particularly from trucks, although various factors tending to reduce the volume of all transportation have played a part.[6] Evidence of the significance of truck competition is the more than proportionate decline in less-than-carload traffic, which is better adapted to trucking than carload freight. In the same direction point the differences in the railway losses of various kinds of carload traffic. Carloads of mineral products declined only about 5 per cent, while carloads of animals and their products declined more than 45 per cent.[7]

Railway passenger losses have been more pronounced than freight losses. No passenger indexes comparable to those for freight are available, but the passenger-miles of the railroads decreased from 47,000,000,000 in

[1] Hobbs, E. S., *Fluctuations in Railway Freight Traffic Compared with Production* (1942).

[2] It cannot be concluded that other carriers have gained all that the railroads have lost.

[3] On this topic see Phillips, E. J., "Diversion of Freight Traffic from the Railroads," *Journal of Land and Public Utility Economics*, vol. 16, pp. 403–415 (November, 1940).

[4] Ton-miles of freight declined from a peak of 450,000,000,000 in 1929 to 235,000,000,000 in 1932. Interstate Commerce Commission, *Statistics of Railways in the United States*, 1943, p. 150.

[5] See Hultgren, Thor, "Railway Freight Traffic in Prosperity and Depression," *National Bureau of Economic Research, Occasional Paper* 5, p. 38 (1942).

[6] Cf. p. 102.

[7] Hobbs, *op. cit.*, p. 16.

1920 to 16,000,000,000 in 1933. During the same period motor-fuel consumption increased several-fold.[1] Although much of the motor-vehicle travel would not move by rail, it seems certain that the railroads have lost a substantial portion of their potential passenger business, perhaps permanently, to the motor carrier. This conclusion is supported by the fact that the relative decline in coach service, which is most sensitive to motor competition, has been greater than the decline in sleeping- and parlor-car service.[2] The latter seems to depend more upon the income available for travel than upon the fare.[3]

Recently the railroads have somewhat improved their position in the passenger field, irrespective of war. After 1933 rail passenger-miles steadily increased. In 1939 the figures were 24,000,000,000, and in 1943 they were 90,000,000,000. The upward trend can be explained in part by reductions in fares[4] and improvements in service.[5]

Freight, of course, is much more important to the railroads than passengers. From this source the carriers derive over four-fifths of their total revenue.[6] Over 98 per cent of the tonnage is transported by the carload in specially designed cars supplied by the railroads, by private industries, or by car companies.[7] Products of mines constitute more than half the carload tonnage and produce from 25 to 30 per cent of the freight revenue. Manufactures and miscellaneous goods constitute about one-fourth of the tonnage, but produce over two-fifths of the revenue.[8] Other groups of products in the order of their tonnage and revenue importance are products of agriculture, products of forests, and animals and their products. Some of the traffic moves by light trains, but far more is transported in heavier trains. The average weight of revenue freight per train is normally about 750 tons. From these and the more detailed statistics of the Interstate Commerce Commission, it can be seen that the railroads transport a great variety of commodities in relatively large units. Much traffic also moves, of course, on a smaller scale in less-than-carload lots.[9]

[1] See Aitchison, Beatrice, *Preliminary Examination of Factors Affecting the Demand for Rail Passenger Travel*, p. 33 (Mimeographed, Interstate Commerce Commission, 1941).

[2] *Ibid.*, p. 10.

[3] *Ibid.*, p. 42.

[4] Cf. p. 241.

[5] Cf. p. 39.

[6] At one time the passenger business was more important, and during the Second World War passenger traffic expanded faster than freight traffic. Much of this increase was caused by the decrease in the use of automobiles. Heavy troop movements also played a part.

[7] In 1943 the railroads owned 1,809,000 freight cars and other companies provided 273,000.

[8] Interstate Commerce Commission, *Statistics of Railways in the United States*, 1943, p. 41.

[9] Less-than-carload traffic produces a larger percentage of revenue than of tonnage, for less-than-carload rates are higher than carload rates.

The average railroad haul is long in comparison with highway transportation; and, with the increasing division of labor, it has gradually lengthened. In 1900 the average freight haul per ton was 243 miles, in 1943 it was 469 miles.[1] Many commodities move much farther. In 1932 fresh grapes had an average haul of 2,597 miles.[2] Citrus fruits moved more than 2,000 miles, manufactured tobacco more than 1,200 miles. On the other hand, heavier and more ubiquitous materials such as logs or sand and gravel were transported less than 100 miles.

As the average haul lengthens, railroad traffic tends to move interterritorially. The bulk of traffic is still semilocal in character, but a count made by the Office of Defense Transportation of the waybills of all carloads of freight originating on May 27, 1942, showed that 26 per cent of the carloads were consigned to rate territories other than the territories of origin.[3] The ratio of carloads consigned interterritorially to carloads originating varied by territory as follows: Southwestern, 31.4 per cent; Southern, 30.0 per cent; Western Trunk-Line, 27.6 per cent; Mountain-Pacific, 25.7 per cent; and Official, 22.7 per cent.[4] In other words, less originated traffic stayed at home in Southwestern Territory than in any other territory, and more traffic stayed at home in Official Territory. The preponderance of movement was eastward and northward, 55.28 per cent of all cars originated being consigned to Official Territory.[5] Stated differently, other territories contributed relatively more to the total carloads consigned to Official Territory than Official Territory itself contributed.

[1] Interstate Commerce Commission, *Statistics of Railways in the United States*, 1943, p. 151. The average haul tends to lengthen during periods of business contraction and to shorten during times of expansion. One reason for such variation appears to be that durable goods, which have shorter hauls, constitute a smaller fraction of all traffic during contraction and a larger fraction during expansion. Hultgren, *op. cit.*, p. 41.

[2] Federal Coordinator of Transportation, *Freight Traffic Report*, vol. 3, p. 125 (1935).

[3] Interstate Commerce Commission, *Territorial Movement of Carload Freight on May 27, 1942*, p. 8 (1942). The rate territories referred to were Official, Southern, Western Trunk-Line, Southwestern, and Mountain-Pacific. A study made by the Federal Coordinator of Transportation in 1932 indicated that about one-third of the cars originated moved between rate territories. *Freight Traffic Report*, vol. 1, p. 21. The difference in the two percentages is doubtless due in part to the larger number of territories classified by the Federal Coordinator: New England, Trunk-Line, Central, Pocahontas, Southern, Western Trunk-Line, Southwestern, Pacific Northwest, and Pacific Southwest. The interterritorial movement in 1932 by classification territory was 25 per cent. For a definition of territories see p. 296.

[4] In 1939, one-third of the freight operating expenses, rents, and taxes of Class I railroads were incurred by lines serving more than one territory. The percentages varied from 9.7 in New England to 84.6 in Western Trunk-Line. Interstate Commerce Commission, *Interterritorial Interest of Class I Steam Railways* (Mimeographed, 1941).

[5] Interstate Commerce Commission, *Territorial Movement of Carload Freight on May 27, 1942*, p. 33 (1942). The ratios of carloads originated to carloads consigned interterritorially were as follows: Southwestern, 50.2; Southern, 45.6; Mountain-Pacific, 31.5; Western Trunk-Line, 26.0; and Official, 14.5.

Interterritorial movement varies according to the character of traffic. In 1940 more of the freight carried under commodity rates moved intraterritorially, while, as distance between origin and destination increased, the class-rate group became more important. For instance, within Western Trunk-Line Territory only 9 per cent of the traffic moved under class rates, but between Western Trunk-Line and the other territories the class-rate group included from 47 to 64 per cent of the shipments.[1] Of the various classes of products, the differences between the ratios of carloads consigned to carloads originated for each of the territories, on the one hand, and the ratios of carloads originated to carloads consigned, on the other hand, indicate that more products of mines moved interterritorially than any other group, even though a larger portion of the carloads of such products remained at home. Manufactures and miscellaneous products ranked next in interterritorial movement, and products of forests came third. Agricultural products and animals and their products ranked fourth and fifth, respectively.

The relative importance of interterritorial traffic remaining on line differs greatly from railroad to railroad.[2] Of 83 railroad systems composed of Class I railroads grouped according to company affiliation in 1940, 5 systems served 14 states, while 20 served only 1 state. The Southern Pacific and the Chicago, Rock Island and Pacific originated or terminated tonnage in at least one state located altogether or in part in every rate territory. On the other hand, the Maine Central served directly only New England, and the Florida East Coast was confined entirely to the state of Florida.

Advantages of Transportation by Railroad

In providing general transportation over broad land areas in large volume the railroad knows no superior. Given the condition of an adequate volume of business, no means of transportation except certain waterways and pipe lines can handle traffic so economically as the railroad; and no method of land transportation is potentially so fast for long distances. Even where waterways and pipe lines are more economical, their services are restricted to a few kinds of traffic.

The railroad has four marked advantages: First, it can be constructed to practically any point, usually at far less cost than a waterway, though at a greater cost than an ordinary highway. Second, the railroad is less hampered by variations in the weather than any other means of transportation except the pipe line. Neither highways nor airways are so dependable and safe. Third, the railroad requires comparatively little

[1] *Ibid.*, p. 4.

[2] Interstate Commerce Commission, *Interterritorial Interest of Class I Steam Railways* (Mimeographed, 1941).

tractive power at high speed, because it utilizes the principle of the smooth rail. Fourth, the railroad is well adapted to handling traffic in large volume. Long trains of heavily loaded cars can be operated with safety.

These advantages of the railroad tend to be neutralized by the time and cost of terminal operations. Cars must be loaded and assembled at origin, reassembled at intermediate points, and disassembled and unloaded at destination. Studies made by the Federal Coordinator of Transportation showed that in 1932 the freight train was in fact generally slower than the truck, and that rail express was slower than trucking for distances under 150 miles, although the railroad was potentially faster for distances exceeding 100 miles.[1] As regards cost, it was indicated that, although carload shipment was generally cheaper by rail except for distances less than about 20 miles, less-than-carload transportation was inherently more economical by truck for distances under 75 miles and possibly under 150 miles.[2] Actual charges for less-than-carload traffic, as contrasted with potential costs, were generally less by highway for all distances. Moreover, the railroad lacks the flexibility of the motor vehicle, as well as its capacity to extend service from door to door. In moving bulk freight at low speed from port to port, railroads are also at a disadvantage in competing with carriers operating on natural waterways.

Trend of Railroad Rates

The growth and increased efficiency of railroad transportation have made possible low rates and improved service. In 1848 freight rates averaged between 3½ and 6 cents per ton-mile in New England, higher in the West, and still higher in the South.[3] In 1870 the average revenue per ton-mile was 19 mills.[4] In 1900, according to Table VIII, it was 7.29 mills.[5] The figure continued at that level until the rise of prices during the First World War, after which it increased. It then remained on a higher level until the depression of the thirties brought about another decline. The figure for 1943 was 9.4. An average freight rate of slightly less than a cent is high when contrasted with the rates charged by cargo water car-

[1] Federal Coordinator of Transportation, *Merchandise Traffic Report*, p. 5 (1934), and *Conclusions on Merchandise Traffic*, pp. 6–7 (1936); *Freight Traffic Report*, vol. 1, pp. 23, 102, 111 (1935). Over-all speeds were as follows: highway, 15 miles per hour; railway, 5 miles; waterway, 3 to 10 miles; and pipe line, 1 to 5 miles.

[2] *Ibid.*, Operative cost per net ton-mile (excluding interest and expenditures made by others than carriers) of rail carriers was 8.3 mills; of water carlot carriers, 6 mills; of water cargo carriers, 1¼ mills; and of pipe lines, 3.2 mills. *Freight Traffic Report*, vol. 1, p. 79.

[3] Wright, C. W., *Economic History of the United States*, p. 353 (1941).

[4] Newcomb, H. T., *Changes in the Rates of Charge for Railway and Other Transportation*, United States Department of Agriculture, Division of Statistics, Bulletin 15, p. 14 (1901).

[5] Interstate Commerce Commission, *Statistics of Railways in the United States*, 1943, p. 150.

riers, but it compares most favorably with the 13-cent rate of the turnpikes.[1] Less-than-carload rates are of course much higher than the average rate, and carload rates are lower than the average. Passenger fares have also declined, except at the time of the First World War.[2] In 1941 they were at the lowest level in half a century.

TABLE VIII.—RAILROAD FREIGHT AND PASSENGER REVENUE IN CENTS PER TON-MILE AND PER PASSENGER-MILE AT INTERVALS OF 5 YEARS

Year	Revenue per ton-mile, cents	Revenue per passenger-mile, cents
1890	0.941	2.167
1895	0.839	2.040
1900	0.729	2.003
1905	0.766	1.962
1910	0.753	1.938
1915	0.735	1 991
1920	1.069	2 755
1925	1.114	2.944
1930	1.074	2.719
1935	0.998	1 936
1940	0.955	1.755

Waterways

Waterways have normally ranked next to the railroads as carriers of freight, although water-borne domestic commerce declined sharply during the recent war. The three leading routes are the Atlantic, Gulf, and Pacific coasts, the Great Lakes, and the Mississippi River and its tributaries.

Ton-mile figures for the coastal routes are not available, but the domestic coastwise and intercoastal (through the Panama Canal) cargo tonnage of the seaboard cities is normally greater than the tonnage of the other waterways taken together. In 1943 the cargoes carried between the ports of the United States totaled 246,445,000 tons, after eliminating all known duplications.[3] Traffic consists chiefly of petroleum, coal and coke, and lumber. It is handled by common, contract, and industrial carriers. In this respect transportation by water is different from that by rail. Al-

[1] Revenue per ton-mile is not a perfect index of freight rates because it fluctuates with changes in the composition of traffic and length of haul, even. though rates remain unchanged.

[2] The average first-class fare in 1848 was about 3.6 cents per mile. MacGill, C. E., in Meyer, B. H., *History of Transportation in the United States before 1860*, p. 576 (1917). Fares were lowest in New England and highest in the South.

[3] *Annual Report of the Chief of Engineers of the United States Army*, 1944, part 2, p. 1 (1945). Tonnage has been reduced by wartime restrictions.

though railroads are for essential purposes common carriers, which serve all patrons generally at published rates, many waterway operators are private or quasi-private in character. The strictly private are owner-operated carriers engaged in transporting property which they own or control. The quasi-private are contract carriers, which provide service by special arrangement.[1] Private and quasi-private service is made possible by the fact that the navigable waters are open to all classes of carriers. It is made economical by the fact that the common carrier is frequently at a disadvantage. The volume of traffic may not justify common carriage; and many shippers find it desirable for special reasons, such as the assurance of specialized service when needed, to provide their own transportation.[2]

For reasons already given, the Great Lakes carry a larger traffic than all other strictly inland waterways combined. In 1943, after eliminating known duplications, the domestic lake commerce amounted to 172,990,000 tons, and the total ton mileage was 115,346,000,000.[3] Nine-tenths of the traffic consists of iron ore, coal, sand and gravel, stone, grain, pig iron, steel, petroleum, and other bulk products. Ore and grain account for most of the eastbound tonnage, while coal is the largest item westbound. Ore is brought by rail to ports on Lake Superior, from where it moves via the Lakes to Illinois and Indiana steel centers, or more often to Lake Erie ports for transshipment by railroad to Pittsburgh and other steel-producing cities of Pennsylvania and Ohio. Most of the grain is transferred at Buffalo to rail lines. Some grain, however, moves by small boat up the St. Lawrence River, and a still smaller quantity is handled by the New York State Barge Canal. The bulk of the coal is carried by rail from Pennsylvania to Lake Erie at Toledo, Ashtabula, Cleveland, or other port, whence it is transshipped to Duluth, Superior, and cities along the western shore of Lake Michigan. The volume of general merchandise transported on the Great Lakes is relatively small, as in the case of other inland waterways. About 95 per cent of the traffic is bulk cargo carried by private and contract operators, and the hauls are unusually long.[4]

In 1943 the traffic of the Mississippi system amounted to 93,562,000

[1] These distinctions are blurred when common carriers engage in contract-carrier service, or when private carriers transport for hire.

[2] In 1932 about 90 per cent of the intercoastal trade, other than tanker traffic, was handled by common carriers. About 95 per cent of the tanker traffic moved by private carriers. Federal Coordinator of Transportation, *Regulation of Transportation Agencies*, Senate Document no. 152, 73d Cong., 2d Sess., p. 7 (1934).

[3] *Annual Report of the Chief of Engineers of the United States Army*, 1944, part 2, pp. 2–3 (1945).

[4] Federal Coordinator of Transportation, *op. cit.* The average outbound haul of water carriers in 1932 was 999 miles. Federal Coordinator of Transportation, *Freight Traffic Report*, vol. 3, p. 50 (1935).

tons and to 16,765,000,000 ton-miles.[1] Although this ton-mileage was less than 15 per cent of that of the Great Lakes, it represented three-fifths of the business on all inland waters other than the Lakes. Traffic consists chiefly of low-grade commodities, as on the Lakes. On the Ohio River section, where the largest tonnage occurs, coal and ore predominate. On the Mississippi River division, coal, coke, iron, and steel constitute the bulk of the southbound tonnage, while sugar and petroleum are the chief items northbound. Goods are transported for the most part in barges by the consuming industry, especially on the Ohio River.[2] A large common carrier is the Inland Waterways Corporation. It provides barge service from New Orleans to the steel and coal district of Birmingham; to the grain and ore region of the Twin Cities; and to the manufacturing and commercial centers of Chicago, St. Louis, Kansas City, and Memphis. Like the other common carriers, the Inland Waterways Corporation transports a greater variety of commodities than the private concerns.

Advantages of Water Transportation

The great advantage of water transportation is the relatively little tractive power required to move large loads in floating equipment, provided movement is slow.[3] One ordinary power unit can propel in a single tow of barges more freight than can be carried by several freight trains. Another advantage of transportation on waterways such as the Great Lakes is that relatively small capital or maintenance costs are involved in providing the way. These advantages tend to make transportation by water cheaper than by rail. For example, it costs less to ship ore from Duluth to Lake Erie ports, nearly 1,000 miles, than to transport it by rail from Lake Erie ports to smelters in Pennsylvania, a little over 100 miles. Handling bulk products on long hauls with large vessels,[4] loaded and unloaded mechanically, cargo carriers on the Great Lakes received in 1932 an average revenue of less than 1 mill per ton-mile.[5] Cheaper transportation could hardly be found. However, rates did not cover capital and maintenance costs incurred by the government.

The cost of transportation on rivers and canals is higher. The mean

[1] *Annual Report of the Chief of Engineers of the United States Army*, 1944, part 2, p. 31 (1945).

[2] On the Mississippi River 31 per cent of the traffic in 1932 was handled by common carriers, 39 per cent by contract carriers, and 30 per cent by private carriers. On the Ohio River the common carrier accounted for less than 4 per cent of the business. Federal Coordinator of Transportation, *Regulation of Transportation Agencies*, Senate Document no. 152, 73d Cong., 2d Sess., p. 7 (1934).

[3] The disadvantages of water transportation were discussed on p. 22.

[4] Some of the largest vessels transport 15,000 tons of cargo to the load and can be loaded and unloaded in a few hours.

[5] Federal Coordinator of Transportation, *Freight Traffic Report*, vol. 3, p. 152 (1935).

average revenue received in 1939 by contract carriers transporting bulk commodities on the Mississippi River system was 2.98 mills.[1] The average cost of operation in 1938 (including terminal costs) of the Inland Waterways Corporation, a common carrier, was 2.68 mills.[2] That of contract carriers of coal and coke, petroleum and its products, iron and steel articles, grain, scrap iron, sugar, and sulphur was 1.977 mills.[3] Private carrier costs for transporting coal and petroleum ranged from 2 to 6 mills, according to length of haul.[4]

Although the foregoing costs by river are low when compared with railroad charges, it is important to note that they did not cover the "hidden costs," or capital and maintenance expenses incurred by the government. The true costs on artificial waterways are therefore higher. It has been estimated that the total cost of transportation on the Ohio River in 1931 was 13.46 mills per ton-mile, of which only 6 mills represented the cost of conveyance. Taxpayers thus contributed more than half the total. Corresponding figures for the New York Barge Canal were 12.34 and 4.50 mills.[5] These and similar estimates[6] may not be accurate, but it is clear that a substantial part of the real cost of transportation by artificial waterways is borne by taxpayers.

Pipe Lines

Pipe-line transportation involves fewer customers and fewer commodities than any other form of transport, but the total volume of the traffic is large. In 1943 the oil and gasoline pipe lines together handled 96,257,000,000 ton-miles, or 9.4 per cent of the ton-miles of all intercity carriers.[7] This was less than the railroad or waterway business, yet it represented most of the crude petroleum and a growing fraction of the gasoline traffic. Hardly any petroleum or gasoline ever reaches its final destination without moving at one point or another through pipe lines.

Between 1937 and 1941 pipe lines transported about 73 per cent of the crude petroleum received at refineries; waterways, 24 per cent; and tank

[1] War Department, Office of the Chief of Engineers, *op. cit.*, sec. 5, p. 11.

[2] *Ibid.*, sec. 6, p. 2. This figure does not include any capital charges.

[3] War Department, Office of the Chief of Engineers, *op. cit.*, Sec. 6, p. 3. Contract-carrier costs are usually lower than common-carrier costs, for the common carrier generally operates over regular routes on schedule and must handle many articles in small lots.

[4] Data were given for only a few such carriers.

[5] Moulton, H. G., and Associates, *The American Transportation Problem*, pp. 485, 475 (1933).

[6] See also *Comparison of Transportation Costs by Rail and via Barge Canal*, Bureau of Railway Economics, Miscellaneous Series, Bulletin 36 (1925).

[7] In 1942 the average length of haul was 352 miles for crude oil and 416 miles for refined oil. The average trunk-line haul was 398 miles for crude oil and 502 miles for refined oil. Interstate Commerce Commission, *War-built Pipe Lines and the Post-war Transportation of Petroleum*, p. 74 (1944).

cars and trucks, 3 per cent.[1] Of the total gasoline and kerosene consumed in 1931 the railroads originated 76.5 per cent, and pipe lines reporting to the Interstate Commerce Commission originated 3.6 per cent.[2] Corresponding percentages for 1941 were 39.4 and 11.6, showing a loss by the railroads and a gain by pipe lines. The remainder of the refined products was transported by tanker, truck, and unregulated pipe lines, so that the percentage for all pipe lines would be somewhat higher.[3] But on account of the widespread character of gasoline consumption, it seems unlikely that pipe lines will ever transport as large a fraction of the refined as of the crude product. Local movements of gasoline can be effectively handled by tank car and truck. Although accurate data are unavailable, it is generally believed that the transportation of petroleum products by truck has increased rapidly during the last decade.

Another feature of pipe-line transportation is the small number of companies handling the traffic. Although railroad companies are numbered by the hundred,[4] truckers and water carriers by the thousand, only 74 pipe-line companies reported to the Interstate Commerce Commission in 1943.[5] These companies controlled most of the traffic and were closely affiliated with the oil-refining business. Though defined as common carriers, they were in reality largely private in character.[6]

Advantages of Pipe-line Transportation

The transportation of crude oil by pipe line is generally more economical than by any other means of overland movement, if the volume of traffic is substantial. The same is true in lesser degree in the case of gasoline.[7] The operation of a pipe line is relatively simple and requires little labor. Maintenance costs are low. Traffic moves freely in one direction at uniform speed without dead weight in comparatively large units. Fire

[1] Association of American Railroads, *Report by Subcommittee on Pipe Line Transport*, p. 93 (1944). See also *Hearings before the Temporary National Economic Committee, Petroleum Industry*, 76th Cong., 2d Sess., part 15, p. 8602 (1940), and Federal Coordinator of Transportation, *Freight Traffic Report*, vol. 2, p. 53 (1935).

[2] Association of American Railroads, *op. cit.*, p. 101.

[3] Tanker traffic declined during the Second World War.

[4] In 1943 there were 132 Class I line-haul railroads, 169 Class II railroads, and 194 Class III railroads. The total number of companies, including lessors, switching and terminal, and proprietary companies was 1,237. Interstate Commerce Commission, *Statistics of Railways in the United States*, 1943, p. 3.

[5] Interstate Commerce Commission, *Statistics of Oil Pipe Line Companies*, 1943, p. 4.

[6] Cf. p. 203.

[7] The relative costs of transporting gasoline and crude oil depend upon several conditions. Factors tending to make the cost of pumping gasoline higher are pipes of less capacity, more refined pumping equipment, and greater corrosion. Factors tending toward lower cost are less friction and less weight per gallon. *Correspondence with the Worthington Pump and Machinery Corporation.*

risks and evaporation losses are at a minimum. And right-of-way expense is not great, the way being narrow, the pipes buried, and the route lying largely in rural areas.

Available evidence indicates that the cost of transporting crude and refined oil by pipe line, including gathering as well as trunk-line movements, varies according to pipe-line load factor from less than half a mill to about half a cent per barrel-mile.[1] Unit costs appear to be slightly less for crude oil than for gasoline, and movement by trunk line is cheaper than by gathering line. Stated in terms comparable with other kinds of traffic, the average cost of crude-oil transportation by pipe lines reporting to the Interstate Commerce Commission in 1939, including taxes and a return on investment of 8 per cent, was 0.236 cent per ton-mile.[2] Corresponding costs for competing types of carriers were Class I railroads, 1.061 cents; tankers, 0.063 cent; and barges, 0.092.[3] Tank-truck costs of 17 carriers operating in Washington and Oregon in 1938 were 2.86 cents per ton-mile.[4] It is apparent that the average cost of transporting crude and refined oil is substantially less by pipe line than by railroad, far less than by tank truck, but considerably more than by tanker.[5] Pipe-line costs of large carriers such as the "Big Inch," when operated near capacity, are much below the average.[6] Careful estimates indicate that the cost of shipping a ton of crude oil from Longview, Tex., to New York City, by the 24-inch line is only one-twelfth as great as by rail. Similarly, the cost of transporting gasoline from Beaumont, Tex., to Linden, N. J., through the 20-inch products line, is one-tenth of the rail cost.

Pipe-line rates are usually from two to four times as low as rail rates.[7] They are higher, however, than rates by tank steamer; and for that

[1] See National Resources Planning Board, *Transportation and National Policy*, p. 468 (1942); also *Hearings before the Temporary National Economic Committee, Petroleum Industry*, 76th Cong., 2d Sess., part 14-A, p. 7796 (1939). Trunk-line operating expenses per barrel-mile of crude and refined oil transported in 1941 by companies reporting to the Interstate Commerce Commission were about two-tenths of a mill. Interstate Commerce Commission, *Statistics of Oil Pipe Line Companies*, 1941, pp. 7, 22–23. Fourteen companies operating crude-oil trunk lines had an average operating expense of 1.2 mills per ton-mile and 12 companies operating gasoline trunk lines had an expense of 3.2 mills per ton-mile. *Ibid.* Also Association of American Railroads, *op. cit.*, p. 18.

[2] Interstate Commerce Commission, *War-built Pipe Lines and the Post-war Transportation of Petroleum*, p. 81 (1944).

[3] The figure for barges included both crude and refined oils.

[4] Interstate Commerce Commission, *op. cit.*, p. 79.

[5] See also statement of Mr. Fayette B. Dow in *Hearings before the Temporary National Economic Committee*, 76th Cong., 2d Sess., part 15, p. 8591 (1940).

[6] Interstate Commerce Commission, *op. cit.*, p. 81*a*.

[7] In 1934 pipe-line rates for all territories were about one-third as high as rates by rail. Federal Coordinator of Transportation, *Freight Traffic Report*, vol. 3, p. 163 (1934). In 1940 the Interstate Commerce Commission found pipe-line rates for the transportation of crude oil to be only 35.72 per cent of the corresponding railroad rates. *243 I. C. C.* 115, 124

reason it pays to pipe oil to Texas ports and reship it in tank vessels to cities along the Atlantic coast, where it is either refined or again reshipped by pipe line to interior refineries. But shipper costs via the Big Inch appear to be less than by the tanker route.[1]

Highways

Motor transportation is highly varied. Passenger carriers may be classified as private automobiles, taxicabs, and busses. Busses, in turn, are divided into revenue and nonrevenue. Revenue busses may be city, intercity, or sightseeing and charter hire. Those operating between cities are generally common carriers. Nonrevenue busses may be school, hotel, industrial, or miscellaneous. Trucks fall into three classes: owner-operated, contract, and common carrier. Some of the carriers are in operation over regular routes, while others go "anywhere for hire." Some carry practically all kinds of commodities, while others are engaged in specialized service.

Counting all classes of carriers, more traffic moves by highway than by all other means of transportation combined.[2] But we are concerned primarily with the revenue, intercity bus and truck, for the business of the other highway carriers is largely local or private in nature.[3] Including only intercity freighting, highways were outranked in 1943 by railroads, waterways, and pipe lines. And, excluding travel by private automobile, highways were outranked in the passenger business by railroads.[4]

It is in the passenger field that the motor vehicle has made its greatest contribution. In 1943 there were in operation on the highways 28,500 revenue, intercity busses.[5] They carried 953,000,000 passengers.[6] Class I common carriers reporting to the Interstate Commerce Commission transported 750,000,000 passengers. This was upward of the number carried

(1940). Since 1933 the trend in pipe-line rates for crude oil appears to have been downward. Gasoline pipe-line rates are higher, though still below rail rates as a rule. An estimate based on fragmentary data shows that on the average pipe-line rates for gasoline in 1940 were 63.17 per cent of rail rates. National Resources Planning Board, *op. cit.*, p. 467.

[1] Interstate Commerce Commission, *War-built Pipe Lines and the Post-war Transportation of Petroleum*, p. 115 (1944).

[2] In 1936 the combined operating expenses, depreciation, and taxes of all highway operations were four times the expenses of the railroads and three-fourths of the expenses of all agencies of transportation. Interstate Commerce Commission, *Immediate Relief for Railroads*, House Document no. 583, 75th Cong., 3d Sess., p. 9 (1938).

[3] Much more than nine-tenths of the passenger mileage is by private automobile, and there are more busses in city than in intercity service. Far more trucks operate locally than in intercity service and it seems probable that less than half the total trucking business is handled by commercial truckers. *182 I. C. C.* 263, 400–407 (1932).

[4] Cf. p. 76.

[5] National Association of Motor Bus Operators, *Bus Facts*, 1943, p. 4.

[6] *Ibid.*

by the railroads, although the average haul of the railroads was longer. The passenger mileage of intercity busses in 1943 was about 31,000,000,000, or 34 per cent of railroad passenger-miles.[1] The typical bus had a capacity of from 25 to 30 passengers.

The motor-vehicle intercity freight traffic is substantial. The service performed in 1943 amounted to 48,000,000,000 ton-miles, or 6.5 per cent of that of the railroads.[2] But in handling l.c.l. traffic, trucks outranked any other means of transportation. Reports to the Federal Coordinator of Transportation as of 1932 showed the volume of merchandise carried by highway between cities to be 40,000,000 tons, or more than twice that transported in rail service.[3] The term "merchandise" included all property transported, except milk, goods shipped in carload lots, and oil and gasoline moving by pipe line. It has been estimated that nearly two-thirds of the traffic formerly handled by rail l.c.l. and express services now moves by highway.

Intercity trucking is more largely on a private or contract basis than the bus business, although accurate figures indicating the distribution of traffic between common, contract, and private carriers are not available. Data have been gathered showing the ownership of trucks stopped on highways, but the information does not segregate intercity from local movements. The great majority of the trucks stopped have been owner-operated, and the next largest number have been operated by contract carriers.[4] Common carriers have represented a small percentage of the movements—doubtless a much smaller percentage than they would have represented had the intercity and local movements been separated. According to the Interstate Commerce Commission, for-hire operators as a class operate 24 per cent of property-carrying vehicles and account for about 50 per cent of the ton-miles of traffic.[5]

Most of the highway freight traffic moves in small units relatively short distances. The capacity of the average intercity truck appears to be about 3 tons, and the average outbound haul of all carload, intercity highway traffic reported by shippers in 1933 was 99 miles.[6] Some hauls

[1] *Annual Report of the Interstate Commerce Commission*, 1944, p. 6.

[2] Cf. p. 74.

[3] Federal Coordinator of Transportation, *Merchandise Traffic Report*, p. 4 (1934).

[4] Bureau of Public Roads, *Report of a Survey of Traffic on the Federal-aid Highway Systems of Eleven Western States* (1930).

[5] Interstate Commerce Commission, *Federal Regulation of the Sizes and Weight of Motor Vehicles*, House Document no. 354, 77th Cong., 1st Sess., p. 21 (1941).

[6] The corresponding water haul was 999 miles, the rail 320 miles. Federal Coordinator of Transportation, *Freight Traffic Report*, vol. 3, p. 50. Eighty-five per cent of all passenger-car trips and 80 per cent of all truck trips are less than 20 miles one way. Public Roads Administration, *op. cit.*, p. 4. For the size of trucks produced see Automobile Manufacturers Association, *Automobile Facts and Figures*, 1942, p. 7. On truck sizes see also Bureau of Public Roads, *op. cit.*

were of course much longer, depending upon the commodity transported. Fresh fruit and vegetables moved an average distance of 435 miles. Occasionally, hauls of 2,500 miles or more occurred. Where railroad rates are relatively high, the truck hauls are likely to be longer. Less-than-truckload shipments are reported to move regularly from New York to the Pacific coast.[1] It should be emphasized, however, that trucking is predominantly short-haul transportation, even though the length of haul has shown a tendency to increase.[2] In 1940 about 42 per cent of truck-miles on all rural roads involved only one county.[3] Over two-thirds involved not more than two counties.

The short average haul indicates that trucking is primarily local. Even the intercity traffic is largely intrastate in character. The Interstate Commerce Commission estimated in 1932 that only about one-fifth of total ton-miles represented interstate movement.[4] The proportion of business that crosses state lines varies widely, of course, with the kind of commodity transported and to some extent according to the type of operator.

Highway freighting concerns are generally much smaller in size than the average railroad company. In 1935 intrastate and interstate truckers operated on the average about 6 trucks, although 2 per cent of the companies had fleets of 100 or more vehicles.[5] The larger carriers owned about one-eighth of all the trucks and received about one-sixth of all the revenue. In 1941 motor carriers with annual revenues of $100,000 or less received 42.7 per cent of the gross revenues of all motor freight carriers reporting to the Interstate Commerce Commission.[6] In 1942 no carrier having gross revenues of as much as $15,000,000 per year was listed, only

[1] Stocker, H. E., *Inherent Advantages of Motor Transportation*, p. 16 (Pamphlet, National Highway Users Conference, 1942).

[2] See *Coordination of Motor Transportation*, Senate Document no. 43, 72d Cong., 1st Sess., pp. 42–43 (1932).

[3] *Public Roads*, vol. 23, p. 231 (July, August, September, 1943).

[4] *182 I. C. C.* 263, 400–407 (1932). From 20 to 25 per cent of intercity common-carrier bus travel was interstate.

[5] Bureau of the Census, *Motor Trucking for Hire*, 1935, p. 11 (1937). The census included only those concerns that derived over 50 per cent of their revenue from trucking for hire. The bus business was conducted on a larger scale. Although less than 2 per cent of the concerns operated 100 or more busses, these companies accounted for about one-fourth of all the busses and handled most of the interstate traffic. *Ibid.*, *Motor Bus Transportation*, 1935, p. 9 (1937).

[6] Interstate Commerce Commission, *Statistics of Class I Motor Carriers*, 1942, p. 3. Class I motor carriers receive annual gross revenues above $100,000, Class II receive from $25,000 to $100,000, and Class III receive less than $25,000. Class I carriers represented in the report included 991 carriers of property engaged preponderantly in intercity service, 129 carriers of property engaged preponderantly in local cartage service, 135 carriers of passengers engaged preponderantly in intercity service, and 51 carriers of passengers engaged primarily in local or suburban service.

two companies had revenues of $10,000,000 or more, and only eight had revenues in excess of $5,000,000.[1]

The larger carriers reporting to the Interstate Commerce Commission in 1942 generally operated over regular routes in scheduled service, although a few lines followed regular routes in nonscheduled service. A considerable number operated over irregular routes in nonradial service, and a smaller number used irregular routes in radial service. More than a fourth of the freight vehicle-miles of carriers engaged preponderantly in intercity service were performed by leased rather than by owned vehicles.

Advantages and Disadvantages of Busses and Trucks

The advantages of the motor vehicle rest fundamentally upon two factors: first, the unit of carriage is small; second, the vehicle is not confined to its own fixed roadway. It can supply service in small loads over public highways to or from practically any point in the country, if necessary from door to door, up steep grades, or over poor roads. The motor vehicle can thus function in an exceptionally flexible and diversified manner, rounding out the other means of transportation, opening up areas untouched by the latter, and offering new services. It has been estimated that there are 54,000 communities, containing 6.8 per cent of the population, which are without railroads and which must therefore depend largely upon the motor vehicle.[2]

The bus finds its greatest field of service where traffic is light, or where flexibility is required. Here it is cheaper than the steam train, is able to change its route more readily, can provide more frequent service, and can load and unload largely according to the convenience of passengers. In hauls of moderate length the bus is therefore an effective competitor of the steam and interurban electric railway. The railroads themselves often use the bus, realizing real economies by substituting bus service for all-rail service on branch lines, or by operating busses in lieu of local trains on main lines. Busses are also frequently advantageous in terminal service and in transportation to off-rail points.

The bus is at a disadvantage where traffic is heavy, both in cost and in speed. Here it must yield to the railway, which operates at a low unit cost when the volume of travel is large and which is ordinarily less obstructed by traffic congestion. The bus also lacks in comfort—an important consideration on long journeys. Bus transportation, moreover, is subject to interruptions and dangers growing out of changes in the weather.

The truck finds its chief field of usefulness in the local movement of

[1] *Ibid.*, pp. 72–78.

[2] Automobile Manufacturers Association, *Automobile Facts and Figures*, 1942, p. 29. Definition of the word "community" was not indicated.

goods to and from farm, factory, store, warehouse, and terminal, where it offers a greater variety of services than any other means of transportation. It has at least five outstanding advantages: First, truck transportation is frequently cheaper than rail, either because railroad rates, loaded with terminal charges, are relatively high for short distances, or because the cost of cartage must be added to the railroad charges. The Federal Coordinator of Transportation estimated cartage costs of merchandise at about 9 cents per 100 pounds at each rail terminus, or 20 per cent of the freight charges.[1] Second, the truck is speedy on the short haul because it eliminates much rehandling[2] and can take the quickest route, especially where carriage is on a contract or private basis.[3] With hand-to-mouth buying, this is a very important consideration. Third, the truck can operate more readily from door to door than other agencies of transportation. Railroads give a completed service in moving cars to and from private sidings, but a substantial portion of their cars are loaded and unloaded on public tracks. Fourth, the truck can supply a comparatively frequent service; it is well adapted to light or special hauls. Fifth, packing requirements are generally less burdensome in trucking than in rail or water shipment, because of differences in handling. This advantage is of great significance in transporting such goods as fresh fruit, vegetables, and household effects.[4]

Shippers reported to the Federal Coordinator of Transportation, in the order of frequency stated, one or more of the following reasons for choosing truck rather than rail transportation: faster service, store-door delivery, cheaper total cost, store-door pickup, more flexible or convenient service, cheaper packing, late acceptance of shipments, simpler classification or rates, less damage to or loss of freight, and personal friendship or interest.[5]

The railroads as well as shippers frequently find trucks to be advantageous. They use trucks for pickup and delivery purposes; for service between stations within a single terminal area; in handling l.c.l. shipments between cities not directly connected by railroad; as substitutes for way-freight trains; to replace trains on unprofitable branches; and in providing service to off-rail points.[6]

[1] Federal Coordinator of Transportation, *Merchandise Traffic Report*, p. 8 (1934).

[2] A less-carload shipment of freight by railroad may require as many as eight transfers, while the same shipment by truck may require only three transfers.

[3] Cf. p. 83.

[4] During the year ending June 30, 1940, the traffic in boxes of citrus fruit moving from Florida was distributed as follows: railroads, 55 per cent; trucks, 25 per cent; and boats, 20 per cent.

[5] Federal Coordinator of Transportation, *op. cit.*, p. 4.

[6] Railroads are reported to have had in service in 1940 a total of 71,706 trucks, exclusive of trucks owned by the Railway Express Agency. These were distributed as follows: 12,891

The disadvantages of the truck are quite similar to those of the bus and need not be itemized. It should be emphasized that truck transportation is generally not cheap in the absolute sense. One authority estimated that 140 five-ton trucks, with a total fuel cost of over $5 per mile, would be required to carry as much as the average freight train, with a train crew of five or six men and a fuel cost of 50 cents per mile.

The 758 Class I motor carriers of property engaged in intercity common-carrier service reported in 1942 an average freight revenue of 3.8 cents per ton-mile, and 118 similar contract carriers reported a revenue of 3 cents.[1] These figures were higher than the average rail revenue.

At present the disadvantages of trucking which are chargeable to the lack of organization in the industry are more pronounced than in any other field of transportation, chiefly because of the small scale of trucking operations. Shippers reported to the Federal Coordinator of Transportation, in the order of frequency stated, the following factors limiting the use of trucks: lack of responsibility, failure to maintain regular schedules, lack of uniform or definite rates, charges too high, pickup or delivery inconvenient, excessive loss or damage.[2] But there is evidence that the relative importance of service disadvantages is decreasing.

Airways

Air transportation is the least important, as regards volume of traffic of all forms of inland transportation. The tonnage of freight carried is negligible, although all-cargo has been established. In 1944 American Airlines instituted such service on a comprehensive basis, offering delivery in Los Angeles on the second morning from New York.[3] Airway passenger traffic is more significant, yet the number of scheduled air-line passengers is less than 1 per cent of railway passengers.

Air carriers handled in 1943 about 52,000,000 ton-miles of mail and express, or less than one-tenth of 1 per cent of all intercity ton-miles of traffic.[4] They performed 1,600,000,000 passenger-miles, or 0.6 per cent of all intercity passenger-miles. A better comparison showed revenue passenger-miles performed in scheduled domestic air service to be over 1 per cent of all passenger travel other than by private automobile and 6 per

in terminal transfer service, 50,704 in store-door delivery service, and 8,111 in intercity service. Stocker, H. E., *op. cit.*, p. 31. Other figures on highway vehicles in railway service are in Interstate Commerce Commission, *Statistics of Railways in the United States*, 1943, p. 34.

[1] Interstate Commerce Commission, *Statistics of Class I Motor Carriers*, 1942, p. 58 (1944). The 127 Class I intercity carriers of passengers reported a revenue of 1.65 cents per intercity passenger-mile. *Ibid.*, p. 90.

[2] Federal Coordinator of Transportation, *op. cit.*, p. 26.

[3] This haul by surface carrier requires from 4 to 9 days.

[4] *Annual Report of the Interstate Commerce Commission*, 1944, p. 6.

cent of railway passenger-miles in parlor and sleeping cars.[1] It is with Pullman service that the air lines compete most actively for passengers.

Judged according to quality rather than quantity, air transportation is much more significant. It is a means whereby passengers can travel long distances in a short time.[2] Even though the cost of service may be high, the saving in time frequently more than offsets the expense. It is also a means for the rapid handling of articles of light weight and considerable value, such as general mail, documents and securities, advertising matter, films, urgently needed machinery, and clothing.[3] Express is handled jointly with the Railway Express Agency. With the development of more capacious cargo planes, rates can be reduced, and the volume of general merchandise may become important.

Advantages and Disadvantages of Air Transportation

The primary advantage of air transportation is speed. Planes on important routes now cruise at about 200 miles per hour. They make the trip from Los Angeles to New York in about 14 hours and from Chicago to New York in less than 4 hours. A railroad journey from Los Angeles to New York takes approximately 56 hours. The saving in over-all time of course becomes less as distance decreases, because of the time required in traveling to and from the airports, which cannot easily be located within the heart of the cities. A second advantage of air transportation is its freedom from topographical obstructions. Though landing fields and marked routes are necessary, the air carrier is spared the expense of a track, can fly on a direct line, and can reach inaccessible places.[4] In equatorial Africa the plane has preceded the railroad. A third advantage of air service is its convenience. The airplane is a small unit in comparison with a train or a ship, thus making it easier to schedule trips as needed.

The great disadvantage of air transportation is that not much weight can be transported per vehicle. This means that the unit cost of service is high. In 1943 the operating cost per seat-mile of all lines in the United States was about 4.7 cents and the cost per revenue-passenger-mile was nearly 6 cents.[5] The average fare per passenger-mile in 1943 was not much

[1] Interstate Commerce Commission, *Statistics of Railways in the United States*, 1943, p. 45.

[2] It is somewhat surprising to note that the median journey is only about 250 miles and that the average is less than 500 miles.

[3] On air express see McMillen, W. L., "Air Express Service in the United States," *Journal of Land and Public Utility Economics*, vol. 11, pp. 266–277, 368–380 (1935); vol. 12, pp. 70–79 (1936). Not much information is available on passenger traffic.

[4] Experiments are being made with the pickup and delivery of mail and express without landings.

[5] Civil Aeronautics Board, *Annual Report*, 1943, p. 29. The Federal Aviation Commission stated in 1935 that where the largest and most modern craft are employed, oper-

more than 5 cents; in 1945 fares were generally reduced by about 25 per cent, but rates did not reflect the true cost of service.

Ton-mile costs as high as 40 cents or more have not been unusual, and the rates charged by Air Cargo have been 30 cents per ton-mile. Even with complete utilization of capacity, the cost of freight service is so excessive that air carriers can compete successfully with land carriers only where speed is the ruling consideration.

A second disadvantage of air transportation is its high degree of risk. During the 11 years, 1930 to 1940, the average number of passenger-miles per passenger fatality by railroad was 487,000,000, while the average number by scheduled air line was 20,000,000.[1] In other words, the railroad was 24 times as safe. Nonscheduled flying was of course still riskier.[2] Though the safety record has steadily improved, weather, terrain, defects of vehicles, and mistakes by personnel offer great obstacles to safe navigation.

A third disadvantage of air transportation—a corollary of the second—is lack of reliability. On the average about 10 per cent of the scheduled trips are never begun, and of those begun a considerable number are not completed, usually because of unfavorable weather. A fourth disadvantage is lack of comfort, either because of restricted space, noise, or air sickness. These defects can be remedied to some extent, but the possibilities appear to be less than for surface carriers.

The Transportation System as a Unit

There are five major forms of intercity transportation, many thousands of truckers, over a thousand bus companies, about five hundred operating railroads, a great number of water carriers, seventy-odd pipe lines, and some two dozen air lines.[3] These agencies and carriers constitute what is popularly called our "domestic transportation system." It is only proximately correct, however, to speak of it as a *system*, for the

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ating costs (not including overhead) range from 55 to 75 cents per mile flown, according to the frequency of schedule.

[1] Computed from Interstate Commerce Commission, *Statistics of Railways in the United States*, and from Civil Aeronautics Administration, *Progress of Civil Aeronautics in the United States*.

[2] According to the National Safety Council, in 1936 for every billion passenger-miles the railroads killed 1 passenger; automobiles, 45; scheduled planes, 101; and nonscheduled planes, 1,622. The highway death rate was only roughly estimated.

[3] The motor-truck census of 1925 listed 61,216 truckers, the bus census 1,751 concerns. In 1943 there were 132 Class I railroads. The number of roads of Classes II and III in 1943, excluding switching and terminal companies, was 363. The total number of companies owning railroads exceeds 1200. The number of water lines reporting to the Interstate Commerce Commission in 1943 was 294, but these represented only a portion of the total number of carriers, especially if private operators are included.

various carriers and industries are not fully coordinated. Complete coordination would mean that each separate carrier and each transport industry functions where it is best suited, and that adequate arrangements have been made for the interchange of traffic between individual carriers and between the various transport industries. Nevertheless, in a considerable degree the carriers are coordinated, and a brief summary of what they do and how they work together will indicate the nature of an effective over-all transportation service.

Although much traffic is competitive, each means of transportation occupies to some extent a distinct field of service. As to agencies of different types, the foregoing discussion has indicated the following: railroads handle the bulk of the high- and medium-grade traffic when transported on a large scale; waterways take the low-grade cargo traffic within practical reach of their lines; highways receive the local, the l.c.l., and certain special kinds of traffic; pipe lines control the petroleum traffic; and airways handle the traffic of highest grade and speed. As to carriers of the same type, each provides the transportation dependent upon its lines, according to location or other advantage to the shipper.

Service may be local or interline. A large portion of all hauling is local and confined to the lines of one carrier; but an increasing volume is interline. Transportation tends to assume a national aspect; for specialization and large-scale production mean longer hauls, and longer hauls involve a larger number of carriers, either of similar or dissimilar type. Consider the railroads. Though most of their passengers are local, three-fourths of their carload car-miles represents exchanges with other railroads.[1] A growing fraction of the through traffic also moves part of the way by water, highway, or pipe line. Some even goes by air. As for water carriers, only about one-third of their tonnage is port-to-port traffic. It is usually only through interchanges between water and rail carriers, or between water and pipe lines, or between water and highways, that water transportation can exist. More than half the Mississippi River traffic, half that along the Atlantic coast, and five-sixths of that of common carriers on the Great Lakes were interchanged in 1932 with railroads. Much pipeline commerce also moves jointly. Of the total number of barrels of crude and refined oil received into pipe-line systems in 1943, over a third came from connecting carriers.[2] Highway traffic is as yet preponderantly local in nature, but the amount interchanged with rail, pipe-line, and water carriers is increasing and will continue to increase as the various agencies of transportation are more perfectly coordinated. Air service is even less localized than rail.

[1] Federal Coordinator of Transportation, *Freight Traffic Report*, vol. 2, p. 61 (1935).
[2] Interstate Commerce Commission, *Statistics of Oil Pipe Line Companies*, 1943, p. 4.

Through movement is accomplished by means of physical facilities and cooperative agreements. Physical facilities consist primarily of terminal instruments and interchangeable carrying units. Terminals include warehouses, loading and unloading machinery, track connections, and other devices required for joint service. Interchangeable equipment, made possible by standardization of track gauge and coupling devices, embraces railroad cars, portable containers, and rail cars powered by trucks. These expedite movement from railroad to railroad and from railroad to highway. Where car ferries are operated, traffic may also move between railroad and waterway without breaking cargo.

Cooperative agreements cover through routes and joint rates. These make long-distance shipments cheaper and safer. There are still other ways, of course, in which coordinated transportation is promoted; in a sense, all intercarrier relations have a bearing upon the problem. But our purpose at this point is merely to indicate how the various carriers function as a whole. It is when they operate as a unit that shippers and travelers realize the best service at the cheapest rates over the broadest areas. More will be said on the subject of coordination in Chap. XVIII.

REFERENCES

The material on the subject matter of this chapter, especially transport services, is voluminous. Much information may be found in the textbook references on particular forms of transportation cited at the end of the preceding chapter. Other references are as follows:

The transportation systems of all modes of transportation are considered together in National Resources Planning Board, *Transportation and National Policy*, part I, sec. I (1942), which includes charts indicating traffic density. Transportation routes and traffic movements are analyzed at length in Daggett, Stuart, *Principles of Inland Transportation*, Chaps. I, 7–11 (1941). Transportation services of all types of transportation are emphasized in Johnson, E. R., Huebner, G. G., and Wilson, G. L., *Transportation* (1940).

Railroad systems and groupings of railways are described in Haney, L. H., *The Business of Railway Transportation* (1924); Johnson, E. R., and Van Metre, T. W., *Principles of Railroad Transportation*, Chap. 6 (1924); Locklin, D. P., *Economics of Transportation*, Chap. 4 (1938); and Van Metre, T. W., *Transportation in the United States*, Chap. 5 (1939). Interesting technical information on the railroad system and services may be found in Parmelee, J. H., *The Modern Railway*, Chaps. 4–6 (1940). Railroad routes and services are also described in Huebner, G. G., and Johnson, E. R., *The Railroad Freight Service* (1926); Johnson, Huebner, and Wilson, *op. cit.*, Chaps. 2–8, 12–14; and Miller S. L., *Inland Transportation*, Chaps. 16–23 (1933). Passenger transportation is specially considered in Sorrell, L. C., *Passenger Transport in the United States* (1944). The railroad-freight and passenger-traffic problem is thoroughly analyzed in Federal Coordinator of Transportation, *Freight Traffic Report* (1935), *Merchandise Traffic Report* (1934), and *Passenger Traffic Report* (1935).

Water-transport routes and services are separately treated in Daggett, *op. cit.*, Chap. 7; Johnson, E. R., Huebner, G. G., and Henry, A. K., *Transportation*

by Water, Chaps. 5–6, 9 (1935); and Johnson, Huebner, and Wilson, *op. cit.*, Chaps. 28–29.

Data on pipe-line transportation are available in Association of American Railroads, *Report by Subcommittee on Pipe Line Transport* (1944); Bowie, C. P., *Transportation of Gasoline by Pipe Line*, United States Department of Commerce, Bureau of Mines, Technical Paper 517 (1932); *Hearings before the Temporary National Economic Committee, Petroleum Industry*, 76th Cong., 2nd Sess., part 15 (1940); and Pogue, J. E., *Economics of the Petroleum Industry* (1939).

Highway routes and services are described in Edwards, F. K., *Principles of Motor Transportation*, Chaps. 2–3 (1933); Johnson, Huebner, and Wilson, *op. cit.*, Chaps. 46–47 and Stocker, H. E., *Motor Traffic Management*, Chap. 2 (1938).

Airway systems and services are considered at length in Frederick, J. H., *Commercial Air Transportation*, Chaps. 2–6 (1942). See also Johnson, Huebner, and Wilson, *op. cit.*, Chaps. 22–24.

Leading sources of statistical information include the following periodic publications: Aeronautical Chamber of Commerce of America, *Aircraft Yearbook;* Air Transport Association of America, *Air Transport Industry;* American Petroleum Institute, *Petroleum Facts and Figures;* American Trucking Association, *Transport Topics; Annual Reports of the Chief of Engineers of the United States Army;* Automobile Manufacturers Association, *Automobile Facts and Figures;* Bureau of Railway Economics, *A Review of Railway Operations;* Civil Aeronautics Authority, *Civil Aeronautics Journal;* Civil Aeronautics Board, *Annual Airline Statistics, Annual Reports;* Eastern Railroad Presidents Conference, *A Yearbook of Railroad Information;* Interstate Commerce Commission, *Annual Reports, Selected Financial and Operating Statistics from Annual Reports of Carriers by Water, Statistics of Class I Motor Carriers, Statistics of Oil Pipe Line Companies,* and *Statistics of Railways in the United States;* National Association of Motor Bus Operators, *Bus Facts;* Public Roads Administration, *Public Roads;* Simmons-Boardman Publishing Corporation, *Railway Age;* Traffic Publishing Company, *The Motor Traffic Red Book;* and Traffic Service Corporation, *Traffic World.*

The best summary of past and future traffic trends of all types of carriers is Interstate Commerce Commission, *Post-war Traffic Levels* (1944).

CHAPTER FOUR

Transportation Costs: Monopoly and Competition

THE two preceding chapters indicated in a general way for each mode of transportation the development, location, and character of facilities; the number and types of operators; the relative cost, speed, safety, and convenience of service; the volume and distribution of freight and passenger traffic; the kinds of commodities handled; and the average size and length of hauls. This chapter explains the behavior of costs in each industry and the effects of such behavior upon business organization and pricing methods.

Railroads

The starting point in the analysis of railroad costs is the huge investment in roadbed, track, rolling stock, stations, and the like. Few industries require a capital outlay as great as the railroads, either in the aggregate or in proportion to the volume of business. In 1943 the railroad companies of the United States reported to the Interstate Commerce Commission a "book cost" of road and equipment in excess of $26,000,000,000.[1] This was equivalent to more than $115,000 per mile of road. An ordinary merchant requires an investment of 10 or 20 cents to produce a dollar of annual gross receipts, and the typical manufacturing concern needs about 70 cents; but the railroads must invest on the average $4 or $5 for each dollar of receipts. "A railroad system is a highly capitalistic enterprise even in a capitalistic era."[2] It pays to produce on a large scale.[3]

The great cost of road and equipment gives to railway expenses in the short run two significant characteristics:[4] First, the expenses are largely independent of the actual traffic; that is, the amount of expense is deter-

[1] *Annual Report of the Interstate Commerce Commission*, 1944, p. 126.

[2] Brown, H. G., *Transportation Rates and Their Regulation*, p. 12 (1921).

[3] Cf. p. 324.

[4] The short run is a period of time during which the scale of plant remains unchanged. In terms of the calendar, it would usually be a relatively brief period if no change whatever be assumed.

mined in substantial degree by the capacity rather than by the use of the plant. Second, the expenses cannot all be scientifically allocated to particular hauls. Only the cost that varies with a given haul is caused thereby and can be assigned thereto.

Constant Cost

The first feature is usually expressed by saying that railroad expenses are for the most part constant, as contrasted with variable. When constant, an expense remains unchanged in amount regardless of increases or decreases in traffic. When variable, an expense changes according to traffic, either in proportion, more than in proportion, or less than in proportion to the change in traffic. To make these concepts clear, assume any given increase in the traffic of a railroad, say 15 per cent. If costs were altogether constant, the increase in total expenses would be zero; if costs varied in proportion to traffic, the increase would be 15 per cent. But if costs were partly constant, partly variable, total expenses would increase, though not in proportion to traffic. The amount of the increase in aggregate cost would depend upon the degree of constancy or variability. An estimate frequently made is that railroad expenses are about two-thirds constant, one-third variable. This does not mean that the expenses of a railroad can be divided into constant and variable categories and that the constant expenses are two-thirds of the aggregate regardless of the volume of traffic. Obviously, if the sum denoting the constant expenses were two-thirds of the total before an increase in business, it would be mathematically impossible, since the total would be larger, for the sum to be two-thirds of all the expenses after the increase. What is implied is that the expenses vary *as if* they were two-thirds constant. In other words, costs vary about one-third as much as business, so that a 15 per cent increase in traffic would cause total expenses to increase only one-third of 15 per cent, or 5 per cent. Similarly, a given decrease in traffic would not produce a corresponding decrease in expenses.

The constancy of railroad costs can be explained by considering in detail the different classes of railway expenditures as grouped by the Interstate Commerce Commission. The two primary classes are fixed charges and operating expenses.[1] The principal item among the fixed charges is interest on the funded debt. Other subclasses are rentals on leased property and various minor deductions from revenue. Of all railway expenditures, the fixed charges, which amount to between 20 and 30 per cent of total expenses, are the least variable in the short run. Once an adequate

[1] Fixed charges are not to be confused with constant or fixed expenses. Fixed charges constitute the minimum below which earnings may not drop for long periods without causing financial failure.

plant has been constructed, they vary scarcely at all with moderate changes in traffic.[1] Interest on debt must be paid when due, whether traffic is large or small, and it cannot be quickly increased or decreased. Why is plant not more closely adjusted to traffic, so that the fixed charges will parallel business?[2] There are several reasons: First, the very nature of a railroad tends toward excess facilities. The plant must expand by large units; any capacity means great capacity. A track is required if only one train is to be operated, yet the track is capable of accommodating many trains.[3] Three-track roads can handle in a year thousands of trains. And once constructed, the plant remains in existence for long periods of time; for it wears out slowly and will normally be operated even though traffic does not produce revenues sufficient to cover the full cost of service. Permanency is enhanced by the public character of the business. Under certain conditions, abandonment of losing lines may not be permitted. Second, railroads have been built in advance of demand. The builders worked with an eye toward the future, relying for profits upon the gradual development of the territory served. In this they were encouraged by public aid and influenced by speculative activity. Promoted under competitive conditions without regulation, too rapid expansion was almost inevitable. There was no direct control of construction by the federal government until 1920. Although building declined after 1910, the check did not come before capacity for an indefinite future had developed in many sections of the country. Third,

[1] In one sense, the normal return on the capital sunk in a railroad may be regarded as constant, even if it takes the form of dividends on stock. However, earnings on the equity of stockholders do not remain fixed as business grows, but increase more than in proportion to added traffic.

[2] Definite estimates of the extent of plant utilization have been made for 1929. On the basis of 60 freight trains per day running 300 days a year on a single track, each moving 1,000 tons, the theoretical track capacity of the railroads of the country in 1929 is said to have been ten times the actual traffic. Allowing for the uneven distribution of hauling on different roads and for seasonal variation, the practical carrying ability was at least twice as great as the business; that is, the track was not used to more than 50 per cent of capacity. Neither were cars fully utilized. With computations based on the size, loading, and speed of cars, and after making allowances for empty movement, time in loading and unloading, and seasonal variations, freight cars were utilized at not over 70 per cent of reasonable capacity. Only 21 per cent of the available space of passenger cars was occupied. The amount of unused locomotive power was considerably greater than that of freight cars; for a larger percentage of locomotives than cars are normally idle, and engines often draw much lighter trains than they could draw. Locomotives were therefore employed at about one-third of potentiality. Utilized terminal capacity was estimated at 70 or 75 per cent. These figures were, of course, averages for the country as a whole. Nourse, E. G., and Associates, *America's Capacity to Produce*, pp. 351–356 (1934).

[3] It has been estimated that under modern conditions a single-track road can carry efficiently 60 trains per day, one-fourth for passengers and the remainder for freight. *Ibid.*, p. 351. Much track would of course have to be improved to accommodate 60 trains per day.

technical progress has outdistanced traffic, especially since 1922. The railroads have improved their existing roadways and structures, purchased modernized rolling stock, and increased the efficiency of operations generally.[1] With the return of the railroads to private operation after the First World War, managements wished to avoid a repetition of the war experience, when the carriers were unable to handle the traffic. The Transportation Act of 1920 held out promise of a return on investment, and the money market was favorable to the flotation of securities. Fourth, competitive means of transportation have expanded. The total investment in waterways, highways, pipe lines, and airways has reached large proportions. These forms of transportation have created new business, yet they have also diverted traffic from the railroads.[2] Diversion to private carriers has been especially serious. Fifth, certain factors have tended to reduce the demand for transportation as such. Among the forces decreasing the demand for freight service are the decline in the rate of growth of population, the diminished volume of foreign trade, the development of high-tension electric-power transmission, the movement of factories toward the sources of raw materials, and economies in the use of fuel and by-products. Forces reducing the demand for passenger service are the downward trend in the rate of growth of population and the improvement of communication. It is possible that the perfection of television will check the demand for travel.[3]

Operating expenses cover the outlays necessary in conducting business. They are now divided by the Commission into five major groups: maintenance of way and structures, maintenance of equipment, traffic, transportation, and general.[4] Like the fixed charges, many of the operating expenses are largely independent of traffic. Take maintenance of way and structures. As the name implies, this group includes the expenditures necessary in keeping the roadway and structures—ties, rails, bridges, stations, signals, and shops—in fit condition for the operation of trains. The largest single subclass is track laying and surfacing. Although this expense varies to some extent as traffic increases or decreases, the variation is by no means in proportion to traffic. A considerable part of the

[1] Cf. p. 36.

[2] Cf. p. 77.

[3] The Executive Committee of the Association of American Railroads stated in 1939 that the railroads as a whole could immediately handle a minimum of 25 per cent more than existing tonnage; that with the repair of equipment on hand they could handle 50 per cent more; and that any increase beyond 50 per cent could be met through purchase of new cars and locomotives. See Committee on Public Relations of the Eastern Railroads, *Railroad Data*, vol. 18, no. 19, p. 39 (Sept. 15, 1939). During the Second World War the capacity of the railroad plant was of course sorely taxed, largely because of equipment and labor shortages.

[4] We omit miscellaneous operations and transportation for investment.

outlay is occasioned by climatic conditions. Another large item is tie renewal. Here the relation to the volume of business is even more remote, for ties rot out rather than wear out. Rail maintenance is somewhat similar, for rails rust. Rail expense varies more nearly with traffic, however, because of the increased wear resulting from added runs or heavier trains. Maintenance of bridges, trestles, and culverts is also affected by volume of traffic, though the influence of the weather is probably greater. Maintenance of stations, office buildings, or shops, and superintendence, have practically no connection with moderate fluctuations in traffic. Other subdivisions under the heading of maintenance of way and structures need not be dealt with separately. All told, it is evident that the expenditures for maintenance of way and structures are largely constant. During dull times the railroads frequently defer much of their outlay for maintenance until business is good, thereby giving a semblance of variability to the expenditures; but the variation is often more apparent than real, for much of the cost has actually been incurred and is properly chargeable to the period in which it accrues.

Expenditures for maintenance of equipment show similar characteristics, though the relation to traffic is somewhat closer than in the case of maintenance of way and structures. The chief element of cost—repairs and renewals of locomotives and cars—is definitely affected by the volume of traffic, for usage means wear and therefore repairs. Wear and tear are almost as great, however, when rolling stock is moving with a light load as when fully loaded. And obsolescence is a function of technical progress rather than of traffic. As a group, therefore, the expenses for maintenance of equipment do not vary in exact proportion to traffic.

Traffic expense refers to outlays connected with the solicitation of business, such as the maintenance of ticket agencies and advertising. These costs exhibit the same tendency toward constancy. When business is poor, advertising may be curtailed, the work of traffic associations may be cut down, and the activities of ticket agencies may be reduced; but much of the cost of traffic superintendence will go on, and the need for developing additional business may be greater than during prosperous times. At least some traffic expenses must be incurred regardless of the volume of shipping, if an effective organization is to be maintained.

Transportation expense is the most important of the categories of operating costs. Since transportation expenditures relate directly to the actual movement of freight and passengers, it might be assumed that they vary closely with the traffic. Analysis shows, however, that they are in considerable degree constant. The principal item is wages for train crews and station employees, and the second largest expense is fuel. Over short periods the wage bill remains relatively fixed. Unless traffic is unusually heavy and more than the normal number of trains is required, the regular

force of trainmen, enginemen, and station employees can handle the business. Within broad limits, variations in the volume of traffic can be met by better loading or longer trains, without much change in the wage bill. Constancy in labor cost is enhanced by the strongly organized trade-unions in the railroad industry which endeavor by wage agreements and working rules to stabilize the earnings of employees. Fuel expenditures are more variable, though by no means directly so. Heavier trains and faster schedules mean more powerful locomotives and greater fuel consumption; but much fuel is used in starting, and by idle yard and pusher engines, which must be held ready for service. The fact that not all fuel produces movement largely explains why the railroad companies devote a great deal of study (with commendable success) to means of reducing the fuel bill.

The last of the five groups of operating expenditures is known as general expense, which includes salaries and costs of administrative officers and clerks, pensions, fees for lawyers, and other outlays incurred on behalf of the property as a whole. Since a working organization must be kept intact to handle the business affairs of the corporation, whether the traffic is large or small, it is evident that the general expenses are practically all constant. Only under circumstances of unusual and sustained prosperity, or of prolonged depression, would these expenditures show much variation.

Summarizing, most of the fixed charges and many of the operating expenses are constant. If this is true, total expenses are in large degree constant. Authorities estimate the degree of constancy at from one-half to two-thirds.[1] It should be emphasized, however, that these figures are averages. The expenses of railroads with dense traffic tend to be more variable, while those of light-traffic lines change less.[2] It should also be understood that expenses remain largely constant only in the short run. In the long run most costs are variable; for all except outlays irrevocably "sunk" are adjusted from time to time to the volume of business.[3] So far as capital costs are concerned, an increase in traffic will necessitate enlargement of track, equipment, and terminal facilities, or capital expenditures designed to reduce operating expenses. A decrease in traffic may result in the abandonment of lines, closing of yards, razing or lease of

[1] Acworth, W. M., *The Elements of Railway Economics*, p. 55 (1924); Jones, Eliot, *Principles of Railway Transportation*, p. 78 (1924); and Ripley, W. Z., *Railroads: Rates and Regulation*, p. 55 (1912).

[2] Interstate Commerce Commission, Bureau of Transport Economics and Statistics, *Territorial Rail Costs Based on a Separation of the Out-of-pocket and Constant Expenses*, p. 56 (1942).

[3] It is possible that the degree of constancy is greater when traffic increases than when it decreases. See Williams, E. W., "Railroad Traffic and Costs," *American Economic Review*, vol. 33, pp. 360–365 (June, 1943).

buildings, and failure to replace rolling stock. Reorganization may reduce the fixed charges. So far as operating expenses are concerned, an increase or decrease in traffic will require corresponding changes in the working force, or in the standards of service. For these reasons, railroad expenses are said by some authorities to be considerably less than two-thirds constant during a reasonably long period.[1] According to the Bureau of Statistics of the Interstate Commerce Commission, 80 per cent of the total operating expenses, rents, and taxes vary with the traffic.[2]

Common or Nonassignable Costs

The second significant feature of railway expenses relates to the apportionment rather than to the variation of costs. Looked at from this point of view, costs may be designated as "common" or "special." They are common when incurred on behalf of the business as a whole, and they are special when incurred on behalf of a particular service or class of service. Other names for the word common are "general," "indirect," "overhead," and "supplementary"; while corresponding designations for the term special are "particular," "direct," "out-of-pocket," and "prime." Common costs are also sometimes called "joint costs" or "constant costs"; but we prefer to use the terms "joint" and "constant" in a different way. In economic theory, joint cost generally refers to a situation where the production of one good always leads to the production of another good, as in the case of wool and mutton. Constant cost refers to a situation where total costs increase more slowly than output.

Railway transportation is not a business of joint cost like the production of wool and mutton, notwithstanding the fact that railroads provide at a given time capacity for a wide variety of services constituting in effect many different products. The production of wool and mutton is *inevitably* a case of joint cost, within the limits of product variability, because when wool is grown mutton is grown; whereas the transport of lumber does not *necessarily* occasion the transport of corn. Were the traffic in the better paying commodity sufficient to utilize the plant at maximum efficiency, a railroad could and would forego the hauling of the other. In such case there would be no joint costs, except in connection with forward hauls and back hauls. It may be objected that railroads seldom handle only one item and that there are costs that cannot be allocated to particular services, as in the instance of wool and mutton. Although this objection is valid, it nevertheless seems preferable to refer

[1] Daniels, W. M., *The Price of Transportation Service*, p. 70 (1932); and Healy, K. T., *The Economics of Transportation*, pp. 196–197 (1940).

[2] Interstate Commerce Commission, Bureau of Statistics, *Railroad Freight Service Costs in the Various Rate Territories*, p. 81 (1941).

to such costs as common and to reserve the term "joint" cost for the special situation spoken of in economic theory.[1]

It is also logical to distinguish between common costs and constant costs. The classification of costs as common and special is for the purpose of tracing the responsibility for expenses to particular services, while the classification of costs as constant and variable is for the purpose of tracing the effect of variations in the volume of traffic. The first classification is used to explain the extent to which differences in rates are reasonable; the second to explain and justify discrimination as such.

The definition of constant costs as those independent of traffic, and common costs as those incurred on behalf of the business as a whole, indicates the distinction between the two. An expense such as interest on bonds is usually a constant expense; for in the short run it remains the same regardless of variations either in the kind or volume of traffic. Yet the interest might or might not be a common expense. If incurred for right of way, it would probably be common; if incurred for a passenger station, it would be special to the passenger business, as distinguished from the freight. If the carrier provided only one variety of service, there would of course be no point in employing the concept of common costs. The term is meaningless except with reference to services of different nature and would not be synonymous with constant cost unless expressed in terms of the same unit.

Railway costs are largely common as well as constant. The full employment of a railroad in transporting solid train loads of a single good rarely if ever happens, even in the case of somewhat specialized carriers. Some authorities hold that no less than half the total cost of furnishing railroad transportation is incurred jointly for the freight and the passenger business.[2] The return on investment and general expenses are almost entirely common costs. Much the same is true of maintenance of way, for the track must be made safe for both types of service. Passenger traffic may require a higher standard of maintenance than freight; but once that standard is established, the costs cannot be directly allocated to either. On the other hand, maintenance of equipment and traffic expenses are more largely special, because the rolling stock for each class of service is usually specialized, and the soliciting personnel is ordinarily distinct. Transportation expense is partly common, partly special. The costs of dispatching, signal operation, and superintendence are common, while the

[1] The question of joint cost in transportation was thoroughly discussed by Profs. A. C. Pigou and F. W. Taussig in the *Quarterly Journal of Economics*, vol. 27, pp. 378–384, 535–538, 687–694 (1913). For a review of the discussion see Locklin, D. P., "The Literature of Railway Rate Theory," *Quarterly Journal of Economics*, vol. 47, pp. 167–230 (February, 1933).

[2] Vanderblue, H. B., and Burgess, K. F., *Railroads: Rates, Service, Management*, p. 87 (1924).

costs on the line tend to be special. It is impracticable and unnecessary for our purposes to divide railway expenses into common and special categories with reference to individual services. The analysis given is sufficient to show that railway costs cannot be allocated to particular hauls except arbitrarily. As will appear later, this fact is of great significance in the determination of rates.

Partial Monopoly

A railroad is usually a partial monopoly. Monopoly results from the absence of competition either with other railroads or with alternative means of transportation. The point may be clarified by an illustration. Let *X* and *Y* be two railroads, *X* serving the points *A*, *B*, *E;* and *Y* serving the points *B*, *C*, *D*, *E*.

Since shippers at *B* and *E* have the choice of two routes, traffic between these points will be competitive, assuming that the railroads

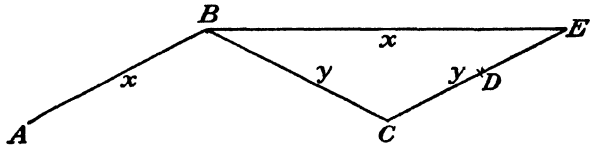

FIG. 17.—Competitive and monopolistic hauls.

actually compete. On the other hand, traffic from *B* to *C*, *E* to *D*, or between *C* and *D*, will be monopolistic, for there is no option of carriers. Traffic from *C* to *B* will be semimonopolistic. Only one railroad operates between *C* and *B*, but goods can move into *B* either over railroad *Y* from *C* or over railroad *X* from *A*. If rates from *C* are too high, consignees at *B* will buy from *A* instead of *C*. Rates on traffic from *C* to *B* could not exceed the selling price in *A* plus the cost of transportation from *A* to *B*.

Many locations in the United States are situated like *C* and *D*. Virtually all the large cities and numerous small ones are served by two or more lines, but even these places may not enjoy the advantages of actual competition. The railroads may enter into rate agreements, pools, community of interest, or mere cooperative rate making.[1] Classification committees and traffic associations tend in the direction of monopoly, to say nothing of formal combination.[2]

It may be objected that monopolistic rates cannot be charged on noncompetitive traffic, on the ground that other railroads will be built to

[1] Cf. Chap. XX.

[2] We do not mean to imply that traffic associations should be abolished. They perform a useful function in stabilizing rates, but one association has recently been sued by the Department of Justice as a violator of the Sherman Antitrust Act. As suggested in Chap. XXIV, rate bureaus should be subject to regulation by the Interstate Commerce Commission.

participate in the highly profitable business. But there may be a scarcity of railroad sites. The existing carrier may occupy the only feasible route or control the one practicable terminal area. Even though these obstacles are not present, the potential traffic may justify no more than a single railroad. Where one road operates at a profit, two can fail to meet operating expenses. Should a company be willing to risk the construction of competing lines, the regulatory authorities may not deem the additional facilities to be in the public interest. Potential railroad competition is thus largely ineffective.

Competing types of carriers limit the monopoly power of the railroads but do not entirely eliminate it. Water competition is confined primarily to low-grade traffic and to restricted locations. Motor-vehicle competition is more effective and has gone far in destroying railroad monopoly; but here, again, competition is by no means perfect. Railroads still occupy a semimonopolistic position with respect to the long-distance traffic in basic commodities, for rail rates on this business are usually too low for motor carriers. Motor competition is effective only within broad limits, and it varies widely in significance according to the type of traffic.

We conclude that some railroad traffic is monopolistic, some is semimonopolistic, and some is competitive. Exactly what portion is monopolistic or semimonopolistic is impossible to determine, but the noncompetitive business is substantial. The maintenance of discriminatory charges is evidence thereof. As the railroads combine, monopoly may be strengthened, and rail competition may be confined primarily to certain favored locations which enjoy service from two or more railroad systems.

Discrimination

An important consequence of the large overhead expenses, idle capacity, and partial monopoly of the railroads, is discrimination, which may be defined as a difference in rates not justified by a difference in the cost of service. It would not necessarily be discrimination to quote a lower rate on carload lots than on less-than-carload lots, on coal than on fresh fruit, on slow freight than on fast freight, or on traffic from Chicago to St. Louis than on traffic from Chicago to New York. In all these cases the cost would be different. Terminal charges are relatively greater for less-than-carload shipments; fresh fruit requires expensive special equipment; fast trains necessitate the sidetracking of other trains; and it takes more labor and fuel to transport a given quantity of goods from Chicago to New York. To the extent that rates merely reflect such differences in cost, there is no discrimination.

Discrimination is of three principal types: commodity, local, and personal. Examples are cited in Chaps. XIV to XVI. It is common knowledge that the rates on some commodities are higher than on others when

the cost of transportation is about the same. It is also well known that rates between places frequently ignore or partly ignore distance. Such departures from cost are generally to be explained simply by the fact that particular commodities and hauls vary in ability to bear rates. But differentiation on the basis of what the traffic will bear constitutes monopolistic charging and is defensible only within certain limits. An important function of regulation is to prescribe the limits.

How is it that the railroads can discriminate in rates, when throughout competitive industry generally the prices of goods tend to be fixed at cost?[1] One explanation is based upon the assumption that railroad transportation is rendered under conditions of joint cost. If this assumption were valid, rates would vary by more than differences in special costs for the same reason that the prices of wool and mutton so vary. But not all services are provided at joint cost; hence, another explanation of discrimination is needed. This is to be found in the fact that railway traffic is partly monopolistic.[2] If all railroad services were really competitive, the rates on particular hauls would probably be identical except for differences in the cost of service. On account of the large volume of constant expenses, competition for the higher rated traffic would tend to bring rates down to the level of special costs.

Discrimination is also made possible by the independence of demand prices. Shippers do not purchase wheat transportation instead of shoe transportation merely because the rate for the latter is higher than for the former; nor do they necessarily ship from *A* to *B* rather than from *A* to *C* on account of an advantage in rates. If demand prices were not independent, there could be no discrimination, for shippers would always buy the lower priced service. They would do this regardless of competition among the sellers; hence, discrimination would be impossible even though a railroad had a monopoly. Some services, of course, are interdependent and are therefore affected by rate relationships. Insofar as two commodities are competitive, a high rate on one may raise its price, reduce the quantity bought, and destroy the traffic, while having the opposite effects on the other good. High rates on a raw material and low rates on a related finished product sometimes cause industry to locate near the source of supply. Transportation of the raw material ceases, while the movement of the finished product is stimulated. If a common market is supplied from two rival producing centers, relatively high rates from one center may increase the traffic from the other.

The aforesaid factors explain why the railroads can discriminate, but they do not explain the motive for discrimination. The motive, of course, is profit. Discrimination makes possible more revenue without a corre-

[1] To this statement there is an exception in the case of articles produced at joint cost.

[2] See Pigou, A. C., *The Economics of Welfare*, part 2, Chaps. 14–15 (1920).

sponding increase in cost. Costs do not rise proportionately because they are largely constant. It would pay better if all the business could be obtained at high rates; but the highest rates cannot always be charged, on account of differences in the demand for service. If all goods were charged high rates or if rates were based strictly on distance, the volume of traffic would be smaller; hence, the railroads would lose the contribution of the low-rated business to the overhead expenses. So long as a particular service produces enough income to cover the special costs and contributes something toward the common expenses—however small the contribution may be—it pays a railroad to quote rates that will attract the traffic, even though they may be less remunerative than rates for other services. If the low rates are not charged, the railroad will lose revenue; for the rates on the higher rated traffic, when already set at the point that pays best, cannot be increased in order to recover the loss.

The profitableness of discriminatory charging can be explained by means of an example. Assume that a railroad is supplying 1,000,000,000 ton-miles of service at an average unit cost of 1 cent per ton-mile and that it has an opportunity to secure 1,000,000,000 ton-miles of additional traffic, provided the rate charged is not more than 8 mills. If all the expenses were variable, the carrier could not afford to handle the prospective business; for it would lose 2 mills on each ton-mile, or a total of $2,000,000. Its net income would be reduced accordingly. Total expenses would be $20,000,000; total revenue, $18,000,000. Now assume that the variable expenses are only 6 mills per ton-mile instead of 1 cent; that the constant expenses of the company are $8,000,000; and that the additional traffic can be carried without any enlargement of the plant and organization. To all appearances, the railroad would likewise lose $2,000,000 if it provided the prospective service under the new conditions. After it transported the additional tonnage, it would be producing at the rate of 2,000,000,000 ton-miles. Since the constant expenses are $8,000,000 by assumption, the constant cost per unit would be 4 mills. Added to the variable cost of 6 mills, this would make the total unit cost 1 cent, as in the first instance. In fact, however, the company would not suffer a loss of $2,000,000. On the contrary, it would *make* $2,000,000. The new traffic would produce a gross revenue of $8,000,000 at an added cost of only $6,000,000, thereby increasing the income by $2,000,000. The total expenses would now be $20,000,000 and the total revenue $18,000,000, as before, leaving a deficiency of $2,000,000. But the loss is $2,000,000 less than it would have been without the new business; for in that case the total expenses would have been $14,000,000, the total revenue $10,000,000, and the loss $4,000,000. The explanation is that the constant costs are spread over twice as much traffic. Every additional ton-mile has contributed 2 mills toward the $8,000,000 of constant expenses, which would go

on regardless of whether the prospective service were offered or refused. So long as the traffic can be obtained at a rate above the special or added expense, it pays to handle it. Needless to say, it would be more profitable if a volume of business sufficient to utilize the plant fully could be attracted at a higher rate; but this may not be possible.

Given the reins, the railroads would fix the rates for different hauls so as to produce the largest possible contribution to the common expenses, *i.e.*, at the point of greatest net returns. For commodities of high value, or for short hauls, this means relatively high rates; while for goods of low value, or long hauls, it means low rates. It is evident that the rates, if determined in this way, solely with an eye to profit and without special regard for the maximizing of traffic, would be monopolistic and against the public interest. How the monopolistic charges may reasonably be adjusted will be indicated later.[1] We are concerned here only with explaining the motive for discrimination.

Ruinous Competition

Although railroads tend toward monopoly, much traffic is highly competitive. Competition may take the form of rivalry either in service or in rates. There can be competition between companies serving two or more common points over different routes; between companies supplying a single market from several producing centers; and between companies operating from one production center to several markets.

The first type of competition is sometimes called competition of routes. It is illustrated by the rivalry of the New York Central, the Pennsylvania, and the Baltimore and Ohio for the traffic between Chicago and New York. However, the routes need not be so nearly parallel; they may be at right angles. Thus goods from Chicago destined for the Pacific coast can move westward over the Chicago and Northwestern and the Union Pacific, or southward via the Illinois Central to New Orleans, thence westward over the Southern Pacific.

The second kind of competition is referred to as competition for markets. A concrete instance is competition between California and Florida for the citrus market of Chicago. If the lines from California reduce their rates, consumers at Chicago will use California oranges rather than Florida oranges, thus forcing the lines from Florida either to forego business or to lower their rates. It cannot be assumed that the burden of the higher rate from Florida will necessarily be imposed upon the Florida producers by forcing the growers to accept a smaller return at the grove.

The third form of competition is often designated as competition of rather than for markets. An example is the competition of New England and North Carolina mills for Mississippi cotton. It may be illustrated by

[1] Cf. p. 335.

assuming that railroads *X* and *Y* carry goods from a producing center, *A*, respectively to two different points, *B* and *C*, each of which is entered by other railroads serving production areas. Assume further that the supply from *A* is insufficient to satisfy completely both *B* and *C*. If railroad *X* reduces its rates to promote a larger volume of traffic from *A* to *B*, railroad *Y* will be forced to reduce its rates, or lose business. If *Y* does not reduce, shippers at *A* will either send the goods to *B* or charge consumers at *C* higher prices. But higher prices cannot be imposed upon these consumers, because they can secure goods from producers served by other railroads.

Unrestrained, competition among the railways would be ruinous. The word "ruinous" does not refer to unfair or illegal competition deliberately undertaken to injure a competitor, but to an open struggle for traffic. Neither does the term refer to competition that weeds out poorly managed or unfavorably located railroads. Destruction of the weak is the result of normal competition and it is in the interest of society, for the efficient are able to survive. When competition is ruinous, all companies, weak and strong, tend to fall by the way, and the people suffer. Rate cutting becomes widespread; earnings fall below the cost of service; and the public is unable in the end to secure the transportation needed. Ruinous competition may be defined as competition that results in the establishment of a rate level too low to attract new capital. If the railroads are unable in the long run to meet their fixed charges and to pay dividends to their stockholders, additional funds cannot be obtained.

Ruinous competition is explained primarily by the constancy of railroad costs. When expenses are largely constant, it is highly profitable for the railroads to secure additional business, in order to benefit from the economies of fuller utilization of plant. If more traffic can be stimulated without reducing rates, so much the better; but if this proves to be impossible, it will pay the carrier to take traffic at reduced rates, so long as the revenue from the additional traffic more than equals the extra cost incurred in handling it. Some revenue is left to apply toward the expenses that continue irrespective of the volume of service. If all the expenses were variable, it would not pay to quote rates lower than the total average unit cost; for at lower rates the more the business the greater the loss.

If a reduction in rates originates traffic that would not move by another railroad, competitive relations among the rail lines will not be disturbed, and there will be a net gain to the industry as a whole. But if the additional business of one carrier is obtained at the expense of another, the loser will retaliate by reducing its rates; for a gain to the first railway is a loss to the second. If earnings rise with an increase in traffic, they likewise fall with a decrease in traffic. Should the first railroad still wish to increase its business, after trying the initial cut, it will be forced to reduce its rates again; but the reduction will be of little avail, because the

second carrier will follow suit. Each is willing, if necessary, to reduce its rates on competitive traffic until the revenue barely covers the extra cost of this traffic. If neither plant is fully utilized and if the competitive business constitutes a large portion of the total traffic, the level of rates will fall below the cost of service. Each line loses money, of course, for the overhead is only partly covered; yet if either gives up its traffic, there is nothing at all for the overhead. It is better to carry traffic at a loss than not to carry it and lose more. In less capitalistic industries it might be more economical to abandon the field, but this is not likely to be true of railroads. Competition in the railway industry tends to resolve itself into an endurance contest in which the railroad with the greatest resources wins. And inasmuch as railroads are usually large enterprises, rates may remain below cost for considerable periods, to the serious impairment of railroad credit.

President Hadley gives an illustration of ruinous competition which has become classic.[1] Assume that a railroad connecting two places carries 100,000 tons of freight a month at 25 cents a ton. Of the $25,000 earned, $10,000 is paid out for the actual expenses of running the trains and for loading and unloading the cars; $5,000 covers repairs and general expenses; and $10,000 remains for interest on the investment. Only the first item will vary as the traffic varies. Now suppose a parallel road is built which offers to carry the freight at 20 cents a ton. The old road must meet the new rate in order to protect its business, even though the rate does not leave a fair profit on the investment. Better a moderate profit than none at all. The new road then reduces the rate to 15 cents; so does the old road. A 15-cent rate will not pay interest unless additional business develops, but it will pay for repairs. Suppose that the new road reduces the rate to 11 cents. This rate will contribute only a little toward repairs, but that little is better than nothing. If you take at 11 cents freight that costs you 25 cents to handle, you lose 14 cents on every ton you carry. If you refuse to take it at that rate, you lose 15 cents on every ton you do not carry. Interest and repairs run on while the other road gets the business.

Theoretically, there can be no stability in rates until all except the strongest companies have been driven completely out of business, although a condition of equilibrium may be reached before. Stability cannot be attained even if one road fails, and the bondholders take over the property; for it may still pay better to operate the line than to close up shop. And after being reorganized, the failing road can return to the fray better equipped for competition than ever, because its fixed charges will have been reduced. Long before failure, however, the competing companies will probably endeavor to reach some agreement for restricting competition.

It is important to note that competition will not be ruinous if either

[1] Hadley, A. T., *Railroad Transportation, Its History and Its Laws*, p. 70 (1903).

one or both of two conditions prevail: first, if the railroad plant is fully utilized; second, if the competitive traffic represents a small portion of the total. Where the traffic available at reasonable rates is sufficient for two (or more) railroads to operate at capacity, a reduction of rates by one company need not be duplicated by the other; for the other can secure enough business without reducing its rates. The first company, in fact, is unlikely to cut rates, because its plant is fully employed. It will not enlarge its plant to carry additional traffic unless the rates that can be charged are remunerative. But the condition of full utilization seldom prevails, at least for long periods. Where competitive traffic is relatively unimportant, competition will not be ruinous because what is lost on the competitive business may be regained by charging higher rates on the non-competitive. But this would mean discrimination, perhaps of an objectionable type.

The reader may wonder why a railroad faced with cutthroat competition would not utilize its plant and equipment in some other line of business, or transfer to another location, where it can earn a profit. The answer is to be found in the highly specialized and fixed nature of the plant, which can neither be diverted nor withdrawn. Generally speaking, about three-fourths of the capital is in the "permanent way" and can be used only for railroad transportation in the place of original construction. The roadbed can occasionally be operated as a public highway, terminal lands and machine shops may sometimes be put to other uses, and track can be sold for scrap; but the value of these items for alternative purposes is generally only a fraction of their value as parts of a railroad. The rolling stock, of course, can be moved away, and certain other types of equipment can be dismantled and transferred; yet much of this capital is also irrevocably fixed. Property can be allowed to depreciate, and earnings normally used for maintenance can be diverted; but undermaintenance would not recover the "sunk" costs. By and large, the capital equipment of a railroad is of little utility except in the rendition of railway service where initially intended. It is primarily for this reason that failing lines are kept so long in operation, even at the cost of one or more reorganizations.

History provides much evidence of the severity of railway competition. A few examples will suffice. Rate wars were not unknown early in the railroad era, but they did not become prominent until after the construction of through lines. The first notorious slashing of rates occurred upon the entrance of the Pennsylvania and the New York Central into Chicago in 1869. Charges of $1.88 per 100 pounds for first-class freight and 82 cents for fourth-class freight from Chicago to New York were cut during 1869 to a uniform rate of 25 cents.[1] Later the rates were advanced; but in 1874,

[1] Hadley, *op. cit.*, p. 93.

after the Baltimore and Ohio had provided another route between Chicago and New York and after the Grand Trunk had connected Milwaukee and Detroit with the North Atlantic ports, a rate war broke out again. Competition for the Chicago-New York business became extremely bitter, for the Erie was bankrupt. Grain rates from Chicago to New York, which had been 60 cents per 100 pounds in 1873, fell to 40 cents in 1874 and to 30 cents in 1875. A brief truce then ensued, but it was only partly observed, and the battle was renewed in 1876. Rates dropped lower than before. The published rate on grain of 45 cents per 100 pounds from Chicago to New York in March, 1876, fell by May to 20 cents. Actual rates were frequently lower than the published rates. In 1877 the railroads, more or less exhausted, formed a pool (the Joint Executive Committee) for the purpose of dividing the traffic; and the war was brought to a close. But pooling agreements were difficult to enforce; and the construction of additional parallel lines by the West Shore and by the Nickel Plate caused a new outbreak in 1881, which lasted about 3 years. In 1884 immigrants were carried from New York to Chicago for $1 a head, and in 1885 the grain rate fell to 10 cents. The rate situation then improved for a time, but the competition of the Grand Trunk for the dressed-beef traffic precipitated another struggle in 1888. The rate on this commodity from Chicago to New York fell as low as 7 cents per 100 pounds. The business prosperity of the early nineties again brought about greater stability, only to be upset by the depression of 1893.

Rate wars also occurred in other parts of the country. In the South competition had long been held in check by a pool known as the Southern Railway and Steamship Association; but pools were made illegal by the Act to Regulate Commerce of 1887. Accordingly, in 1894 drastic rate reductions were made in Southern Territory. The first-class rate from New York to Atlanta fell from $1.14 per 100 pounds to 40 cents. In Western Territory the competition of water lines and transcontinental railways brought forth a similar result. Freight was carried from New York to San Francisco at rates as low as 30 cents per 100 pounds. This particular rate war ended in 1898, but in the meantime the Union Pacific had been thrown into bankruptcy. In the Middle West serious competition took place in the grain traffic. Here the Trans-Missouri Freight Association, an organization to fix rates, had somewhat restrained rate cutting; but in 1897 the Supreme Court held the Association to be in violation of the Sherman Antitrust Act, so that unsatisfactory conditions soon prevailed in the Middle West.

At this point the Interstate Commerce Commission intervened, and for several years thereafter rate cutting was less severe. The railroad officials had experienced the harmful effects of unrestrained competition;

the volume of traffic was greater; many competing lines were brought together through combinations; and the Elkins Act of 1903 prohibited departures from the published tariffs. In 1905, however, rate wars broke out again between the Trunk Lines and the Gulf lines, and in 1909 the Trunk Lines renewed the battle among themselves. But these wars were less ruinous than former ones. Since 1910 rate wars have practically ceased.

Rate wars have disappeared because of the restraint of competition. Curbs have been instituted by the railroads themselves. Prior to the seventies, restriction took the form primarily of agreements to maintain rates. But rate agreements did not destroy the incentive to rate cutting, and they were displaced during the seventies and eighties by pools. Although pools were more effective, they were difficult to maintain for any substantial period. They were illegal under the common law, and the Act of 1887 made them contrary to statutory law. After 1887, therefore, the railroads tried traffic associations. Here also the companies met defeat. The Supreme Court held that associations to maintain rates were in violation of the Sherman Antitrust Act. Rate agreements, pools, and traffic associations being outlawed, the railroads next turned to other forms of combination, such as consolidation and merger, lease, and stock ownership. Combinations will be discussed more fully in a later chapter. Our purpose has been to show that the railroads have endeavored to keep competition within bounds; in part, of course, to reap monopoly profits, but also to avoid the consequences of ruinous competition.

The government has likewise restricted competition. The Elkins Act of 1903 prohibited departures from the published tariff, and the Hepburn Act of 1906 provided that no change might be made in rates until after 30 days' notice to the Interstate Commerce Commission. More significant was the Mann-Elkins Act of 1910. This law authorized the Commission to suspend proposed changes in rates, and made all rate increases presumptively unreasonable, thereby placing upon the carriers the burden of proving the reasonableness of a proposed increase. The Esch-Cummins Act of 1920 gave the Commission the power to fix minimum rates, so that it might hold rate competition directly in check.

The evidence is clear that competition among the railroads must be restrained, though not necessarily eliminated. Unless competition is checked, it almost inevitably forces the railroad companies to combine, as a matter of self-preservation. Until the carriers combine or the government interferes, rates fluctuate and discrimination is widespread. What the public temporarily gains through low rates is in the end more than counterbalanced by the disadvantages of free competition. But restricted competition means monopoly, at least in some degree; hence the necessity of public regulation.

Pipe Lines

Pipe lines, like railroads, have a large investment in highly specialized plant. Substantial sums are required for gathering and trunk lines, pumping stations, and storage facilities. In 1932 the major pipe-line companies had an investment of about $1,000,000,000 in 112,000 miles of oil and gasoline lines, or roughly $9,000 per mile of pipe.[1] A more recent per-mile figure is about the same.[2] The investment per unit of trunk line was of course much greater, since gathering lines are of smaller size and are often laid on top of the ground. In 1941 the construction costs of crude-oil trunk lines varied from $9,000 to $60,000 per mile, while the corresponding figures for gasoline lines were $10,000 and $65,000.[3] Although the investment is less than that of the railroads in the absolute sense, in terms of revenue it compares more favorably. In 1931 the pipe-line investment per dollar of gross receipts averaged $3.79, and in one case ran as high as $17.02.[4] Twenty-four companies had an investment of less than $4 per dollar of receipts, and 39 had less than $7. The investment of five companies exceeded $10. The variations are explained in part by differences in the character of the terrain occupied or in the quality of the oil handled. In mountainous country the cost of excavation is greater; more storage is required to equalize the flow of oil; and pumping stations must be located at shorter intervals. In California the heavy nature of the oil makes necessary more stations as well as facilities for heating the oil before it is pumped.[5]

Pipe lines are also similar to railroads in that plant is not closely adjusted to short-time fluctuations in traffic.[6] If the prospective volume of business is considerable, it pays to make provision initially for production on a large scale, even though the immediate traffic is small; for one pipe of a certain capacity is more economical than two pipes that together have the same capacity. Since friction decreases as the diameter increases, the carrying ability of a pipe at equal pressures increases faster than the square of the diameter. According to the Federal Trade Commission,

[1] Committee on Interstate and Foreign Commerce, *Report on Pipe Lines*, House Report no. 2192, 72 Cong., 2d Sess., part 1, p. xxvii (1933).

[2] In 1941 pipe lines reporting to the Interstate Commerce Commission had an investment in carrier property of $8,396 per mile, counting gathering as well as trunk lines. Interstate Commerce Commission, *Statistics of Oil Pipe Line Companies*, 1941, p. 4.

[3] Association of American Railroads, *Report by Subcommittee on Pipe Line Transport*, p. 14 (1944).

[4] Committee on Interstate and Foreign Commerce, *op. cit.*, p. lxxiv.

[5] In 1941 the investment per dollar of operating revenue of carriers reporting to the Interstate Commerce Commission was $3.51. Interstate Commerce Commission, *op. cit.*

[6] In 1929 it was estimated that pipe lines utilized less than half their physical capacity. Nourse, *op. cit.*, p. 374.

the large-scale operations of the Prairie pipe-line system have given it a marked advantage over the other systems.[1]

Inasmuch as the investment is large and the capacity is not fully utilized, the expenses of pipe-line companies are largely constant in the short run. Though concrete estimates are not available, total pipe-line expenses are probably constant in greater degree than total costs in any other field of transportation. The ratio of operating expenses to operating revenues of pipe-line companies reporting to the Interstate Commerce Commission is usually less than 50, which is much below the typical railroad figure.[2] This indicates relatively low operating expenses and high capital costs, implying, at least, a high degree of constancy.

The capital costs and most of the operating expenses are constant. The largest item among the operating expenses is maintenance (including depreciation and retirements) which amounts to 60 or 70 per cent of the total. Though maintenance varies to a certain extent with the volume of traffic, it is for the most part constant so long as new lines are not required. The next largest operating expense is transportation, which ranges from 20 to 30 per cent of the total. Including fuel, this cost is more variable; but it does not vary in exact proportion to the business. The last item is general expense, which amounts to 10 per cent or less of the operating expenses. It varies scarcely at all with the traffic.

Pipe lines are probably more monopolistic than any other means of transportation.[3] In moving crude oil and gasoline by trunk line, they compete scarcely at all with other types of carriers; for the major oil companies, which control most of the pipe lines, own nearly nine-tenths of the tonnage of tankers,[4] and oil can be piped at far less cost than it can be transported either by railroad or by truck.[5] Neither do the pipe-line companies compete actively among themselves. Each line is so located as to serve best the needs of a particular refining or producing concern; and the pipe-line companies, though usually organized as separate corporations, are controlled by a few large integrated producers and refiners. In 1938 the 20 largest oil companies controlled 72 per cent of the mileage

[1] Federal Trade Commission, *Report on Pipe-line Transportation of Petroleum*, p. 121 (1916).

[2] The operating ratio for trunk lines runs between 40 and 50, and that for gathering lines between 50 and 60.

[3] On the general topic of pipe-line transportation in relation to the petroleum industry see Prewitt, R. A., "The Operation and Regulation of Crude Oil and Gasoline Pipe Lines," *Quarterly Journal of Economics*, vol. 56, pp. 177–211 (February, 1942).

[4] In 1938 the 15 major oil companies owned 87.2 per cent of the tonnage of tankers. Temporary National Economic Committee, *Control of the Petroleum Industry by Major Oil Companies*, Monograph no. 39, p. 26 (1941).

[5] Cf. p. 87. The major oil companies have been accused of conspiring with the railroads to keep rail rates high in order to discourage transportation by independent oil operators.

of crude-oil trunk and gathering lines; 5 companies controlled 42.5 per cent of the trunk and feeder mileage; and 14 companies reporting to the Interstate Commerce Commission controlled 89 per cent of the mileage of trunk line.[1] It is significant that the trunk lines, which are especially important from a competitive point of view, are more closely controlled than the gathering lines. As for gasoline, 17 companies controlled 96.1 per cent of the mileage.[2] Only one short line was owned by an independent concern.[3]

Since pipe-line costs are largely constant in the short run and since the lines are monopolistic, the pipe-line companies have both the incentive and the opportunity to charge excessive or discriminatory rates, insofar as they pipe oil for the public.[4] Regulation is therefore desirable, especially to protect the small shipper.

Airways

As regards property investment, unutilized productive capacity, and constancy of cost, air carriers appear to lie between the railroads, on the one hand, and the trucking industry, on the other hand. No outlay is required for air track, and the public supplies most of the capital for marking, landing fields, and airports. However, the investment in land, buildings, and similar equipment of the major air lines ranged in 1935 from $200 to $500 per mile of route.[5] The minimum plant needed on the ground is thus of considerable importance in relation to the volume of business. Planes can be varied in number and capacity more or less according to the traffic; but large purchases mean lower initial costs, and more expensive machines reduce operating expenses.

Air-line costs may be divided between ground expenses and flying expenses. The former, which amount to a large portion of total costs, include interest on the investment in ground facilities, rents for hangar and

[1] *Hearings before the Temporary National Economic Committee, Petroleum Industry*, 76th Cong., 2d Sess., part 14-A, p. 7720 (1939). Since the pipe-line companies reporting to the Interstate Commerce Commission represent about 80 per cent of the pipe-line industry, the inclusion of intrastate lines would not materially affect the percentage of control.

[2] *Ibid.*, p. 7728.

[3] Temporary National Economic Committee, *op. cit.*, p. 37. For other data on the concentration of control see Committee on Interstate and Foreign Commerce, *op. cit.*, p. lxiii.

[4] In 1938 the Stanolind Pipe Line Company, owned by the Standard Oil Company of Indiana, transported crude oil at an average cost of 0.032 cent per barrel-mile. Its tariffs on file with the Interstate Commerce Commission quoted a rate from Oklahoma to Whiting, Ind., of 0.069 cent per barrel-mile for 500 miles, or more than twice the cost. Temporary National Economic Committee, *op. cit.*, p. 23.

[5] *Report of the Federal Aviation Commission*, Senate Document no. 15, 74th Cong., 1st Sess., p. 55 (1935).

office space, depreciation and maintenance of buildings, wages of ground personnel, traffic and advertising expenses, and insurance and taxes on ground equipment.[1] For short periods these costs are relatively constant. Flying expenses consist of depreciation and maintenance of flying equipment, fuel, oil, wages of flying personnel, supplies, and the like. These, especially fuel, are more largely variable, even in the short run. But there is a considerable degree of constancy. Depreciation, a very significant factor, is more closely related to technology than to the use of facilities.[2]

Insofar as large plants are required for economical operation and costs are constant, there is a tendency toward monopoly and differential charging in transport aviation. But the evidence is none too clear, even though a number of writers argue for such tendency and even though service is now concentrated in the hands of about two dozen companies.[3] Some students believe that the relative ease of entering into or withdrawing from the industry, the possibility of two or more companies operating along the same route, and the practicability of changing from one route to another, make commercial aviation essentially competitive rather than monopolistic in character.[4] But it seems reasonable to conclude that air transportation shows a sufficient tendency toward monopoly to justify regulation. In addition, public control is needed in the interest of safety.

Even if it be granted that transport aviation is essentially competitive, business regulation after the manner of the railroads is desirable in order to promote stability in the airway industry. Commercial aviation has become too important to trust to the vagaries of uncontrolled competition. Ease of entry into and withdrawal from business would lead to undependable service and unpredictable rates.[5] Such conditions would be harmful to the general public, against the interests of national defense, and disturbing to management.

[1] Ground costs for one leading air route in July, 1934, were 61 per cent of all costs. McMillen, W. L., *Journal of Land and Public Utility Economics*, vol. 11, p. 377 (November, 1935). Prof. D. P. Locklin quotes another estimate of 48 per cent. Locklin, D. P., *Economics of Transportation*, p. 781 (1935).

[2] See *231 I. C. C.*, 229, 241 (1938); also *206 I. C. C.*, 675, 704–707 (1935). Scattered data indicate that depreciation expense is from 10 to 20 per cent of operating expenses. Wear is relatively more important in the case of engines.

[3] David, P. T., "Federal Regulation of Airplane Common Carriers," *Journal of Land and Public Utility Economics*, vol. 6, pp. 359–371 (November, 1930); McMillen, W. L., "Air Express Service in the United States," *ibid.*, vol. 11, pp. 368–380 (November, 1935); Moulton, H. G., and Associates, *The American Transportation Problem*, p. 723 (1933); and Puffer, C. E., *Air Transportation*, chap. 2 (1941).

[4] Watkins, M. W., *Public Utilities Fortnightly*, vol. 4, p. 332 (1929).

[5] On the experience with virtually free competition in air transportation see David, P. T., *The Economics of Air Mail Transportation*, p. 154 (1934).

Water and Highway Transportation

The cost characteristics of water and highway carriers are similar, and the two modes of transportation may be considered together. It should be emphasized, however, that there are important differences in the nature of the services. One difference is that water transportation is far more limited geographically than highway transportation. Another difference is that water transportation tends to be confined to the bulk movement of a smaller variety of commodities. Still another difference is that the carrying unit is larger in the waterway industry.

In comparison with railroads, water and highway carriers need little capital, either in the absolute sense or in relation to the volume of business. As to the way itself, no carrier investment at all is necessary, for the way is provided by nature or by government. Terminals are not elaborate and are furnished to a large extent by the public or by shippers. The principal capital outlays that the carriers need make are for vessels or vehicles.

Water and highway transportation are also generally conducted on a relatively small scale. Although this is not true of all water transportation, the independent owner of a small vessel, or the private carrier with excess cargo space, can often compete effectively with the large concern. In the case of highway transportation, the scale of business, at least in trucking, is smaller than in any other field of transport.[1] As the trucking industry becomes stabilized, the scale of operations may increase, as in the bus business; but so long as the owner-operator predominates, much truck transportation will probably be conducted on a limited basis. Even in large firms the unit of service is small.

It follows that capacity is rather closely adjusted to traffic in the water and highway industries. It is not necessary for the carriers to build plants capable of handling a large volume of traffic. The number and capacity of vessels or vehicles can be regulated according to the demand. Insofar as it is more economical to operate on a large scale, unutilized capacity may result; but the economies of large-scale production appear to be limited.[2] Some excess capacity is doubtless present in terminals or carrying equipment, but it is relatively unimportant.[3] The waterways and

[1] Cf. p. 89.

[2] In the Transport Company case, decided Nov. 15, 1940, the Interstate Commerce Commission disapproved a proposed integration of 27 truck carriers that controlled over 10,000 trucks. One reason for the disapproval was that the Commission was not impressed with the economies of large-scale production anticipated by the proponents of the scheme. However, the evidence on this point is by no means conclusive. The merging of seven large trucking concerns into Associated Transport in 1942 is reported to have made possible the elimination of frequent transfers of cargo en route, better coordination of services in terminal areas, and improved load factors. *Transport Topics*, vol. 17, p. 9 (Jan. 11, 1943).

[3] Data gathered by the Federal Coordinator of Transportation indicated that in 1933 nearly a third of the ships on all waterways, including coastwise and intercoastal shipping,

highways themselves are of course by no means utilized at full capacity.

Since unutilized capacity is not pronounced, the expenses of water and highway carriers are for the most part variable. The expenses consist primarily of fuel and supplies, wages, and depreciation on moving equipment, all of which vary rather closely with traffic. Rents and terminal expenses are less variable; but these costs do not constitute a major fraction of the total expense. The interest on the investment in vessels and vehicles is also constant, yet the outlay involved is slight when compared either with the railroads or with the volume of business handled. Traffic and administrative expenses of motor truckers appear to increase and decrease more rapidly than business. Highway carriers may be required to contribute toward the expense of the roadway through taxation, but contributions vary roughly with the traffic. It is probable that at least nine-tenths of all operating expenses, rents, and taxes of motor carriers of freight are variable.[1]

Water and highway transportation are also marked by the virtual absence of monopoly. Since the highways and waterways are open to all and since the small capital required makes it easy to enter the business, competition is feasible over a single route, and attempts at combination among established carriers are likely to be ineffective. New carriers will appear, or shippers, particularly if large, will engage in their own transportation.

As most of the expenses are variable and as monopoly is largely lacking, discrimination tends to be much less serious and competition less ruinous than in railroad transportation. The incentive to discriminate is weaker; for not so much is to be gained as where the overhead is large, or where the economies of large-scale production are marked. The opportunity to discriminate is limited because of the absence of effective monopoly. Carriers hesitate to reduce their rates below cost, for they lose more than they gain. Rather than engage in ruinous competition it is better to forego business. Operations can be abandoned altogether without great loss, or they can be transferred to another location. From the point of view of the public, the discontinuance of service would ordinarily be less objectionable than in the case of railroads. Discrimination is most likely to occur in the case of back hauls, where there is joint cost.

It should not be concluded that the competitive nature of waterway

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were laid up. But this was due in part to temporarily subnormal traffic. Federal Coordinator of Transportation, *Regulation of Transportation Agencies*, Senate Document no. 152, 73d Cong., 2d Sess., p. 100 (1934).

[1] Interstate Commerce Commission, Bureau of Transport Economics and Statistics, *Motor Carrier Costs in New England*, Ex Parte MC-22, Exhibit no. G 1, p. 75 (February, 1944).

and highway transportation calls for a policy of "hands off" on the part of the government. There seems to be little danger of exorbitant or seriously discriminatory rates without regulation; but this does not imply the complete absence of control. As the Coordinator of Transportation pointed out, unregulated competition may be as much a public evil as unregulated monopoly. The type and extent of regulation may be different in the two cases, but some control is desirable even where so-called "active" competition prevails.

Regulation is needed, first, to assure safe, dependable, and adequate service.[1] Unrestrained competition drives earnings below cost and impairs credit, thereby preventing the carriers from maintaining equipment and service of the required standard. Severe competition is not motivated by a large mass of constant expenses, as in the railroad industry, but irresponsible or ignorant operators tend to keep earnings at a level too low for good service. The inefficient concerns soon fail, yet it is so easy to enter the business that other operators, in the absence of attractive alternative pursuits, constantly take the place of those failing. According to the Federal Coordinator of Transportation, many carriers tend to be irresponsible, do not meet damage claims, ignore contracts, and do not maintain schedules. All this is particularly harmful to the small shipper; for he often finds it uneconomical to provide his own transportation, cannot turn to a contract carrier because this type of operator prefers to concentrate on the more profitable traffic without completely covering the area served, and may be unable to secure common-carrier service owing to the fact that the common carrier refuses to compete with concerns that need not maintain high standards of service. Regulation is desirable, second, to stabilize rates.[2] When unregulated, rates are not published and may change overnight. Shippers have no way of knowing what their rivals are paying, or what the charges in the immediate future will be. Although rates must be adjusted from time to time, they should be changed after publication and due notice. Reasons for the regulation of all modes of transportation, including waterway and highway, are explained in Chap. XXIV.

[1] On the need for regulating highway transportation, see Peterson, G. S., "Motor Carrier Regulation and Its Economic Basis," *Quarterly Journal of Economics*, vol. 43, pp. 604–647 (August 1929).

[2] The Coordinator's studies showed the rate situation to be chaotic in 1932 on both the highways and the waterways.

REFERENCES

Transportation costs have usually been discussed in connection with the theory of rates. The reader should therefore consult the references at the close of Chap. XIII.

Although cost analysis has been confined for the most part to railroads, some attention has been devoted to other forms of transportation. Air-line expenses are discussed in Frederick, J. H., *Commercial Air Transportation*, Chap. 12 (1942); Locklin, D. P., *Economics of Transportation*, pp. 835–836 (1938); and Puffer, C. E., *Air Transportation*, Chap. 2 (1941). Airway, highway, pipe-line, and waterway costs are briefly analyzed in Healy, K. T., *The Economics of Transportation in America*, Chap. 10 (1940). Motor and water-carrier costs are considered in Locklin, *op. cit.*, pp. 720–721, 784–786. Motor-carrier costs are analyzed in Interstate Commerce Commission, *Motor Carrier Costs in New England*, Chap. 1 (Mimeographed, 1944).

References dealing with railroads and emphasizing the constancy of railway costs, include the following: Jones, Eliot, *Principles of Railway Transportation*, Chap. 4 (1924); Locklin, *op. cit.*, Chap. 7; and Ripley, W. Z., *Railroads: Rates and Regulation*, Chaps. 2–3 (1912). The variability of railroad expenses is stressed in Daniels, W. M., *The Price of Transportation Service* (1932); Healy, *op. cit.*, Chap. 11; and Interstate Commerce Commission, *Territorial Rail Costs Based on a Separation of the Cut-of-pocket and Constant Expenses*, Chaps. 1–2 (1942). Eclectic considerations of constancy and variability are Clark, J. M., *The Economics of Overhead Costs*, Chap. 13 (1923); and Daggett, Stuart, *Principles of Inland Transportation*, Chap. 16 (1941).

Two discussions of discrimination in pricing are Locklin, *op. cit.*, Chap. 7; and Pigou, A. C., *The Economics of Welfare*, part 2, Chaps. 14–15 (1920).

Varieties of transport competition with special reference to railroads are described in Brown, H. G., *Transportation Rates and Their Regulation*, Chap. 2 (1921); Daggett, *op. cit.*, Chap. 18; and Miller, S. L., *Inland Transportation*, Chap. 24 (1933).

Discussions of the ruinous nature of railway competition include the following: Hadley, A. T., *Railroad Transportation, Its History and Its Laws*, Chaps. 4–5 (1885); Jones, *op. cit.*, Chap. 5, and "Is Competition in Industry Ruinous," *Quarterly Journal of Economics*, vol. 34, pp. 473–519 (May, 1920); and Ripley, W. Z., *Railroads: Rates and Regulation*, Chap. 12 (1912).

Railway monopoly is discussed in Brown, *op. cit.*, Chap. 3; Locklin, *op. cit.*, Chap. 14; and Miller, *op. cit.*, Chap. 25. The quasi-monopolistic character of the transport market as a whole is emphasized in Behling, B. N., *The Nature and Control of the Transport Market* (Mimeographed, National Resources Planning Board, 1941).

CHAPTER - - - - - - - - - - - - - - - - - - FIVE

Regulation of Transportation by the States

THE business of transportation is regulated by the federal government and by the states.[1] The federal government has come to play the dominant role in control, because much transportation cuts across state lines; but the states were the first to regulate, and they still exercise important powers. For a considerable period the states occupied the field of regulation alone. Not until 1887 did the federal government take a hand.

State regulation began with turnpike and canal companies and was extended to other forms of transportation as the others developed. At the present time, every state regulates at least one mode of transportation, and many states regulate to some extent all modes, especially when conducted on a common-carrier basis. We shall confine our discussion of state regulation primarily to railroads and motor carriers; for it is these with which the states have been chiefly concerned.[2]

Railroads

It was explained in Chap. IV that the railroads are partial monopolies and that railway competition, when unrestrained, does not promote the

[1] Regulation is used at this point to mean legislation. The examination of commission policies is postponed to be taken up in connection with specific problems of control.

[2] For a brief discussion of the extent of state regulation of water and air transportation as of 1932 see Federal Coordinator of Transportation, *Regulation of Transportation Agencies*, Senate Document, no. 152, 73d Cong., 2d Sess., pp. 158, 256 (1934). See also Rohlfing, C. C., *National Regulation of Aeronautics* (1931). With respect to water carriers, all states except Arizona, Colorado, and New Mexico had laws relating to safety and the like. Thirty-two states and the District of Columbia regulated the rates and business practices of water lines. Some of the 32 regulated all water transportation, while others limited control to service rendered in connection with railroads. Rules and regulations were similar to those set forth in the Interstate Commerce Act, and were applicable in nearly all cases only to common carriers by water. With respect to air carriers, 31 states had supervisory tribunals with authority to make rules concerning registration, licensing, and operation of aircraft. Thirteen states and the District of Columbia regulated the business of air transportation. More recent information may be found in Civil Aeronautics Authority, *State Aeronautical Legislation Digest and Uniform State Laws* (1939). According to Beard, William, *Regulation of Pipe Lines As Common Carriers*, p. 46 (1941), common-carrier crude- and refined-oil lines are subject to regulation in 23 states. Figures were for 1938.

public interest; yet during the first four decades of the railroad era the people left the carriers relatively free to conduct transportation as management saw fit. The principal reasons for this liberal attitude toward the railroads were two. First, the need for railroads was very great, and legislators hesitated to pass restraining laws. Instead of restraint, it was felt that the railroads should be encouraged in every way possible: by liberal charters, donations of money, grants of land, or other means. Second, the public believed that competition would provide such control as was necessary. The nature of the railroad industry was not understood, and it was thought that competition would function in the railroad business as it did in many other businesses. Competition was in accord with the laissez-faire philosophy of the day and with the policy that had been generally followed in connection with turnpikes and canals.

It is true of course that the states instituted railroad regulation of a sort from the very beginning. In the early period, however, regulations were ill advised as to method and were not enforced. Aside from mere public opinion, and litigation, which were altogether unsatisfactory, the means included charters, general laws, and advisory commissions.[1]

Regulation by Charter

The first regulation was by charter, which was a convenient method already applied to turnpikes and canals. As a rule, the charters permitted the directors of the corporations to fix rates, frequently with the proviso that charges should not exceed a stated maximum.[2] Other limitations, to be found in a few charters, compelled publicity of rates and prohibited discrimination. Provisions varied widely and were sometimes in direct conflict, even when the charters were issued under general laws.

Charter regulation was a failure, chiefly because it suffered from the fundamental weakness of inflexibility. As contracts, charters were difficult to amend without the consent of both parties, unless the power to amend had been reserved. It was virtually impossible, therefore, to fit regulations to the changing conditions of transportation, expecially when the charters ran in perpetuity, as many of them did. The remote relationship between rules and conditions is shown by the failure of the railroads to charge rates as high as the charters allowed. As their costs were reduced, the carriers usually found it expedient to fix rates below the charter maxima, in order to encourage traffic. Obviously, such rates did not adequately protect the public, for they could be unreasonable and still not

[1] Common carriers had been subject to control under the common law from time immemorial. But litigation had proved so ineffective as to make necessary some form of statutory regulation. The courts are powerless to prescribe rates for the future; and litigation is sporadic, involves excessive delay and expense, and places control in hands inadequately equipped with machinery and personnel.

[2] Meyer, B. H., *Railway Legislation in the United States*, p. 56 (1903).

violate the charter. It was often impossible to remedy this fault, by setting lower maxima in the beginning, without causing hardship to the companies. No one could foresee the future with sufficient acumen to safeguard the interests of both parties over a long period of time. This weakness of charter regulation eventually brought about its abandonment in favor of more realistic methods, although charter controls were sometimes continued even after the general policy of the states had changed.

Regulation by General Law

Beginning about 1850, regulation usually took a statutory form. Charters were then treated merely as instruments of corporate creation, and regulations were laid down by statute along lines similar to the earlier charter provisions. The laws of the Eastern states were the most thoroughgoing, while those of the Southern states were the most incomplete.

Regulation by general law was also a failure. This form of regulation was objectionable, first, because it tended to be rigid and inflexible, as in the case of charters. Meeting infrequently, legislatures were not in a position to modify their laws as conditions changed. Second, legislative bodies did not have the administrative machinery, or the personnel, essential to effective control. Their machinery was designed for the enactment rather than for the administration of laws, and their members were selected primarily for political reasons rather than for competency in dealing with transportation problems. Third, legislative regulation was sporadic. Sometimes it was too long delayed; at other times it was too hasty; and it was always likely to be begun without due consideration of economic implications. Fourth, state laws were of general application, whereas operating and traffic conditions varied widely. To apply one standard of rates or service to all carriers resulted in injustice. Classification was possible, but there were definite limits to which it could be carried. It has been the universal experience that legislatures should confine their regulatory activities to the formulation of general policies, leaving the administrative details to commissions. Unfortunately this principle has not always been honored.

Regulation by Commission

It was to overcome the weaknesses of legislative regulation that the states set up commissions. Regulation by commissions was flexible, continuous, and informed—all on the assumption, of course, that the commissions were endowed with the requisite powers, composed of well-qualified members, adequately staffed and financed, free from political interference, and allowed to function without unreasonable judicial restriction.

Commission regulation of railroads appeared initially as a mere supple-

ment to the earlier methods of control, for the first commissions were primarily advisory or supervisory in nature. They were concerned with such matters as the gathering of information, prevention of accidents, appraisal of private property taken by the railroads under the power of eminent domain, hearing of complaints, and observance by the railroads of their charter restrictions. Over rates and service the commissions had practically no authority. One of the first advisory commissions was that created by Rhode Island during the thirties.

Mandatory commission regulation began in the seventies. About that time there occurred a sharp reversal in the public attitude toward the railroads. Formerly praised and aided as benefactors, the carriers were now denounced as foes, primarily because of changed conditions. The country was better supplied with lines, and it was easy for public interest to shift from construction to control.

The reversal in public attitude was a product largely of the Granger movement. Mandatory regulation would have been established, no doubt, had there been no such movement, for agitation to curb the railroads made itself felt in some places before the Grangers organized, or after they had virtually retired from the scene. But it was the Grange which pressed most vigorously for action and accomplished the first tangible results. This organization, properly known as the Patrons of Husbandry, was originally a secret society founded in Washington, D. C., in 1867 by Mr. Oliver H. Kelley and six associates, for the purpose of promoting the social and intellectual life of farmers. Soon, however, the program of the society was broadened to include economic and political objectives. Growing in membership during the early seventies by hundreds of thousands, particularly in the Middle West and South, the Grange became the chief medium through which the farmers sought to alleviate a depressed condition of agriculture. Though the lack of farm prosperity was caused primarily by an overproduction of agricultural products, the Grangers believed that the railroads were largely responsible. Accordingly, more effective regulation was demanded. In its attainment the Grange enjoyed the support of numerous other groups of people.[1]

The paramount complaint against the railroads was high rates. Although it is impossible to say at this time whether the rates were in fact too high, it was believed that they were exorbitant; and farmers knew that if the cost of transportation were reduced they would be relieved of a burden made very onerous by the low prices of products. Another important complaint was discrimination between places and persons. Influenced by competition, rates were low at competitive points, high at noncompetitive. The farmer reasoned that if the railroads could afford to handle competitive traffic at low rates, they could transport noncompetitive traffic at

[1] On the Granger movement see Buck, S. J., *The Granger Movement* (1913).

similar charges. In fact, he believed that rates were high at noncompetitive places because they were low at competitive, especially when the favored location involved the longer haul, as it frequently did. Personal discrimination was probably even more galling than place discrimination. It seemed never to be justified, was often carried on surreptitiously, and tended to promote industrial monopolies.

Complaints about high and discriminatory rates were supplemented by many other grievances. Among the others were the direct monetary losses suffered by the people. Farmers and other citizens had often given land to the railroads or had purchased their securities, frequently by mortgaging property already taxed to support public subsidies. The expectation was that shippers and property owners would benefit from lower rates, and that the securities would eventually become good investments. Many times, however, the benefactors were disappointed. Rates turned out to be higher than anticipated, and securities proved worthless on account of overcapitalization or because of financial manipulation by insiders. To be defrauded by the very concerns that had been liberally assisted was a "bitter pill" for the farmers to take.

Railroad managements heightened public hostility by adopting an uncompromising attitude. They sometimes took the position that the railroads were private corporations, with no special obligations to the public. Imbued with this idea and realizing that the carriers had a partial monopoly, company officials and employees frequently treated shippers and travelers with gross discourtesy. At fault in this respect was the old-time, arrogant ticket agent. In addition, the companies flouted public opinion through bribery, favoring those whom they wished to influence by means of gifts of stock and free passes. Added to it all, insofar as the farmers were concerned, was the fact that the railroads were controlled by Eastern capitalists, who, being "absentee owners," were felt to be out of sympathy with local conditions. When appearing in silk hats and frock coats, these financiers typified to the hard-hit farmer giant monsters growing fat at his expense.

Granger Legislation

The result of this seething and emotional discontent was a wave of drastic legislation, centering in Illinois, Iowa, Minnesota, and Wisconsin. Illinois took the lead and deserves special attention. The legislation there influenced the laws of the other states and of the federal government; helped fix the mandatory commission as the normal form of regulation; and led to the famous case of Munn *v.* Illinois, which established the validity of public control.

The first Illinois laws to interfere with the right of the carriers to fix rates, those of 1869 and 1871, lacked "teeth" or met defeat at the

hands of the courts. Chief interest therefore lies in the law of 1873, which constituted the permanent basis for regulation. The first two sections of this act declared that rates should be reasonable and prohibited unjust discrimination. Section three defined discrimination in great detail and provided that a discriminatory charge should be taken as prima-facie evidence of unjust discrimination. Competition was expressly stated to be an insufficient justification for differences in rates. Sections four and five provided for the enforcement of the law through the levy of heavy fines; and section six allowed an aggrieved party to recover three times the amount of the damage suffered by reason of violation of the law. Section seven made it the duty of the board of railroad and warehouse commissioners (created by the law of 1871) to determine whether the provisions of the act were being violated and, if so, to cause suits to be commenced against the guilty parties. Section eight directed the commission to prepare a schedule of maximum freight and passenger rates for each railroad, and such rates were made presumptively reasonable in all suits involving rates. This placed the burden of proof upon the carriers rather than upon the commission, and marked a very significant new departure in regulation.

It is evident that the Illinois law was based upon the assumption that the people had the right to regulate the railroads in fact as well as in name. This was the fundamental principle of all the Granger legislation, although the laws of the various states differed and did not in every case authorize commissions to fix rates. For example, in Wisconsin (1873) and Iowa (1874) maximum rates were prescribed by the legislatures.

Except in Illinois, where the basic law remained unchanged until 1913, the Granger legislation was short-lived. Several states, including Minnesota (1875) and Wisconsin (1876), repealed their mandatory laws and substituted commissions of the advisory type. This action proved unsatisfactory, however, and the states soon found that they had gone too far in relaxing control. During the eighties and nineties mandatory commissions were reestablished. Advisory commissions had functioned successfully only in a few instances, as in Massachusetts.

The repeal of the Granger laws may be explained by several factors, one of which was the determined opposition of the railroads. A favorite form of opposition was litigation. Laws were resisted in the courts at almost every point, thereby postponing their application and causing the people to lose confidence in regulation. A second type of strategy was to disarm adversaries by adopting a conciliatory attitude on the less vital points. Still another method was to "educate" the public, through the press, as to the shortcomings of the laws. It was asserted that regulation would bring construction to a standstill; that capitalists would not invest in the railroads of states having commissions. Probably the favorite

method was to obey the law in such a way as to make it as irritating as possible. On the very day that the Illinois Act of 1873 went into effect, the railroads decided to destroy it by obeying the section prohibiting place discrimination. It was agreed to remove discrimination, not by lowering high rates, but by raising depressed rates. The railroads hoped and expected that the outcry of the shippers would be so great that it would cause the repeal of the law. The scheme failed in Illinois, but a similar plan succeeded in Minnesota.

Company opposition was reinforced by at least two factors. The first was the depression of 1873, which caused construction and traffic to decline, and ostensibly supported the railroads' assertions that the Granger laws were inimical to the best interests of the country. The companies were quick to lay the blame for their difficulties upon regulation, whether the laws were wise or unwise. The second factor was the imperfection of some of the statutory provisions; for example, the clauses that required rates to vary in exact proportion to distance.

It should not be concluded, however, that the Granger laws were as harmful in effect as claimed. Though construction may have been checked to some extent by legislation, more miles of line were built between 1870 and 1880 in the four Granger states, Illinois, Iowa, Minnesota, and Wisconsin, than in the four non-Granger states, Indiana, Michigan, Missouri, and Nebraska, where conditions were similar. And the rate of increase in railroad earnings was greater in the first group of states than in the second. Wisconsin is supposed to have had the most drastic law, yet construction was more active there than in neighboring states or in the United States as a whole. It is true that the railroads of Wisconsin paid no dividends in the second year under the "Potter" law, but it is also true that the railroads in 17 other states paid no dividends in 1874 and 1875. It seems reasonable to believe that the economic troubles of the railroads during the seventies were due chiefly to the business depression, overconstruction, and excessive capitalization.

Granger Cases

The Granger legislation is primarily important, not because of its immediate economic effects, but because of the experience gained and the principles voiced. The direct effects were probably not very far-reaching, and most of the laws were repealed, as we have seen; but certain fundamental theses were asserted and successfully maintained. They were set forth by the Supreme Court of the United States in the Granger cases. The leading case, as regards the enunciation of principles, was Munn *v.* Illinois.[1]

The Munn Case related to the constitutionality of the Illinois Law of

[1] *94 U. S.* 113 (1877).

1871, which fixed maximum rates for the storage of grain in public warehouses; yet the principles laid down in this decision were followed in the other Granger cases considered at the same time. The doctrine of Munn *v.* Illinois was explicitly applied to railroads in Chicago, Burlington, and Quincy Railroad Company *v.* Iowa.[1]

The companies argued in the Granger cases, first, that the legislative regulation of rates, directly or through commissions, deprived investors of property without due process of law, in violation of the Fourteenth Amendment of the Constitution of the United States. That the limitation of rates, by reducing net earnings, might lessen the value of railroad property, which depended upon income, was hardly open to question; but the real point was whether this was done "without due process of law." Second, the railroads contended that when their charters vested the right to fix rates in management, as was generally the case, the legislatures could not assume this authority without violating the constitutional provision forbidding the states to pass laws impairing the obligation of contract. It had been decided in the Dartmouth College Case in 1819 that charters are contracts between the state and the corporation; and since a valid contract cannot be amended without the consent of both parties, it appeared that the Granger laws should fall on this point. Third, company spokesmen insisted that the determination of the reasonableness of rates was a judicial function, not a legislative one. Though the legislatures might have the right to regulate in a general sense, it was said that investors were entitled to an adequate return and that whether a particular schedule of rates would provide such a return was a matter for the courts to decide. Fourth, the railways claimed that inasmuch as they were engaged in interstate commerce, the states could not regulate their rates without infringing upon the powers of Congress, which had been explicitly authorized to regulate commerce among the states. That the railroads were engaged in interstate commerce and that Congress, if anybody, *could* regulate this business was certain; but Congress had not acted, and the essential question was whether the states were precluded from regulation.

Addressing itself to the foregoing arguments, the Supreme Court upheld the public on all points, though not unanimously in every case. As to the contention that regulation deprived the companies of property without due process of law, the Court pointed out that governments may regulate conduct for the public good under the police powers; that "In their exercise it has been customary in England from time immemorial, and in this country from its first colonization, to regulate ferries, common

[1] *94 U. S.* 155. See also Peik *v.* Chicago and North-western Railway Company, *94 U. S.* 164; Chicago, Milwaukee, and St. Paul Railroad Company *v.* Ackley, *94 U. S.* 179; Winona and St. Peter Railroad Company *v.* Blake, *94 U. S.* 180; Stone *v.* Wisconsin, *94 U. S.* 181.

carriers, hackmen, bakers, millers, wharfingers, innkeepers, etc., and in so doing to fix a maximum of charge to be made for services rendered, accommodations furnished, and articles sold"; and further that it had never yet been successfully contended that legislation by the states on such subjects came within the constitutional prohibitions against interference with private property. In other words, this principle, according to the Court, was older than the Fourteenth Amendment; hence, if regulation was not at variance with the principle, it was not repugnant to the amendment. Purely private rights, of course, could not be controlled by the people as a whole; but in this case the property was "affected with a public interest" and ceased to be "*juris privati* only." Property becomes clothed with a public interest "when used in a manner to make it of public consequence, and affect the community at large. When, therefore, one devotes his property to a use in which the public has an interest, he, in effect, grants to the public an interest in that use, and must submit to be controlled by the public for the common good, to the extent of the interest he has thus created."[1]

The Court did not attempt to state all the circumstances under which property is "used in a manner to make it of public consequence," and is therefore "affected with a public interest"; but the reasoning in the cases at issue seems to have been that warehouses were so used because of a monopoly element and because of a resemblance to common carriage. Railroads were so used because they were common carriers, which had been affected with a public interest from time immemorial. Though the Court did not say so, except possibly by implication, railroads are really affected with a public interest on account of their monopolistic position and the imperfect functioning of competition.

As to the argument that regulation violated the obligation of contract, the Court held in effect that if the power to regulate was present, it was not bartered away in the charters, unless, indeed, the superior power of the state to fix rates had been specifically renounced. The mere grant of initial rate-making power to the corporation was not enough. This holding rested upon the general rule that all grants by the states, especially grants of immunity, are to be strictly construed against the grantee. It was fortunate that the Court ruled as it did on the point; otherwise, many railroads would have escaped regulation. Under the Court's ruling no railroad incorporated under a general law was immune, and few railroads incorporated under a special act were free. Although some companies might have avoided state regulation, they would still have been subject to federal control; for a state cannot remove an interstate carrier from Congressional authority.

In regard to the assertion that the determination of the reasonableness

[1] *94 U. S.* 113, 126.

of rates is a judicial function, the Court answered unanimously. To quote: "In countries where the common law prevails, it has been customary from time immemorial for the legislature to declare what shall be a reasonable compensation under such circumstances, or, perhaps more properly speaking, to fix a maximum beyond which any charge made would be unreasonable. Undoubtedly, in mere private contracts, relating to matters in which the public has no interest, what is reasonable must be ascertained judicially. But this is because the legislature has no control over such a contract. . . . The controlling fact is the power to regulate at all. If that exists, the right to establish the maximum of charge, as one of the means of regulation, is implied . . . . We know that this is a power which may be abused; but this is no argument against its existence. For protection against abuses by legislatures the people must resort to the polls, not to the courts."[1]

With respect to the argument that the Granger laws infringed upon the powers of Congress, the Court answered in the Burlington Case: "The objection that the statute complained of is void because it amounts to a regulation of commerce among the States, has been sufficiently considered in the case of *Munn v. Illinois*. This road, like the warehouse in that case, is situated within the limits of a single State. Its business is carried on there, and its regulation is a matter of domestic concern. It is employed in State as well as in inter-state commerce, and, until Congress acts, the State must be permitted to adopt such rules and regulations as may be necessary for the promotion of the general welfare of the people within its own jurisdiction, even though in so doing those without may be indirectly affected."[2] This finding was made on the ground that railroad rates fell within the field of "concurrent" powers.[3] Concretely it meant that, until Congress had acted, the states could prescribe railroad rates, including rates on that part of interstate hauls within their borders.

Thus it was decided in the Granger Cases that the states (and the federal government) could regulate the business of railroad transportation and still not deprive the companies of property without due process of law; that the regulation of rates did not violate the obligation of contract, unless the legislatures had specifically conferred the sole power to fix rates upon the corporations; that the prescription of rates was a legislative function not subject to judicial review; and that until Congress had legislated the states could regulate rates, even though interstate commerce was indirectly affected. The Supreme Court later reversed itself in part on the last two points, but not on the first two. The thesis of the common law that a railroad, or any other business affected with a public interest,

[1] *94 U. S.* 113, 133–134.
[2] *94 U. S.* 155, 163.
[3] Explained below.

can constitutionally be regulated by the people was reasserted, not to be renounced. Munn *v.* Illinois is usually referred to as the starting point for government control of public utilities in general.

The legislation of Illinois, Iowa, Minnesota, and Wisconsin having been favorably construed, other states enacted railroad laws. Though many of the acts were later repealed, they were soon reenacted. By 1890 advisory or mandatory commissions, with some power as to railroads, were to be found in 34 states; and by 1928 every state except Delaware had a commission with jurisdiction over railroads.[1] As the provisions of the state laws differ widely and change often, and in view of the fact that the federal government has assumed the dominant role in railroad regulation, it is unnecessary to describe the state statutes, except to say that they resemble in a general way the federal acts to be analyzed later. State laws of course apply only to intrastate commerce.

Highway Transportation

State regulation of motor-vehicle transportation is of two broad types: police control to promote safety and to protect the highways, and business regulation.

Police Regulation

Police regulation, now universal among the states, was instituted before the First World War, primarily at the suggestion of public officials charged with the administration of highways. This sort of control deals with the weights and dimensions of carrying units, speed, safety appliances, and the like; and it applies to pleasure cars as well as to commercial vehicles. Under this heading also fall the rules requiring motor operators to carry insurance for protection against injuries to persons and damage to property and cargoes.

Police regulations are obviously in the public interest, insofar as they are necessary to safeguard travel and protect the highways; but some states have prescribed limitations upon the weight and length of motor vehicles which appear to be more stringent than required for purposes of safety and protection, at least along the main arteries of commerce.[2] In

[1] Clark, F. C., "State Railroad Commissions," *Publications of the American Economic Association*, vol. 6 (1891); Ruggles, C. O., "Aspects of the Organization, Functions, and Financing of State Public Utility Commissions," *Publications of the Harvard University Graduate School of Business Administration*, vol. 24, no. 2, p. 51 (April, 1937).

[2] Interstate Commerce Commission, *Federal Regulation of the Sizes and Weight of Motor Vehicles*, House Document no. 354, 77th Cong., 1st Sess. (1941). Width limitations, substantially standardized at 96 inches, and height limitations, varying from 11 feet to 14½ feet, create little difficulty. In 1941 length limits ranged from 26½ feet (in Kentucky) for single-unit trucks to 65 feet (in Arizona) for tractor-semitrailers or other combinations. Gross-weight limits for two-axle trucks varied from 18,000 pounds (in Kentucky) to 44,800 pounds (in Maryland). Minimum and maximum tractor-semitrailer weights were

some cases specifications have evidently been so drawn as to favor railroads, or a particular type of highway carrier. As a result, the larger trucking concerns have experienced unduly increased costs and unnecessarily impaired service. Increased costs have arisen through reduction in pay loads and equipment capacity, transfer expense, increased mileage in "going around" states with low limits, and in other ways. Impaired service has been brought about by such factors as less expeditious schedules, delays due to breakdowns, splitting of loads, more damage to freight, and the curtailment of unusually large or heavy shipments.

Acting as bottlenecks and extending their influence beyond their own borders, the states with excessively strict rules have placed unreasonable burdens upon interstate commerce. For this reason the Interstate Commerce Commission was directed by the Motor Carrier Act of 1935 and by the Transportation Act of 1940 to investigate the need for federal regulation of the sizes and weights of motor vehicles. Pursuant to these instructions, the Commission conducted hearings, and in 1941 rendered a report which recommended control by the Commission.[1] The report pointed out that national uniformity in size and weight limitations is impracticable, on account of varying highway capacities and traffic demands, but that the Commission should have authority to remove unreasonable discriminations against interstate commerce in particular instances. Limitations clearly necessary for purposes of highway protection and safety in one state would not constitute unreasonable discrimination, even though they were more exacting than limitations found elsewhere.

At the present writing, the recommendations of the Commission have not been acted upon.[2] Inaction is probably to be explained in part by the fact that the states themselves have recently modified some of the unjustifiable restrictions.[3] Modification was urged at a meeting of representatives of the states in Washington, D. C., in 1942, for the purpose of promoting voluntary liberalization in the interest of national defense. Voluntary action, however, is likely to be slow and only partly effective.

Business Regulation

The demand for motor-carrier business regulation has come primarily from the transportation industries, especially railroads. Regulated them-

18,000 pounds (in Kentucky) and 60,000 pounds (in New Jersey). Weight limits per wheel varied from 8,000 pounds to 17,200 pounds. Maximum pay loads were lowest in Kentucky (10,700 pounds). Other states permitted loads of 35,500 pounds. *Ibid.*, pp. 10–11.

[1] Interstate Commerce Commission, *op. cit.*, p. 26.

[2] Federal regulation is favored by the organized highway operators, but it is opposed by the railroads and by the states.

[3] See *Transport Topics*, vol. 17, pp. 6–7 (Jan. 4, 1943). The gross-weight limit in Kentucky was increased in 1942 from 18,000 pounds to 28,000 pounds.

selves, the railroad companies have insisted that their competitors be treated likewise. In this demand the railways have been joined by the organized bus and truck operators, many of whom wish respite from competition. So far as the public is concerned, there has been no general agitation for regulation. From the standpoint of the shipper the need for motor-carrier regulation has not been so pronounced as in the case of the railroads. There is less dependence upon commercial service, and abuses are not so serious. Competition is more effective.

Regulation of rates and service is largely a phenomenon of the twenties and thirties, motor-vehicle commercial transportation theretofore not being of great importance. Only 7 states took action before the First World War.[1] Pennsylvania passed the first law in 1914. Twelve states enacted legislation between 1919 and 1922, and 25 passed acts between 1923 and 1927. Since 1930 most of the states have rewritten their laws because of imperfections in the early statutes, particularly the lack of necessary legal distinctions between common and contract carriers. The new acts are broader in scope, more drastic, and more uniform. The tendency has been toward conformity with the model law drawn up in 1932 by the National Association of Railroad and Utilities Commissioners, although much diversity still exists.

By November, 1933, regulation was in the hands of a public service commission or similar state body in all states except Delaware.[2] This was also true in 1937.[3] It is impracticable to describe the state laws in detail. For this reason and because of a general resemblance to the federal statutes, further discussion of state regulation will be limited to the problem of distinguishing between type of carriers and to the division of authority between the states and the national government.

[1] George J. J., *Motor Carrier Regulation in the United States*, p. 5 (1929).

[2] Federal Coordinator of Transportation, *Regulation of Transportation Agencies*, Senate Document no. 152, 73d Cong., 2d Sess., pp. 170–190 (1934). In Delaware, jurisdiction over motor vehicles was assigned to the street and sewer commission of Wilmington, while in two other states control was vested in some state department or official other than the public service commission. All states and the District of Columbia, Delaware excepted, regulated common carriers of passengers over regular routes, and 34 states and the District of Columbia regulated common carriers of passengers over irregular routes. Forty-two states and the District of Columbia regulated common carriers of property over regular routes, and 34 states and the District of Columbia regulated common carriers of property over irregular routes. Contract carriers of passengers were subject to supervision in 22 states, while contract carriers of property came under regulatory laws in 31 states. A few states regulated "freight brokers." Numerous exemptions from the motor-carrier laws were to be found in practically every case, and the exceptions varied widely. The exemptions most often authorized included: transportation within the limits of a municipality, or within a surrounding circumscribed zone; school busses; mail or government-owned vehicles; and the property of the vehicle owner. Some of the exemptions appeared to have little relation to the regulation of commerce.

[3] Ruggles, *op. cit.*

Problem of the Contract Carrier

The existence of contract carriers by motor vehicle has created regulatory difficulties. Unless these are regulated, waste will be greater; responsible service will not always be provided; and common carrier supervision will be less effective. Within limits, protection of the common carrier is justified. Contract operators tend to concentrate on the traffic of large shippers who can provide a substantial volume of business. In the absence of common-carrier service, the small shipper is therefore at a disadvantage, for it is often uneconomical to provide his own transportation.

The states first attempted to regulate contract carriers by declaring all highway operators for hire to be common carriers. Had these statutory declarations been constitutional, this would have solved the problem; but in 1925 in Michigan Public Utilities Commission *v.* Duke, the Supreme Court of the United States held the laws to be unconstitutional.[1] The important particulars of the case were as follows: A Michigan statute of 1923 had defined common carriers so as to include all persons transporting passengers or property by motor vehicle for hire along fixed routes; and had required such persons to obtain a certificate of public convenience and necessity. The Michigan authorities attempted to apply these regulations to Duke, who carried automobile bodies under contract between Detroit, Michigan, and Toledo, Ohio, but who had never undertaken transportation for the general public. Not having procured a certificate, Duke applied for an injunction to prevent the authorities from barring him from the highways. When the case came to the Supreme Court, the Court pointed out that Duke was a private carrier and that the state was without power to convert him into a common carrier merely by legislative fiat.[2]

A second plan was to impose upon contract carriers the regulations applicable to common carriers, without specific definition. This could be accomplished either by extending the scope of existing common-carrier laws, or by enacting new statutes specifying substantially the same regulations for one type of operator as for the other. California typified the states following the first procedure, while Florida was one of the states adopting the second.

The legality of the California plan was brought to issue in 1926 in Frost and Frost Trucking Company *v.* Railroad Commission of California.[3] The California law denied the use of the highways to contract operators, except on condition that they obtain a certificate of public convenience and necessity and become subject to other common-carrier

[1] *266 U. S.* 570.
[2] *Ibid.*
[3] *271 U. S.* 583.

regulations, including commission control of rates. Frost, a trucker engaged under a single contract in transporting citrus fruit, claimed the right to operate without a certificate. When the California commission attempted to enforce the law, an appeal was carried to the Supreme Court. Having in mind the Duke Case, the Court said, "It would be a palpable incongruity to strike down an act of state legislation which, by words of express divestment, seeks to strip the citizen of rights guaranteed by the federal Constitution, but to uphold an act by which the same result is accomplished under the guise of a surrender of a right in exchange for a valuable privilege which the state threatens otherwise to withhold."[1] In other words, the states could not even indirectly force a contract operator to assume the obligations of a common carrier. In 1931 the Supreme Court took a similar position in Smith *v.* Cahoon, which involved the validity of the Florida law.[2]

These cases checked the progress of state regulation. It appeared that the contract carrier was largely immune from control. But in 1932 the Supreme Court handed down its decision in Stephenson *v.* Binford.[3] This case concerned the constitutionality of a Texas regulatory statute which distinguished between common and contract carriers. Common carriers were required to obtain certificates of public convenience and necessity, while contract operators were obliged to secure permits. The state commission could control the maximum rates of the former but could fix only the minimum rates of the latter. Permits were not to be issued unless the commission found that the service of established common carriers would be unimpaired, and minimum rates could not be less than those of railroads.

The Supreme Court approved the Texas law as a valid regulation of the use of the highway. The Court pointed out that contract carriers had increased the burden of transportation upon the highways by diverting traffic from the railroads, and that the state had a right to protect its public roads. Unlike the California legislation of the Frost Case, the law recognized the contract operator as such and specifically provided different regulations for each type of carrier.

If the states can regulate contract carriage by highway, the federal government can do likewise when service is interstate. Congressional power under the commerce clause would seem to be no less potent than the police power of the states to control the use of their highways. However, the constitutionality of federal regulation has not yet been definitely established, notwithstanding the passage of the Motor Carrier Act of 1935.

[1] *Ibid.*, p. 593.
[2] *283 U. S.* 553.
[3] *287 U. S.* 251.

Contraction of State Authority

The Granger decisions made it possible for the states together to regulate transportation in its entirety, interstate as well as intrastate; but the scope of state authority was soon to be restricted by the courts and by Congress. In order to make this clear, it is desirable to outline in a general way the respective fields of action of the states and the federal government.

The Constitution delegates to the United States certain powers and provides that the states shall exercise the remainder. Among the delegated powers is that over interstate commerce. The "commerce clause" declares that Congress shall have power "to regulate Commerce with foreign Nations, and among the several States, and with the Indian tribes."[1] The residual powers are provided for as follows in the Tenth Amendment: "The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people."

The foregoing delimitation of the two fields of authority is broad, and it has been necessary for the Supreme Court to draw the lines more precisely. Three zones have been recognized. In the first zone federal power is exclusive; in the second state power is exclusive; and in the third federal and state powers are concurrent. "Concurrent" does not mean that the federal government and the states may act at the same time, but that the latter may act if the former has not. If the federal government legislates, its regulations take precedence; for the Constitution declares that "This Constitution, and the Laws of the United States which shall be made in Pursuance thereof . . . shall be the Supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding."[2]

Matters which are essentially national in character and which require uniformity of treatment fall in zone one. Purely local affairs come in zone two. Matters which are not entirely local in nature but which permit of diversity of regulation, or which affect interstate commerce only indirectly or incidentally, are in zone three.[3] Examples are the speed of trains, the size of train crews, and the weight of motor vehicles. Such matters can be regulated by the states, but it lies within the purview of Congress to exercise control whenever it sees fit to do so.[4] This it has done in numerous important particulars.

The first important step in narrowing the scope of state authority over railroad rates was taken by the Supreme Court in the Wabash Case

[1] Art. I, Sec 8.

[2] Art. VI.

[3] See Cooley *v.* Board of Wardens of Port of Philadelphia, *12 How.* 299 (1851).

[4] Gibbons *v.* Ogden, *9 Wheat.* 1 (1824).

in 1886.[1] The issue was whether a state (Illinois) could regulate rates between points within the state, if the origin or the destination of a shipment lay without the state. Reversing its position in the Granger Cases, the Court held that a state could not do so. The state could regulate rates on traffic originating and ending within its borders; but as to shipments going to or coming from outside points, the state could not control even that portion of the haul which lay within it. According to the new ruling, rates on interstate traffic fall in zone one, where the states cannot act even in the absence of federal regulation. The majority of the Court said, "Of the justice or propriety of the principle which lies at the foundation of the Illinois statute it is not the province of this court to speak. As restricted to a transportation which begins and ends within the limits of the State it may be very just and equitable, and it certainly is the province of the State legislature to determine that question. But when it is attempted to apply to transportation through an entire series of States a principle of this kind, and each one of the States shall attempt to establish its own rates of transportation, its own methods to prevent discrimination in rates, or to permit it, the deleterious influence upon the freedom of commerce among the States and upon the transit of goods through those States cannot be overestimated. That this species of regulation is one which must be, if established at all, of a general and national character, and cannot be safely and wisely remitted to local rules and local regulations, we think is clear from what has already been said."[2]

Restrictions on state authority also extended to intrastate rates. Although the states were not displaced in this field, it was found desirable to limit state control in order to facilitate effective regulation of interstate rates. Without some limitation, the Interstate Commerce Commission could not fully enforce the law as to discrimination.

Federal authority to modify intrastate rates was established in the Minnesota Rate Cases, the Shreveport Rate Case, and the Wisconsin Passenger Fares Case. The Minnesota Rate Cases involved the validity of a general reduction of intrastate rates by Minnesota in 1906 and 1907.[3] The rates fixed by the state were attacked on the ground that they so disturbed rate relationships as to discriminate against foreign points. It was said that places within Minnesota near her boundary lines were unduly favored, when shipping to or from locations in the state, in comparison with places immediately outside the boundaries. The regulatory authorities admitted that the previously existing relationship was disturbed, but urged that it was within their power to regulate intrastate rates regardless of the effect. Though the Supreme Court upheld the

[1] Wabash, St. Louis and Pacific Railway Company *v.* Illinois, *118 U. S.* 557.
[2] *118 U. S.* 557, 577 (1886).
[3] *230 U. S.* 352 (1913).

reduction, it did not do so on the ground that the state could prescribe intrastate rates irrespective of their bearing upon interstate commerce, as contended, but on the ground that the Interstate Commerce Commission had made no finding as to discrimination. The decision clearly implied that if the Commission *should* find intrastate rates discriminatory, a state would be forced to yield to the superior authority of the central government. The Court stated that the reserved powers of the states over their internal commerce consist only of those powers consistent with federal authority. "There is no room in our scheme of government for the assertion of power in hostility to the authorized exercise of Federal power."

The Shreveport Rate Case bore out the foregoing implication.[1] Here the Interstate Commerce Commission had ordered the removal of discrimination, after certain intrastate rates fixed by the Railroad Commission of Texas had been found unduly preferential to Dallas and Houston, Tex., and prejudicial to Shreveport, La. At a given rate, first-class traffic could be moved eastward out of Dallas almost three times as far as it could be moved westward out of Shreveport. The order of the Interstate Commerce Commission was resisted on the ground that the states, not Congress, had the authority to regulate intrastate rates; and that even if Congress had this power, it had not exercised it. The decision of the Court on the first point was that Congress could prevent discrimination against interstate commerce, if necessary, by modifying rates on intrastate commerce. As to the second point, the Court held that Congress had acted, inasmuch as the Interstate Commerce Commission had found the intrastate rates discriminatory under Section 3 of the Act of 1887. Quoting from the decision, "We find no reason to doubt that Congress is entitled to keep the highways of interstate communication open to interstate traffic upon fair and equal terms. That an unjust discrimination in the rates of a common carrier . . . constitutes an evil is undeniable; and where this evil consists in the action of an interstate carrier in unreasonably discriminating against interstate traffic over its line, the authority of Congress to prevent it is equally clear. It is immaterial, so far as the protecting power of Congress is concerned, that the discrimination arises from intrastate rates as compared with interstate rates. The use of the instrument of interstate commerce in a discriminatory manner so as to inflict injury upon that commerce, or some part thereof, furnishes abundant ground for Federal intervention. Nor can the attempted exercise of state authority alter the matter, where Congress has acted, for a State may not authorize the carrier to do that which Congress is entitled to forbid and has forbidden."[2]

[1] Houston, East and West Texas Railway Company *v.* United States, *234 U. S.* 342 (1914).

[2] *Ibid.*, pp. 353–354.

The Wisconsin Passenger Fares Case carried congressional control of intrastate rates a step further.[1] The Shreveport decision confirmed the authority of the Interstate Commerce Commission to remove discriminations against particular persons or places, whereas the Wisconsin Case gave the Commission power to change the level of intrastate rates, in accordance with the Transportation Act of 1920. This act had specifically authorized the Commission to eliminate any unreasonable discrimination against interstate commerce. In deciding the Wisconsin Case, the Court construed the law to mean that the Commission could order a change in the general level of intrastate rates, when intrastate traffic failed to contribute its fair share of the cost of maintaining an adequate transportation system. Without this authority, the Commission could not carry out its obligation to establish a level of railroad rates that would provide the carriers a fair return. The Court said, "But, here, the general words (undue, unreasonable, or unjust discrimination against interstate or foreign commerce) are used after discrimination against persons and localities have [sic] been specifically mentioned. The natural inference is that even if they include what has gone before, they mean something more. When we find that they aptly include a kind of discrimination against interstate commerce which the operation of the new act (Transportation Act of 1920) for the first time makes important and which would seriously obstruct its chief purpose, we cannot ignore their necessary effect."[2]

The principles established in the foregoing railroad cases also apply in general to highway transportation. But at first the states undertook to control motor transport as they had originally controlled railroads. Congress had not acted in the highway field; and to make regulation effective, the states assumed authority over interstate as well as intrastate service. Certificates or permits were required as a condition for operation in both cases. Was this constitutional? In prescribing police regulations designed to protect life and property, the states clearly had concurrent powers with the federal government; but the regulation of service and rates was a different matter.[3]

In Buck *v.* Kuykendall, decided in 1925, the Supreme Court ruled that the states could not regulate the interstate business of motor carriers.[4] Buck, a citizen of the state of Washington, had requested a certificate of public convenience and necessity allowing him to operate a stage line in interstate commerce between Seattle, Wash., and Portland, Ore. The

[1] Railroad Commission of Wisconsin *v.* Chicago, Burlington and Quincy Railroad Company, *257 U. S.* 563 (1922).

[2] *Ibid.*, p. 587.

[3] See Morris *v.* Duby, *274 U. S.* 135 (1927); Kane *v.* State of New Jersey, *242 U. S.* 160 (1916).

[4] *267 U. S.* 307.

request was denied by Washington on the ground that Seattle and Portland were already adequately served by other highway carriers and by railroads. When the question was appealed, the Supreme Court held that the refusal was unconstitutional. The Court reasoned in this instance that the purpose was to restrict competition rather than to promote safety and protect the highways. Regulation placed a direct burden upon interstate commerce. A similar ruling was made in Michigan Public Utilities Commission *v.* Duke.[1]

These decisions, like the Wabash Case, necessitated federal legislation, if highway transportation was to be adequately regulated, for a significant portion of motor traffic crossed state lines. In 1940 one-fourth of all truck mileage was interstate.[2] Expressed in ton-miles, the interstate movement was 32 per cent. Similar data are not available for busses, but in 1935 nearly half the revenue of regular bus companies was earned by interstate operators.[3] Much of the revenue was of course derived from intrastate commerce.

The need for federal regulation was recognized by the passage of the Motor Carrier Act of 1935.[4] But it is significant to note that the authority of the Interstate Commerce Commission does not extend so far as in the case of railroads. With respect to intrastate motor rates, the Act of 1935 specifically declares "That nothing in this part shall empower the Commission to prescribe, or in any manner regulate, the rate, fare, or charge for intrastate transportation, or for any service connected therewith, for the purpose of removing discrimination against interstate commerce or for any other purpose whatever."[5] A similar clause in the Transportation Act of 1940 relates to water carriers.[6] In other words, Congress has not applied the "Shreveport" rule to motor and water transportation. This acknowledges the large amount of local movement by highway and water and lessens the burden of work upon the Commission. However, it can easily lead to difficulties as motor and water transportation become increasingly interstate.

Arguments for and against State Regulation

State railroad commissioners and other advocates of state authority argue that the centralization of regulation has gone beyond the mark, removing control too far from local conditions. The results are said to be

[1] *266 U. S.* 570 (1925).

[2] *Public Roads*, vol. 23, p. 224 (July, August, September, 1943).

[3] Bureau of the Census, Census of Business, *Motor Bus Transportation*, p. 5 (1937). These figures covered only those concerns that were engaged primarily in regular common-carrier bus service.

[4] Cf. p. 206.

[5] *49 Statutes at Large*, 543, 558–559 (1935).

[6] *Public Law* No. 785, 76th Cong., 3d Sess., p. 40 (1940).

as follows: excessively cumbersome machinery, which increases the expense and delay incident to regulation; more company influence upon legislation; less experimentation in public policy; and weakening of the prestige of the states.

Those who favor centralization contend that federal regulation means greater efficiency and uniformity of control. Efficiency is said to be increased for the following reasons: The cost of regulation is less under one body, even though its staff may be larger than the staff of a single state commission. The personnel of a central authority will be better qualified, because of enhanced stability of tenure, more liberal salaries, and higher honor of position. Experience is believed to prove that state commissions, on the whole, have not been so competent as federal commissions, especially the Interstate Commerce Commission.

The force of these arguments for and against state regulation depends to a large extent upon the nature of the industry in question. In the case of railroads, the paramount authority should undoubtedly be lodged with the federal government. In terms of ton-miles, railway transportation is preponderantly interstate. Although some railroads do not extend beyond the limits of a single state, there are few which are not closely affiliated with interstate systems. And it is doubtful if there exists a single line which confines its business solely to intrastate commerce. Interstate and intrastate traffic is commingled and handled by the same plant, and this plant is of necessity managed with little regard to political boundaries. Complete and harmonious regulation is impossible if a railroad is controlled by one set of laws, while its competitor is controlled by a different set; or if a part of the railroad's business is subject to one authority, while the other part is subject to another. Even if the laws were uniform, their application would involve the exercise of administrative discretion, which would result in conflicting decisions.

In motor transportation the case for centralized control is not so strong, owing to the fact that highway hauls are more largely local. It should be emphasized, however, that the interstate business of motor carriers is substantial and is increasing.[1] Since this traffic is beyond the authority of the individual states, some centralization is essential, especially if the different forms of transportation are to be adequately coordinated.

Desiring to keep alive state regulation without complete sacrifice of the advantages of centralization, state authorities have suggested various compromise methods of control. These plans provide for joint regulation

[1] The range in the proportion of physically interstate movements by trucks to total commercial highway traffic in 37 states is from 4 per cent in California to 52 per cent in Maryland. Interstate Commerce Commission, *Federal Regulation of the Sizes and Weight of Motor Vehicles*, House Document no. 354, 77th Cong., 1st Sess., p. 14 (1941).

by the states directly concerned, and the surrender by the federal government to those states of its immediate or ultimate authority over the matters involved. One scheme implies regulation merely through cooperative agreement among the state commissions. A second envisages fixed regulations laid down in rigid compacts drawn up by the states and approved by Congress. A third would have Congress delegate its authority over certain interstate questions to the states once for all. A fourth requires the establishment of temporary joint boards to deal with each problem as it arises. The federal government would act only when the states failed to arrange a representative body. This plan was incorporated, with limits, in the Motor Carrier Act of 1935.

It is generally admitted that arrangements such as the foregoing would not usually be practicable in railroad regulation, because of the large number of states involved; but motor problems are said to be regional rather than national in scope. Local representatives agree that any joint plan means the surrender of power by the individual state, but surrender is acceptable in that it keeps regulation out of the hands of the federal government.

All compromise schemes appear to have limited utility even in the case of highway transportation. A common defect is that they assume the practicability of agreement among states whose interests are frequently sharply opposed. Although concurrence may readily be reached on relatively simple questions such as boundary disputes, joint action on a highly dynamic and complex problem such as transportation rates is more difficult. Another drawback to the plans, except possibly the second and fourth, is their questionable constitutionality. It seems doubtful whether Congress could assign its authority over interstate commerce to the states, even if it so desired.

Our conclusion is that the control of interstate transportation should in the last analysis be vested in the hands of the Interstate Commerce Commission. This does not imply that the interests of the states would or should be ignored. They can be protected through providing that the state authorities concerned act as joint boards in the initial consideration of matters, or that they be notified and invited to participate in cases, as provided by the Transportation Act of 1920, the Motor Carrier Act of 1935, and the Transportation Act of 1940. When the state representatives do not appear as petitioners, they may be permitted to join in weighing the evidence and reaching a decision. According to the Interstate Commerce Commission, significant results have been accomplished in this way. The procedure leaves the final word to a single, specialized, central body, and at the same time it tends to safeguard local interests.[1]

[1] Cooperation in regulation has often been discussed and promoted by the state authorities. For example, see "Report of the Committee on Cooperation Between State and Federal

It has been proposed that the states discontinue railway regulation altogether, on the ground that federal control has gone so far that the possible accomplishments of state regulation are hardly worth the cost. It would seem, however, that the state commissions have a legitimate place in the railroad field, particularly since these same bodies exercise control over other forms of transportation. There are numerous matters, especially as regards service, in which the states can function to advantage. Another important consideration is that the state commissions can render valuable aid to the Interstate Commerce Commission through cooperation. Evidence of this is that the Commission frequently invites joint consideration.[1]

REFERENCES

General accounts of state regulation, with emphasis upon railroads, include the following: Daggett, Stuart, *Principles of Inland Transportation*, Chap. 29 (1941); Johnson, E. R., Huebner, G. G., and Wilson, G. L., *Transportation*, Chap. 15 (1940); Jones, Eliot, *Principles of Railway Transportation*, Chap. 10 (1924); and Locklin, D. P., *Economics of Transportation*, Chap. 9 (1938).

Regulation by charter and by general law, as applied to railroads, is described in Meyer, B. H., *Railway Legislation in the United States*, part 2, Chaps. 1–4 (1903). The experience with advisory commissions is briefly discussed in Hadley, A. T., *Railroad Transportation, Its History and Its Laws*, Chap. 7 (1885).

The standard work on the Granger movement is Buck, S. J., *The Granger Movement* (1913), in which Chaps. 4–6 are devoted to Granger railway legislation. A widely known popular account is Adams, C. F., "The Granger Movement," *North American Review*, vol. 120, pp. 394–424 (April, 1875). The effects of the Granger laws are carefully analyzed in Detrick, C. R., "The Effects of the Granger Acts," *Journal of Political Economy*, vol. 11, pp. 237–256 (March, 1903).

The most famous Granger case is Munn *v.* Illinois, *94 U. S.* 113 (1877). The Granger cases are analyzed at some length in Van Metre, T. W., *Transportation in the United States*, Chap. 19 (1939). The public-utility concept is developed, with supporting court cases, in Barnes, I. R., *The Economics of Public Utility Regulation*, Chap. 1 (1942).

State regulation of transportation other than by railroad has received relatively little discussion. One of the best references on police regulation of motor carriers is Interstate Commerce Commission, *Federal Regulation of the Sizes and Weight of Motor Vehicles*, House Document no. 354, 77th Cong., 1st Sess. (1941). Business regulation is discussed in Johnson, Huebner, and Wilson, *op. cit.*, Chap. 49.

Federal versus state regulation is exhaustively treated in Reynolds, G. G., *The Distribution of Power to Regulate Interstate Carriers between the Nation and the States* (1928). Other discussions of this problem are Coleman, W. C., "The Evolution of Federal Regulation of Intrastate Rates: the Shreveport Rate Cases," *Harvard Law Review*, vol. 28, pp. 34–81 (November, 1914); Daggett, *op. cit.*, Chap. 31; Dixon, F. H., *Railroads and Government*, Chap. 18 (1922); Dunn, S. O.,

Commissions," *Proceedings of the National Association of Railroad and Utilities Commissioners*, 1940, pp. 173–195.

[1] See *Annual Reports of the Interstate Commerce Commission*,

Regulation of Railways, Chap. 5 (1919); Johnson, E. R., *Government Regulation of Transportation*, Chaps. 5–6 (1938); Locklin, *op. cit.*, pp. 277–283; and Sharfman, I. L., *The Interstate Commerce Commission*, part 2, Chap. 9 (1931). The distinction between interstate and intrastate commerce is described in considerable detail in Tarnay, R. S., "Methods for Differentiating Interstate Transportation from Intrastate Transportation," *George Washington Law Review*, vol. 6, pp. 553–647 (June, 1938).

CHAPTER - - - - - - - - - - - - - - - - - SIX

Federal Railroad Legislation before 1920

FEDERAL regulation of railroads began in a comprehensive way with the passage in 1887 of the Act to Regulate Commerce.[1] But this was only the first move. Weaknesses in the law of 1887, decisions of the Supreme Court, and changing conditions of transportation subsequently made it necessary on numerous occasions to amend the original act, or to supplement it with new legislation.[2] The purpose of this chapter, beginning with the enactment of 1887, is to describe the evolution of the law down to 1920. The following chapter will complete the story. Only such steps as are essential to an adequate outline of the progress of legislation will be explained, no attempt being made to set forth all the provisions of the various acts, or to cover safety and labor legislation.[3] Further details may be found in *Interstate Commerce Acts Annotated*, published in 11 volumes by the Interstate Commerce Commission.[4]

Background of the Act of 1887

Regulation was proposed in Congress at about the same time as in the legislatures. Responding to the demands of the Grangers, in 1872 the Senate appointed the Windom Committee to investigate the possibilities of securing cheaper and more certain transportation between the interior and the seaboard. This committee, reporting in 1874, recognized the need for a change in policy on account of the high cost of transport; but it did not recommend regulation as the proper remedy for high rates.[5] Instead of regulation, it suggested that the waterways be further improved and

[1] Congress had passed a number of acts dealing with railroads before 1887, but the laws related to special matters and did not establish a general system of regulation. See Haney, L. H., *A Congressional History of Railways in the United States, 1850–1887*, Chaps. 13–20 (1910).

[2] The act has been amended more than thirty times in permanent form.

[3] Labor legislation is discussed in Chap. XXI.

[4] See also Miller, C. A., *The Legislative Evolution of the Interstate Commerce Act* (1930); Bernhardt, Joshua, *The Interstate Commerce Commission—Its History, Activities and Organization*, Service Monograph no. 18, Institute for Government Research (1923); and Sharfman, I. L., *The Interstate Commerce Commission*, part 1 (1931).

[5] *Report of the Select Committee on Transportation—Routes to the Seaboard*, Senate Report no. 307, 43d Cong., 1st Sess., pp. 240–254 (1881).

that the federal government or the states construct one or more railroads to be owned by the government. Lower rates were to be brought about through competition between the public and the private systems. The committee pointed out that competition among the privately owned lines alone was ineffective, because it almost invariably resulted in monopoly. But the publicly owned railroads would not enter into combinations; hence, competition could be preserved.

Though no action was taken upon the recommendations of the Windom Committee, its report was significant as a definite step toward federal control. It was also significant in that it reflected the popular belief in competition. Notwithstanding the demonstrated inadequacy of unrestricted rivalry, and the objections to the construction of additional means of transportation as a tool of regulation, the idea that free railroad competition promoted the public interest was widespread in 1874. In fact, this philosophy has influenced legislation down to the present.

Following the Windom report, the question of railroad regulation was constantly before Congress. In the meantime, however, the burden of the complaints against the carriers had changed. Whereas the Grangers had cried out primarily against high rates, the abuse most frequently cited in Congress during the eighties was discrimination in rates. The reason for the shift in emphasis was that returning business prosperity, improvements in operation, and competition had caused the railroads to reduce their charges. But discrimination, instead of being removed, had been intensified. Especially glaring was personal discrimination in the form of rebates or departures from the published tariffs. The most widely discussed instances were the concessions to the Standard Oil Company.[1] It was said that published rates were made for the small shippers or for those unsophisticated enough to pay them.

Another important matter of complaint was monopoly. There was much alarm over pools and similar devices. Pools checked competition and thus promoted stable rates, but the people believed that they also resulted in high rates.[2] Still other abuses were speculation, stock watering, and fraud, all of which were at a peak during the rapid railway construction of the eighties.[3] The Cullom Committee, a second body appointed by the Senate to investigate regulation, listed all told some 18 charges against the railroads. Many of these were only phases of discrimination.

It was the report of the Cullom Committee which formed the direct basis of the Act of 1887.[4] Eschewing public ownership, this committee

[1] Cf. p. 340.
[2] Cf. p. 116.
[3] Cf. p. 34.
[4] *Report of the Senate Select Committee on Interstate Commerce*, Senate Report no. 46, 49th Cong., 1st Sess. (1886)

recommended regulation. It said, "The evidence upon this point is so conclusive that the committee has no hesitation in declaring that prompt action by Congress upon this important subject is almost unanimously demanded by public sentiment. This demand is occasioned by the existence of acknowledged evils incident to and growing out of the complicated business of transportation as now conducted, evils which the people believe can be checked and mitigated, if not wholly remedied, by appropriate legislation. The committee recognizes the justice of this demand, and believes that action by Congress looking to the regulation of interstate transportation is necessary and expedient. . . . "[1]

At this juncture (1886) the Supreme Court handed down its decision in the Wabash Case. The reader will recall that this decision debarred the states from regulating that part of railroad transportation which was interstate, even in the absence of action by Congress.[2] Since that part was predominant and since some of the states did not even regulate intrastate commerce, federal legislation became imperative. Congress therefore enacted a regulatory bill, which became law on Feb. 4, 1887.[3]

Provisions of the Act of 1887

The Act of 1887 represented a compromise between opposing theories. The Senate theory was that the law should be couched in more or less general terms, leaving broad powers of interpretation in the hands of a commission. The House theory was that the provisions of law should be explicit. More specifically, the Senate favored the recognition of pools and the inclusion of a flexible long- and short-haul clause, while the House stood for an absolute prohibition of pools and a rigid clause. The following discussion of various sections of the act will indicate reflections of these views. The primary objective of all the 24 sections was of course to prevent the charging of unreasonable or discriminatory rates. To this end Congress drew upon the experience of the states, as well as upon that of England. Later, the states benefited in turn from the federal government.

1. *Scope.* The Act of 1887 was made applicable to common carriers engaged in the transportation of passengers or property in interstate or foreign commerce (*a*) wholly by railroad and (*b*) partly by railroad and partly by water, when both are used under a common control, management, or arrangement for a continuous carriage or shipment. This meant practically all railroads, since virtually every railway was a common carrier in interstate commerce. But it did not mean carriers merely by water Neither did the act apply to the transportation of passengers or property limited entirely to one state.

[1] *Ibid.*, p. 175.
[2] Cf. p. 141.
[3] *24 Statutes at Large*, pp. 379–387 (1887).

2. *Service.* All carriers subject to the act were directed to provide facilities for the receipt and delivery of passengers or property and for the interchange of traffic between different lines. Closely associated with this provision was another which made it unlawful for the companies to prevent the continuous movement of traffic from origin to destination.

3. *Reasonable Rates.* Section one provided that the charges for services rendered in the transport of passengers or property should be reasonable and just. It is significant that Congress put this requirement in general terms, thereby leaving the actual determination of reasonableness to the Commission. However, the Commission was not specifically empowered to prescribe schedules of rates, or to order a named rate to be put into effect.

4. *Discrimination.* Three sections, the core of the act, related to discrimination. Section two prohibited personal discrimination, making it unlawful for a carrier, directly or indirectly, by any device, to charge one person more than another for a like and contemporaneous service in the transportation of a like kind of traffic under substantially similar circumstances and conditions. Later sections recognized exceptions in the case of transportation for the federal, state, and municipal governments, or for charitable purposes. The carriers might also grant free passes to their employees. With these exceptions, every form of personal discrimination was forbidden.[1] Both houses of Congress agreed as one that rebating and the like should be outlawed.

Section three was a blanket injunction against unjust discrimination in any form, personal, place, or commodity.[2] The law was worded "undue or unreasonable preference or advantage," thus making it possible for the carriers to differentiate in rates insofar as it was reasonable to do so. An absolute inhibition of discrimination would have been contrary to the public interest.

Section four, the highly controversial Long- and Short-haul Clause, singled out for special prohibition one type of discrimination already generally disallowed by section three: the charging of a higher rate for a shorter than for a longer haul. Except by permission of the Commission in special cases, it was made unlawful for the carriers to charge or receive any greater compensation in the aggregate for the transportation (*a*) of passengers or of like kind of property, (*b*) under substantially similar circumstances and conditions, (*c*) for a shorter than for a longer distance over the same line, (*d*) in the same direction, and (*e*) the shorter haul being included within the longer. This presumably meant that all departures from the Long- and Short-haul Clause were prima facie illegal

[1] The excepted classes were amplified by an amendment in 1889, and in 1895 another amendment provided for the issuance of joint interchangeable mileage tickets.

[2] This section was modeled after the British Railway and Canal Traffic Act of 1854.

and that the Commission could determine the circumstances justifying departures.[1]

5. *Pooling.* As an indirect means of promoting reasonable, non-discriminatory rates, the pooling of freight, or the division among the carriers of their aggregate or net earnings, was forbidden altogether. It was argued, with some force, that, unless the railroads were allowed to pool, the result would be ruinous competition and discrimination; but the fear of extortion outweighed the argument. At that time public opinion was overwhelmingly opposed not only to pools but also to other monopoly devices among the railroads.

6. *Publicity.* Schedules of rates and fares were to be printed, made available for public inspection, and filed with the Commission.[2] It was declared unlawful to charge more or less than specified in the published schedules, and 10 days' public notice was required before rates could be advanced. Reductions might be made without prior notice, but the reductions had to be posted.[3] These publicity requirements were an important part of the act, being designed to aid in the elimination of abuses.

7. *The Commission.* The Interstate Commerce Commission was to consist of five members, appointed by the President by and with the advice and consent of the Senate for terms of 6 years at salaries of $7,500. No more than three of the commissioners could be from the same political party; and no commissioner was allowed to hold any official relation to the carriers subject to the act, or to be in any manner pecuniarily interested in such carriers. These provisions were designed (with reasonable success) to promote impartial decisions on the part of the Commission. The original act required the Commission to report to the Secretary of the Interior; but the amendment of 1889 directed it to report directly to Congress, thereby giving the Commission an independent status. The amendment also provided for publication by the Commission of its reports.

8. *Investigation and Reports.* In order to enable it to carry out its duties, the Commission was given certain investigatory powers. It was authorized to inquire into the management of the business of the carriers and to keep itself informed as to the manner in which the business was conducted. To this end the Commission could require the testimony of witnesses and the production of books, papers, and any other documents relating to matters under investigation.[4] The Commission might also de-

[1] The *Annual Report of the Interstate Commerce Commission*, 1887, reviews the conditions which led to this clause.

[2] The amendment of 1889 required the posting of schedules in depots and authorized the Commission to prescribe the form of schedules.

[3] The amendment of 1889 required 3 days' notice of reductions, and specifically included joint rates within the publicity provisions.

[4] The power to require the attendance and testimony of witnesses and the production of documentary evidence was slightly broadened by an amendment of 1891.

mand annual reports from the carriers and could prescribe a uniform system of accounts. Investigations could be made either upon complaint or upon the Commission's own motion. As in the case of rates, the investigatory authority of the Commission proved too restricted.

9. *Penalties and Enforcement.* The penalties of the act embraced, first, liability to persons injured; second, fines. Those suffering by reason of violation of the law could recover through suits the full amount of the damages sustained, and for certain offenses fines not to exceed $5,000 were imposed upon the officers of guilty carriers.[1] Upon investigation of real or alleged violations of the law, the Commission was required to make a written report; and the findings of fact were to be deemed "prima facie evidence as to each and every fact found" in judicial proceedings. When the Commission discovered violations, desist orders were to be issued to the carriers. Should the latter obey the Commission, its orders of course became effective immediately; but if the companies did not obey, orders took effect only after application by the Commission or other interested party to an appropriate court for an enforcing order.[2]

Inadequacy and Curtailment of Commission Authority

In administering the Act of 1887 the Interstate Commerce Commission was seriously hampered almost from the beginning. Although the first reaction of the railroads seems to have been to obey the law, opposition soon developed. As a result, basic weaknesses in the procedural and enforcement provisions of the act became evident. A series of decisions by unsympathetic courts deprived the Commission of most of its substantive powers.[3]

One of the first obstacles encountered involved the taking of evidence, without which the Commission could not bring to light violations of the law. Notwithstanding the investigatory authority of the Commission, witnesses refused to testify. They did so on two grounds: first, that the evidence given might incriminate them; second, that the courts could not use their authority in securing compulsory testimony before the Commission.

Ground one was asserted in 1890 by a shipper who refused to divulge to the Commission whether he had received a rebate. The Commission carried the matter to the courts, where counsel contended that to compel the shipper to testify denied him the protection of the Fifth Amendment

[1] The amendment of 1889 added imprisonment, where the offense was an unlawful discrimination; and included among those subject to fine and imprisonment shippers knowingly and willfully practicing false billing, underclassification, and the like.

[2] The amendment of 1889 made provision for jury trial in proceedings to enforce the Commission's awards of reparation.

[3] See Meyer, B. H., *Railway Legislation in the United States*, part 3, Chap. 3 (1903).

to the Constitution, which provided that "no person . . . shall be compelled in any criminal case to be a witness against himself." An amendment of 1889 to the Act to Regulate Commerce had made the receiver as well as the giver of a rebate liable to a heavy fine plus imprisonment. The offense was therefore both a criminal and a civil matter. The Act of 1887 and section 860 of the Revised Statutes provided that evidence by a witness could not be used against him in a criminal proceeding, but the recalcitrant witness argued that these provisions did not afford full protection.[1] The lower court ordered the witness to testify; but he declined, causing the case to be appealed to the Supreme Court. Thereupon (1892) the higher court decided in favor of the witness.[2] This led Congress to pass the Compulsory Testimony Act of 1893, which gave witnesses testifying under the Act to Regulate Commerce complete immunity with respect to their testimony.

Ground two was asserted in another witness case carried to the courts by the Commission in 1892. The argument here was that the provision of the Act of 1887 which empowered the courts to order obedience to subpoenas issued by the Commission was unconstitutional because it imposed upon the courts duties that were not judicial. The lower court sustained the witness; but the Commission appealed to the Supreme Court, which in the Brimson Case (1894) fortunately reversed the decision.[3] Had the Supreme Court condemned the act, the Commission could not have secured testimony, for it depended upon the courts for the enforcement of its orders.

Notwithstanding the Compulsory Testimony Act and the Brimson decision, the right of the Commission to elicit incriminating evidence was not fully established until the constitutionality of the Compulsory Testimony Act itself was determined. This finally occurred in the Brown Case in 1896, the Supreme Court holding by a margin of one vote that the constitutional rights of witnesses were adequately protected.[4]

Another early obstruction to effective regulation arose out of the failure of the Act of 1887 to make the Commission's orders binding in and of themselves. As explained above, to secure obedience the Commission was forced to bring action in the courts—initially in a lower court. Should the lower tribunal uphold the Commission, the railroads could appeal. And pending final judicial determination, the carriers were free to ignore orders without penalty. This procedure was very unsatisfactory. In the first place, it resulted in long delays which were often costly. Since the Commission's orders enjoyed no preference on frequently crowded dockets,

[1] Immunity applied only to *criminal* prosecution.
[2] Counselman *v.* Hitchcock, *142 U. S.* 547.
[3] *154 U. S.* 447.
[4] *161 U. S.* 591.

years might elapse before the highest court rendered a decision, or before the question was remanded and the Commission issued a new order. In 1897 the Commission stated that the average duration of cases actually prosecuted in the enforcement of the act was about 4 years.[1] The Georgia Railroad Commission cases were not settled for 9 years.[2] Such intolerable delays discouraged obedience to the law and invited violation. In the second place, the procedure unduly increased the work of the Commission; for it was the duty of the Commission to show that its orders were reasonable and not the duty of the railroads to show that they were unreasonable. In the third place, the procedure afforded the courts a rather freely employed opportunity to supplant the Commission as the true arbiter of cases. Questions first decided by the Commission could be reconsidered *de novo* by the courts. The Act of 1887 had provided that the findings of the Commission were to be taken as prima-facie evidence of the matters therein stated, and it was probably the intent of Congress that the orders of the Commission should be upheld unless there was a clear case of abuse of power; but the courts asserted their right to review the facts as well as the law of a case, and to allow the introduction of new evidence. This nullified the advantages of administrative control and discredited the Commission. It made a proceeding before the Commission merely a preliminary formality; and it reflected upon the wisdom of the Commission's decision, because the orders issued might be justified according to evidence first presented, but unwarrantable upon the basis of additional evidence later introduced in court.

Commenting upon the method of enforcement, the Commission said, "The same case is not tried before the court which is tried before the Commission. The trial before the Commission, therefore, with all its attendant expense and consumption of time, goes practically for nothing. The decisions of the Commission are made upon one state of facts, while the decisions of the courts may be, and usually are, upon an entirely different state of facts. When the court refuses to enforce a decree of the Commission, it apparently decides that the order was wrong, although upon the facts before the Commission it might have been absolutely right. If there is to be a trial before the Commission at all, some effect should be given to the outcome of it. A procedure like the present one tends to bring that body into disrepute and is grossly unfair to it and to the complainants who appear before it."[3]

More serious than the procedural stumbling blocks was the curtailment by the courts of the Commission's basic authority. One of its essential powers was the prescription of reasonable rates. The Act of 1887 had

[1] *Annual Report of the Interstate Commerce Commission*, 1897, p. 32.
[2] Ripley, W. Z., *Railroads: Rates and Regulation*, p. 461 (1912).
[3] *Annual Report of the Interstate Commerce Commission*, 1897, pp. 31–32.

not expressly delegated rate-making power to the Commission; but it had declared that rates should be just and reasonable and had directed the Commission to administer the act. The Commission therefore naturally assumed that it had authority to pass judgment upon rates in effect, to set them aside if found to be unreasonable, and to prescribe the maximum rates to be substituted. For 10 years the Commission acted upon this assumption, without protest from the carriers or the courts. But in 1897 in the Maximum Freight Rate Case (sometimes called the Cincinnati Freight Bureau Case) the Supreme Court decided that the power to designate rates for the future could not be implied from the provisions of the Act of 1887, and that this power was not among those granted to the Commission.[1]

By this decision the Commission was shorn of any real authority over rates.[2] It could issue an order against a particular rate, and if the courts upheld the Commission the rate became unlawful; but the railroads were privileged to make such reductions as they saw fit, regardless of what would be reasonable. For example, in 1904 the Commission found a rate of $80 per car on peaches from New York to Boston to be exorbitant, and deemed $50 as fair; but the carrier merely reduced the rate to $65 per car.[3]

If the Commission was without authority to name rates for the future, the provisions of the law against unjust discrimination and undue preference could not be enforced. It is true that shippers could sue the railroad for the difference between the rate charged and the one found to be reasonable, but this was an inadequate remedy. The amount involved might be too small to justify a suit; shippers often hesitated to antagonize the railroads; and the burden of the unreasonable charge generally fell upon the final consumer or the original producer. The only person entitled to recover damages was the actual shipper, and the differential recoverable seldom, if ever, measured the real damage done.

It is generally conceded that the right to indicate the rates that should be charged by the carriers is indispensable to effective regulation. As the Commission said, if its rate finding was proper the public was entitled to have the designated rate go into effect. If the decision was wrong it could be enjoined by the courts after proper proceedings by the carrier. Both the public and the railroad would then be protected, whereas under the existing procedure the public was virtually defenseless.

The final blow to the Commission's basic authority came in another case decided in 1897. In this decision, usually referred to as the Alabama Midland Case, the Supreme Court dealt with the power of the Commis-

[1] Interstate Commerce Commission *v.* Cincinnati, New Orleans and Texas Pacific Railway Company, *167 U. S.* 479.

[2] The Act of 1887 did not empower the Commission to prescribe minimum rates.

[3] *Annual Report of the Interstate Commerce Commission*, 1904, p. 6.

sion over violations of the Long- and Short-haul Clause.[1] Charging more for a short than for a long haul was unlawful when the circumstances and conditions were substantially similar. But what constituted similarity of conditions? According to the Commission, competition between interstate railways at a distant point and the absence of like competition at the nearer point did not generally create such dissimilarity as to justify higher rates for the short haul. The validity of this interpretation was the question at issue. The Court held that competition had to be considered and might make the circumstances and conditions so dissimilar that the long- and short-haul rule did not apply.[2]

This decision practically destroyed the Long- and Short-haul Clause, for there were relatively few instances in which the carriers quoted lower rates to more distant points unless compelled to do so by competition. And if competition made the conditions at the places involved dissimilar, they were nearly always that way; hence, the Long- and Short-haul Clause did not apply except after a finding by the Commission that the discrimination was unreasonable. The result was a wholesale disregard of the fourth section. In fact, the Commission was forced to proceed as if the Long- and Short-haul Clause had been stricken from the law. At least this was the Commission's view of the decision.[3]

Taken in connection with the Maximum Freight Rate Case, the Alabama Midland decision went far to make the Commission a useless body and to defeat the purposes of Congress. Despite the difficulties under which it labored, during the first 10 years of life the Commission had made notable progress. Diversities in classification had been partly removed, tariffs had been simplified, numerous cases of discrimination had been corrected, pooling had been checked, and improvements in the collection and recording of data had occurred. But after the setbacks of 1897, regulation came to a halt. The Commission became little more than a fact-finding and reporting body. The decade beginning in 1897 is sometimes referred to as the "doldrums" period in the Commission's history. During 9 years its decisions filled only nine volumes.

Hepburn Act of 1906

The authority of the Interstate Commerce Commission was not greatly increased until the passage of the Hepburn Act of 1906. New legislation was enacted in 1903, but it did not reach the outstanding defects in the law. The Expedition Act of 1903 merely provided that

[1] Interstate Commerce Commission *v.* Alabama Midland Railway Company, *168 U. S.* 144.

[2] In *234 U. S.* 476 (1914) the Court said that before 1910 the carriers could determine the dissimilarity of conditions.

[3] For a different opinion on the effect of the Alabama Midland Case, see Crumbaker, Calvin, *Transportation and Politics*, p. 21 (1940).

cases arising under the Act to Regulate Commerce, or under the Sherman Antitrust Act, were to be given precedence in the circuit courts, upon certification of their importance by the Attorney General; and further that appeals were to be carried directly to the Supreme Court instead of to a Circuit Court of Appeals.[1] The Elkins Act of 1903 was more important, but it was a railroad-sponsored measure relating primarily to personal discrimination.[2] Its chief provision made the published rate the standard of lawfulness. Every departure therefrom constituted a misdemeanor subject to the prescribed penalties. Fines had been levied for disregard of published tariffs by the Act of 1887, but the fines actually imposed had been nominal; and the penalty of imprisonment added in 1889 did not apply unless the degree of departure varied between shippers. Closely associated with this provision was another which empowered the courts by appropriate process to restrain discrimination. Still other provisions of the Elkins Act abolished the penalty of imprisonment, which was so severe as to make the enforcement of the law difficult;[3] increased the fine from $5,000 to $20,000; and applied the penalties to the corporation (the real beneficiary) as well as to its agents. Shippers receiving rebates were punishable equally with the carriers, even though the concessions were granted voluntarily. The Elkins Act did much to abolish rate cutting and other secret devices.

The Hepburn Act was passed in response to positive forces. One positive factor was the movement toward railroad consolidation. The outlawing of pools by the Act of 1887 and of rate agreements by the Supreme Court in 1897 had encouraged combinations in the form of consolidation and merger, lease, and stock ownership. Some of these combinations reached huge proportions, concentrating railway control in a few hands. Such restrictions of competition were generally opposed because of the fear of extortionate rates and on account of the favors that the railroad corporations granted to various industrial monopolies. Doubtless favoritism was less likely when the railroads combined than when they competed, but the combination movement in industry was so closely related to the similar movement in transportation that the people were distrustful.[4] A second factor promoting the demand for remedial legislation was the upward movement of freight rates—a movement which the Interstate Commerce Commission was powerless to prevent. Rates had been declining almost steadily since 1873, but in 1900 they were advanced by

[1] *32 Statutes at Large*, part 1, p. 823.

[2] *Ibid.*, pp. 847–849. The railroads approved the Elkins Act because of the losses in revenue brought about by personal discrimination in favor of large corporations.

[3] Penalty by imprisonment was restored 3 years later.

[4] Especially significant was discrimination by the railroads in favor of the Standard Oil Company. Another widely discussed instance of discrimination was rebating by the Santa Fe, which indirectly involved a member of the President's cabinet.

about one-fourth. The increases were occasioned in large part by the rising prices of labor and materials, and they were to that extent probably justified; yet they were also due in part to the restraint of competition and to concerted action on the part of the carriers. A third factor was financial manipulation, especially among the railroads of the Southwest.

The aforesaid positive forces, in conjunction with the weaknesses of the legislative structure, as repeatedly set forth by the Interstate Commerce Commission, finally led Congress to act. But legislation was not achieved without a struggle. It was necessary to overcome one of the bitterest and most far-reaching campaigns of railroad propaganda and lobbying in our entire history. Only the strength of the demand for a stronger statute, vigorously voiced by President Theodore Roosevelt, made it possible for the Hepburn bill to become law (June 29, 1906).[1]

Provisions

The Hepburn Act marks the close of the doldrums period of control and the beginning of an era of legislative rehabilitation. In form merely an amendment to the Act to Regulate Commerce, in reality the Hepburn Act thoroughly overhauled the original law.[2]

1. *Rate Making.* The most important provisions of the Hepburn Act related to rate making and to the enforcement of the Commission's orders. Upon complaint and after hearing, the Commission was authorized not only to set aside existing rates but also to prescribe the maximum rates to be observed in the future. This authority extended to joint rates and their division between railroads, or between railroads and water lines; and when the railroads refused to establish through routes and joint rates, the Commission could order their publication. It was argued by the railroad supporters that empowering an administrative body to prescribe rates for the future constituted a far-reaching and unconstitutional delegation of legislative authority, but Congress recognized that the right to fix rates is essential to real regulation. Objections to regulation by litigation have already been set forth.[3]

2. *Enforcement.* The orders of the Commission were to take effect at a date determined by the Commission (not within less than 30 days), and they were to continue in force for not more than 2 years, unless counter-

[1] The measure was aided in its final stages by a series of developments: a strike in the anthracite coal industry, the report of the Commissioner of Corporations on the transportation of petroleum, the revelations of an investigation of insurance companies, and the disclosure of deplorable conditions in the packing industry. See Dixon, F. H., "The Interstate Commerce Act as Amended," *Quarterly Journal of Economics*, vol. 21, pp. 22–51 (November, 1906).

[2] *34 Statutes at Large*, part 1, pp. 584–595.

[3] Cf. p. 126.

manded by the Commission or the courts.[1] Penalties began to run from the effective date of the order, each day's delay in obedience constituting a separate offense punishable by a fine of $5,000. Even if the carriers preferred to pay the fines, they were not free to continue violation, for the Commission was authorized to apply to the circuit courts for the issuance of the necessary enforcement writs. If the Commission's order was found to be "regularly made and duly served," the court was directed, not merely authorized as in 1887, to force the railroads to conform. Appeals might be carried to the Supreme Court, where they were given priority over civil cases; but the taking of an appeal was not in the meantime to vacate the Commission's order. In this way the burden of obeying the Commission, or of seeking redress, was placed upon the carriers. The interests of the railroads were safeguarded in that the carriers could appeal to the courts to set aside the Commission's order. This the courts were expressly empowered to do, although it was necessary duly to notify the Commission.

3. *Accounts and Reports.* Next to rate making and enforcement, probably the most significant provisions of the Hepburn Act were those strengthening the Commission's control of accounts and reports. The Act of 1887 had not given the Commission adequate authority in this connection, for it failed to provide specifically for the inspection of the carriers' records and for the enforcement of accounting orders. Many railway officials had therefore refused to certify to the correctness of their reports, or to furnish the Commission with the information it desired. The Hepburn Act authorized the Commission to require, under oath, standardized regular or special reports; to examine the various accounts and records of the carriers, which were to be kept open to the Commission or its agents at all times; and to prescribe the form of all accounts, etc. Fines might be levied for violations of these provisions, and severe penalties, including imprisonment, might be imposed for willful obstruction or falsification. The Commission made use of its new authority by establishing a partial set of accounts in 1907 and a complete set in 1914.[2] The companies contended that the prescription of accounts constituted an undue interference with management, but the Supreme Court rejected this argument.[3]

The importance of effective accounting control should be emphasized. Unless accounting systems are prescribed by competent authority, some carriers will not keep their accounts so as to furnish data essential to the

[1] The 2-year limit was removed by the Transportation Act of 1920, which provided that orders were to continue for a time specified by the Commission, or until further order.

[2] The Commission was authorized by the Transportation Act of 1920 to prescribe the classes of property for which depreciation reserves should be established, and to determine the amount of depreciation to be charged to operating expenses.

[3] *231 U. S.* 423 (1913).

efficient conduct of their business. Other carriers will not keep their records so as to show the facts prerequisite to regulation. Some companies, indeed, will in all probability deliberately distort their accounts so as to make it appear that their costs are greater than they actually are, hoping thereby to forestall reductions or obtain increases in rates. The Interstate Commerce Commission stated in 1905, "Probably no one thing would go further than this (adequate authority over accounts) toward the detection and punishment of rebates and kindred wrongdoing."[1]

Regulation of accounts facilitates uniformity of accounting, which has several advantages. First, it leads to increased operating efficiency, by making possible valid comparisons of costs. Second, uniformity of accounting promotes regulation, by enabling the regulatory authorities better to interpret the multitude of facts which the companies report. Third, uniformity of accounting permits a saving in accounting expenses, for those carriers operating in several states need to keep only a single set of books and records. Fourth, uniformity of accounting reduces risk and thus the cost of capital, for the danger of misrepresentation of investment data is less.

4. *Miscellaneous.* The other provisions of the Hepburn Act may be summarized briefly. (*a*) In order to enable it to perform its new duties better, the size of the Commission was increased from five to seven members; the term of office was lengthened from six to seven years; and salaries were raised from $7,500 to $10,000. (*b*) The jurisdiction of the Commission was extended to include express companies, sleeping-car companies, and oil pipe lines. Railroads were redefined to embrace switches, spurs, tracks, and terminals; and transportation was so defined as to comprise all instrumentalities of carriage, irrespective of ownership, as well as all services in connection with the receipt, storage, handling, and delivery of property. This extension of the scope of its authority enabled the Commission to control the charges for these services and to prevent discrimination more easily. (*c*) Free passes were expressly prohibited (except for certain classes) and grantors were severely penalized, largely in order to curb the undue political activities of the carriers. (*d*) The old provisions as to notification of changes in rates were so amended as to require 30 days' notice of all modifications, either advances or reductions. This struck at the practice of favoring selected shippers through sudden alterations in tariffs. (*e*) Another new provision, the so-called "commodities clause," made it unlawful for a railroad to transport in interstate commerce any commodity which it had produced or in which it had an interest. The object was to prevent the discrimination frequently arising where the railroads were engaged in enterprises other than transportation. Lumber or goods to be used by the railroads in the business of carriage

[1] *Annual Report of the Interstate Commerce Commission*, 1905, p. 11.

were excepted. (*f*) Finally, the penalty of imprisonment for rebates and like practices, which had been removed in 1903, was restored; and receivers of rebates were made liable not only to the regular penalties but also to forfeiture to the United States of three times the amount of the rebates.

Judicial Review

As cases arose under the amended law, the Supreme Court took a position different from that originally assumed. In the first place, the Court refused to pass upon the wisdom of the orders of the Interstate Commerce Commission. It set aside orders only when the Commission had violated the Constitution, had acted arbitrarily, or had gone beyond the powers specifically conferred upon it by the Act to Regulate Commerce. Facts were reviewed only to the extent necessary in determining the lawfulness of orders. "Plain as it is that the powers just stated are of the essence of judicial authority, and which, therefore, may not be curtailed, and whose discharge may not be by us in a proper case avoided, it is equally plain that such perennial powers lend no support whatever to the proposition that we may, under the guise of exerting judicial power, usurp merely administrative functions by setting aside a lawful administrative order upon our conception as to whether the administrative power has been wisely exercised. Power to make the order and not the mere expedience or wisdom of having made it, is the question."[1] In the second place, the Court ruled that the primary jurisdiction in matters of regulation lay in the hands of the Commission, that cases could not be carried to the courts until the Commission had first made a finding.[2] These holdings of the Supreme Court, which have generally been maintained down to the present, were based upon the obvious intent of Congress to make commission regulation effective.[3] They were restated in principle by Sec. 16 of the Clayton Act of 1914.

Mann-Elkins Act of 1910

Sweeping though it was, the Hepburn Act did not give the Interstate Commerce Commission all the authority that it needed. In the first place,

[1] Interstate Commerce Commission *v.* Illinois Central Railroad, *215 U. S.* 452, 470 (1910).

[2] Texas and Pacific Railway Company *v.* Abilene Cotton Oil Company, *204 U. S.* 426 (1907).

[3] During the decade ending in 1937 the Supreme Court sustained the Commission in about four out of five cases. Interstate Commerce Commission, *Interstate Commerce Commission Activities 1887–1937*, p. 71 (1937). In 1912 the Supreme Court distinguished between negative and affirmative orders of the Commission and refused to review negative orders. *225 U. S.* 282. But in 1939 the doctrine of negative orders was discarded. *307 U. S.* 125.

the act contained no provision to restrengthen the Long- and Short-haul Clause. Numerous violations of Sec. 4 were brought to light in Congress in 1906; but the opposition of the railroads and of other vested interests prevented amendatory legislation at that time. In the second place, the Hepburn Act did not authorize the Commission to suspend proposed changes in rates. Rates were established initially by the railroads; and the Commission could fix their maximum level only on complaint after they had gone into effect. Pending an order from the Commission, the only recourse for an injured shipper was suit for the collection of damages.[1]

To remedy these two defects and to improve the law in certain other respects, Congress passed the Mann-Elkins Act of 1910.[2] Unlike the Hepburn amendments, the Mann-Elkins Act was passed without much public discussion or propaganda on the part of the railroads. The legislation was of course opposed in Congress, but the supremacy of the public interest in transportation seems to have been firmly established in 1906.

1. *Long- and Short-haul Clause.* The Mann-Elkins Act restored the Long- and Short-haul Clause by striking from the original fourth section the phrase "under substantially similar circumstances and conditions."[3] Thereupon the "Alabama Midland" rule ceased to apply. Unless the Interstate Commerce Commission granted relief, the prohibition against charging a higher rate for a shorter than for a longer haul under the named conditions became absolute. Three other changes in the Long- and Short-haul Clause provided that no charge for a through route should be higher than the aggregate of the intermediate rates over the same route; that rates once reduced to meet water competition could not subsequently be increased on the ground that water competition had been eliminated;[4] and that the clause should apply to routes including connecting railroads as well as to those including the lines of only one railroad. Revitalized, Sec. 4 came to be of great value. It enabled the Commission to place railroad rates more nearly on a distance basis, thereby correcting the more glaring cases of local discrimination.

2. *Rate Suspension.* The Mann-Elkins Act authorized the Commission, upon complaint or on its own motion, to conduct hearings concerning the propriety of proposed changes in rates, fares, or classifications, and changes might be suspended for a period of 120 days beyond the date when they were designed to go into effect. Should additional time be required for investigation, the suspension period could be increased by

[1] In 1910 the railroads in the East and West had filed tariffs advancing rates to levels which shippers believed to be unreasonably high.

[2] *36 Statutes at Large*, part 1, pp. 539–557. See also Dixon, F. H., "The Mann-Elkins Act, Amending the Act to Regulate Commerce," *Quarterly Journal of Economics*, vol. 24, pp. 593–633 (August, 1910). The act was an amendment of the Act to Regulate Commerce.

[3] The amended clause was sustained as constitutional. *234 U. S.* 476 (1914).

[4] This provision was borrowed from the constitution of California.

6 months. After hearing, the Commission was authorized to issue such orders concerning the rates as it saw fit. Thus, new rates could not become effective without the approval of the Commission, unless it failed to suspend them, or to issue an order within the waiting period of 10 months; and the burden of proving an increase in rates to be just and reasonable was placed upon the carriers. The railroads contended that it was unfair to impose this difficult task upon them, yet the provision merely afforded the public the same protection against new rates which the companies enjoyed with respect to old rates. Just as the latter could not be disturbed except after investigation by the Commission, so could the former not take effect except after investigation. Many rates of course became effective without stay and hearing, for the Commission was not required to invoke suspension.

3. *Commerce Court.* An innovation of theoretical significance was the Commerce Court. This was a specialized tribunal of five judges to which Congress transferred the former jurisdiction of the district courts over suits instituted to enforce or enjoin the orders of the Interstate Commerce Commission. Appeals lay directly to the Supreme Court.

The primary objective in creating the Commerce Court was judicial specialization. It was argued (*a*) that court decisions involving the Act to regulate Commerce would be more nearly uniform and in closer accord with the legal merits of cases if rendered by a body of experts; and (*b*) that the judicial process would be expedited, inasmuch as the Commerce Court would not be burdened like the district courts with matters other than commerce. In order to remove the danger of bias, it was provided that the judges, who were to serve for 5 years, might not succeed themselves. This requirement obviously militated against expertness.

In practice the Commerce Court proved a hindrance to effective regulation. The primary reason it impeded control was that it went too far in casting aside the orders of the Commission. In many instances the Commerce Court failed to confine itself to legal questions and decided cases on the basis of its own judgment upon the facts involved. This aroused much criticism, for it was clearly the intention of Congress to make the Commission the real arbiter of cases.[1] Censure was intensified by the fact that the Supreme Court time after time overruled the Commerce Court. Why have a tribunal which generally reversed the Commission, if the tribunal itself was to be reversed? Obstructive though it was, the new court might have enjoyed a longer life had not one of its judges been impeached for using his influence while a member of the court to secure personally profitable contracts from corporations involved in litigation. This did not mean that the court as a whole was corrupt, but it raised the question

[1] The Mann-Elkins Act had specifically provided that the transfer of court jurisdiction was in no way to enlarge the scope of judicial review.

of its integrity. Already under fire because of its decisions, after the impeachment the court was more widely condemned than ever. It was abolished on Oct. 22, 1913, about 3 years after being created, and its jurisdiction was transferred back to the district courts.[1]

4. *Miscellaneous.* Eight other provisions of the Mann-Elkins Act may be indicated. (*a*) The jurisdiction of the Commission was extended to include telegraph, telephone, and cable companies transmitting messages in interstate commerce.[2] (*b*) The Commission was expressly authorized to control the classification of freight. It had been exercising this authority without definite permission to do so. (*c*) The Commission was also given the specific right to prescribe maximum rates after hearings instituted upon its own motion. The Hepburn Act had been indefinite on this point. (*d*) Upon application, the carriers were required to state in writing to a shipper the rate applicable to a designated shipment. This provision was designed to protect shippers from losses arising through the misinterpretation of published rates or through misquotation by the railroads. (*e*) The carriers were forbidden to disclose information regarding shipments, when such information might be used to the detriment of the shipper. (*f*) Shippers were empowered to designate their preference as to alternative through routes. (*g*) The Commission was given the right to establish through routes even if a satisfactory route already existed, but the carriers could not be compelled to short-haul their traffic. (*h*) The President of the United States was authorized to appoint a commission to investigate the feasibility of regulating the issuance of railroad securities.

Other Legislation before 1920

After the passage of the Mann-Elkins Act, the powers of the Interstate Commerce Commission were reasonably adequate. It could not fix minimum rates or regulate securities, and the legislative structure was weak from the standpoint of positive as contrasted with negative control; yet the Commission's authority was sufficient to prevent serious exploitation of the public. No basic change was made in the Act to Regulate Commerce until the wartime experience focused attention upon the shortcomings of the restrictive approach to regulation. However, there were two enactments prior to 1920 which should be described at this point: the Valuation Act of 1913 and the Clayton Act of 1914.[3]

[1] *38 Statutes at Large*, part 1, pp. 219–221.

[2] In 1934 this jurisdiction was transferred to the newly created Communications Commission. *48 Statutes at Large*, part 1, pp. 1064–1105.

[3] The legislation relating to government operation of the railroads will be briefly explained in Chap. XXIII. In this connection may be mentioned the Esch Car-service Act of 1917, giving the Commission authority to establish car-service rules; and the Priority of Shipment Act of 1917. *40 Statutes at Large*, pp. 101–102; 272–273. The Panama Canal Act is discussed in the chapter dealing with the regulation of water carriers. Four other

Valuation Act[1]

The Valuation Act was passed to provide for the valuation of the property of common carriers subject to the jurisdiction of the Interstate Commerce Commission. A valuation was needed for various reasons, in particular for the purpose of regulating the general level of railroad rates. It was the duty of the Commission to see that unreasonable rates were not charged and that proposed changes in rates did not go into effect unless shown to be justified. In the pursuance of this duty it was obviously essential that the Commission have a measure of reasonableness. But no such measure was available other than the rule of Smyth *v.* Ames.[2] This rule merely prescribed "fair value" as a basis for rates, and it was evident that neither the value shown on the books of the carriers nor the market value of railroad securities was acceptable as a criterion of fair value.

The Commission had pointed to the need for valuation long before the Valuation Act was passed; but no appraisal had been provided for, except in a few states, largely because of the opposition of the railroads. They believed that rates should not be based upon the value of the property and that the cost of a valuation would be excessive. However, in 1911, when the Commission refused the requests of the carriers for increased rates, on the ground that justification for the proposed changes had not been established, the attitude of the railroads underwent a change. Thenceforth the carriers supported the Commission, and Congress passed the necessary enabling legislation.

Reflecting the pronouncements of the Supreme Court, the Valuation Act directed the Commission to make a number of distinct findings. It was required, first, to ascertain and report in detail as to each piece of property (other than land) used for transportation by every common carrier subject to the Act to Regulate Commerce: the original cost to date, the cost of reproduction new, and the cost of reproduction less depreciation. In determining the original cost, the Commission was to investigate and report upon the history of the corporate organization, its earnings and expenditures, and its security issues. Second, the Commission was directed to ascertain such other values or elements of value as might exist. This referred chiefly to "intangible" items. Third, the Commission was ordered

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enactments were as follows: An act of 1912 gave the Commission authority to approve the rates and classifications for parcel post. *37 Statutes at Large*, part 1, pp. 539–560. Another act of 1916 extended the jurisdiction of the Commission to mail pay. *39 Statutes at Large*, part 1, pp. 412–431. And the so-called "Cummins" Amendments of 1915 and 1916 empowered the Commission to authorize or require released rates in the limitation of the common-carrier liability of the railroads. *38 Statutes at Large*, part 1, pp. 1196–1197; *39 Statutes at Large*, part 1, pp. 441–442.

[1] *37 Statutes at Large*, part 1, pp. 701–703.

[2] Cf. p. 234.

to determine the value of lands as of the time of dedication to public use and as at present. Finally, the Commission was required to report the original cost and present value of property not employed for carrier purposes; and to set forth detailed information concerning the amount and value of gifts and donations of land.

According to the procedure outlined in the act, the Commission was first to make a tentative valuation for each carrier. The carrier was then to be notified of the valuation; and if a protest was not filed within 30 days, the tentative valuation became final. If a protest was submitted, hearings were to be held, after which the Commission, if necessary, could revise the original finding and report the final value as of the date of the order.[1] After the completion of the final valuations, the Commission was to keep itself informed "in like manner" of changes in the value of carrier properties. Since the original primary valuations were reported as of various dates between 1914 and 1921, valuations could be kept current only by taking account from time to time of extensions and improvements.

The magnitude of the task imposed upon the Commission was much greater than anticipated in 1913. The collection of the requisite engineering, accounting, and financial information concerning the large and complex properties of hundreds of corporations was a stupendous undertaking. The Commission estimated that the time required for the completion of the enterprise would be 3 years and that the cost would be $3,000,000. As it turned out, the last of the primary valuations of the 1,685 steam railroads in existence on Mar. 1, 1913, were not completed until 1932.[2] Still remaining was the task of valuing railway lines constructed after 1913, of bringing the primary valuations down to date, and of appraising the properties of common carriers other than railroads. Although the bulk of the work was done, it had taken almost 20 years. And to the end of 1937 the Commission itself had spent more than $50,000,000, to say nothing of the outlays of the carriers. It has been argued that all this expenditure represents a waste of money; but the data gathered have been of value, not only in deciding rate cases but also in connection with other matters such as the assessment of taxes, cost finding, issuance of securities, joint use of facilities, reorganization, and unification. Numerous departments of the government utilize the data.

Clayton Act[3]

The Clayton Act, an antitrust measure applicable to industrial combinations in general, is of significance here in that it contained provisions looking toward the maintenance of carrier competition and the preven-

[1] The final valuations were to be prima-facie evidence in all proceedings under the Act to Regulate Commerce.

[2] *Annual Report of the Interstate Commerce Commission*, 1932, p. 86.

[3] *38 Statutes at Large*, part 1, pp. 730–740.

tion of certain types of financial mismanagement. Although the Supreme Court had already decided that the railroads were subject to the anti-trust provisions of the Sherman Act of 1890, section seven of the Clayton Act reaffirmed the intention of Congress to promote competition. It provided that no corporation engaged in interstate commerce could directly or indirectly acquire stock in another such corporation where the effect would be substantially to lessen competition between the carriers, restrain trade, or create a monopoly of a line of commerce. A similar prohibition applied to pure holding companies.[1] Exceptions were made of stock purchases solely for investment and of intercorporate security holdings resulting from the construction of branches, or the acquisition of short lines, provided no substantial competition existed between the companies concerned.

Section ten of the Clayton Act, which referred to financial manipulation, made it illegal for a common carrier to deal in securities and supplies, or to make contracts for construction aggregating more than $50,000 per year, with any concern in which specified carrier officials might be interested, unless the dealings were conducted competitively under regulations prescribed by the Interstate Commerce Commission. All transactions carried on between interlocking companies were to be fully described and reported to the Commission. Investigation had shown that restrictions of this sort were desirable, for costs had sometimes been increased because of the financial interest which the officials of the carriers had had in concerns with which they dealt.

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[1] For a definition see p. 491.

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CHAPTER - - - - - - - - - - - - - - - - SEVEN

The Transportation Act of 1920 and Subsequent Railroad Legislation

IN 1920 there began a new period of transport legislation. Instead of being designed primarily to prevent specific abuses, the legislation of 1920 and much of that subsequent thereto had as a major objective the building up of an adequate transportation service. For the most part these laws were enacted with the approval of the transportation industries and without great agitation on the part of the public.[1] This chapter covers the more important railroad measures: the Transportation Act of 1920 (Esch-Cummins Act); the Emergency Railroad Transportation Act of 1933; Section 77 of the Bankruptcy Act of 1898, passed in 1933 and amended in 1935, 1936, and 1939; and the Transportation Act of 1940. Brief attention is also given to the Hoch-Smith Resolution.[2]

Setting of the Transportation Act of 1920

The weaknesses of the negative approach to regulation had been revealed by developments immediately before and during the First World War. Railroad credit had suffered, and the Interstate Commerce Commission had not been specifically directed to establish a general level of rates, or a scientific rate structure, designed to restore credit.[3] The outlawing of pools and the application of the antitrust laws to railroad combinations in general had encouraged discrimination, reduction of rates to unremunerative levels, wasteful hauls, excessive construction, and unduly elaborate services. During the war the carriers had been unable through their own initiative adequately to meet the demands for service; and government operation of the railroads had demonstrated the possibility

[1] One spokesman for the railroads has argued, however, that legislation should have stopped with the Hepburn Act, that the later laws have strengthened bureaucratic control at the expense of operating efficiency. Fletcher, R. V., "Restrictive Legislation, Rates, Wages and Taxation," *Proceedings of the Academy of Political Science*, vol. 17, pp. 189–201 (January, 1937).

[2] The legislation dealing with labor is discussed in the chapter on Labor. The Delegation of Authority Act is described in connection with the Transportation Act of 1940.

[3] Cf. p. 238. In the absence of reliable valuation data, the railroads had not been wholly successful in convincing the Commission that rising prices justified higher rates.

of substantial economies, once the railroad industry could be more completely "rationalized."[1]

The legislative structure existing in 1920 was of course not perfect from a negative standpoint. The Interstate Commerce Commission needed fuller authority over railroad service, which had been left primarily in the hands of management, notwithstanding the fact that the companies had failed on more than one occasion even during peacetimes to provide adequate service.[2] The Commission also needed authority to regulate the issuance of railroad securities. The states were not in a position to perform this task effectively; and when not regulated at all, securities were sometimes excessive in amount and questionable in character, thereby encouraging poor service, high rates, and impaired credit.[3] Finally, there was need to clarify the respective fields of state and federal authority, so that inconsistent and confusing regulations might be avoided.[4]

With the foregoing weaknesses of the legislative scheme as a background and with the imminence of the return of the railroads to private hands affording a favorable opportunity for new legislation,[5] Congress reopened on an extensive scale hearings which had been begun by the Newlands Committee before the United States declared war.[6] Many views as to future policy were voiced at the hearings. Although the various spokesmen agreed as one that something should be done to replace the temporary, losing arrangement of government operation, opinion beyond that point differed widely.[7] Ignoring details, the proposed "solutions" contemplated three more or less distinct procedures: (1) outright government ownership and operation of the railroads; (2) continuation of government operation for a specified trial period under normal conditions; and (3) immediate return of the railroads to private operation, together with improvements in regulation. The first policy was vigorously supported by the organized employees of the railroads; the second by the Director General of Railroads; but it was the third, proposed by the Interstate Commerce Commission, the Association of Railway Executives, the National Association of Owners of Railroad Securities, and the National Transportation Conference, which was finally adopted.[8] As a whole the

[1] Cf. p. 573.

[2] Failure was due in part to insufficient facilities, in part to inefficient use of facilities.

[3] Cf. p. 461.

[4] Still another need was a change in the machinery for the settlement of labor disputes.

[5] A return without new legislation was stated by the President to be undesirable.

[6] *Hearings on Extension of Tenure of Government Control of Railroads*, 65th Cong., 3d Sess., and *Hearings on Return of the Railroads to Private Ownership*, 66th Cong., 1st Sess. (1919).

[7] See Van Metre, T. W., "Solving the Railroad Problem," *Proceedings of the Academy of Political Science*, vol. 8, pp. 513–517 (January, 1920).

[8] The programs of these various organizations differed considerably in detail. More

people were opposed either to government ownership or to a continuation of government operation.

Provisions of the Transportation Act

The Transportation Act was passed in February, 1920.[1] It contained temporary and permanent provisions. The temporary provisions were designed to bridge the transition to private control, arrangements being made to adjust all disputes arising out of federal operation, to fund the net indebtedness of the carriers to the United States, to extend loans to the railroads, and to continue the government guarantee for 6 months from Mar. 1, 1920, the date on which federal control was to cease.

The permanent provisions of the Act of 1920 have been described as "radically constructive";[2] and they were hailed in 1920 as a "solution" of the railroad problem, chiefly because of their new philosophy. The most significant clauses related to rates, combinations, securities, service, and labor disputes.

Rates

The rate provisions can best be explained by grouping them under two heads: (1) those putting into effect innovations in regulatory policy; (2) those modifying the power of the Commission along established lines. Group one included provisions for a new rule of rate making, the recapture of excess earnings, the division of joint rates, and the regulation of intrastate rates.

1. The heart of the Act was the rule of rate making. This rule, incorporated in the Interstate Commerce Act[3] as Sec. 15*a*, read as follows: "In the exercise of its power to prescribe just and reasonable rates the commission shall initiate, modify, establish or adjust such rates so that the carriers as a whole (or as a whole in each of such rate groups or territories as the commission may from time to time designate) will, under honest, efficient and economical management and reasonable expenditures for maintenance of way, structures and equipment, earn an aggregate annual net railway operating income equal, as nearly as may be, to a fair return upon the aggregate value of the railway property of such carriers held for and used in the service of transportation: *Provided*, That the commission shall have reasonable latitude to modify or adjust any

recently, representatives of railroad labor have gone on record as opposed to government ownership.

[1] *41 Statutes at Large*, part 1, pp. 456–499. The act was in the form of an amendment to the Interstate Commerce Act.

[2] Rich, E. J., "The Transportation Act of 1920," *American Economic Review*, vol. 10, pp. 507–527 (September, 1920).

[3] After 1920, the Act to Regulate Commerce was known as the Interstate Commerce Act.

particular rate which it may find to be unjust or unreasonable, and to prescribe different rates for different portions of the country."

To carry out the aforesaid obligation, the Commission was from time to time, after 2 years, to determine and make public the percentage of the aggregate property value that would constitute a fair rate of return, such rate to be uniform for all rate groups or territories. It was to take into consideration the transportation requirements of the country and the need to enlarge the transportation plant. For the first 2 years Congress set the rate at 5½ per cent, but authorized the Commission to add up to ½ per cent for capitalizable improvements and betterments. The aggregate value of the property, or base for the return, was to be ascertained according to the law of the land by the Commission, which might employ for this purpose the data secured under the Valuation Act of 1913.

It should be emphasized that the rule of rate making did not guarantee a fair return, either to the individual carrier or to the carriers as a whole or in groups.[1] So far as individual lines were concerned, the rule did not necessarily imply anything; for the return was based upon the aggregate value of railroad property as a whole or in groups, and not upon the value of a particular property.[2] Since the various railroads were of unequal earning power under uniform competitive rates, it followed that a rate level producing a reasonable average revenue for a group of lines would cause some carriers to earn more than a fair return, others to earn less. As for the railroads as a whole, the rule was a guarantee only in the sense that the Commission was required to initiate and establish a level of rates that would provide the needed return if all variable factors were correctly foreseen. In case earnings turned out to be less than anticipated, there could be no resort to the government for reimbursement.

It was to meet the problem of railroads of unequal earning power that the recapture clause was inserted in the Transportation Act. This provided for the fixation of rates so that the return would be reasonable for the railroads as a whole, with means of assisting the weak carriers through earnings recaptured from the strong. A railroad earning in any year more than 6 per cent on the value of its property might retain half the excess, paying the other half to the Interstate Commerce Commission.[3] The half kept by the railroad was to be placed in a reserve fund of the carrier. Until this reserve amounted to 5 per cent of the value of the carrier's property, it might be drawn upon, in years when the return was less than 6 per cent, only for the payment of interest, rentals, and dividends. When

[1] A guarantee was advocated in Congress; but if it had been given, the government might have become financially involved in the railroad business, and the incentive to efficiency would have been checked.

[2] The rates fixed by the Commission to produce the return were in fact established for four rate groups: Eastern, Southern, Western, and Mountain-Pacific.

[3] It should be noted that the return was based upon property values, not upon securities.

the reserve equaled more than the 5 per cent, the surplus might be employed by the road for any lawful purpose. It was argued that a railroad earning more than 6 per cent was not entitled to any of the excess; but had the government taken all earnings above that percentage, there would have been less incentive on the part of the carrier to practice economy, and fewer dollars would have been available for aid to weak roads.

The government's half of the excess earnings was set aside in a railroad contingent fund, from which the Commission might make loans to the weak lines for the purpose of meeting capital expenditures or of refunding security issues. Loans were to be adequately secured and were to bear interest at 6 per cent. The Commission could also purchase equipment and lease it to the carriers, provided rentals produced a return of at least 6 per cent in addition to depreciation. These limitations meant that the marshaling of a part of the earnings of the strong for the benefit of the weak would be of little practical value in many cases; for weak railroads could seldom furnish adequate security.

Another means whereby Congress sought to promote an adequate transportation system consisted of new regulations governing the divisions of joint rates. The Hepburn Act had given the Commission authority to decide divisions; but decision by the Commission was possible only on complaint when the participating carriers could not agree, and a prescribed division had to assure each carrier a reasonable share of the joint revenue. According to the new rules the Commission could determine divisions on its own initiative for the purpose of strengthening the transportation system as a whole. Strength could be imparted by giving the weak line a larger share of the joint earnings than would have been lawful before 1920. In prescribing the shares of participating railroads the Commission was directed to consider the efficiency with which the carriers were operated; the amount of revenue required by each; the importance of the services rendered; the character of the roads involved; and any other factor that might entitle one carrier to more revenue than the other, without regard to the length of the haul. So far as the weak lines were concerned, the efficacy of this provision obviously depended upon how great the joint revenue was.

Still other constructive rate provisions of the Transportation Act were those relating to intrastate rates. Here the purpose was to foster the transportation system by preventing a state from setting the level of intrastate rates so low as to discriminate against interstate commerce. Section 13, as amended, provided that the Interstate Commerce Commission might if necessary raise intrastate rates to the level of interstate rates. As indicated elsewhere, this was more than a mere enactment of the Shreveport rule.[1]

[1] Cf p. 143.

2. The provisions of the Act of 1920 which may be grouped under the second rate heading dealt with the lower level of rates, rate suspension, and the Long- and Short-haul Clause. The Commission was authorized to prescribe minimum as well as maximum rates. This power was conferred for two reasons. First, the Commission could thereby prevent rate wars, which tended to undermine rates instituted under Sec. 15*a*.[1] Second, control over minimum rates made more effective the regulation of discrimination. Prior to 1920, the Commission could remove discrimination by ordering a reduction in the high rate involved, but not by ordering an increase in the low rate. Even in enforcing the Long- and Short-haul Clause, the Commission had been able to bring about a proper relation between the rates to the near and the more distant points only by lowering the high intermediate rates. When it was the reduced rate which placed a burden upon noncompetitive traffic, the proper remedy was to raise that rate.

Rate-suspension procedure was modified by shortening the suspension period from 120 days plus 6 months to 120 days plus 1 month. This change was made in the interest of the carriers. Under the procedure before 1920 the railroads were at a disadvantage in that proposed rates might be suspended for as much as 10 months, even though changing conditions justified more prompt decisions.[2] Carrier losses suffered during suspension could not be recovered. The new period did not of course eliminate all losses, yet it tended to reduce them by making it possible to put proposed rates into effect more quickly in cases where the Commission did not render decisions. To guard against the danger of the shorter period, the act provided that, if rates became effective before an order had been issued, the Commission might continue its investigation until a decision was reached. The additional revenue collected in the meantime through the new rates might be earmarked, at the discretion of the Commission, so that it could be returned to shippers should the decision be adverse to the carriers. Though this provision was designed to protect the shipper, it was of dubious value because the refunds went to ratepayers as a windfall in cases where the increase in rates had already been shifted to consumers. In practice, however, such contingency seldom arose, since the carriers feared the expense of the reimbursement machinery and generally agreed to a voluntary extension of the suspension period.

The Long- and Short-haul Clause was amended by restricting the power of the Commission to grant relief from its provisions. It will be remembered that the Mann-Elkins Act of 1910 had placed the decision as

[1] The carriers had been at liberty to maintain uneconomically low rates, provided the rates were not discriminatory.

[2] Later the period was found to be too short, and in 1927 it was changed to 7 months. *44 Statutes at Large*, part 2, pp. 1446–1450.

to departures from the Long- and Short-haul Clause entirely in the hands of the Commission. In certain instances the Commission had exercised its discretionary power favorably; and to limit this discretion, the Transportation Act of 1920 specified (*a*) that the rates on the long haul should be reasonably compensatory for the service performed; (*b*) that a lower rate to a more distant point might not be allowed on account of water competition not actually in existence; and (*c*) that a circuitous line, in meeting the competition of a more direct line, could not at intermediate points on its line charge a rate higher than the through rate if the distance involved were no greater than the mileage of the direct route. To explain the last clause, assume that railroad *X* is a circuitous line running from *A* to *B* in order through *C* and *D*; and that railroad *Y* is a direct line connecting *A* and *B*. Assume further that the distance from *A* to *C* on *X* is equal to the distance from *A* to *B* on *Y*. Rates from *A* to *C* on the circuitous line *X* could be no higher than rates from *A* to *B*, for the distance from *A* to *C* on *X* is the same as the distance from *A* to *B* on *Y*. However, rates from *A* to *D* on *X* may be higher, since it is farther from *A* to *D* on the circuitous line than from *A* to *B* on the direct line. The Commission had generally followed these three stipulations in its decisions before the Transportation Act was passed, but it had not been required to do so.

Combination[1]

The Transportation Act of 1920 modified the long-continued policy of enforced competition. It legalized combinations approved by the Commission and set aside federal and state antitrust laws to the extent necessary in effectuating the unifications. It was expected that combinations would strengthen the position of the carriers as a whole through stabilizing rates, promoting economies, and absorbing weak railroads. To that end the act allowed the companies to form combinations of either a loose or a close type.

Loose arrangements, or pools of freight or earnings, which had been absolutely prohibited by the Act of 1887, might be authorized after hearing upon request, or upon the Commission's own motion. Authorization was made dependent upon a showing that the arrangements (1) would promote better service or economy in operation; and (2) would not unduly restrain competition.[2] All terms and conditions of the pools could be decided by the Commission, but the enforcement of Commission orders was contingent upon the unanimous approval of the participating carriers.

The formal combinations allowed by the act might be either acquisitions of control or consolidations. The former were unifications effected through lease, stock purchase, or other means not involving the fusion of

[1] The term "combination" is here used in a broad sense.

[2] The last provision largely nullified the clause.

properties. The latter were combinations of the opposite sort. A different set of rules applied in the two cases. Acquisitions of control were to be approved by the Commission upon a showing that the public interest would be promoted, while consolidations had to meet more stringent requirements. This distinction was based upon technical considerations and proved unwise.

Assuming conformity with the public interest, consolidation (fusion) was permissible (1) if the proposed consolidation was in harmony with a complete plan of railroad consolidation to be drawn up by the Commission; (2) if the par value of the stocks and bonds of the acquiring corporation did not exceed the value of the consolidated properties as determined by the Commission. Before any consolidation could be effected, it was necessary, therefore, for the Commission to promulgate a plan for the consolidation of the railroads into a limited number of systems and to value the properties involved. Valuation having been provided for by the Valuation Act of 1913, the Act of 1920 directed the Commission to adopt a plan of consolidation as soon as practicable. The scheme arranged was to accord with three conditions: (1) the preservation of competition as fully as possible; (2) the maintenance of existing channels of trade and commerce wherever practicable; and (3) subject to the foregoing requirements, the arrangement of the several systems so that the earning power of each would be approximately equal under uniform rates for competitive traffic. The Commission was first to draw up a tentative plan; and after hearings thereon, it was directed to prepare a "final" plan.

It may be observed that the task imposed upon the Commission was a difficult one. To arrange a plan that would absorb the weak railroads and at the same time measure up to the first two conditions involved the application of rules to a large extent mutually contradictory. Nevertheless, the Commission published a tentative plan in 1921 and a so-called "final" one in 1929.[1] But even the latter was tentative, for it was modified in 1930 and 1932 and could be changed again as the Commission saw fit. For that reason the Commission recommended that it be relieved of the obligation of drawing up comprehensive plans. Even assuming that it was practicable to arrange them, the schemes would have little direct value because of the fact that the carriers were not compelled to consolidate. The Act of 1920 merely stipulated that when consolidations were created, they should conform to the plan. In practice the railroads sought to combine under the less restrictive provisions applicable to acquisitions of control.

Securities

Regulation of securities was provided for by Sec. 20*a*. This section made it unlawful for any railroad to issue securities (stock or evidences of

[1] *63 I. C. C.* 455 (1921); *159 I. C. C.* 522 (1929).

indebtedness), or to assume obligations with respect to securities issued by other persons, except after authorization by the Commission. Upon application, the Commission was directed to make an investigation of proposed issues and to promulgate an order of approval only if it found such issue to be (1) for some lawful object within the corporate purposes; (2) compatible with the public interest; and (3) reasonably necessary for the rendition of the proper carrier service. Securities not approved were declared to be void, and persons suffering losses by reason of purchase of such securities were permitted to recover from the railroad the full amount of the damages sustained.[1] The only securities exempt from regulation were notes maturing in not more than 2 years after date of issue and not aggregating more than 5 per cent of the carrier's capitalization.[2]

In order to avoid inadequate and conflicting state regulation, the jurisdiction of the Commission over security issues was made exclusive. Although the states concerned with proposed issues were to be notified of applications, final authority rested with the Commission. This meant that the carriers might issue securities approved by the Commission without obtaining the consent of state officials. The Commission was empowered to attach such terms and conditions to its approvals as it saw fit, with respect to the amount and character of the securities as well as to the use of the proceeds. Informed opinion was agreed that broad powers were necessary to accomplish the major objectives of security regulation. A good illustration of its extensive authority was the Commission's recent requirement of competitive bidding in the marketing of certain types of securities, including most interest-bearing obligations.[3]

As a further aid to the control of financial affairs, the Transportation Act prohibited interlocking directorates, except where approved by the Commission. It was made unlawful after Dec. 31, 1921, for any person to be an officer of more than one carrier, unless permitted so to be by a Commission finding that neither public nor private interests were adversely affected thereby. This provision was designed to force corporate dealings at arm's length and to restrain the influence of banking houses.

Service

In addition to the indirect encouragement of better service, the Act of 1920 provided for direct regulation. Commission authority over service in normal times was made commensurate with its power over rates, and control in times of emergency was made even more far-reaching.

During normal times the Commission was empowered to regulate the

[1] Company officials knowingly violating the law were subject to fines and imprisonment.

[2] This exemption allowed the companies to take advantage of changing conditions in the money market more quickly.

[3] *257 I. C. C.* 129 (1944).

use of existing equipment and to control the extension and abandonment of facilities. Its authority relating to existing equipment covered car service and terminals. Car-service powers as defined by the Esch Car Service Act of 1917, which embraced the movement, distribution, exchange, interchange, and return of cars, were redefined to include the movement, etc., of locomotives and special vehicles, as well as cars; the use, control, and supply of cars, locomotives, and vehicles; and the supply of trains. The carriers were first to file with the Commission their regulations dealing with these things, after which the Commission could approve, reject, or amend the regulations. In this way a more effective use of rolling stock could be promoted.

With respect to terminals the act gave the Commission power to require joint use But it could not order joint use unless this was found to be in the public interest, was practical, and would not impair the ability of the owning carrier to handle its own business. Because of competitive advantages, the railroads guarded their terminals jealously; and it was thought desirable to open them when reasonable to do so. The result would be better service as a whole, less duplication of terminal facilities, and greater strength on the part of weak roads.

As for the extension and abandonment of facilities, the act made it the duty of the railroads to furnish safe, adequate service; and it authorized the Commission to compel the railroads to equip themselves properly for such service. This applied to the provision of rolling stock, the installation of safety devices, and the extension of lines. Additional motive equipment or lines were not to be ordered, however, unless the Commission found that they would be in the public interest and that the monetary outlays involved would not impair the ability of the carrier to fulfill its obligations to the public.

No line was to be constructed or abandoned until a certificate of public convenience and necessity had been secured from the Commission.[1] Certificates of abandonment could be issued irrespective of state authorities, and the Commission could attach such terms and conditions to the certificates as the public interest required. Although the primary objective of the regulation of extensions was to prevent overconstruction, thereby upholding the new rate policy, the purpose in controlling abandonments was to protect needy communities and to enable the railroads more readily to discontinue such service as threatened their solvency.

The authority of the Commission over service in emergencies was drastic and could be exercised in a summary fashion. In cases of emergency arising out of congestion, shortage of cars, or other factors, the Commission was authorized, without the formality of hearings, to (1) suspend car-service rules, irrespective of the wishes of the companies; (2)

[1] This provision did not apply to spurs, etc., wholly within a state.

make such car-service orders as would best promote the public interest, without regard to the ownership of equipment; (3) require the joint or common use of terminals, without necessarily considering the normal restrictions; (4) give directions as to priority in transportation, embargoes, or movements of traffic under permits; and (5) direct the handling, routing, and movement of traffic in such way as best to promote service in the interest of the public.

Court Interpretation of the Act of 1920

The Supreme Court upheld most of the essential provisions of the Act of 1920. It upheld the recapture clause in 1924;[1] the Commission's power over intrastate rates in 1922;[2] the new policy in dividing the revenue from joint rates in 1923;[3] the car-service clauses in 1927;[4] and the regulation of securities in 1932.[5] Only in the case of compulsory construction into new territory did the Court interpret the act narrowly, and in this instance the intent of Congress was not altogether clear.[6]

Hoch-Smith Resolution[7]

The Hoch-Smith Resolution was passed by Congress in 1925 in the form of a joint declaration. It is chiefly significant, not because of its actual effects, but because it represented an attempt on the part of Congress to afford special relief for a particular industry.

The resolution declared that the "true policy" to be pursued by the Commission in fixing freight rates requires consideration of the conditions which at any time prevail in our several industries, to the end that commodities may move freely.[8] In order to determine whether existing rates measured up to this mandate, the Commission was directed to make a thorough investigation of the rate structures of all common carriers subject to the Interstate Commerce Act, indicating to what extent and in what manner rates were unduly discriminatory as between the various localities and parts of the country, the various classes of traffic, and the various classes and kinds of commodities. Rates found to be unjustly discriminatory were to be adjusted in the light of (1) the general and comparative levels in market value of the commodities; (2) the proper development of the country as a whole; and (3) the maintenance of an adequate

[1] *263 U. S.* 456.
[2] *257 U. S.* 563.
[3] *261 U. S.* 184.
[4] *274 U. S.* 564.
[5] *287 U. S.* 12.
[6] *288 U. S.* 14 (1933).
[7] *43 Statutes at Large*, part 1, pp. 801–802.
[8] For a detailed discussion of the resolution see Malott, E. O., *The Hoch-Smith Resolution, A Study of a Congressional Mandate on Transportation* (1942).

transportation system. Agriculture received special attention, the Commission being ordered to effect with the least practicable delay such changes in rate structures as would promote the free movement of agricultural products affected by the postwar depression, at the lowest lawful rates compatible with the maintenance of an adequate transportation service.

Question arose as to whether this legislation modified rules of rate making already established. The Supreme Court of the United States apparently answered in the negative, for the declared "true policy" was hedged about with counteracting limitations. The conditions within an industry were to be considered only "in so far as it is legally possible to do so," and the lowest possible rates on agricultural products were to be "lawful" and "compatible with the maintenance of adequate transportation service." While the Interstate Commerce Commission took the position that the resolution compelled it to reduce rates on agricultural products to the lower portion of the zone of reasonableness,[1] the Supreme Court in the Ann Arbor case did not accept even this limited interpretation.[2] It referred to the provision requiring the lowest lawful rates on the products of agriculture as more in the nature of a hopeful characterization of an object deemed desirable than of a rule intended to control rate making.[3]

Informed students generally believe that the Ann Arbor decision nullified the Hoch-Smith Resolution. Whether it did or did not have this effect, however, the resolution represented a dangerous interference by Congress in rate making; imposed an enormous task upon the Commission; and in our opinion was unsound in principle.[4] To use the railroads or other means of transportation in artificially supporting depressed industries causes an improper distribution of capital and labor and tends to bring about a depression in transportation itself. To give rate-making weight to the conditions within an industry insofar as they affect what the traffic will bear is correct policy; but in doing this the objective is to encourage the largest volume of traffic that will pay its way, and not to provide industrial aid as such. The Commission has properly said that its function is not to guarantee a shipper the profitable conduct of his business.

[1] The zone of reasonableness lies between the highest rate that can be charged and the out-of-pocket cost of the service.

[2] *281 U. S.* 658 (1930).

[3] By declaring a new national transportation policy, the Transportation Act of 1940 apparently destroyed any force that the Hoch-Smith Resolution may now have. However, the resolution is still in effect.

[4] In response to the resolution, the Commission carried out under Dockett 17,000 a sweeping investigation of railroad rate structures. This investigation was continued until 1933, at which time it was dropped except for ancillary proceedings.

Emergency Railroad Transportation Act of 1933[1]

The Transportation Act of 1920 did not have the results anticipated. The rule of rate making failed to provide the railroads as a whole a fair return on the fair value of their property; the recapture clause proved unworkable in practice; the provisions governing unifications led to combinations contrary to the intent of the law; and the Railroad Labor Board lost the confidence of organized labor.[2] The first three shortcomings became especially serious after 1930, owing largely to the business depression and keen transport competition.[3]

Upon the recommendations of the National Transportation Committee[4] and of the Interstate Commerce Commission, Congress passed the Emergency Railroad Transportation Act of 1933, partly to bridge the emergency and partly to make permanent changes in the legislative structure. This marks the beginning of regulation specifically designed to promote coordination in transportation.

Emergency Provisions

The emergency provisions of the Act of 1933 looked primarily toward the elimination of wastes in the railway industry, particularly unnecessary expenditures arising from the failure of the railroads to coordinate their operations.[5] Specifically, the objectives were (1) to encourage action on the part of the carriers, which would avoid useless duplication of services, control allowances that unduly impaired net earnings, and eliminate other losses; (2) to promote the financial reorganization of the carriers, so as to reduce fixed charges; and (3) to provide for the immediate study of means of improving transportation conditions in general.

For the purpose of carrying out these objectives, the act created the Federal Coordinator of Transportation and three regional coordinating committees, each to be composed of five members selected by the carriers and two members designated by the Coordinator.[6] Plans for accomplishing economies were to be devised by the committees; and if the committees were unable to carry out such plans voluntarily, they were to recommend that the Coordinator issue mandatory orders. Subject to appeal to the Interstate Commerce Commission and to the courts, orders so issued were

[1] *48 Statutes at Large*, part 1, pp. 211–221. The act was an amendment to the Interstate Commerce Act.

[2] Cf. pp. 239, 508, 523.

[3] The situation in the railroad industry at that time is described in Chap. XIX, pp. 476–477.

[4] The Report of the National Transportation Committee is printed in Moulton, H. G., and Associates, *The American Transportation Problem*, pp. xv–lxix (1933).

[5] An article on the act is Harbeson, R. W., "The Emergency Railroad Transportation Act of 1933," *Journal of Political Economy*, vol. 42, pp. 106–126 (February, 1934).

[6] President Roosevelt appointed Commissioner J. B. Eastman as Coordinator.

declared binding, and the carriers were relieved from the antitrust laws to the extent necessary.

Coordinating projects were severely limited. It was provided that the number of employees in the service of a carrier could not be reduced, by reason of action under the act, below the number in service during May, 1933, after deducting normal separations; that no employee could be placed in a worse position by virtue of procedure under the act; and that the companies were to reimburse employees for expenses incurred in moving from one place of work to another. Although these limitations were designed to protect employees, they obviously had the effect of preventing most schemes of coordination; for procedures that would produce substantial economies usually required savings in labor. Plans reducing labor costs were generally possible only to the extent permitted by ordinary cessations of employment.

The emergency provisions of the act were to remain in force for one year from effective date, with the proviso that they might be extended for another year by presidential proclamation. They were so extended to June 16, 1935, and Congress by joint resolution again extended them to June 16, 1936, at which time they expired. Prior to and after expiration, several important studies were published by the Coordinator.[1]

Permanent Provisions

The most important amendments by the Emergency Act related to railroad combinations and to the rule of rate making. Another amendment repealed the Recapture Clause retroactively.[2] Still another modified the Valuation Act by permitting the Commission merely to collect the data from which valuations could be made current when necessary, rather than requiring it to keep valuations up to date as a matter of course.[3] Finally, the act prohibited the Commission from approving loans to a carrier under the Reconstruction Finance Corporation Act, if in the opinion of the Commission the borrower was in need of financial reorganization.

The provisions involving combinations were designed to remedy three defects in the consolidation clauses of the Transportation Act of 1920: one set of rules for consolidations and another more liberal set for acquisitions of control;[4] lack of Commission jurisdiction over holding companies, or combinations effected through minority stockholdings; and the requirement that the capitalization of a consolidated corporation should not

[1] Cf. p. 598.

[2] For criticisms of the Recapture Clause see p. 242.

[3] This relieved the Commission of unnecessary work.

[4] The companies tended to follow the more liberal set, effecting holding companies which were not in harmony with a reasonable disposition of the railroads.

exceed the primary valuations of the constituent properties as determined under the Valuation Act of 1913.[1] In making the desired improvement, the Act of 1933 (1) eliminated the distinction between consolidations and acquisitions of control; (2) brought holding companies definitely under the jurisdiction of the Commission with respect to accounts, reports, and securities; (3) removed the requirement as to the capitalization of a consolidated corporation; and (4) set up a single standard of decision for all types of combination. The Commission was authorized to approve proposed unifications on two conditions: (1) that they harmonize with the plan of consolidation as drawn up under the provisions of the Act of 1920, and (2) that they promote the public interest. Such terms might be prescribed as the Commission saw fit, and it was made unlawful for the companies to effect a common control of two or more properties in any way not approved by the Commission.

The provisions relating to rates made the rule of rate making more flexible. The requirement that the Commission so set rates as to provide the carriers as a whole or in groups a fair return on the fair value of their property was eliminated. Since it had been virtually impossible to obey this requirement, there seemed to be little point in retaining it in the law. Section 15*a* was criticized on several grounds, some valid, some groundless. One valid criticism was that it rested upon an unworkable "fair value" standard of rate making. The disadvantages of this standard will be explained in Chap. X. Another criticism of some validity was that Sec. 15*a* assumed the possibility of stabilizing railroad earnings notwithstanding changes in economic conditions. Stability was feasible, if at all, only in the long run. Ill-founded criticisms were that Sec. 15*a* guaranteed the carriers a fair return, placed revenue needs above all other considerations, and was a means of keeping alive unnecessary and obsolete railroads. Only if the rule of rate making were misapplied could the latter criticisms carry weight.

The revised rule read as follows: "In the exercise of its power to prescribe just and reasonable rates the Commission shall give due consideration, among other factors, to the effect of rates on the movement of traffic; to the need, in the public interest, of adequate and efficient railway transportation service at the lowest cost consistent with the furnishing of such service; and to the need of revenues sufficient to enable the carriers, under honest, economical, and efficient management, to provide such service." The new rule thus relieved the Commission of a formal obligation, made no mention of the doctrine of a fair return, and listed for consideration factors other than revenue needs. It should be emphasized, however, that the rule did not eliminate the desirability of a normal return.

[1] The valuations could not readily be completed as required.

Section 77 of the Bankruptcy Act of 1898

By 1933 a number of railroads had failed, or were about to fail,[1] and reorganization under equity procedure had been unsatisfactory in several respects. There had existed conflict of jurisdiction between different courts. Receivers had sometimes operated failing railroads in behalf of special interests. Delays in formulating reorganization plans, owing to recalcitrant minorites, had often been interminable, the average duration of receiverships between 1898 and 1931 being 4 years and 5 months.[2] Reorganization expenses had frequently been excessive, as in the case of the Milwaukee railroad, which set aside for reorganization $3,500,000.[3] Many plans of reorganization had actually increased the total capitalization, without making adequate reductions in fixed charges, or without proper regard for legal priorities.[4] Abuses could not be corrected by the Interstate Commerce Commission because it had no opportunity to approve plans of reorganization until after they were already agreed upon by security holders. If the Commission refused to sanction the issuance of securities necessary to put a proposed scheme into effect, it counteracted agreements often reached only after long delay and great expense. Consequently, the Commission had at times decided that it was better to approve a plan of reorganization which represented some improvement than to insist upon one more thoroughgoing.

To provide an alternative reorganization procedure of improved type, Sec. 77 of the Bankruptcy Act was passed.[5] This section, as later amended, provided that the one court within which a petition of failure is filed should have exclusive jurisdiction; that the property of the failing company should be operated by trustees instead of receivers, such trustees to be ratified by the Interstate Commerce Commission; that the Commission might participate in the formulation of reorganization plans prior to their final stages; that under certain conditions plans could be put into effect against the wishes of minorities; and that the Commission could fix limits to the expenses of reorganization, which were to be paid out of the debtor's estate. It was believed that reorganizations would be improved by this amendment, although the basic difficulties involved were not eliminated

[1] Cf. p. 476.

[2] Some receiverships had lasted 10 years or more. Dewing, A. S., *The Financial Policy of Corporations*, p. 1166 (1934).

[3] Moulton, *op. cit.*, p. 335.

[4] See an unpublished study made by Prof. D. P. Locklin for the Interstate Commerce Commission.

[5] *47 Statutes at Large*, part 1, pp. 1467–1482; *49 Statutes at Large*, part 1, pp. 911–926, 1969–1971. The amendment of 1935 provided for ratification of trustees by the Commission rather than for a Commission panel of trustees from which the courts could make appointments, and regulated the activities of protective committees. The amendment was based upon a bill drawn up by the Federal Coordinator of Transportation.

and reorganization could still take place under equity proceedings. The details of procedure are described in Chap. XIX.

Transportation Act of 1940[1]

The Transportation Act of 1940 dealt with motor and water transportation as well as with railroads. After explaining the background of the new law, we outline in this chapter only those provisions relating to railroads.

Background of the Act

The Act of 1940, like that of 1933, was fundamentally a product of the business depression and the intensely competitive situation in transportation. Despite the provisions of the Emergency Act, the financial condition of the railroads had become steadily worse as the depression continued. Though the Federal Coordinator of Transportation had shown in a series of informative reports that considerable waste in the railroad industry could have been eliminated, the companies had done little toward carrying out his suggestions. Leading reasons for the failure to take action were the labor restrictions of the Emergency Act, the individualistic character of railroad management, and the uncertain economic outlook.

The primary objective of the legislation of 1940 was to restrain competition, at least to a limited extent, and to bolster up the transport industries with special reference to the welfare of the railroads.[2] The larger companies and federal regulatory authorities favored legislation.[3] Shippers, farm organizations, and small carriers were generally opposed, largely on the ground that the proposed extension of regulation would encourage higher rates.[4] Joining in opposition were the state railroad and

[1] *Public Law No. 785*, 76th Cong., 3d Sess. (1940). A short article on the act was published in *Public Utilities Fortnightly*, vol. 26, pp. 789–800 (Dec. 5, 1940). Other articles are Dewey, R. L., "The Transportation Act of 1940," *American Economic Review*, vol. 31, pp. 15–26 (March, 1941); and Bigham, T. C., "The Transportation Act of 1940," *Southern Economic Journal*, vol. 8, pp. 1–21 (July, 1941). Our discussion is drawn in part from the last article. The most recent discussion is Harbeson, R. W., "The Transportation Act of 1940," *Journal of Land and Public Utility Economics*, vol. 17, pp. 291–302 (August, 1941).

[2] See Committee on Interstate and Foreign Commerce, *Transportation Act of 1939*, 76th Cong., 1st Sess., Report No. 1217, p. 2 (July 18, 1939). It was largely this objective that elicited the support of common carriers in the passage of the legislation of 1940.

[3] The act was also endorsed in principle by labor groups, numerous chambers of commerce, and various commercial organizations.

[4] *Hearings before the Committee on Interstate Commerce, United States Senate, on S. 1310, S. 2016, S. 1869, and S. 2009*, 76th Cong., 1st Sess., pp. 161, 284, 291, 357, 504, 515 (1939); also *Hearings before the Committee on Interstate and Foreign Commerce, House of Representatives, on H. R. 2531 and H. R. 4862*, 76th Cong., 1st Sess., part 4, pp. 997, 1105, 1155, 1182, 1643, 1676 (1939). These hearings will be referred to hereafter as *Senate Hearings* and *House Hearings*.

utilities commissioners, who as a class were apprehensive of further encroachment upon state authority.[1]

The act grew directly out of two reports.[2] The first was made by three members of the Interstate Commerce Commission to President Roosevelt on Mar. 24, 1938, and was transmitted to Congress by the President on Apr. 11, 1938.[3] The second report was submitted to the President by six representatives of railroad management and labor on Dec. 23, 1938, after Congress had failed to act on the first report.[4]

The Report of the Committee of Three outlined a plan of immediate relief for railroads and proposed a long-term program for transportation in general. The recommendations for relief included (1) extension of public credit to the railroads; (2) elimination of land-grant rates; and (3) establishment of a special court to take charge of reorganizations. Though not expressing an opinion for or against a reduction in railroad wages, the committee pointed out that a cut would greatly aid the carriers.

The long-term plan emphasized the need for increasing the internal efficiency of the carriers and suggested (1) the creation of a temporary federal transportation authority of three, to encourage consolidation and coordination and (2) a broadening and liberalizing of the Commission's power over unifications, including the right to require coordination. The authority was to investigate the relative economy of rail, motor, and water transportation; ascertain the extent to which the three forms of transportation are supported by public funds; and inquire into railroad financial abuses, especially in relation to holding companies. After such studies were completed, it was expected that the authority would report upon the desirability of compulsory railroad consolidation, new legislation to promote coordination, and extension of regulation to all important types of transportation.

In transmitting the Report of the Committee of Three to Congress, President Roosevelt requested that the membership consider transferring the administrative duties of the Interstate Commerce Commission to

[1] *House Hearings*, part 4, p. 1659.

[2] Other reports doubtless influenced the legislation. Among the others were those of the National Transportation Committee, the Joint Committee of Railroads and Highway Users, the National Transportation Conference, the Federal Coordinator of Transportation, and the Interstate Commerce Commission. *Senate Hearings*, p. 463.

[3] *Immediate Relief for Railroads*, House Document No. 583, 75th Cong., 3d Sess. (1938). The Committee of Three was selected from a larger committee of 15 brought together by the President early in March. Its report is sometimes referred to as the "Splawn" report, but more often as the "Report of the Committee of Three."

[4] *Report of Committee Appointed September 20, 1938 by the President of the United States to Submit Recommendations upon the General Transportation Situation.* (1938.) The members of this committee were drawn entirely from the railroad industry. Their report is hereafter referred to as the "Report of the Committee of Six."

some old or new department of the federal government, leaving the quasi-judicial and quasi-legislative functions as presently located. Chairman Splawn had stressed the need for reorganizing the Commission, although the Commission itself was in general opposed to reorganization by law, except in a very broad way to permit greater flexibility of procedure and less delay in handing down decisions.

The Report of the Committee of Six was less conservative and called forth more opposition. Its leading recommendations were as follows: (1) adoption by the government of a definite national transportation policy providing for the impartial regulation of all modes of transportation, so administered as to preserve the inherent advantages of each; (2) centralization in the Interstate Commerce Commission of all regulatory provisions with respect to rates, services, valuation, and accounting of all modes of transportation; (3) revision of the rule of rate making by applying it to all forms of transportation and by eliminating the phrase "to the effect of rates upon the movement of traffic"; (4) repeal of the Long- and Short-haul Clause; (5) extension of the authority of the Commission over intrastate rates, so as more readily to eliminate state interference with interstate commerce; (6) creation of an independent transportation board, to function as an investigatory body, and eventually to administer the regulatory provisions covering certificates of public convenience and necessity, securities, and combinations; (7) imposition of tolls for the commercial use of certain inland waters; (8) abolition of the Inland Waterways Corporation; (9) relief from unjust tax burdens; (10) elimination of land-grant rates; (11) establishment of a single court of reorganization; (12) repeal of the provisions of law making the Commission responsible for the prescription of a general plan of railroad consolidation; and (13) enlargement of the lending powers of the Reconstruction Finance Corporation. In general, emphasis was placed upon the betterment of competitive conditions rather than upon the improvement of internal efficiency.

It will be noted that the two reports were in substantial agreement on five points: (1) extension of public credit to the railroads; (2) elimination of land-grant rates; (3) establishment of a special court of reorganization; (4) repeal of the law requiring the Interstate Commerce Commission to prepare a grand plan of railroad consolidation; and (5) creation of a transportation authority. Since Congress was under pressure to act, especially from the President, and since few objections to the five proposals were voiced, save the third, provisions dealing with all except the third were incorporated in the new law, being written along with other clauses into bills introduced in the House of Representatives and in the Senate early in 1939.[1] After extended hearings during the spring and summer, and

[1] Although it was recognized that a special court would possess the advantages of specialization, it was argued that to create one at that late date would retard rather than

in particular after consultations with representatives of the Interstate Commerce Commission, these bills were consolidated and sent to conference. The conference report was finally adopted by the House on Aug. 12, 1940, and by the Senate on Sept. 9, 1940.[1] The President signed the law on Sept. 18.

Provisions of the Law

The provisions of the Transportation Act of 1940 relating to railroads may be analyzed under four heads: (1) amendments to Part I of the Interstate Commerce Act; (2) Board of Investigation and Research; (3) rates on government traffic; and (4) amendments to the Reconstruction Finance Corporation Act.[2]

1. *Amendments to Part I of the Interstate Commerce Act.* One of the most significant amendments was the broadened declaration of a national transportation policy, modeled along the lines of the older declaration in the Motor Carrier Act of 1935. Quoting, "It is hereby declared to be the national transportation policy of the Congress to provide for fair and impartial regulation of all modes of transportation subject to the provisions of this Act, so administered as to recognize and preserve the inherent advantages of each; to promote safe, adequate, economical, and efficient service and foster sound economic conditions in transportation and among the several carriers; to encourage the establishment and maintenance of reasonable charges for transportation services, without unjust discriminations, undue preferences or advantages, or unfair or destructive competitive practices; to cooperate with the several States and the duly authorized officials thereof; and to encourage fair wages and equitable working conditions . . . all to the end of developing, coordinating, and preserving a national transportation system by water, highway, and rail, as well as other means, adequate to meet the needs of the commerce of the United States, of the Postal Service, and of the national

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speed up railroad reorganizations and undo much of the work of commissions and courts already finished. *House Hearings*, part 4, pp. 1619, 1724.

[1] See American Short Line Railroad Association, *Transportation Act of 1940*, pp. 29–32 (1940). The Act of 1940 is printed in this booklet. See also *House Hearings* and *Senate Hearings*. Commissioner Eastman made three reports on the various bills: one on Mar. 20, 1939; a second on May 27, 1939; and a third on Jan. 29, 1940.

[2] Numerous minor provisions are omitted, owing to limitations of space. One group of such provisions authorized free transportation for labor representatives and postal employees, when on duty, and for the household goods and personal effects of the employees of a carrier which are moved as a result of a change in place of employment. The provisions of the Interstate Commerce Act relating to reduced rates to improve housing conditions were repealed, and several new paragraphs on discrimination were added. In addition, the time within which shippers may seek reparation, or the carriers recovery, was shortened from 3 to 2 years.

defense. All of the provisions of this Act shall be administered and enforced with a view to carrying out the above declaration of policy."[1]

Thus for the first time Congress declared a national transport policy for all forms of transportation subject to the Interstate Commerce Act. Especially vital points in the policy were the following: impartial regulation of all modes of transportation, preservation of the inherent advantages of each type of transportation, promotion of sound conditions in the transportation industries, condemnation of destructive competitive practices, and encouragement of fair wages and working conditions. Decision as to the actual meaning of these elements of policy was wisely left in the hands of the Commission, but to foster and preserve all forms of transportation when there exists less than enough traffic for all is a difficult task.

Another important amendment liberalized the Commission's authority over combinations and omitted the instructions to prepare a plan of consolidation, with the proviso that during a period of 4 years from effective date the employees of railroads directly concerned shall not be placed by unification in a worse position with respect to employment, unless otherwise agreed by the carriers and employees. Most provisions of the Interstate Commerce Act relative to railroad pooling, unifications, mergers, and acquisitions of control were brought together under Sec. 5 and were made applicable to all types of carriers subject to the act. In passing upon proposed unifications the Commission was required to give weight to the following considerations: (1) the effect of the transaction upon adequate transportation service; (2) the effect of the inclusion or omission of other railroads; (3) the total fixed charges resulting from the transaction; and (4) the interest of the carrier employees affected. As in the past, unification was left an entirely voluntary matter.

Less important amendments to Part I made it the duty of railroads to establish further reasonable through routes with common carriers by water;[2] added the words "region," "district," and 'territory" to Par. 1 of Sec. 3 of the Interstate Commerce Act; directed the Commission to give special consideration to export rates on farm products and to institute an investigation of interterritorial and intraterritorial rates in general;[3] made the beneficial owner rather than the shipper responsible for the transportation charges of a delivering railroad or express company;[4] extended the Long- and Short-haul Clause to common carriers by water, and eliminated the "equidistant" provision of the Clause;[5] gave the

[1] *Public Law No. 785*, 76th Cong., 3d Sess., pp. 2–3 (1940).

[2] The establishment of such routes was theretofore somewhat limited. Cf. p. 439.

[3] An investigation of the kind was already under way, largely as a result of the "Ramspeck Resolution," but it had been limited in scope.

[4] This was important in instances of reconsigned or diverted shipments.

[5] Though the importance of this clause is probably exaggerated, the railroads strongly advocated its outright repeal. The Interstate Commerce Commission, however, was

Commission power to inquire into and report on the management of the business of all common carriers subject to the act, including persons controlling, or controlled by, such carriers; extended the rule of rate making to all forms of transportation, but without deleting the phrase "to the effect of rates on the movement of traffic";[1] allowed the Commission to designate one or more of its divisions as appellate divisions and to assign any of its work, except matters referred to joint boards or functions vested in the Commission, to any division, commissioner, or board of employees; and clarified the Commission's authority over accounts, records, and reports.[2]

The amendment relating to Commission procedure requires further comment. As the volume and complexity of the work of the Commission has increased, laws have been passed from time to time modifying its composition and procedure, in order to allow a more effective performance of its duties. In 1917 the Divisions Act increased the membership of the Commission from seven to nine;[3] authorized the Commission to organize into divisions of not less than three commissioners; and gave the decisions of a division the same effect as the decisions of the Commission itself, except that they were subject to rehearing by the Commission as a whole.[4] In 1920 the membership was increased to the present 11, and in 1933 the Delegation of Authority Act carried the principle of division a step fur-

opposed to repeal, on the ground that Sec. 4 was sufficiently flexible as it stood and that it tended to prevent the reduction of rates to abnormally low levels. The Commission had previously voiced opposition to the Pettengill Bill, which likewise sought virtually to eliminate Sec. 4. *Letter from the Chairman of the Legislative Committee of the Interstate Commerce Commission*, 76th Cong., 1st Sess., p. 13 (1939). See also *House Hearings*, part 4, p. 1823.

[1] As Commissioner Eastman pointed out, to have omitted this phrase would have indicated that Congress no longer wished the effect of rates upon traffic to be considered as a factor in fixing rates, notwithstanding the fact that in practice the traffic effects of proposed rates can never be ignored. Moreover, literally interpreted, the rule without the phrase would force the Commission to approve increases in rates, even during a depression, that would provide a normal return on excessive capital investment, in disregard of the best interests of the transportation industry in general and of the welfare of the railroads in particular. *Letter from the Chairman of the Legislative Committee of the Interstate Commerce Commission*, 76th Cong., 1st Sess., p. 8 (1939). Something is to be said, of course, for preserving transport plant for the future.

[2] The chief changes relating to the accounts and records empowered the Commission to require special as well as annual reports, to prescribe a uniform system of accounts for any type of carrier, to establish classes of depreciable property as well as rates of depreciation, and to assume jurisdiction over memorandums of the movement of traffic. The Commission was also given access to the accounts of persons controlling or controlled by carriers.

[3] The number of members had been increased from 5 to 7 by the Hepburn Act.

[4] *40 Statutes at Large*, pp. 270–272. In 1944 there were five divisions: (1) administrative; (2) rates, tariffs, and valuations; (3) rates, service, and safety; (4) finance; and (5) motor carriers.

ther by empowering the Commission to delegate certain powers to an individual commissioner, or to a board of one or more employees of the Commission.[1] But cases instituted on the motion of the Commission, or those involving the taking of testimony at public hearings, could not be delegated to subdivisions. Neither could a division act in an appellate capacity. By removing the last two restrictions, the amendment of 1940 sought to speed up the work of the Commission and lessen the cost of regulation to litigants. However, the amendment specified, against the advice of the Commission, that "The assignment or reference, to divisions, of work, business, or functions relating to the lawfulness of rates, fares, or charges shall be made according to the character of regulation to be exercised and not according to the kind or class of the carriers involved or to the form or mode of transportation in which such carriers may be engaged."[2] This limitation was designed to prevent partisanship within the Commission with reference to particular classes of carriers; but no substantial testimony has been produced to show that the Commission has in the past exhibited partisanship in its decisions, even though the Motor Carrier Act has been administered by a separate division.

2. *Board of Investigation and Research.* The act created a Board of Investigation and Research of three members appointed by the President, with the advice and consent of the Senate, to serve for a period of 2 years.[3] The board was required to investigate (1) the relative economy and fitness of rail, motor, and water transportation; (2) the extent to which right of way or other transportation facilities and special services have been or are provided from public funds for the use of the three types of carriers within the United States; and (3) the extent to which taxes are imposed upon the three classes of carriers. The board was not an arm of the Commission.[4]

[1] 47 *Statutes at Large*, part 1, p. 1368.

[2] As organized in 1944 the Commission had 16 bureaus, some functional and some according to carrier: accounts, administration, finance, formal cases, informal cases, inquiry, law, locomotive inspection, motor carriers, personnel and supervision, safety, service, transport economics and statistics, traffic, valuation, and water carriers and freight forwarders. Each bureau reports to one of the commissioners, one of the divisions of the Commission, or to the Commission as a whole.

[3] The period of service could be and was extended not more than 2 years by proclamation of the President. It expired on Sept. 18, 1944. For reports by the Board see pp. 48, 429, 535, 564, 594.

[4] A board of the type referred to above was highly recommended by the Commission, which did not favor a permanent administrator within the Commission, as proposed in H. R. 2531, or a board that engages in regulatory duties, as recommended by the Committee of Six. The Commission pointed out that promotional work is essentially different from regulatory work, and that a temporary board might attract men not available on a permanent basis and would provide an opportunity to determine the best type of organization for promotional purposes.

3. *Rates on Government Traffic.* The United States was required to pay full applicable commercial rates for the transportation of persons or property for civil purposes, and the full rate fixed by the Interstate Commerce Commission for the transportation of mail.[1] This provision was recommended by both committees and received the approval of the Commission itself.[2] It is further discussed in the chapter on Public Aids to the Transport Industries.

4. *Amendments to the Reconstruction Finance Corporation Act.* The provisions under this heading authorized the Reconstruction Finance Corporation to make loans to the railroads, within the limit of $500,000,000[3] for all railroads at any one time, after approval and certification by the Interstate Commerce Commission that the borrowing carrier may reasonably be expected to meet its fixed charges without reduction thereof through judicial reorganization.[4]

REFERENCES

The subject matter of this chapter is discussed in the general surveys of legislation referred to at the close of the preceding chapter.

The Transportation Act of 1920 is described in the following: Dixon, F. H., *Railroads and Government*, Chap. 15 (1922); *Hearings on Extension of Tenure of Government Control of Railroads*, 65th Cong., 3d Sess., and *Hearings on Return of the Railroads to Private Ownership*, 66th Cong., 1st Sess. (1919); Johnson, E. R., and Van Metre, T. W., *Principles of Railroad Transportation*, Chap. 29 (1924); Johnson, Forney, "The Transportation Act, 1920," *Virginia Law Review*, vol. 6, pp. 482–514 (April, 1920); Jones, Eliot, *Principles of Railway Transportation*, Chap. 25 (1924); Locklin, D. P., *Economics of Transportation*, Chap. 11 (1938), and by the same author, *Railroad Regulation Since 1920*, Chaps. 1–4 (1928); MacVeagh, Rogers, *The Transportation Act 1920* (1923); Miller, S. L., *Inland Transportation*, Chap. 12 (1933); Rich, E. J., "The Transportation Act of 1920," *American Economic Review*, vol. 10, pp. 507–527 (September, 1920); Sharfman, I. L., *The American Railroad Problem*, Chap. 11 (1921); and Van Metre, T. W., "Solving the Railroad Problem," *Proceedings of the Academy of Political Science*, vol. 8, pp. 513–774 (January, 1920).

[1] This provision did not apply to the transportation of military and naval property of the United States moving for military or naval and not for civil use, or to the transportation of members of the military or naval forces when such members are traveling on official duty. The railroads might enter into contracts for the transportation of the United States mail at rates below those fixed by the Commission.

[2] To benefit from the provision, railroads that received land grants were required to file a release of any claims against the United States as to lands, etc.

[3] The prior limit had been $350,000,000.

[4] Commission approval was not required in cases of purchases or guaranties of railroad obligations made for maintenance or purchase of equipment by railroads not in receivership or trusteeship. The Committee of Six had recommended that the requirement of Commission certification as to fixed charges be eliminated altogether, but the Commission was opposed to this change in the law even for a temporary period. Loans may be made to receivers and trustees, although the Commission expressed doubt as to the wisdom of such loans.

Discussions of the Hoch-Smith Resolution include Burgess, K. F., "Conflict in Legislation Respecting Railroad Rates," *Harvard Business Review*, vol. 7, pp. 423–431 (July, 1929), and vol. 8, pp. 24–36 (October, 1929); Locklin, D. P., *Railroad Regulation Since 1920*, Chap. 5 (1928); Malott, E. O., *The Hoch-Smith Resolution, A Study of a Congressional Mandate on Transportation* (1942); Robinson, G. H., "The Hoch-Smith Resolution and the Future of the Interstate Commerce Commission," *Harvard Law Review*, vol. 42, pp. 610–638 (March, 1929); and Wagner, W. H., *The Hoch-Smith Resolution* (1929).

On the Emergency Railroad Transportation Act of 1933 see Harbeson, R. W., "The Emergency Railroad Transportation Act of 1933," *Journal of Political Economy*, vol. 42, pp. 106–126 (February, 1934); *Hearings before the Committee on Interstate Commerce, United States Senate, on S. 1580*, 73d Cong., 1st Sess. (1933); and Locklin, D. P., *Economics of Transportation*, pp. 266–273 (1938). The Coordinator's work is appraised in Cunningham, W. J., "The Federal Coordinator's Contribution to Railroad Coordination," *Harvard Business Review*, vol. 16 (Spring, 1937).

The Transportation Act of 1940 has been analyzed in several articles. Among these are Bigham, T. C., "The Transportation Act of 1940," *Southern Economic Journal*, vol. 8, pp. 1–21 (July, 1941); Dewey, R. L., "The Transportation Act of 1940," *American Economic Review*, vol. 31, pp. 15–26 (March, 1941); Eastman, J. B., "The Transportation Act of 1940," *I. C. C. Practitioners' Journal*, vol. 8, pp. 331–337 (February, 1941); and Harbeson, R. W., "The Transportation Act of 1940," *Journal of Land and Public Utility Economics*, vol. 17, pp. 291–302 (August, 1941). The following documents should be consulted: *Hearings before the Committee on Interstate Commerce, United States Senate, on S. 1310, S. 2016, S. 1869, and S. 2009*, 76th Cong., 1st Sess. (1939); *Hearings before the Committee on Interstate and Foreign Commerce, House of Representatives, on H. R. 2531 and H. R. 4862*, 76th Cong., 1st Sess. (1939); *Immediate Relief for Railroads*, House Document no. 583, 75th Cong., 3d Sess. (1938); *Omnibus Transportation Legislation*, House Committee Print, 76th Cong., 3d Sess. (1940); and *Report of Committee Appointed September 20, 1938 by the President of the United States to Submit Recommendations upon the General Transportation Situation* (1938).

CHAPTER EIGHT

National Regulation of the Newer Means of Transportation

THIS chapter deals with the federal regulation of transportation by water, pipe line, highway, and air. It also includes freight forwarders. There are briefly indicated for each agency the forces motivating legislation and the principal provisions of the regulatory statutes.

Because of the characteristics of the newer forms of transportation, legislation has been to some extent peculiar to the respective industries. For example, in contrast with railway legislation, the water-carrier statutes provide for numerous exemptions from control, distinctions between different types of operators, and less federal authority over intrastate rates. These differences also apply to motor carriers, and in addition the Motor Carrier Act contains no long- and short-haul clause and does not authorize the Interstate Commerce Commission to award reparations.[1]

Transportation by Water

Federal regulation of water transportation falls naturally into two periods: before and after 1940. Chief interest centers in the legislation of 1940, although the act of that year has been effective under normal conditions only for a short time.

Legislation before 1940

Prior to 1940 transportation by water was regulated in a piecemeal fashion. Compared with railroads, the water-carrier industry was less important to the public, less monopolistic in character, less subject to ruinous competition, and less marked by discriminatory rates. The principal regulatory laws were the Act to Regulate Commerce, the Shipping Act of 1916, and the Intercoastal Shipping Act of 1933, as amended in

[1] Although the Commission cannot award reparations, it can determine the lawfulness of rates charged by motor carriers on past shipments. *43 M. C. C.* 337 (1944).

1938.[1] Other statutes of significance to water transportation were the Panama Canal Act of 1912 and the Denison Act of 1928.

1. It will be recalled that the Act to Regulate Commerce of 1887 applied to common carriers engaged in transporting passengers or property in interstate commerce partly by railroad and partly by water, when both are used under a common control, management, or arrangement for a continuous carriage or shipment. This gave the Interstate Commerce Commission jurisdiction over common carriers by water to the extent that such carriers engaged in joint hauls with railroads;[2] but the Commission had no authority over the port-to-port traffic of common carriers, and it had no jurisdiction whatever over contract and private carriers.[3]

Under the Act of 1887 the Interstate Commerce Commission could pass upon the reasonableness of joint rail-and-water rates, which we have already indicated to be of vital importance to the water-carrier industry as well as to shippers not located along water routes. After the passage of the Hepburn Act of 1906, the Commission could prescribe such rates for the future and could decide the divisions thereof, subject to the limitation that the establishment of through routes and joint rates could take place only when no reasonable route already existed between the points concerned. This limitation was removed by the Mann-Elkins Act in 1910, but another restriction was added at that time to the effect that in establishing a through route no company could be compelled to short-haul itself. The restriction of 1910 was in turn removed by the Panama Canal Act of 1912, if one of the lines participating in a through route was a water carrier.

2. The Commission was given additional jurisdiction over water carriers by the Panama Canal Act of 1912.[4] Although this act was passed in the main to provide for the operation of the Panama Canal and for the government of the Canal Zone, it contained provisions pertaining to both water carriers and railroads. The Congressional policy being to encourage competition, which the railroads had often stifled by various means,[5] the Panama Canal Act made it unlawful after July 1, 1914, for a railroad or other common carrier subject to the Act to Regulate Commerce to own, lease, operate, control, or have any interest whatsoever in any competitive

[1] We omit the laws that were primarily promotional in character. Important among these were the Merchant Marine Acts of 1920, 1928, and 1936. The last act established direct subsidies to meet the differences in construction and operating costs between American and foreign vessels.

[2] Foreign shipping by vessel was excepted.

[3] With respect to accounts and reports, the Commission had complete jurisdiction over common carriers by water.

[4] 37 *Statutes at Large*, part 1, pp. 560–569.

[5] See *Final Report of the National Waterways Commission*, Senate Document no. 469, 62d Cong., 2d Sess., pp. 66–74 (1912).

common carrier or vessel carrying freight or passengers through the Panama Canal. A similar prohibition applied to water carriers or vessels operating elsewhere with which the railroad "does or may compete for traffic."[1] The Interstate Commerce Commission was to determine the questions of fact concerning the existence or possibility of competition, and operation by the railroads of water lines other than through the Panama Canal might be allowed if in the opinion of the Commission the service was in the public interest and did not reduce competition along the water route. Where such control was permitted, the Commission's authority extended over the water carriers concerned to the same extent as over railroads. Examples of railroad ownership of water carriers permitted by the Commission have been the Morgan Steamship Company, controlled by the Southern Pacific, and operating vessels between Gulf and Atlantic ports; the Seatrain lines, controlled by the Missouri Pacific and the Texas and Pacific, and transporting loaded freight cars in coastwise services; and various car ferries plying on the Great Lakes.

For the purpose of forcing the railroads to cooperate with the water carriers, the Panama Canal Act also empowered the Commission to require physical connections between rail and water lines; to establish through rail-water routes and maximum joint rates; and to order rail carriers entering into arrangements with one water line for the handling of through traffic between an interior point in the United States and a foreign country to enter into similar arrangements with other water carriers operating between the port and the foreign country.[2] As a rule the railroads were slow in entering into joint hauls with water lines, because they wished to prevent the growth of water transportation, to avoid the cost of transferring cargo, or to protect a longer haul by railroad.

It should be noted that the Panama Canal Act is not the only legislation designed to promote competition between rail and water lines. Another measure is Sec. 4 of the Interstate Commerce Act. Paragraph 2 of Sec. 4 provides that, when a railroad reduces its rates to meet water competition, the rates may not subsequently be increased unless the Commission finds that proposed increases rest upon grounds other than the elimination of such competition. Where the Commission has granted fourth-section relief this limitation does not apply, but in permitting reductions under Sec. 4 the Commission has ruled that rail rates shall be fixed no lower than necessary to meet the competition and not so low as to destroy it if legitimate.[3]

3. The Denison Act of 1928 carried the principle of joint arrange-

[1] This forced the railroads to relinquish control of a number of vessels on the Great Lakes.

[2] The last provision was also required by Sec. 3 of the Interstate Commerce Act.

[3] *74 I. C. C.* 48 (1922).

ments between rail and water carriers specifically to the Mississippi River. Under this act common carriers on the Mississippi and its tributaries could apply to the Commission for certificates of public convenience and necessity; and when these were granted, the Commission was to require connecting common carriers to establish through routes and joint rates. Certificates were to be issued, not with the object of controlling the supply of water-transport service, but for the purpose of forcing the railroads to enter into joint arrangements with water lines.[1] Here Congress gave force to its policy of encouraging water transportation with particular reference to the Inland Waterways Corporation.

4. The first federal regulation of water transportation in general, as distinct from transportation rendered jointly with railroads, or by water carriers under the control of railroads, was partly established by the Shipping Act of 1916,[2] as amended in 1920.[3] As an administrative authority, this act created the United States Shipping Board of five members, which was given jurisdiction over common carriers operating along regular routes in interstate or foreign commerce on the high seas and the Great Lakes.[4] In 1920 the membership of the Board was enlarged to seven, but in 1932 it was reduced to three. In 1933 the Board was made the Shipping Board Bureau of the Department of Commerce. And in 1936 the jurisdiction of the Bureau was transferred to the newly created United States Maritime Commission of five members.

The Act of 1916 required common carriers by water operating in interstate commerce to file with the Board and keep open for public inspection maximum local and joint rates.[5] Such rates were to be reasonable and might be fixed by the Board if found to be unreasonable. But the rates actually charged could be and usually were below the maxima, provided they did not give undue preference to particular persons, localities, or kinds of traffic.[6]

Other provisions of the Shipping Act were directed toward the interrelations between the carriers themselves. Water lines tended to control rates, apportion traffic, pool earnings, and compete with outside lines by means of agreements or "conferences,"[7] and the act recognized these de-

[1] Summary prescription of joint rates was later largely nullified by court decision. *291 U. S.* 457 (1934).

[2] *39 Statutes at Large*, part 1, pp. 728–738.

[3] The act of 1920 declared it to be the policy of Congress to promote, encourage, and develop water transportation.

[4] See Betters, P. V., *The United States Shipping Board* (1931).

[5] It should be observed that this provision does not apply to ocean carriers engaged in foreign trade.

[6] The provision as to undue preference applied in both foreign and domestic services.

[7] On conferences see Bettman, I. M., *Harvard Business Review*, vol. 12, pp. 116–124 (October, 1933).

vices as useful tools of stabilization. When approved by and filed with the Board, conference agreements were exempted from the Sherman Anti-trust Act to the extent necessary in carrying out the purposes of the act.[1] But in order to prevent unfair competition by the conference (or other) lines, the act made unlawful the following competitive practices: unjustly discriminatory contracts with shippers; attempts to influence insurance companies to grant less favorable rates to a competitor than to the petitioner; deferred rebates, *i.e.*, delayed returns of a portion of the freight charge to a shipper on the condition that the shipper during the period of deferment give his business to the carrier; the use of "fighting ships," or vessels employed to drive a competitor out of business; and retaliation against a shipper by refusing cargo space or by other devices. Carriers were directed to file with the Board periodic or special reports, accounts, records, or memoranda of any facts and transactions.

5. The legislative structure applicable to water transportation was further advanced by the Intercoastal Shipping Act of 1933, as amended in 1938.[2] This law required common carriers engaged in the intercoastal, coastwise, and Great Lakes services to publish and observe the actual rates of charge; made it necessary to give 30 days' notice of changes in rates; and authorized the Shipping Board to suspend proposed changes in rates for a period of 4 months.[3] The Maritime Commission was empowered, after 1938, to prescribe maximum and minimum rates for common carriers on the high seas, and maximum rates for such carriers on the Great Lakes. In the intercoastal service the Commission had limited jurisdiction over the rates of contract carriers.

Transportation Act of 1940[4]

The foregoing review shows that federal regulation of water transportation prior to 1940 had the following major defects. The Interstate Commerce Commission divided authority with the Shipping Board and the Maritime Commission. On the Great Lakes and the oceans the latter body had no control over water carriers engaged solely in intrastate commerce; contract carriers, except as provided by the Intercoastal Shipping Act of 1938; industrial or proprietary carriers; and carriers falling under the jurisdiction of the Interstate Commerce Commission. Except where the Interstate Commerce Commission had authority, there was no regulation whatever of carriers operating upon inland waterways other than the

[1] This applied to water carriers operating in foreign as well as in domestic trade.

[2] *47 Statutes at Large*, part 1, pp. 1425–1427; *52 Statutes at Large*, pp. 953–973.

[3] Water carriers in the foreign trade were not required to publish their rates.

[4] References to this act were indicated in the preceding chapter. Another discussion with special reference to water transportation is "Regulation of Water Carriers by the Interstate Commerce Commission," *Yale Law Journal*, vol. 50, pp. 654–668 (February, 1941).

Great Lakes. There was no control of the minimum rates of common carriers on the Great Lakes or rivers, even in case of joint rail and water shipments; no control over contract rates except in intercoastal service; practically no control over the supply or financing of water-transport facilities; and inadequate control over the accounting of water lines.

It was largely to meet these gaps in regulation that the Transportation Act of 1940 was passed. With important exceptions, this act extended federal regulation to all interstate transportation on the inland waters and the oceans, and it transferred the regulatory functions of the Maritime Commission to the Interstate Commerce Commission.[1]

The exemptions allowed by the act were extensive. They included the following: common and contract services rendered in terminal areas as a part of rail or motor movement; transportation by common or contract water carriers of commodities in bulk, when the cargo space of the vessel is used to carry not more than three such commodities;[2] transportation by a contract carrier by water of commodities in bulk in a nonocean-going vessel on a normal voyage during which (1) the cargo space of such vessel is used for carrying not more than three commodities, and (2) such vessel passes within or through waters that are made international for navigation purposes by any treaty to which the United States is a party;[3] transportation by water of liquid cargoes in bulk in tank vessels; transportation by contract carriers by water which, because of the inherent nature of the commodities transported, their requirement of special equipment, or their shipment in bulk, is not actually or substantially competitive with transportation by any common carrier subject to Part I, II, or III of the Interstate Commerce Act;[4] transportation in interstate commerce by water solely within the limits of a single harbor or between places in contiguous harbors, when such transportation is not a part of a continuous through movement;[5] transportation by craft of small size;[6] and water carriers engaged solely in transporting the property of a person who owns all or substantially all the voting stock of such carriers.[7] These

[1] The Maritime Commission became a promotional body, as originally intended. It owns several steamship lines and administers the subsidization of the merchant marine.

[2] It will be noted that this exemption was in terms of "transportation" rather than of "carriers." It applied only when the commodities were loaded and carried without wrappers or containers and were received and delivered by the carrier without transportation mark or count. Two or more vessels navigated as a unit could be considered a single vessel.

[3] This related primarily to carriers on the Great Lakes which compete with Canadian lines.

[4] This exemption was by application to the Interstate Commerce Commission.

[5] This also required Commission approval.

[6] Such craft were defined as those of not more than 100 tons carrying capacity, or of not more than 100 indicated horsepower, or carrying passengers only and equipped to carry no more than 16 passengers.

[7] This exemption required a certificate of exemption from the Commission.

exemptions lessened the work of the Commission, and in the case of bulk carriers may have been justified by the absence of substantial competition with other types of carriers;[1] but they removed much water transportation from regulation, especially on the rivers and Great Lakes.[2] Recent cases involving grain have indicated that bulk carriers should not have been exempt.

Subject to the exemptions, the Commission received rather complete jurisdiction over both common and contract carriers.[3] Common carriers were required to obtain certificates of public convenience and necessity before engaging in transportation, and contract carriers were forced to secure permits.[4] Common carriers were directed to provide adequate service, publish and observe reasonable rates, and establish reasonable through routes with rail and water lines.[5] Contract carriers were required to establish and observe reasonable minimum rates.[6] Common carriers might not give undue preference to any person, port, description of traffic, etc.[7] Contract carriers could charge different rates to different shippers,

[1] Lake cargo coal is of course competitive with railroad traffic.

[2] See Federal Coordinator of Transportation, *Regulation of Transportation Agencies*, Senate Document no. 152, 73d Cong., 2d Sess., p. 7 (1934).

[3] The act specifically provided that its provisions applied to carriers owned or controlled by the United States. This included the Inland Waterways Corporation. In 1943 the Third Circuit Court of Appeals ruled that the Interstate Commerce Commission had no authority over Seatrain Lines insofar as it operated beyond the territorial waters of the United States. The specific question at issue was whether the Commission could order Seatrain to pay to the railroads a demurrage charge of $1 per day for each railroad car in its custody. *The New York Times*, p. 65 (Oct. 10, 1943). In 1945 the Supreme Court held that the authority of the Commission to require the establishment of through routes and interchange of cars was not nullified by the fact that a water carrier operates over routes that are partly outside the territorial waters of the United States. *323 U. S.* 612 (1945).

[4] A "grandfather" clause applied as of Jan. 1, 1940. With the permission of the Commission, a carrier might engage in both common and contract service.

[5] Through routes might be established with motor carriers.

[6] The instructions relating to minimum rates for contract carriers read as follows: "Such minimum rate or charge, or such rule, regulation, or practice, so prescribed by the Commission, shall give no advantage or preference to any such carrier in competition with any common carrier by water subject to this part, which the Commission may find to be undue or inconsistent with the public interest and the national transportation policy declared in this Act, and the Commission shall give due consideration to the cost of the services rendered by such carriers, and to the effect of such minimum rate or charge, or such rule, regulation, or practice, upon the movement of traffic by such carriers." *Public Law no. 785*, Title II, p. 47 (1940). This declaration indicated Congress' desire to protect common carriers. A proposal was made to write a more elaborate paragraph on minimum rates, but the Commission stated that it had not yet had sufficient experience with such rates to justify the proposal. *House Hearings*, part 4, p. 1710 (1939); also *Letter from the Chairman of the Legislative Committee of the Interstate Commerce Commission*, 76th Cong., 1st Sess., p. 7 (1939).

[7] A difference in the rates of a water carrier with respect to water transportation and those of a rail carrier with respect to rail transportation might not be deemed to constitute

but could not charge less than their minimum scheduled rates. Both common and contract carriers were subjected to the usual accounting regulations, as well as to the general provisions of the Interstate Commerce Act governing consolidations, mergers, acquisitions of control, and pooling. Security issues of water carriers were not placed under regulation, and water carriers put at a disadvantage by reason of competition with lines engaged in foreign commerce could be relieved by the Commission from the provisions of the act to the extent necessary.

Pipe Lines

Federal regulation of pipe lines was first established by the Hepburn Act of 1906, which declared pipe lines to be common carriers and placed them under the jurisdiction of the Interstate Commerce Commission.[1] The pipe-line companies sought to avoid a common-carrier status by purchasing the oil that they piped,[2] but the Supreme Court ruled that this practice was a subterfuge and that the lines were in reality carriers for the public except when transporting oil from their own wells to their own refineries.[3]

Regulation was begun in order to protect producers and refiners who were independent of the Standard Oil Company, which sought to secure a monopoly of the oil business by means of its control of pipe lines.[4] Independent producers were virtually forced to sell oil to the company at its own price, and independent refiners had to buy oil at its own price. The independents could not well build competing lines because of the great risk and cost involved and because of active opposition from Standard as well as from railroads under its influence.[5] And shipment by rail was too expensive, especially if the rail rates were higher for the independents.[6]

Notwithstanding the Hepburn Act, most pipe lines have remained essentially plant facilities of a few integrated oil companies. Interpreting as "outside" that oil tendered by companies not within an associated group of concerns, about half the trunk lines owned by large and medium

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unjust discrimination, prejudice, disadvantage, or unfair competitive practice within the meaning of any provision of the act.

[1] Cf. p. 162. The Hepburn Act was worded to include refined-oil as well as crude-oil lines.

[2] The companies could then argue that they were private carriers transporting their own products.

[3] The Pipe Line Cases, *234 U. S.* 548 (1914).

[4] See Beard, William, *Regulation of Pipe Lines as Common Carriers* (1941).

[5] The opposition took many forms, sometimes violent ones. A favorite method was to purchase land along the route of a proposed line and then refuse to allow the independents a right of way across the land.

[6] Cf. p. 87.

companies carried as of 1931 no outside oil, and only 10 per cent of the lines carried in excess of 50 per cent of outside oil.[1]

Limitation of use by outsiders is largely explained by four factors: First, the pipe lines have been built to meet the needs of a particular group of producing or refining companies, so that in some cases they are not conveniently located for employment by independents. Second, the small oil companies may not be able to compete with the large concerns, on account of the economies of integration possessed by the latter. Third, the companies in control of lines keep their pipe-line rates high; and these rates have not often been called in question, possibly because the small companies hesitate to incur the ill will of the large companies. In 1940, however, the Interstate Commerce Commission ordered reductions in pipe-line rates designed to produce a return not in excess of 8 per cent on investment.[2] Fourth, the integrated companies have established high minimum-tender requirements, in most cases 100,000 barrels.[3] A small producer can generally meet a requirement of as much as 100,000 barrels only by accumulating oil over a long period of time, and it is usually impracticable for a number of small producers to pool their outputs because of the necessity of consigning a given shipment to one point of delivery.[4] The companies argue that large minimum-tender requirements are needed in order to provide protection against losses from the extension of gathering lines, to avoid excessive costs of supervising shipments, and to prevent the mixing of different consignments of oil in the pipes. But losses, costs, and mixing are probably exaggerated, and the companies need not accept oil that will too greatly contaminate a superior product, or they may use different pipes for different grades of oil. The Interstate Commerce Commission recently ruled that a minimum tender of 10,000 barrels is generally as large as is reasonable.[5]

In order to force pipe lines to become true common carriers, and thus to check monopoly in the oil industry, it has been proposed by the Federal Trade Commission[6] and by others[7] that the pipe lines be separated from the producing and refining businesses. One way of doing this would be to apply the "commodities clause" to pipe lines. But there are several arguments against separation. First, it is said to be unnecessary, the appropriate procedure for helping the independents being either to regulate

[1] Committee on Interstate and Foreign Commerce, *Report on Pipe Lines*, House Report no. 2192, 72d Cong., 2d Sess., part 1, p. lxiii (1933). The group referred to owned nearly four-fifths of the lines.

[2] *243 I. C. C.* 115 (1940).

[3] *68 I. C. C.* 458 (1922).

[4] A small refiner can seldom afford to purchase 100,000 barrels of crude oil at one time.

[5] *243 I. C. C.* 115 (1940).

[6] Federal Trade Commission, *Report on the Price of Gasoline in 1915*, p. 161 (1917).

[7] President Franklin D. Roosevelt recommended this reform.

the oil industry in its entirety, or to supervise more carefully pipe-line rates and minimum-tender requirements. A second argument is that divorcement would be too difficult of accomplishment. It would involve a reorganization of virtually the entire petroleum industry; and since pipe lines have been developed as plant facilities, a purchaser for the lines might not be found, even though the profits of the pipe-line companies have been liberal.[1] A third argument against separation is that it would tend to deny the oil industry the economies of integration, thereby increasing the price of the refined products to consumers. Finally, it is contended that separation would prevent the extension of lines to new fields; for a mere transportation company would hesitate to construct lines, owing to ignorance as to the extent of the oil reserves of a given field and to lack of an assured refinery outlet. Similarly, lines now operated at a loss might be abandoned, thus making it impossible to operate stripper wells. It can be replied that the present system leads to too many lines, but it is possible that separation would so encourage independent producers and refiners as to promote still greater expansion.[2]

Motor-carrier Transportation

Regulation of highway transportation by the federal government was encouraged by the Supreme Court, as in the case of railroads. Decisions of 1925 in Michigan Public Utilities Commission *v.* Duke and in Buck *v.* Kuykendall, somewhat analogous to the earlier Wabash Case, made existing regulation largely ineffective; for the states were debarred from controlling interstate motor service.[3] Nevertheless, Congress was hesitant to legislate. The National Association of Railroad and Utilities Commissioners demanded federal action, in order to strengthen control of intrastate operations; organized carriers wanted further restraint upon competition; and the Interstate Commerce Commission recommended regulation.[4] But the public was apathetic, and there was opposition to regulation from motor-vehicle manufacturers, shippers, and small truckers, all of whom feared that motor transportation would be restricted in favor of railroads.[5] It was also argued that regulation of motor carriers

[1] In general, pipe lines were the only carriers in the United States that were able to earn a normal return during the decade preceding 1940.

[2] It has been suggested that the large lines recently constructed for purposes of national defense be retained and operated by the government as a means of keeping pipe-line rates on a lower level. See Dillard, Dudley, "Big Inch Pipe Lines and the Monopoly Competition in the Petroleum Industry," *Journal of Land and Public Utility Economics*, vol. 20, pp. 109–122 (May, 1944).

[3] Cf. p. 143.

[4] *140 I. C. C.* 685 (1928); *182 I. C. C.* 263 (1932).

[5] Nelson, J. C., "The Motor Carrier Act of 1935," *Journal of Political Economy*, vol. 44, pp. 464–504 (August, 1936). See also McCollester, Parker, and Clark, F. J., *Federal Motor*

by the federal government would be impractical, on account of the thousands of operators of different types and the unstandardized nature of motor service.[1] Not until the effects of the business depression had become pronounced did Congress finally pass the Motor Carrier Act of 1935.[2] Action was considerably influenced by the report of the National Transportation Committee of 1933, and the provisions of the new law followed closely a bill drawn up by the Federal Coordinator of Transportation.[3] In contrast with water transportation, legislation was comprehensive from the beginning.

Motor Carrier Act of 1935

The provisions of the Act of 1935 (slightly amended in 1938[4] and 1940)[5] may be explained under the following heads: declared policy, administration, scope, types of carriers, safety, service, rates, accounts, combination, and securities.

1. *Declared Policy.* The Act of 1935 began with a declaration of Congressional policy.[6] Important objectives set forth in the declaration were to preserve the inherent advantages of motor transportation, foster sound conditions in the motor-carrier industry, promote an adequate motor-carrier service at reasonable rates, encourage coordination among the different agencies of transportation, and facilitate cooperation between federal and state regulatory authorities. It was the intention of Congress to prevent the regulation of motor transportation for the benefit of other modes of transport.

2. *Administration.* Administration of the Motor Carrier Act was placed in the hands of the Interstate Commerce Commission, which created for the purpose a special motor-carrier division consisting of three commissioners. Specified kinds of cases, including those concerning certificates, consolidations, or rates, which involved not more than three states, were to be referred to joint boards composed of members appointed

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Carrier Regulation (1935); and Wagner, W. H., *A Legislative History of the Motor Carrier Act* (1936).

[1] In replying to this contention, the Federal Coordinator of Transportation pointed out that common carriers are far less numerous than contract and private operators; that contract carriers require much less detailed regulation than common carriers; that operators generally desire to obey reasonable laws; that the various regulatory authorities can promote regulation through cooperation; and that the laws can be enforced by means of sampling.

[2] *49 Statutes at Large*, part 1, pp. 543–567.

[3] Federal Coordinator of Transportation, *Regulation of Transportation Agencies*, Senate Document no. 152, 73d Cong., 2d Sess., pp. 350–371 (1934).

[4] *52 Statutes at Large*, pp. 1236–1241 (1938).

[5] *Public Law no. 785*, 76th Cong., 3d Sess. (1940).

[6] This declaration was paralleled in 1940 by the similar declaration applicable to all forms of transportation which was quoted in the preceding chapter.

by the Commission from nominees selected by the regulatory bodies or by the governors of the states concerned. Cases of a kind not specified, and those which involved more than three states, could be referred to joint boards at the discretion of the Commission. Decisions of these boards were made binding, with the proviso that appeals might be carried to the Commission.

Administration by joint boards was a novel provision, representing a concession to those who wished to strengthen state rather than federal authority, and it was expected to have at least two advantages. It would relieve the Interstate Commerce Commission of a considerable amount of work; and it would make possible the decision of cases by authorities in closer contact with local conditions. That these advantages have been realized to a certain extent is indicated by the fact that many motor-certificate cases have been referred to joint boards and have been decided by such boards without review by the Commission.

3. *Scope.* The Commission was given general jurisdiction over motor-vehicle carriers engaged in transporting persons or property in interstate or foreign commerce, including those carriers which participate in interstate hauls but which operate wholly within the borders of a single state.[1] However, there were numerous exceptions. Some of the exemptions were absolute, while others were to be determined by the Commission. Except with respect to safety regulations, the absolute exemptions included (*a*) school busses, taxicabs, hotel vehicles, trolley busses, motor vehicles used incidentally to aircraft transportation, and motor vehicles under the authority of the Secretary of the Interior; (*b*) motor vehicles controlled and operated by farmers in transporting agricultural products from the farm or agricultural supplies to the farm, vehicles controlled and operated by cooperative associations as defined in the Agricultural Marketing Act of 1929, and motor vehicles used exclusively in carrying livestock, fish, or agricultural commodities (not including manufactured products thereof); and (*c*) motor vehicles used exclusively in distributing newspapers.

The conditional exemptions included (*a*) the transportation of persons or property wholly within a municipality, between contiguous municipalities, or within a zone adjacent to or commercially a part of such municipality; and (*b*) casual, occasional, or reciprocal transportation for compensation by persons not engaged in transportation by motor vehicle as a regular occupation or business.

The purpose of the first group of absolute exemptions, and the conditional exemptions, was to facilitate the administration of the act by

[1] The Transportation Act of 1940 provided that the local part of a through haul may be exempted if the Commission is of the opinion that the transportation in question is of such nature as not to impair uniform regulation of transportation by motor carriers engaged in interstate commerce.

removing from regulation motor-vehicle transportation of a purely local nature. But the absolute exemptions in groups (*b*) and (*c*) were granted as favors to special interests, and they do not appear to be justified in all cases.

4. *Types of Carriers.* The act dealt with four types of motor transportation agencies: (*a*) common carriers, or those who engage in transportation for the general public; (*b*) contract carriers, or those who operate for hire under special arrangement; (*c*) private carriers, or those who transport goods of which the carrier is the owner; and (*d*) brokers, or persons who sell transportation but do not actually perform transportation services. Since the regulations imposed upon each of these classes of carriers varied in important particulars, it has been necessary for the Commission to draw the lines more finely than in the words of the act, in order to prevent unjustified escapes from control. The Commission has ruled that the mere ownership of a load is not sufficient to make a motor carrier a private carrier;[1] that whether an operator is a common carrier or a contract carrier depends upon the generality of the offerings of service rather than upon the question of contract;[2] that freight forwarders are not common carriers by motor vehicle;[3] and that a motor carrier performing pickup and delivery service for a railroad is subject to the Interstate Commerce Act as a contributor to railroad transportation, but is not subject to the provisions of the Motor Carrier Act.[4] The last ruling was written into the Interstate Commerce Act by the Transportation Act of 1940.

5. *Safety.* The Commission was authorized to require surety bonds or insurance on the part of common and contract carriers; and it could prescribe regulations concerning the maximum hours of service and qualifications of employees, safety of operation, and standards of equipment of all carriers, whether common, contract, or private. Though the Commission has ruled that its authority along such lines extends only so far as necessary to protect the safety of service,[5] it may be advisable in the future to extend its authority in order to prevent undue hindrances to commerce by individual states under the guise of protecting the highways.

6. *Service.* Commission authority over the service of common carriers was similar to its authority over railroad service. Before extending operations to additional routes, common carriers were required to obtain certificates of public convenience and necessity, and contract carriers were forced to secure permits. The conditions that must be met before issuance

[1] *2 M. C. C.* 85 (1937). This is the principle earlier applied to pipe lines.

[2] *2 M. C. C.* 127 (1937). The existence of a contract is not a sufficient distinction, for a haul by a common carrier involves a contract.

[3] *8 M. C. C.* 211 (1938).

[4] *4 M. C. C.* 551 (1938).

[5] *3 M. C. C.* 665 (1937).

of the two instruments were somewhat different in each case.[1] According to the Commission, certificates of public convenience and necessity were to be granted on condition that the proposed service was required by public convenience; while permits were to be granted on a showing that the proposed service was merely consistent with the public interest.[2] A single carrier might not hold a certificate and a permit at the same time without specific permission from the Commission. The primary purpose in requiring certificates and permits was of course to control the amount of motor-transport service; but the effectiveness of control was limited by the "grandfather clauses," effective as of June 1 and July 1, 1935, and by the opportunity of certified carriers to increase their facilities if employed along the specified routes.

7. *Rates.* The provisions of the act relating to the rates of common carriers were similar to the provisions of the Interstate Commerce Act covering railroad charges. Rates were to be reasonable and nondiscriminatory,[3] were to be filed and published, and might not be changed without due notice. The Commission could prescribe both maximum and minimum rates, establish joint rates and the divisions thereof, and suspend proposed changes in rates. But as regards contract carriers, the rate provisions of the act were much less thoroughgoing. Contract carriers were merely directed to file their contracts, charge not less than the minimum rates specified therein, and give 30 days' notice of reductions in rates. The Commission could not prescribe maximum rates.

8. *Accounts.* The act closely followed the Interstate Commerce Act in dealing with accounts and reports. The Commission was authorized to prescribe the form of accounts and reports, require special reports, and have access to the books and records of common carriers, contract carriers, and brokers.[4] The Commission also had limited authority over the accounts of private carriers.

9. *Combination.* Consolidations, mergers, and acquisitions of control were permitted, provided the Commission gave its approval. Such combinations might be effected where the companies involved were motor carriers only, where a railroad or water line combined with motor carriers, or where a person other than a carrier (holding company) brought together motor concerns. In case a motor carrier proposed to combine with another such carrier, Commission approval could be given on a showing that the transaction was merely consistent with the public interest. But when the applicant for authority to combine was a railroad or water car-

[1] But in both instances carriers must show that they are financially capable of providing the proposed service.

[2] *1 M. C. C.* 187 (1936).

[3] A long- and short-haul clause is not included in the act.

[4] The Commission has prescribed a uniform system of accounts for Class I motor carriers.

rier, approval could be given only if the transaction would promote the public interest by allowing the railroad or water line to use motor-carrier services to public advantage in its operations and would not unduly restrain competition. The more stringent requirements applying to combinations of different modes of transport were designed to prevent the restriction of motor-carrier transportation in favor of railroads or waterways. In order to simplify regulation, an exception to the foregoing provisions allowed consolidations, mergers, or acquisitions of control to be effected without Commission approval if not more than 20 vehicles were involved. But this exception did not apply if the applicant was a railroad or water carrier.

10. *Securities.* The issuance of securities by common and contract carriers was made subject to Sec. 20*a* of Part I of the Interstate Commerce Act. But issues not exceeding $500,000 did not require Commission approval. Here concession was made to the large number of small transactions in the motor-carrier industry.

Air Transport

Prior to 1938 federal regulation of air transportation was quite inadequate. First, regulatory authority was divided among several different departments or agencies: the Post Office Department, the Secretary of Commerce, and the Interstate Commerce Commission.[1] Second, regulation was incomplete. Aside from controls related to air mail, economic regulation was in fact virtually nonexistent. Carriers that did not handle mail were not regulated at all, except as to labor relations and safety of service, and carriers that did hold mail contracts were not regulated insofar as passengers and express were concerned.[2]

Civil Aeronautics Act of 1938[3]

Comprehensive regulation of air transportation began with the Civil Aeronautics Act of 1938. In contrast with the laws covering other forms

[1] The Bureau of Air Commerce, which had been created in 1934, regulated safety and exercised promotional functions; the Post Office Department controlled the letting of air-mail contracts; and the Interstate Commerce Commission fixed rates for the carriage of mail.

[2] The Air Commerce Act of 1926 was primarily promotional in character and dealt only with safety regulation. *44 Statutes at Large*, part 2, pp. 568–576. The Air Mail Act of 1934, as amended in 1935, authorized the Postmaster General to award mail contracts under competitive bidding and to prescribe certain regulations relating to schedules of service. It also gave the Interstate Commerce Commission the power to fix the rates of air-mail contracts, subject to the restriction that payments to air lines for carrying mail should not exceed the postal revenue derived from air mail. In order to enable the Postmaster General and the Commission to carry out these duties, the act also gave both authorities limited control over the accounts of air-mail contractors. *48 Statutes at Large*, part 1, pp. 933–939; *49 Statutes at Large*, part 1, pp. 614–619.

[3] *52 Statutes at Large*, pp. 973–1030.

of transportation, this statute was passed practically without opposition.[1] The air-transport companies supported the legislation on the ground that regulation, by restricting competition, would protect existing investments and would promote the all-important matter of safety of service. The companies also expected to gain directly through the provisions of the act relaxing the limitations upon the amount of compensation for the carriage of mail. Regulation was endorsed in principle by the Federal Coordinator of Transportation,[2] by the temporary Federal Aviation Commission,[3] and by the Interstate Commerce Commission.[4]

The Civil Aeronautics Act contained a declaration of Congressional policy similar in content and purpose to the declaration of the Motor Carrier Act of 1935. To carry out the policy, the Aeronautics Act created an organization consisting of three agencies: the Civil Aeronautics Authority, the Administrator, and the Air Safety Board. The Civil Aeronautics Authority was a regulatory body modeled along the lines of the Interstate Commerce Commission. It was composed of five members appointed by the President with the advice and consent of the Senate for terms of 6 years at salaries of $12,000. The Administrator was a single individual whose chief business was to enforce safety measures and to promote the development of air transportation by means such as were formerly employed by the Bureau of Air Commerce, including the dissemination of information.[5] The Air Safety Board, appointed like the Authority by the President, consisted of three members whose sole duty was to study accidents and make recommendations to the Authority designed to eliminate mishaps.[6] The unusual emphasis thus placed upon promotional matters was a reflection of the youth of the industry and of the great significance of safety in its development.

In its applications to private flying and to foreign commerce, the Civil Aeronautics Act was broader in scope than the Interstate Commerce Act; but as regards domestic common carriers it was similar to the older law. Like the Interstate Commerce Commission, the Authority could (1) establish reasonable rules of service and require certificates of public convenience and necessity as a condition for the operation or abandonment of lines; (2) fix the exact, maximum or minimum, or maximum and minimum

[1] See *Hearings before the Committee on Interstate Commerce, United States Senate, on S. 3027*, 74th Cong., 1st Sess. (1935); and *Hearings before the Committee on Interstate and Foreign Commerce, House of Representatives, on H. R. 9738*, 75 Cong., 3d Sess. (1938).

[2] Federal Coordinator of Transportation, *Regulation of Transportation Agencies*, Senate Document no. 152, 73d Cong., 2d Sess., pp. 49–53 (1934).

[3] *Report of the Federal Aviation Commission*, Senate Document no. 15, 74th Cong., 1st Sess., pp. 9–14 (1935).

[4] *Annual Report on the Interstate Commerce Commission*, 1936, p. 32.

[5] The salary of the Administrator was $12,000.

[6] Members served for 6 years at salaries of $7,500.

rates, which were to be published and which were to be reasonable and nondiscriminatory;[1] (3) control mail contracts; (4) prescribe systems of accounts and reports and have access to the records of the companies; and (5) exercise jurisdiction over consolidations, mergers, and acquisitions of control, which might take place under specified conditions between air carriers and aircraft manufacturers, between two or more air lines, or between air carriers and companies engaged in other forms of transportation. Should an air line be unduly burdened by the enforcement of the act, the Authority had power to grant necessary exemptions.

By Executive Order of 1940, the Civil Aeronautics Authority was divided into two agencies: the Administrator of Civil Aeronautics and the Civil Aeronautics Board.[2] The Administrator, a division of the Department of Commerce, was authorized to exercise administrative functions, such as the development and operation of airways, aircraft inspection, licensing of pilots, enforcement of safety rules, and supervision of the pilot training program. The Board, an independent agency, was empowered to perform the regulatory duties of the former Civil Aeronautics Authority, to prescribe safety standards and rules, and to investigate accidents.[3] The Board was to report to the Congress and to the President through the Secretary of Commerce, but the Secretary could not revise its reports or review its decisions.

This reorganization order was defended on the ground that it gave the regulatory authorities representation in the President's cabinet, established closer relations with the Weather Bureau, and more clearly defined functions; but it was criticized on the ground that it tended to hamper impartial decisions. Since the Board's budget is subject to departmental approval, it would appear that the danger of political interference is real, even though the powers of the Board remain as provided for in 1938.

From the point of view of coordination in transportation, the Civil Aeronautics Act was weak in that it placed the regulation of air transport under a separate body rather than in the hands of the one agency, the Interstate Commerce Commission, which regulates all the other forms of intercity transportation.[4] But as a partial offset to this weakness, the act provided that cases involving through services and joint rates between air lines and the other kinds of carriers might be referred to a joint board consisting of an equal number of representatives from the Civil Aeronautics Authority and the Interstate Commerce Commission.

[1] It could not prescribe the exact rate for overseas service.

[2] *Reorganization Plan Number IV*, House Document no. 692, 76th Cong., 3d Sess. (1940).

[3] The Air Safety Board was eliminated.

[4] The Coordinator of Transportation recommended the Commission as the proper agency.

A second defect of the act was its failure to provide for the regulation of securities.

Freight Forwarders

Freight forwarders, or carloading companies, act as middlemen between shippers and carriers in the transportation of high-grade freight.[1] They arrange for the collection of numerous small consignments, consolidate the small lots into truckloads or carloads, tender the combined freight to a rail, motor, or water carrier, and at destination provide for the unloading and delivery of the goods.[2] The forwarder attracts business by offering an expedited service, generally at a saving in cost to the shipper as well as to the carrier. Profit is derived from the spread between the shipper charge, which may be slightly less than the published rate for small lots, and the rate paid to the hauling company. If the hauler is a railroad or water carrier the forwarder pays the regular tariff rates for carload or cargo lots, but if the hauler is a trucker the rate paid may be below the rate to which other shippers are subject. Prior to 1936 the payment was a special charge determined by contract. After that date it was frequently based upon a so-called "joint" rate filed by the forwarder under which the trucking company's share might be less than the rate specified in the motor-carrier tariff.

Since forwarders assume responsibility for shipments while in the course of transportation and charge rates covering the entire service, they are common carriers; and after the Motor Carrier Act of 1935 became effective, a leading forwarder sought from the Interstate Commerce Commission a certificate authorizing operation as a common carrier by motor vehicle. But the Commission ruled in the Acme Fast Freight Case that when not acting as a hauler a forwarder is not a common carrier as defined in the Motor Carrier Act.[3] This finding was affirmed by the Supreme Court,[4] and it had the effect of forcing forwarders to pay the full tariff rates to motor lines and of preventing the quotation of joint rates. Certain truckers then filed "proportional" rates, but the Com-

[1] See Barton, F. L., and McGehee, R. B., "Freight Forwarders," *Harvard Business Review*, vol. 20, pp. 336–347 (Spring, 1942).

[2] According to Part IV of the Interstate Commerce Act, the term "freight forwarder" means any person (other than carriers subject to Part I, II, or III) which holds itself out to the general public to provide transportation of property for compensation in interstate commerce and which, in the ordinary course of its undertaking, (*a*) assembles and consolidates such property and performs break-bulk and distributing operations with respect to consolidated shipments; (*b*) assumes responsibility for the transportation of such property from point of receipt to point of destination; and (*c*) utilizes, for the whole or any part of the transportation of such shipments, the services of a carrier subject to Part I, II, or III of the act.

[3] *2 M. C. C.* 415 (1937); and *8 M. C. C.* 211 (1938).

[4] *309 U. S.* 638 (1940).

mission found these unduly favorable to forwarders as compared with other shippers,[1] and it was sustained in this view by the Supreme Court.[2] Orders were issued directing the cancellation of joint and proportional rates; but, pending the anticipated passage of forwarder legislation, the effective dates of these orders were postponed.

Faced with the curtailment of profits as a result of the foregoing decisions, the freight forwarders, supported in most cases by shippers and railroads, urged the passage of legislation giving them the status of common carriers under the laws governing interstate commerce. Legislation was also favored by the Interstate Commerce Commission, which had found evidence of discrimination by forwarders between shippers and of favoritism by railroads toward forwarders as compared with other patrons.[3] The Commission stated that in the absence of the inauguration by the railroads of efficient methods for handling less-than-carload freight, forwarders performed a useful function and should be regulated.[4]

Forwarder regulation began in 1942 with the enactment of Part IV of the Interstate Commerce Act.[5] This law gave the Interstate Commerce Commission authority over forwarders substantially comparable with its authority over carriers by rail, motor vehicle, and water.[6] Especially important provisions of Part IV were as follows: As a condition for operation, forwarders were required to secure permits to be issued by the Commission. Joint rates might be established with motor carriers under the provisions of Part II of the Interstate Commerce Act for a period of 18 months, but not thereafter.[7] Instead of joint rates, rail, water, and motor carriers might quote for forwarders special assembling or distribution rates, which would presumably not apply to the line haul. These charges have been justified on the following grounds: solicitation expense to the carriers is virtually eliminated; clerical and detail work (billing, accounting, rating, classifying, etc.) is substantially reduced; time and expense in handling and investigating claims for loss or damage are lessened; delivery of separate shipments to individual consignees is unnecessary; tonnage for the short-line railroads is increased in the case

[1] *17 M. C. C.* 573 (1939).

[2] *310 U. S.* 344 (1940).

[3] *229 I. C. C.* 201 (1938); *232 I. C. C.* 175 (1939); and *243 I. C. C.* 53 (1941).

[4] Forwarder services are discussed in *43 M. C. C.* 527 (1944).

[5] *56 Statutes at Large*, part 1, pp. 284–300 (1942).

[6] The law is administered by the Bureau of Water Carriers of the Commission, which is now known as the Bureau of Water Carriers and Freight Forwarders. *Annual Report of the Interstate Commerce Commission*, 1942, p. 139.

[7] An act of 1943 extended this period until May 15, 1945. *57 Statutes at Large*, part 1, p. 590 (1943). Later the period was extended until Feb. 15, 1946. *59 Statutes at Large*, part 1, p. 169 (1945).

of shipments originating at, or destined to, distant points; and the carrier whose services are utilized is enabled to allocate equipment in advance and to depend upon a more or less steady flow of traffic.[1]

Other clauses of Part IV provided that forwarders could not lawfully control any carrier subject to Part I, II, or III of the act, but that such carrier might acquire control of forwarders on the grounds of promoting greater efficiency. In addition, forwarders were not allowed to employ the services or instrumentalities of carriers other than common carriers subject to the Interstate Commerce Act or to the Civil Aeronautics Act. This eliminated utilization of the contract carrier.

Conclusions on Transport Legislation

Transport regulation is now reasonably thoroughgoing in scope and in substance. All forms of intercity transportation are subject to commission supervision with respect to rates, service, accounts, intercorporate relations, and other matters. Excepting air carriers, the predominant authority is centralized in the hands of the experienced and well-equipped Interstate Commerce Commission.

This far-reaching control is the product of a gradual evolution over many years. New laws have been passed from time to time in response to clearly defined needs as set forth by representatives of shippers, the carriers, the Commission, and others responsible for legislation. As a rule the regulatory statutes have been enacted only after careful consideration.

It is not to be expected that the legislative program will ever be finished, although legislation is occasionally hailed as final. The questions of today, centering around the several competing forms of transportation, are different from those of a half century ago, in degree if not in kind, and public policy must keep pace with changing conditions.

Although there is usually disagreement as to specific measures, regulation as such has been generally accepted, even by the carriers. Congress has been reasonably prompt in passing or modifying laws, and the courts have for the most part upheld them. Regulation with private ownership and operation has been put on trial.

REFERENCES

The topics in this chapter are discussed, along with other legislation, in the general references at the close of Chap. VI.

On transportation by water see Daggett, Stuart, *Principles of Inland Transportation*, Chap. 33 (1941); Federal Coordinator of Transportation, *Regulation*

[1] *44 M. C. C.* 166, 169–170 (1944). The provision for assembling and distribution rates did not prove satisfactory to forwarders, and legislation amending the Act of 1942 was soon proposed. On Feb. 20, 1946, the President signed *H. R.* 2764 authorizing the Interstate Commerce Commission to determine the terms under which freight forwarders may utilize the services of motor carriers.

of Transportation Agencies, Senate Document no. 152, 73d Cong., 2d Sess., pp. 5–13 (1934); *Fourth Report of the Federal Coordinator of Transportation on Transportation Legislation*, pp. 10–33 (1936); Johnson, E. R., *Government Regulation of Transportation*, Chaps. 16–19 (1938); Johnson, E. R., Huebner, G. G., and Wilson, G. L., *Transportation*, Chap. 44 (1940); Locklin, D. P., *Economics of Transportation*, Chap. 32 (1938), and "Regulation of Water Carriers by the Interstate Commerce Commission," *Yale Law Journal*, vol. 50, pp. 654–668 (February, 1941); Sharfman, I. L., *The Interstate Commerce Commission*, part 2, pp. 17–57 (1931); and Smith, D. H., and Betters, P. V., *The United States Shipping Board* (1931). The reader should also consult the references on the Transportation Act of 1940, listed in the preceding chapter.

The standard work on the regulation of pipe lines is Beard, William, *Regulation of Pipe Lines as Common Carriers* (1941). Regulation is also briefly discussed in Locklin, *op. cit.*, pp. 686–690, and in Sharfman, *op. cit.*, pp. 96–105. Information may also be found in *68 I. C. C.* 458 (1922) and *243 I. C. C.* 115 (1940).

Motor-carrier regulation is discussed in the following: Daggett, *op. cit.*, Chap. 32; Edwards, F. K., *Principles of Motor Transportation*, Chap. 15 (1933); Federal Coordinator of Transportation, *op. cit.*, pp. 13–35, 45–49; George, J. J., "The Federal Motor Carrier Act of 1935," *Cornell Law Quarterly*, vol. 21, pp. 249–275 (February, 1936); Haid, E. A., "Regulation of Motor Carriers," *Washington University Law Quarterly*, vol. 23, pp. 1–46 (December, 1937); *140 I. C. C.* 685 (1928); *182 I. C. C.* 263 (1932); Johnson, Heubner, and Wilson, *op. cit.*, Chap. 50; Locklin, *op. cit.*, Chap. 34; McCollester, Parker, and Clark, F. J., *Federal Motor Carrier Regulation* (1935); Miller, S. L., *Inland Transportation*, Chap. 34 (1933); Nelson, J. C., "The Motor Carrier Act of 1935," *Journal of Political Economy*, vol. 44, pp. 464–504 (August, 1936); Parmelee, J. H., *The Modern Railway*, Chap. 28 (1940); Stocker, H, E., *Motor Traffic Management*, Chap. 5 (1938); and Wagner, W. H., *A Legislative History of the Motor Carrier Act* (1936).

References on the regulation of air transportation include "Civil Aeronautics Act of 1938," *Harvard Law Review*, vol. 52, pp. 137–144 (November, 1938); Civil Aeronautics Authority, *State Aeronautical Legislation Digest and Uniform State Laws* (1939); Daggett, *op. cit.*, Chap. 34; David, P. T., "Federal Regulation of Airplane Common Carriers," *Journal of Land and Public Utility Economics*, vol. 6, pp. 359–371 (November, 1930); Fagg, F. D., "Legal Basis of Civil Air Regulations," *Journal of Air Law and Commerce*, vol. 10, pp. 7–29 (January, 1939); Federal Aviation Commission, *Report*, Senate Document no. 15, 74th Cong., 1st Sess. (1935); Federal Coordinator of Transportation, *op. cit.*, pp. 49–53; Frederick, J. H., *Commercial Air Transportation*, Chaps. 7–11 (1942); Locklin, *op. cit.*, pp. 823–826; Puffer, C. E., *Air Transportation*, Chap. 4 (1941); Rohlfing, C. C., *National Regulation of Aeronautics* (1931); Spencer, F. A., *Air Mail Payment and the Government*, Chap. 13 (1941); and "The Economic Regulation of Air Transport," *University of Chicago Law Review*, vol. 5, pp. 471–494 (April, 1938). In addition to the foregoing, numerous references may be found in the *Journal of Air Law* and in the *Air Law Review*.

Serious study of the details of transport legislation will require consultation of *Interstate Commerce Acts Annotated* and of *Civil Aeronautics Act Annotated*. Another reference is Interstate Commerce Commission, *The Interstate Commerce Act*. These compilations are revised from time to time as new legislation is enacted.

CHAPTER - - - - - - - - - - - - - - - - NINE

The General Level of Rates

THE preceding chapters have referred briefly to various transportation problems, among which rate making is of outstanding importance both to the public and to management. It was to ensure fair rates that transport regulation was instituted, and it is of course through rates that the companies earn a profit.

In fixing rates the interests of the public and of the companies are to some extent opposed, the former demanding low rates, the latter high rates; but rates so low as to endanger adequate service are against the public interest, and rates so high as to destroy economical traffic against the company interest. Rates and fares should therefore be reasonable. This is a cardinal principle of long standing. It inheres in the common law and was set forth in 1898 by the Supreme Court of the United States in Smyth *v.* Ames—a case dealing with railroads but applicable to all other means of transportation affected with a public interest. The Court said, "A corporation maintaining a public highway, although it owns the property it employs for accomplishing public objects, must be held to have accepted its rights, privileges and franchises subject to the condition that the government creating it, or the government within whose limits it conducts its business, may by legislation protect the people against unreasonable charges for the services rendered by it. It cannot be assumed that any railroad corporation, accepting franchises, rights and privileges at the hands of the public, ever supposed that it acquired, or that it was intended to grant to it, the power to construct and maintain a public highway simply for its benefit, without regard to the rights of the public. But it is equally true that the corporation performing such public services and the people financially interested in its business and affairs have rights that may not be invaded by legislative enactment in disregard of the fundamental guarantees for the protection of property. The corporation may not be required to use its property for the benefit of the public without receiving just compensation for the services rendered by it."[1]

The procedure to be followed in applying the rule of reasonableness, which is relevant to all rate making, differs according to the character of

[1] *169 U. S.* 466, 545–546.

the adjustment. Broadly speaking, there are two problems: (1) the determination of the general level of rates and (2) the fixation of particular rates. Rate making and control are most often concerned with the second problem; but since all rates must normally be quoted with an eye toward a preconceived total return, it is logical to discuss first problem one. This chapter deals with certain general aspects of the rate level. The succeeding chapter discusses the difficult question of valuation, and Chap. XI considers the fair rate of return.

Standards of Reasonableness

What is the proper criterion of the reasonableness of the general level of rates? To this question several answers have been given: (1) rates should be set at that point which will minimize social net cost; (2) every rate should be equated to marginal cost, leaving capital costs to be cared for through taxation or other means; (3) rates should be determined by the value of the service; (4) rates should cover enterpreneur's money costs, including operating expenses, taxes, and capital charges.

The social cost standard tends to ignore pecuniary considerations. In fact, it would not equate rates with money cost at all. On the contrary, the idea that money costs measure social costs, or that demand prices measure social benefit, is rejected; and rates are to be set so as to promote certain social objectives deemed to be desirable. More will be said about this basis for rate making in Chap. XV, but we may observe here that it is inconsistent with private ownership and operation and that it would necessitate an unorthodox use of the taxing power either to absorb excess profits or to furnish subsidies. It would also depart radically from the general rate-making policy of the past.

The marginal-cost basis would equate each rate with the marginal or out-of-pocket cost of the service covered by the rate. Since transportation plants such as railroads have large constant costs, the charges for service would be less than the average unit cost, and it would be necessary to provide for capital charges through taxation. Such a policy might be defended on the ground that it would maximize the advantages of transportation at no increase in the total burden upon the community as a whole. But it is open to two objections. A part of the cost burden would be shifted from shippers to taxpayers, and private ownership would tend to give way to public ownership. Both these results run contrary to generally accepted policy.

According to the third proposal, the level of rates would be determined on the basis of the value of the service to shippers and passengers. As explained later,[1] the value of the service is equivalent to maximum demand price; and although such price is a vital factor in fixing particular

[1] Cf. p. 329.

rates, it is meaningless with respect to the general level of rates. The reason it is meaningless is that transport service is not purchased at one time in its entirety. The demand for transportation consists of the demands for particular services. It is true that the value of the service fixes an upper limit to any one rate, and that the total volume of traffic that will move under maximum rates for particular hauls may not enable the carriers to cover all costs. But it is equally true that the quantity of service demanded may provide the carriers more than enough revenue to cover costs.[1] Despite its weaknesses, the value of the service has sometimes been referred to as a standard in rate-level cases both by the Supreme Court[2] and by the Interstate Commerce Commission.[3] These authorities apparently merely mean that rates should be adjusted to some extent according to the needs of the public.

The generally accepted standard for the rate level is the total cost of service, as measured by the sum of the operating expenses, taxes, and a return on investment sufficient in the long run to attract necessary capital. This basis is approved by economists, by the Supreme Court, by Congress, and by the Interstate Commerce Commission. That the Supreme Court holds to cost is clear from the decision in Smyth *v.* Ames, from which we quoted. That Congress recognizes cost is evident from the rate-making provisions of the Interstate Commerce Act. And that the Commission generally endorses cost is indicated by most of its decisions, even though the language used in certain cases shows some confusion of thought.[4] In fact, it was the policy of the Commission to base the level of rates upon cost even before Congress enacted a rule of rate making. Said the Commission in 1905, "Where an entire system of rates is involved, the principal, if not the only question, is, whether the revenue yielded by the rates on all traffic is a fair return on the value of that which is 'employed for the public convenience' . . . ."[5] It should be emphasized, however, that the Commission has not adhered mechanically to a fair return. On the contrary, it has realistically made allowance for necessary qualifications. It has insisted that the earnings test take into account the honesty and efficiency of management, the effect of rates upon the flow of traffic, general business conditions, competitive forms of transportation, and variations in the earning power of individual carriers.

Cost is the standard that tends to govern in the long run where competition is effective, and under the existing system of private enterprise it seems consistent with the public interest. Rates that do not normally

[1] During the thirties inability to cover all costs characterized most transport industries.

[2] *169 U. S.* 466, 547 (1898).

[3] *20 I. C. C.* 243, 253 (1911); *178 I. C. C.* 539, 563 (1931).

[4] Sharfman, I. L., *The Interstate Commerce Commission*, part 3, vol. B, pp. 290–308 (1936).

[5] *10 I. C. R.* 505, 539–540 (1905).

produce from the freight, passenger, and miscellaneous services a gross income at least as great as the total cost of the transportation mean either poor service or no service at all, unless public aid is granted. If rates are too low, carrier credit suffers and the companies are unable to attract the large sums of capital that recurrently become necessary in meeting the needs of expanding commerce. Immediately the loss falls upon the companies, but eventually the public suffers. Assuming it possible to charge fully remunerative rates, capital that should be used for transportation flows elsewhere. On the other hand, rates should not, year in and year out, provide more than enough to meet the necessary cost. If income is greater than cost, excessive profits accrue to a favored class of investors, and the purchase of transport service is unnecessarily curtailed. "The carrier owning and operating a railroad . . . is not entitled as of constitutional right to *more* than a fair net operating income upon the value of its properties which are being devoted to transportation."[1]

Cost would also be a reasonable basis for rates should the means of transportation be owned and operated by the government. Rates quoted below cost, including the interest on government bonds, would make it necessary to meet the deficiency from tax revenues, as the experience with the railroads during the First World War demonstrated. Under normal conditions this would be uneconomical in that it would favor shippers and travelers at the expense of taxpayers. It would make taxes higher, and taxes are harder to administer than rates. In addition, subsidized transportation tends to be wasteful. Generally speaking, transportation that does not pay its way is not worth having. Rates quoted above cost would also be uneconomical. Here taxpayers would benefit at the expense of shippers. The latter would in effect become taxpayers of an inequitable tax; for taxes levied according to the amount of shipping violate the principle of ability to pay. Governments sometimes collect revenue through monopolistic rates, but as a rule students think it better policy to raise public revenue by other means.

Interpretation of the Cost Principle

Properly interpreted, the cost principle is subject to certain qualifications. First, it refers to the long run. Rates need not, indeed cannot, under changing conditions, cover all expenses and produce a fair return during every accounting period. It is impossible to regulate expenses strictly according to fluctuations in traffic; and even if such regulation were feasible, it would be unwise to vary service charges accordingly, for rates would become too unstable. But so long as transportation facilities

[1] Dayton-Goose Creek Railway Company *v.* United States, *263 U. S.* 456, 481 (1924). Italics ours.

are not excessive or obsolete, rates can and should be made to cover cost in the end.

Second, the cost principle implies no particular level of rates; it merely fixes a monetary limit for the body of rates. Cost may be met under a relatively low level of rates and a large volume of traffic as well as under a high level of rates and a small volume of traffic. Though variable outlays will increase when business expands, average cost may decline. And if costs can be met under a lower level, it is in the interest of the public that rates be decreased. For cheaper transportation means more goods and services, as explained in Chap. I.

Third, the cost principle, as presently applied, merely affords the carriers a reasonable opportunity to recover their expenses. It does not imply a public guarantee. This would check the incentive to efficiency, and Congress has not provided such an assurance, except during the First World War. Some railroads are so situated that they have never been able to earn a fair return. During the thirties only a few carriers did so. Yet the companies have had no legal right to turn to public treasuries for the deficiency in earnings. In Public Service Commission of Montana *v.* Great Northern Utilities Company the Supreme Court said, "The due process clause of the Fourteenth Amendment safeguards against the taking of private property, or the compelling of its use, for the service of the public without just compensation. . . . But it does not assure to public utilities the right under all circumstances to have a return upon the value of the property so used. The loss of, or the failure to obtain, patronage, due to competition, does not justify the imposition of charges that are exorbitant and unjust to the public. The clause of the Constitution here invoked does not protect public utilities against such business hazards."[1] It should be pointed out, however, that the restriction of profits places upon the regulatory authorities an affirmative duty to facilitate the recovery of costs. Advantage should not be taken of the fact that capital has already been "sunk" in the transportation industries. For capital is timid and cannot be attracted unless past investments prudently made are accorded just treatment. In the words of the Supreme Court, "Our social system rests largely upon the sanctity of private property, and that State or community which seeks to invade it will soon discover the error in the disaster which follows. The slight gain to the consumer, which he would obtain from a reduction in the rates charged by public service corporations, is as nothing compared with his share in the ruin which would be brought about by denying to private property its just reward, thus unsettling values and destroying confidence."[2] It was largely in recognition of this

[1] *289 U. S.* 130, 135 (1933).

[2] City of Knoxville *v.* Knoxville Water Company, *212 U. S.* 1, 18 (1909).

obligation of the regulatory authorities that Congress enacted the rule of rate making in the Transportation Act of 1920.[1]

Fourth, the cost principle assumes reasonably efficient management. Obviously, a poorly managed carrier will need to charge higher rates in order to secure a fair profit than a well-managed concern; but the public ought not to be penalized by such rates if the inefficiency is inexcusable. Superhuman or unusual efficiency should not be required, and a given conduct of affairs by management should not be adjudged uneconomical merely because the regulatory authorities would act differently. Yet in the words of the Supreme Court, "Surely, before the courts are called upon to adjudge an act of the legislature fixing the maximum passenger rates for railroad companies to be unconstitutional, on the ground that its enforcement would prevent the stockholders from receiving any dividends on their investments, or the bondholders any interest on their loans, they should be fully advised as to what is done with the receipts and earnings of the company; for if so advised, it might clearly appear that a prudent and honest management would, within the rates prescribed, secure to the bondholders their interest, and to the stockholders reasonable dividends. While the protection of vested rights of property is a supreme duty of the courts, it has not come to this, that the legislative power rests subservient to the discretion of any railroad corporation which may, by exorbitant or unreasonable salaries, or in some other improper way, transfer its earnings into what it is pleased to call 'operating expenses.'"[2] This ruling is clearly sensible and needs little elaboration. If responsible management be not assumed, the cost doctrine becomes a cost-plus arrangement, whereby the companies pass on to the public whenever possible such charges as they care to make.

Fifth, the cost standard implies honest accounting. We have stated that the cost of service includes a return on capital. In order to ascertain this return it is necessary to distinguish between expenditures chargeable to capital and those chargeable to current operations. If repairs and replacements are charged to capital instead of to operations, the investment account is inflated and operating expenses are understated. On the other hand, if additions and betterments are charged to operating expenses instead of to capital, the investment account is understated and current expenses are padded.

Since some carriers will intentionally draw an improper line between the various kinds of expenditures and since correct accounting distinctions are often difficult to make at best, it is imperative that accounting be regulated. The confusion existing before effective commission control

[1] Cf. p. 173.

[2] Chicago & Grand Trunk Railway Company *v.* Wellman, *143 U. S.* 339, 345–346 (1892).

of railroad accounting has already been referred to.[1] To be adequate, accounting systems should conform to at least five standards. One obvious requirement is that the accounts be uniform, not identical for every carrier but uniform for all carriers of the same class. The advantages of uniformity were explained in Chap. VI. A second requisite is a careful distinction between capital outlays and operating expenses, for reasons set forth in the preceding paragraph. A third requirement is a detailed and accurate statement of the property account. It is important that the accounts show at all times the actual cost of the property, so as to facilitate the determination of a proper return to investors. For example, the property accounts should not include discounts on stocks and bonds, and obsolete or abandoned property should be written off the books as depreciation occurs. This means that a reasonable depreciation charge should be recorded. A fourth requisite is a complete segregation of the accounts dealing with carrier and noncarrier business. Unless these accounts are separated, profits or losses from noncarrier operations may be transferred to the business of transportation, which should stand on its own feet. A fifth essential is that the accounting system be exclusive. If regulation is to be made effective, the companies should clearly be forbidden to keep any books and records other than those approved by regulatory authority.

Components of Cost: Operating Expenses

What are the components of cost? What is their relative significance? In the railroad business, which may be used for purposes of explanation, three-fourths to four-fifths of the total cost normally consists of operating expenses. The largest items among the operating expenses are wages and salaries, which amount to about three-fifths of the total, not counting the cost of labor represented in the price of materials.[2] Next come, usually in the following order: materials and supplies, taxes, fuel, depreciation and retirements, equipment and joint facility rentals, and losses, damages, insurance, etc.[3] Cost data on the other transport industries were set forth in Chap. IV.

Operating Expenses Other than Depreciation

Most of the operating expenses raise no seriously controversial problems of regulation. This is owing in part to the fact that the carriers in their own interest tend to keep operating expenses at a minimum, at least under a given level of rates. It is attributable also to the fact that operating expenses are determined largely by market forces over which the regulatory authorities have little control. Wages are normally set in the first

[1] Cf. p. 161.

[2] Wages and salaries constituted in 1943 about 59 per cent of all operating expenses.

[3] For purposes of discussion we include taxes with operating expenses.

instance primarily by collective bargaining rather than by public authority, and depend upon bargaining power, standards of living, wages in comparable industries, and the like. The prices of materials, supplies, and fuel are fixed in the open market, according to industrial conditions; equipment and joint-facility rentals are determined by contract; and taxes are levied by legislative bodies.

There are of course exceptions to the statement that operating expenses induce no serious regulatory problems. This is particularly true of depreciation, and question occasionally arises concerning the propriety of operating expenses other than depreciation, as in 1933 in the matter of the salaries of railway executives.[1] Such instances may occur on account of improvident management or plain dishonesty; but whatever may be the cause, fairness to shippers demands that improper expenses be eliminated from the cost to be covered by rates. The rule of reasonableness implies responsible management, and this may be assumed in fixing the fair return. Where the expense accounts are charged with outlays that are not actually incurred, or where there is collusion that results in the padding of expenses, the illegitimate items may be omitted.[2] But abuse of discretion must be shown, and the burden of proof of abuse lies upon the regulatory authorities. The courts have been careful to point out that the commissions are not the operators of the companies and may not merely substitute their judgment for that of the managers.

One effect of court restriction of commission authority is to make very difficult the elimination of competitive wastes common to the carriers as a whole. Even though such wastes may be substantial, from the point of view of a particular company a practice wasteful in general often appears to be justified. Under such circumstances, commission influence is largely limited to persuasion and to the publication of the facts as to waste. Possibly this is generally as far as a commission should be allowed to go under a system of private ownership and operation.

Depreciation

Depreciation requires somewhat extended analysis. It gives rise to controversial problems, can be subjected to commission control, and constitutes an item of importance in the cost of service. In the case of railroads depreciation ordinarily amounts to about 7 per cent of total operating expenses. It is more significant in air transportation, although slightly less so in the water and motor industries.

[1] Federal Coordinator of Transportation, *Regulation of Railroads*, Senate Document no. 119, 73d Cong., 2d Sess., p. 68 (1934).

[2] See Chicago & Grand Trunk Railway Company *v.* Wellman, *143 U. S.* 339, 346 (1892). Collusion has sometimes arisen in contracts between holding companies and their operating subsidiaries.

The modern view of depreciation emphasizes the concept that the purchase of capital goods is in essence a purchase of future services, which are consumed in the course of plant operation as a result of the action of various forces. This consumption or expiration of the service life, capacity, or utility of property constitutes depreciation.[1] It gives rise to a cost of service. In fact, depreciation has been defined as amortizable cost, *i.e.*, cost which is transferable from capital to income account.[2]

Service life means economic life, *i.e.*, the period during which it is more economical to employ a given item of equipment than any substitute. In the case of most forms of property this period is terminable.[3] Experience shows that sooner or later, in fact within a reasonably short period of time, plant and equipment become economically unfit for service and must be replaced. As has been said, plant is inevitably on an "irresistible march to the junk heap."[4] The loss of capacity for service may be gradual or sudden, and it may be either apparent to the eye or invisible; but whatever the circumstances may be, the loss may be included within the broad concept of depreciation. Narrowly conceived, depreciation relates only to the gradual, more or less observable exhaustion of service capacity.

The specific causes of loss of service life are too numerous to mention, but they may be grouped for convenience under three heads: (1) physical, (2) functional, and (3) contingent.[5] Physical causes include (*a*) wear and tear incidental to use and (*b*) natural forces such as rot or rust, which occur with the passage of time. Functional causes consist of those forces which lead to lack of adaptation of equipment and which may terminate the economic life of a unit of property when it is still technically serviceable. In rapidly developing industries such as aviation functional factors are usually more significant than physical. Subclasses under the functional head are (*a*) obsolescence and (*b*) inadequacy or supersession. Obsolescence results from inventions, new designs, etc., which make available more efficient facilities. The obsolescence may be said to be ordinary when under the control of the carrier, as in the substitution of air-conditioned passenger cars for the old day coach; extraordinary when beyond the control of the company, as in the replacement of rail transport by motor-

[1] See statement of the National Association of Railroad and Utilities Commissioners in the *Journal of Accounting*, vol. 76, p. 533 (December, 1943).

[2] Bonbright, J. C., *Valuation of Property*, vol. 1, p. 186 (1937).

[3] In one sense even land is depreciable; but it is not so regarded under regulation, partly because it is usually valued on a market basis, which reflects depreciation as a value concept.

[4] Hatfield, H. R., *Accounting*, p. 130 (1928).

[5] The distinction between physical, functional, and contingent factors is somewhat arbitrary; for any depreciation is usually both physical and functional. But the distinction is serviceable in explaining the causes of depreciation. An extended treatment of causes is Kester, R. B., *Advanced Accounting*, Chap. 10 (1933).

vehicle transportation. Inadequacy and supersession refer to the lack of adaptation of plant which is occasioned by a growth or shift in the demand for service, or by legislative requirements. For example, a building may come to be too large for the business, or the regulatory authorities may require the elimination of a grade crossing. Contingent causes embrace (*a*) accidents, (*b*) diseases, and (*c*) diminution of supply, as in the exhaustion of ore in a mine.

Since depreciation results in a cost, it should be covered through the charges for service. The expenses involved in the provision of capital equipment include not only a return on capital investment but also losses of capital. Losses caused by fire or flood may be taken care of through insurance and charged to expense in the form of premiums; but uninsurable losses of capital must be provided for either through the fair rate of return or through an allowance for depreciation. Insofar as predictable, they may be covered by periodic charges to depreciation. Capital in the form of land, certain grading, overheads that will never again become capital charges, etc., does not suffer a loss of service life, is never used up; hence, it does not enter into the current cost of operation. Assets of this kind are charged when purchased to the appropriate fixed capital account and constitute a part of the investment on which a fair return is allowed. But capital in the form of buildings, ties, rails, locomotives, and the like, does suffer a loss of service life, is used up during life. The capital investment represented by the expired life is a cost just as surely as the fuel burned in a locomotive, and it should be charged as an operating expense. The fact that the depreciation may not involve a direct monetary outlay during a given accounting period is immaterial; for all costs are not measured by direct outlays. The Supreme Court has said that it is the privilege and duty of the companies to allow for depreciation.[1]

Either one of two methods may be followed in making the allowance: (1) depreciation accounting or (2) retirement accounting.[2] Depreciation accounting is based upon the theory that the ultimate expense of furnishing service includes everything used up in the process, whatever it may be.[3] It includes such things as fuel and supplies, which are consumed within a short time and which when purchased are to be charged directly to the operating expenses for the period, but it also embraces property which is used up gradually during more than one accounting period. The portion of the property consumed within each period is a cost of that period and is chargeable to the operating expenses for the period. Since the property

[1] *212 U. S.* 1, 13–14 (1909).

[2] See Jones, Eliot, and Bigham, T. C., *Principles of Public Utilities*, Chap. 10 (1931). Another method, a modification of the second, is "renewal expense accounting."

[3] *118 I. C. C.* 295, 301–303 (1926).

is obviously consumed during its life, its cost should be spread over the periods of life.

According to this view, replacements do not measure depreciation expense. Depreciation is determined by the amount and cost of the property consumed; it exists whether or not the property is replaced; and it is incurred regardless of whether a charge is made for the depreciation. Since the expense is inevitably incurred, it should be recorded. When properly shown, the true operating expenses of each accounting period will be correctly stated, and there will be created a reserve which will indicate at any time the extent to which the property has been exhausted in the rendering of service. This reserve will protect the integrity of the investment. As the original cost of property is charged to operations, the earnings available for dividends decrease accordingly. The sum representing this decrease is locked up in the assets of the business. At the close of any period the initial cost of plant and equipment, less the amount of depreciation charged in the past, plus the reservations to cover the depreciation, is equal to the original investment in the properties.[1]

Two ways of computing the depreciation charge are the straight-line method and the sinking-fund method.[2] The straight-line method apportions the original capital cost to operating expenses in equal annual sums, according to the estimated life of the property; while the sinking-fund method, which does not necessarily require the actual setting up of a fund, is based upon a constant annual sum which if taken at compound interest will at the end of life equal the cost of the property. The gross charge for depreciation and the offsetting credit are in the end the same under either method, but the annual net depreciation charge to consumers is less under the sinking-fund method. The difference between the gross and the net charge is accounted for by the interest, which goes into the reserve in increasing yearly amounts. If the cost of a given property is $1,000 and if its estimated service life is 10 years, the annual depreciation charge under the straight-line method would be $100. Assuming the rate of interest to be 5 per cent, the annual charge under the sinking fund method would be $79.50.

The straight-line method seems to be preferable. It is the simpler of the two procedures, is more conservative in effect on future operations and capital structures, is less seriously affected by inaccuracies of estimate; and is widely employed.

A few simple accounting entries made by the reader will show that depreciation accounting charges the cost of depreciable property to operat-

[1] Ignoring scrap value and removal expense.

[2] These methods are logical only on the assumption that depreciation is closely related to length of service life. Numerous other methods are described in Kester, *op. cit.*, Chaps. 12–13.

ing expenses in installments throughout the life of the property, according to the estimated amount of the depreciation during each accounting period. At any given time, the reserve shows the accumulated depreciation. Before property comes to the end of its life, the reserve increases as depreciation occurs, thereby recording the cost. When the property is retired, the reserve is debited and the property account is credited with the original cost of the property. These two entries reduce the credit balance in the reserve and remove the property from the books. Depreciation on the property retired ceases. When the property is replaced, plant is debited with the cost of the new property and cash is credited. The credit balance in the reserve for depreciation begins to increase again, as the depreciation on the new property takes place.

Retirement accounting rests upon a different theory. It begins with the assumption that a railroad or other common-carrier property is a composite of many separate units of equipment and should be so considered with respect to depreciation. The separate units have terminable lives, depreciate, and have to be abandoned from time to time; but the composite property is immortal and does not depreciate, so long as it is well maintained; that is, provided repairs and replacements are made so as constantly to renew life.[1] In fact, according to this view, a seasoned property may be worth more to a purchaser than a new one.

Since the property as a whole does not depreciate, it is said that no charge should be made for depreciation and that a reserve is not needed to protect the integrity of the investment. Maintenance takes care of individual units; and if a reserve of any kind is called for, it should merely be a retirement reserve set up for the purpose of equalizing retirement costs rather than of recording depreciation. In the case of a large property which has struck its gait, so that retirements equalize from year to year, even a retirement reserve is not required, though it may be necessary in the case of large units to create such a reserve from surplus in order to prevent disporportionate yearly burdens upon operating expenses. The reserve would bear no necessary relation to depreciation, and its size would be determined by the exercise of judgment rather than by a computation of expired service life. The ascertainment of service lives as required by depreciation accounting is declared to be impracticable, and the establishment of a huge reserve which will in time approach 50 per cent of the recorded investment serves no useful purpose. If a composite property had a terminable life, such a reserve might be desirable; but for

[1] See Young, A. A., *Quarterly Journal of Economics*, vol. 28, p. 630 (1914); and Riggs, H. E., *Depreciation of Public Utility Properties* (1922). These authorities define depreciation as a decline in value; and if this interpretation is accepted, it may be logical to hold that there is no depreciation in the property when the value of the property is measured by its original cost.

practical purposes carrier properties may be regarded as perpetual in nature.

It follows logically from the basic assumptions of retirement accounting that the charges to cover the loss of capital invested in units of property should be made only as the actual retirements or replacements take place. The accounting procedure is relatively simple. When a retirement is made, the cost of the property retired is credited to the appropriate property account and charged directly to operating expenses. Replacements are charged to the property account and credited to cash. The accounts do not show estimated depreciation, as under depreciation accounting, but only the cost of the fixed assets in service.

The transfer of capital to the cost of operation only as retirements are made is said to impose no disproportionate burdens on operating expenses, because in the long run, after a company has reached a settled condition, the annual retirement expense will be equal to the depreciation expense. This procedure is declared to be preferable. In the first place, when property is unexpectedly retired and replaced because of obsolescence, it is better to charge the cost at once, or perhaps spread it over the future, so that the burden may be placed upon those who benefit from the enhanced efficiency brought about by the replacement. In the second place, the retirement procedure permits of some flexibility in making the charges. When earnings are below normal, retirements can be postponed, thereby increasing the income available for dividends and strengthening the credit of the company.[1]

Since it is agreed that depreciation is a cost properly chargeable to operating expenses, the choice between the two methods of accounting turns theoretically upon the question as to whether the property as a whole does in fact depreciate. If it does, a reserve should be created to show the extent of the depreciation; and the operating expenses should be charged with the depreciation as it occurs throughout the life of the property. The answer to the basic question seems clear. To admit that individual items of property do depreciate while arguing that the property as a whole does not depreciate appears to be an unreasonable position—a theory not accepted by the courts. Quoting an authority on accounting, "It would be clearly impossible to argue, for example, that the deacon's one-hoss shay had suffered no depreciation, as evidenced by its splendid operating condition, up to the very moment of dissolution. Assuming, however, that the deacon had ten thousand shays, ranging from those just placed in operation to those on the verge of abrupt retirement, and that replacements were regularly made as required, the public utility engineer would find it easy to contend that there is no depreciation

[1] See Nash, L. R., *Journal of Land and Public Utility Economics*, vol. 2, pp. 369–384 (October, 1926).

in the fleet of shays as a whole. To the accountant this move from the simple to the complex, accrued depreciation being annihilated in the jump, looks like rank sophistry."[1]

It is possible to argue, to be sure, that there is no *increase* in the total depreciation of a large property after it has struck its pace and if renewals are regularly made; but this does not imply the absence of depreciation. What of the depreciation that occurred before the renewals began? What of the obsolescence characteristic of even the best maintained properties? Prof. Bonbright argues convincingly that the depreciation of a plant as a whole may in fact be appreciably greater than the depreciation of the individual items of the plant considered separately, and he believes that properties tend to be overvalued.[2] Over-all depreciation may exceed the depreciation of the parts because it is not always possible to substitute one part without changing the character of other parts.

The foregoing discussion has tacitly assumed that service lives can be predicted with reasonable certainty. Though this is denied, especially in the case of obsolescence, the Interstate Commerce Commission is authority for the statement that future service lives can be estimated with sufficient accuracy to warrant depreciation accounting.[3] With the help of past experience and the advice of experts informed on the progress of the arts and the trends of business, it is possible to reach reasonably accurate approximations of the probable lives of property just as it is possible in the insurance business to predict life expectancy. It would not be practicable to say when a single item of property will come to the end of its life; but it is feasible to estimate with reasonable accuracy the average service life of the items within a given class of property and to forecast total losses. Service lives will vary, of course, for the different classes of property and for different carriers.

Absolute accuracy in estimating service life is not necessary. If, after experience, the rates of depreciation prove to be too high or too low, the periodical charges can be reduced or increased, as the case may be. It is better to make some allowance for depreciation at the cost of later readjustment than to make no allowance at all. The total amount paid by shippers as a whole is not affected by the inaccuracies in the estimates of service lives, and the burden is distributed among past and future shippers more equitably than under retirement accounting. If the charges for depreciation are too high at first, this should mean merely that shippers will later enjoy lower rates.

[1] Paton, W. A., *Accounting Review*, vol. 5, pp. 123–124 (June, 1930).

[2] Bonbright, *op. cit.*, p. 209.

[3] See also Brennan, J. F., "Depreciation by the Insurance Method," *Journal of Land and Public Utility Economics*, vol. 9, pp. 16–24 (February, 1933); and Kurtz, E. B., *Life Expectancy of Physical Property* (1930).

The Transportation Act of 1920 apparently requires depreciation accounting. As indicated in Chap. VII, it directed the Interstate Commerce Commission to prescribe the classes of property for which depreciation charges may properly be made and to determine the rate of depreciation for each class. In 1926 the Commission, which favors depreciation accounting, complied with the mandate and prescribed the classes.[1] Since the railroads objected to the order at that time, the Commission reopened the case and did not issue a final order until 1931.[2] This order was to become effective in 1933, but the effective date was indefinitely postponed, except in the case of equipment. Depreciation accounting for equipment became effective on Jan. 1, 1935. That for certain classes of road property went into effect on Jan. 1, 1943.[3]

The annual charge for depreciation should be based upon the original cost of the property, as defined in the next chapter.[4] But the Supreme Court in United Railways and Electric Company of Baltimore *v.* West held that the depreciation allowance should be based on replacement cost.[5] The majority of the Court accepted the "efficiency" concept of depreciation, which is at odds with the cost principle. The annual charge for depreciation was viewed as a means of providing for the replacement of retired property rather than of spreading cost. To this position three of the justices registered dissent. Justice Brandeis pointed out that the purpose of the depreciation charge is to make good the cost of plant to be retired, and that the charge is therefore almost universally based on the original cost of the plant to the owner.[6]

The subsequent opinion of the Supreme Court in the Lindheimer Case[7] implied disapproval of the replacement cost basis for the depreciation charge, if the net effect upon service rates is not unfavorable; and in the Hope Natural Gas Case[8] the Court expressly set aside the West rule in favor of actual cost. This reversal of opinion is fortunate; for the practical difficulties of depreciating upon a fluctuating cost of reproduction are well-nigh insuperable, especially in view of the necessity of coordination between the reserve for depreciation and the deduction for depreciation in determining the rate base. The effect of basing the depreciation charge on

[1] *118 I. C. C.* 295 (1926).

[2] *177 I. C. C.* 351 (1931).

[3] The accounts included were engineering, other right-of-way expenditures, grading, and public improvements. The so-called "track accounts" are not classed as depreciable. These embrace ties, rails, other track material, ballast, and track laying and surfacing. See *Letter from the Interstate Commerce Commission* (Jan. 26, 1945).

[4] For an opposing view see Graham, W. J., *Public Utility Valuation*, Chap. 7 (1934).

[5] *280 U. S.* 234, 253–254 (1930).

[6] *Ibid.*, p. 266 (1930).

[7] *292 U. S.* 151 (1934).

[8] *64 S. Ct.* 281 (Jan. 3, 1944).

replacement cost is to increase the allowance and therefore operating expenses when prices are rising, and to decrease them when prices are falling. As a result, so long as prices change, the accounts will never show the actual cost incurred in rendering service. If prices have risen, consumers will be forced to contribute the difference between the original cost of the property retired and the cost of the replacement; if prices have fallen, the loss will fall upon the corporation. When the depreciation charge is based upon the original cost of the property, such inequitable results will not follow. If prices rise, the carrier will be required to raise the additional capital, as is proper; if prices fall, the carrier is not penalized by the price change, as is also proper.

Components of Cost: Fair Return

The remaining fifth of the cost of railroad service, after allowing for operating expenses, consists of the return on investment. In terms of present railway accounting, this return is equivalent to the "net railway operating income"; *i.e.*, the sum arrived at by deducting from the operating revenues the operating expenses, taxes, uncollectible revenue, and equipment and joint facility rentals.[1] Stated differently, the return on investment is the amount available for the capital charges, which include the interest on bonds and dividends on stock. It is in part pure interest, in part profit.

The return on investment constitutes one of the focal points of regulation, even though it is quantitatively much less important than operating expenses. This part of cost is within the control of the regulatory authorities, and it influences the adjustment of rates. Initially, the return on investment is a matter to be decided by the commissions. And down to 1890 the findings of the commissions in this respect were final, for the Supreme Court took the position that the establishment of reasonable rates was a legislative and not a judicial function. This was pointed out in 1877 in Munn *v.* Illinois, as well as in another Granger decision in which the Court said, "Where property has been clothed with a public interest, the legislature may fix a limit to that which shall in law be reasonable for its use. This limit binds the courts as well as the people. If it has been improperly fixed, the legislature, not the courts, must be appealed to for the change."[2]

Subsequently, however, the Supreme Court reversed its position and held that commssion findings as to the reasonableness of rates were subject to judicial review and could be set aside if the rates were fixed so low as to deprive the companies of property without due process of law in violation of the Fifth or Fourteenth Amendments to the Constitution.

[1] Nonoperating revenues and expenses are not considered in fixing rates.

[2] Peik *v.* Chicago and North-western Railway Company, *94 U. S.* 164, 178 (1877).

The change of attitude on the part of the Court was foreshadowed by dictum in Stone *v.* Farmer's Loan and Trust Company (1886),[1] but the right of judicial review was not definitely asserted until the decision in Chicago, Milwaukee and St. Paul Railway Company *v.* Minnesota, decided in 1890. The question at issue was the constitutionality of the decision of a lower court in which the court had refused to take proof of the reasonableness of rates fixed by the railroad commission of Minnesota. Here the majority of the Supreme Court said, "The question of the reasonableness of a rate of charge for transportation by a railroad company, involving as it does the element of reasonableness both as regards the company and as regards the public, is eminently a question for judicial investigation, requiring due process of law for its determination. If the company is deprived of the power of charging reasonable rates for the use of its property, and such deprivation takes place in the absence of an investigation by judicial machinery, it is deprived of the lawful use of its property, and thus, in substance and effect, of the property itself, without due process of law and in violation of the Constitution of the United States. . . . ."[2] The doctrine of judicial review was asserted again in Reagan *v.* Farmers' Loan and Trust Company,[3] decided in 1894, and down to 1942 it was reaffirmed and elaborated in numerous subsequent cases.

In 1942 the Supreme Court partly returned to the position held in 1877. In Federal Power Commission *v.* Natural Gas Pipeline Company the Court declared, "Once a fair hearing has been given, proper findings made and other statutory requirements satisfied, the courts cannot intervene in the absence of a clear showing that the limits of due process have been overstepped. If the Commission's order, as applied to the facts before it and viewed in its entirety, produces no arbitrary result, our inquiry is at an end."[4] This meant that the Supreme Court would limit judicial review to cases of obviously unreasonable commission findings. It would not inquire into the methods of arriving at reasonable rates. A similar stand was taken in 1944 by the majority of the Court in the Hope Natural Gas Case.[5] However, the justices registering dissents would not so greatly restrict the authority of the courts, and it may be that the Supreme Court will later qualify the Natural Gas Pipeline decision. Until it does, the commissions seem to be free to determine the reasonableness of the general level of rates in any way that will not produce patently arbitrary results.

[1] *116 U. S.* 307.

[2] *134 U. S.* 418, 458.

[3] *154 U. S.* 362.

[4] *315 U. S.* 575, 586 (1942). An article on this case is Harbeson, R. W., "Public Utility Regulation: A New Chapter," *Harvard Business Review*, vol. 20, pp. 496–507 (Summer, 1942).

[5] *64 S. Ct.* 281 (Jan. 3, 1944).

Meaning of the Fair Return

The return on investment, familiarly known as the "fair return," is of course over and above operating expenses (including depreciation) and taxes. It is the product of the fair value of the property, or rate base, and the rate of return. To illustrate, suppose that the operating expenses of a railroad amount to $100,000,000; that taxes come to $10,000,000; that the value of the property is $500,000,000; and that the expected rate of return is 6 per cent. In order to produce a fair return under these assumptions, it would be necessary to adjust service rates so as to collect $140,000,000 of gross revenue (operating expenses of $100,000,000 plus taxes of $10,000,000 plus 6 per cent of $500,000,000, or $30,000,000).

It will be observed that the fair return is an over-all return, computed on the value of the property as a whole without direct reference to the capital structure of a carrier. This means that dividends are not fixed. An undercapitalized company may earn a high return on its capital stock, while an overcapitalized company may earn a low return, or no return at all. Earnings on stock thus vary according to the relation between the rate base and the capitalization.[1] Earnings also vary according to the funded debt. If the capitalization is composed largely of obligations bearing a fixed return, the fluctuations in net earnings are concentrated upon a relatively small amount of contingent obligations. Should earnings be liberal, stockholders may receive a handsome income; but if earnings are meager, dividends may be reduced to zero. A number of railroads normally earn only a moderate return on total investment, yet still pay liberal dividends.

The provision of a fair return involves (1) a valuation of the property and (2) the determination of a fair rate of return. The two elements are to some extent related; for the regulatory authorities look to the final result as well as to each of the multipliers.[2] Nevertheless, the value of the property and the rate of return depend primarily upon different considerations and must be determined separately. Until recently they could lawfully be ascertained only on the basis of methods promulgated by the Supreme Court. It will be helpful briefly to review the position of the Court.

At the time the Supreme Court first asserted the right to review the reasonableness of rates fixed by a commission it did not set forth a judicial standard of reasonableness. But in 1898 a court guide was prescribed as follows in Smyth *v.* Ames, from which we quoted early in the chapter: "The basis of all calculations as to the reasonableness of rates to be charged by a corporation maintaining a highway under legislative sanc-

[1] The term "capitalization" is here used to mean the par value of the capital stock and the funded debt.

[2] *223 U. S.* 655, 670 (1912).

tion must be the fair value of the property being used by it for the convenience of the public. And in order to ascertain that value, the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock, the present as compared with the original cost of construction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses, are all matters for consideration and are to be given such weight as may be just and right in each case. We do not say that there may not be other matters to be regarded in estimating the value of the property. What the company is entitled to ask is a fair return upon the value of that which it employs for the public convenience. On the other hand, what the public is entitled to demand is that no more be exacted from it for the use of a public highway than the services rendered by it are reasonably worth."[1]

This decision, it will be noted, enunciated the principle that reasonable rates are rates which enable a carrier to earn a *fair return* on the *fair value* of the property being employed for the public convenience. It assumed a return in addition to operating expenses and taxes, as explained above, but the Court defined neither fair rate of return nor fair value. Subsequent decisions, however, threw more light upon these concepts.

The fair rate of return came to mean a rate which enables a carrier to attract the capital that recurrently becomes necessary for the rendition of good service. Quoting from a typical case, "The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties."[2]

According to this ruling, the companies are entitled to charge rates that will encourage investment. Certain other court decisions appear to draw a distinction between reasonable and nonconfiscatory rates, but the better view seems to be that the Supreme Court has generally held rates to be reasonable, and thus nonconfiscatory, only if the Commission thinks they are high enough to attract capital.[3] The specific rates of return which are necessary vary according to circumstances. No single rate is fair at all times and places for all companies. In Willcox *v.* Consolidated Gas Company the Court said, "There is no particular rate of compensation which must in all cases and in all parts of the country be regarded as sufficient for capital invested in business enterprises. Such compensation must depend greatly upon circumstances and locality. . . . "[4]

[1] *169 U. S.* 466, 546–547 (1898).

[2] Bluefield Water Works and Improvement Company *v.* Public Service Commission, *262 U. S.* 679, 693 (1923).

[3] *268 U. S.* 413, 422 (1925).

[4] *212 U. S.* 19, 48 (1909).

The fair value of the property has never been adequately defined by the Supreme Court. Various valuation factors were listed by the Court in Smyth *v.* Ames, but the relative weight to be given to each factor was not indicated. In fact, subsequent decisions showed that some of the elements of value referred to in 1898 are inapplicable to valuation for rate making. The sum required to meet operating expenses has no bearing whatsoever on valuation. The amount of the stocks and bonds is admissible, if at all, only as evidence of investment. And the market value of the stocks and bonds, and the probable earning capacity of the property under particular rates, are altogether illogical elements of valuation.

The ruling out of the aforesaid factors left as acceptable measures of fair value the original cost of the property and the present or reproduction cost thereof. But the Court held again and again that the ascertainment of fair value is a matter of judgment, not of formula. In the Minnesota Rate Cases (1913) the Court declared that in determining the fair value of the property "there must be a reasonable judgment having its basis in a proper consideration of all relevant facts."[1] And in the Los Angeles Gas decision (1933) the Court said, "Mindful of its distinctive function in the enforcement of constitutional rights, the Court has refused to be bound by any artificial rule or formula which changed conditions might upset."[2] It follows that in the eyes of the Court neither the original cost of the property nor its cost of reproduction should necessarily be the controlling measure.[3] In the Pacific Gas and Electric Case of 1938 and in the Driscol Case of 1939 representatives of the federal government intervened in behalf of the original cost, but in both instances the Court refused to depart from its traditional stand in cases involving confiscation.[4] So long as the methods of valuation were subject to judicial review, fair value remained an indefinite standard and afforded abundant opportunity for litigation and differences of opinion.

The results of the indefiniteness of judicial valuation have been far-reaching. Litigation, with all its weaknesses, has been substituted for effective regulation whenever the general level of rates is called in question.[5] Energy that might better be turned in other directions has been unnecessarily absorbed in rate controversies. The delays incident to rate making have become proverbial, the cost exorbitant. As an example of the intolerable delay and excessive expense may be cited the New York

[1] *230 U. S.* 352, 434.

[2] *289 U. S.* 287, 305.

[3] See the Pacific Gas and Electric Case, *302 U. S.* 388, 398 (1938).

[4] See, however, Wilson, G. L., and Rose, J. R., "Some Recent Trends in Public Utility Regulation," *American Economic Review*, vol. 29, pp. 746–759 (December, 1939). Comments by the author on this article may be found in *American Economic Review*, vol. 30, part 1, pp. 351–352 (June, 1940).

[5] This has been one reason for the interest in public ownership of public utilities.

Telephone rate case. The case began in 1920 and extended over a period of more than a decade. It is reputed to have cost the company at least $5,000,000, to say nothing of the cost to the state of New York. Estimates of the fair value of the property in 1926 varied from $367,000,000 to $615,000,000.[1] Although this was an exceptional case dealing with the telephone business, it is indicative of the difficulties that have constantly been encountered among all public-service industries in applying the fair-value doctrine. So great have been the difficulties, in fact, that the commissions have sometimes compromised with the companies, allowing liberal valuations rather than face the inevitable litigation. Such action is virtually tantamount to a renunciation of regulation. If the present scheme of control is to continue, it is important that a workable standard of valuation be adopted. Our views as to the proper standard are set forth in the following chapter.

The Fair Return and Individual Railroads

From an economic point of view, it is desirable to fix rates so as to provide a fair return for each system of transportation. Where costs are relatively high, rates should be high; where costs are low, rates should be low. Rates so regulated prevent wasteful transportation and make possible an economical division of labor. This has been recognized by the Interstate Commerce Commission in approving different rate levels for different territories and in prescribing higher rates in the form of arbitraries for weak railroads, as explained later in the chapter on Rate Technique.[2]

Unfortunately, in the railroad industry, and to some extent in the other fields of transportation, it has not been practicable to provide a fair return for every carrier managed with reasonable efficiency. We have already pointed out that individual railroads differ greatly in earning power.[3] The so-called "short lines" are generally weak, while the standard lines are usually stronger. There are also marked variations among the standard railroads.[4] For example, the Pocahontas lines are especially strong. Notwithstanding these differences, it is often necessary for both classes of carriers to quote the same rates. In order to earn a fair return the weak railroads need to charge more; but higher rates can be published

[1] State of New York, *Report of Commission on Revision of the Public Service Commissions Law*, Legislative Document no. 75, p. 266 (1930).

[2] Cf. p. 297.

[3] Cf. p. 174.

[4] In 1940 the rate of return of Class I line-haul railroads varied from 18.07 per cent to deficits; Class II line-haul railroads, from 48.25 per cent to deficits; Class III line-haul railroads, from 87.99 per cent to deficits; and switching and terminal companies, from 36.52 per cent to deficits. Interstate Commerce Commission, *Rate of Return on Value of Property of All Operating Steam Railway Companies*, 1940 (1941).

only at the cost of losing competitive traffic, and the noncompetitive business upon which the weaker roads can rely is frequently inadequate by itself. The strong roads might, of course, equalize rates with the weak at a level high enough to meet the needs of the latter. This, however, has the disadvantage of imposing a burden upon the patrons of the strong lines and of affording these companies more than a fair return.

A partial solution of this problem is to consider the railroads as a whole; *i.e.*, to prescribe a level of rates which will provide a fair return on the property of a group of lines. Although such a procedure is merely a compromise, it has been adopted by the Interstate Commerce Commission in a number of rate-level cases[1] as well as in decisions involving particular rates.[2] Congress has also sanctioned this policy. It will be recalled that Sec. 15*a* of the Transportation Act of 1920 directed the Commission to prescribe rates which would give the railroads as a whole, or as a whole in such groups as the Commission might designate, a fair return upon the aggregate value of their properties.[3] Excess earnings of the stronger roads were to be recaptured and used for the benefit of the weaker lines.

For reasons already set forth, Sec. 15*a*, including the Recapture Clause, was replaced in 1933 with the present more flexible rule of rate making.[4] This rule, which also applies to motor and water carriers,[5] provides that the Commission in prescribing rates shall give due consideration, among other factors, to the effect of rates on the movement of traffic, to the need for adequate transportation service at the lowest rates consistent therewith, and to the carrier revenue required for the provision of satisfactory service. No mention is made of a definite return.

Since the Recapture Clause has been repealed, other methods of dealing with the weak- and strong-road problem must be followed. The three devices which appear to afford the greatest chances of success are the division of joint rates, consolidation, and the pooling of the proceeds of general rate increases. These procedures are discussed, respectively, in Chaps. XVIII, XX, and XXIV.

Course of Railroad Earnings

The most comprehensive data on carrier earnings relate to the railroad industry. Taking as standard the rate of return prescribed by the Transportation Act of 1920, the railroads have long failed on the average to earn a fair return. On the basis of book investment the average return from 1911 to 1920 was 4.12 per cent; from 1921 to 1930, 4.15 per cent; and

[1] *15 I. C. C.* 376 (1909); *20 I. C. C.* 243 (1911); *31 I. C. C.* 351 (1914).
[2] *15 I. C. C.* 555 (1909); *18 I. C. C.* 440 (1910); *33 I. C. C.* 646 (1915).
[3] Cf. p. 173.
[4] Cf. p. 185.
[5] See Secs. 15*a* (2), 216 (*i*), and 307 (*f*) of the Interstate Commerce Act.

from 1931 to 1940, 1.99 per cent.[1] In no year except 1916 have the railroads earned as much as 5¾ per cent, although earnings were in excess of 5 per cent in 1913, 1917, and 1942.

The course of earnings after 1920 is set forth in Table IX. It may be that the book figures on investment are inflated and that actual earnings have been more favorable than indicated, but the return even on Interstate Commerce Commission valuations has been only moderate. For example, in 1926 the return on the Commission's valuation was 5.96 per cent. In all other years between 1920 and 1940 the return was below standard. It is possible also that a normal return of 5¾ per cent on the aggregate investment of the railroads is more than adequate.[2] An average of less than 2 per cent, however, seems quite inadequate. The alarmingly low return during the depression of the thirties made necessary public aid to the railroads. Substantial loans were extended by the Reconstruction Finance Corporation and under the National Industrial Recovery Act.[3]

TABLE IX.—CLASS I RAILROADS—RATE OF RETURN ON PROPERTY INVESTMENT[a]

Year	Rate	Year	Rate
1921	2 81	1933	1.82
1922	3.54	1934	1.78
1923	4.30	1935	1.93
1924	4.20	1936	2.57
1925	4.71	1937	2.27
1926	4.96	1938	1.43
1927	4.28	1939	2.25
1928	4.61	1940	2.59
1929	4.81	1941	3.75
1930	3.28	1942	5.50
1931	1.99	1943	4 92
1932	1.24	1944	4 00

[a] Ratio of net railway operating income to property investment including cash, materials, and supplies. Figures for the period 1921–1925 were computed from publications of the Interstate Commerce Commission. Other figures, based on the same source, were taken from Eastern Railroad Presidents Conference, *A Yearbook of Railroad Information*, 1944, p. 54, and from correspondence.

Railroad earnings have been affected by general as well as by particular changes in rates. Since 1910, a number of horizontal modifications have occurred. Between 1910 and 1917 operating costs rose rapidly, net earnings declined, and the railroads asked the Interstate Commerce

[1] Figures for the period 1908–1920 may be found in the *Annual Report of the Interstate Commerce Commission*, 1921, p. 83. For other years see Table IX.

[2] In *259 I. C. C.* 475, 502 (1945) the Commission stated that 4 per cent more nearly approximates current interest rates.

[3] Cf. p. 571.

Commission to approve substantial increases in rates.[1] But the public, accustomed to falling rates, objected to the proposed increases, and the Commission disapproved most of them. It was this restrictive attitude of the Commission, especially in the Fifteen Per Cent Case of 1917, which led to the enactment of Sec. 15*a* of the Transportation Act of 1920.

In 1920 the Commission approved substantial increases in rates.[2] Since rates had already been increased by the Director General in 1918, this decision placed rates on a very high level. With the onslaught of the depression of 1921 the Commission therefore ordered reductions, on the ground that adequate earnings could be promoted by low rates as well as by high, and that the public was entitled to lower rates at a time of crisis.[3] In 1926 proposed increases were denied because of the depressed condition of agriculture and the outlook for greater railroad prosperity in the near future.[4]

Since 1930 there have been seven general rate cases. In 1931 proposed increases of 15 per cent were disallowed.[5] Although the Commission recognized the dire need of the railroads for more revenue, it held that an increase in rates during the existing business depression would only accentuate the difficulties of the carriers by diverting traffic to competing forms of transportation. In 1933, however, the Commission denied proposed reductions in rates,[6] and in 1935 it authorized, instead of a general increase, specific emergency increases.[7] Upon the expiration in 1936 of the emergency increases, permanent increases were permitted on certain commodities.[8] In 1938 the Commission granted a general increase of 10 per cent with some exceptions.[9] On agricultural products the increase was only 5 per cent. Notwithstanding these increases, railroad earnings continued at a low level, wages were raised (1941), and in 1942 a general increase of 6 per cent was permitted, with exceptions, to take effect May 15, 1942.[10] On certain basic commodities the increase was 3 per cent. In 1945 the

[1] The principal cases were as follows: Advances in Rates—Eastern Case, *20 I. C. C.* 243 (1911); Advances in Rates—Western Case, *20 I. C. C.* 307 (1911); Five Per Cent Case, *31 I. C. C.* 351 (1914), and *32 I. C. C.* 325 (1914); Western Rate Advance Case, *35 I. C. C.* 497 (1915); and Fifteen Per Cent Case, *45 I. C. C.* 303 (1917). In 1918 the Director General ordered an increase of about 25 per cent in rates. These and subsequent rate cases are reviewed in Sharfman, *op. cit.*, Chap. 14.

[2] Increased Rates, 1920, *58 I. C. C.* 220 (1920).

[3] Reduced Rates, 1922, *68 I. C. C.* 676 (1922).

[4] Revenues in Western District, *113 I. C. C.* 3 (1926).

[5] Fifteen Per Cent Case, 1931, *178 I. C. C.* 539 (1931); *179 I. C. C.* 215 (1931); and *191 I. C. C.* 361 (1933).

[6] General Rate Level Investigation, 1933, *195 I. C. C.* 5 (1933).

[7] Emergency Freight Charges, 1935, *208 I. C. C.* 4 (1935).

[8] General Commodity Rate Increases, 1937, *223 I. C. C.* 657 (1937).

[9] Fifteen Per Cent Case, 1937–1938, *226 I. C. C.* 41 (1938).

[10] Increased Railway Rates, Fares, and Charges, 1942, *248 I. C. C.* 545 (1942).

Commission decided the controversial class-rate case, which is discussed in Chap. XII.

Because of the improvement in railroad earnings brought about by the Second World War and on account of the need to prevent inflation, the increases of 1942 were suspended as of May 15, 1943, until Jan. 1, 1944.[1] Later they were suspended until July 1, 1944, then until Jan. 1, 1945,[2] and again until Jan. 1, 1946.[3] In August, 1945, the carriers agreed to an indefinite suspension, and in October, 1945, the Commission suspended the increases until a date 6 months after the legal termination of the war.

Passenger fares may be reviewed briefly.[4] The standard fare adopted by the United States Railroad Administration during the First World War was 3 cents per mile in all classes of equipment. In 1920 the Commission approved increases,[5] and from that date until 1933 the fare generally was 3.6 cents per mile in all classes of equipment, plus a surcharge on transportation in sleeping and parlor cars of 50 per cent of the charge made for space occupied in such cars. In 1933 most of the railroads in Southern Territory established experimental fares of 3 cents per mile in sleeping and parlor cars, without a surcharge, and 1.5 cents per mile in coaches. These fares proved to be productive, and in 1936 the Commission prescribed maximum fares throughout the country of 2 cents per mile, one way and round trip, in coaches, and 3 cents per mile, one way and round trip, in standard Pullman cars, without prejudice to the maintenance of lower fares.[6] The Pullman surcharge was found to be unreasonable. Some of the railroads continued their lower experimental fares, but when the Commission approved a general increase of 10 per cent in fares in 1942, the increases were applied to the standard rates of 2 and 3 cents. One-way fares of the railroads then generally became 2.2 cents per mile in coaches and 3.3 cents per mile in sleeping and parlor cars. Round-trip fares were modified to reflect the increases in one-way fares.

Proposed Revision of the Rule of Rate Making

Although the Interstate Commerce Commission has from time to time permitted substantial increases in railroad rates, it has not approved all the advances demanded by the carriers. As a result, spokesmen for the

[1] *255 I. C. C.* 357 (1943).

[2] *256 I. C. C.* 502 (1943), and *258 I. C. C.* 455 (1944).

[3] *The New York Times*, p. 32 (Dec. 14, 1944). A more or less general increase of about 6 per cent in truck rates east of the Rocky Mountains was permitted at the time of the first suspension of rail rates, and further increases were granted late in 1943 and early in 1944. *259 I. C. C.* 159 (1944).

[4] See Passenger Fares and Surchargers, *214 I. C. C.* 174 (1936); Eastern Passenger Fares in Coaches, *237 I. C. C.* 271 (1940); and Alabama Intrastate Rates, *258 I. C. C.* 133 (1944).

[5] Increased Rates, 1920, *58 I. C. C.* 220 (1920).

[6] Passenger Fares and Surcharges, *214 I. C. C.* 174 (1936).

industry have proposed a further revision of the rule of rate making. The present rule is said to be objectionable, (1) because it places too much emphasis upon "the effect of rates on the movement of traffic"; (2) because it does not definitely direct the Commission to prescribe rates designed to yield a specified return. In some instances, as in 1938, where the Commission has disapproved proposed increases on the ground that higher rates would destroy traffic and deplete revenues, railroad officials have argued that their judgment as to the effect of rates on the movement of traffic should take precedence over the opinion of the Commission.

We believe that the revenue needs of the carriers should not necessarily take precedence over all other considerations. It seems reasonable to conclude also that the effect of rates on traffic cannot be intelligently ignored and that it is impossible, short of a guarantee, to provide a specified return in the short run. The rule of rate making should therefore be left flexible. However, in case of reasonable uncertainty as to the effect of rates on traffic, the benefit of the doubt should be accorded those who assume the risks of investment. Modification of the rule of rate making in 1933 did not remove the obligation on the part of the Commission to afford the railroads and other carriers every reasonable opportunity to earn a fair return on the average.

Since the Commission now has control of all commercial means of intercity transportation except air lines, and on the assumption that these means render services economically necessary, it should be possible, after readjustments covering obsolete facilities and unsound financial structures, for the carriers as a whole to earn an adequate return. But it will not be possible for both the strong and the weak railroads to do this and no more. Inasmuch as it would seem to be in the public interest to maintain a national railroad system, keeping in operation those weaker lines which render necessary services, we believe, therefore, that it is desirable to pool the receipts in excess of a fair return on the average. In this way, public opposition to needed advances in railroad rates probably would be lessened. Exorbitant returns could be avoided and inadequate returns could be supplemented through withdrawals from the pool. Even though the Recapture Clause turned out to be unworkable, another experiment along somewhat similar lines might now meet with greater success. For one of the chief drawbacks to the plan was the difficulty in determining the value of carrier property. The Commission now has more adequate information on investment, and the Supreme Court has assumed a more liberal attitude toward valuation.

REFERENCES

The topics covered in this chapter have often been considered in connection with valuation and rate of return. References at the close of the next two chapters are pertinent at this point. Also related are the readings on judicial review cited

at the close of Chap. VI. The significance of recent decisions of the Supreme Court is discussed by Harbeson, R. W., "Public Utility Regulation: A New Chapter," *Harvard Business Review*, vol. 20, pp. 496–507 (Summer, 1942). Brief attention to the position of the Court is likewise given by the Power Committee of the Twentieth Century Fund, *The Power Industry and the Public Interest* (1944).

General discussions of the rate level are as follows: Daggett, Stuart, *Principles of Inland Transportation*, Chap. 15 (1941); Dixon, F. H., *Railroads and Government*, Chap. 16 (1922); Healy, K. T., *The Economics of Transportation*, Chap. 22 (1940); Jackman, W. T., *Economic Principles of Transportation*, pp. 239–277 (1935); Jones, Eliot, *Principles of Railway Transportation*, Chap. 15 (1924); Locklin, D. P., *Economics of Transportation*, Chap. 15 (1938); Parmelee, J. H., *The Modern Railway*, Chap. 15 (1940); and Vanderblue, H. B., and Burgess, K. F., *Railroads: Rates, Service, Management*, Chap. 8 (1924). The rate level proceedings of the Interstate Commerce Commission are thoroughly analyzed by Sharfman, I. L., *The Interstate Commerce Commission*, part 3, vol. B, Chap. 14 (1936).

The question of providing the carriers a specified return, as under Sec. 15*a*, has been discussed in *Annual Report of the Interstate Commerce Commission*, 1931, pp. 347–367; and Federal Coordinator of Transportation, *Regulation of Transportation Agencies*, Senate Document no. 152, 73d Cong., 2d Sess., pp. 86–87 (1934).

Among the many readings on depreciation may be cited Bauer, John, and Gold, Nathaniel, *Public Utility Valuation for Purposes of Rate Control*, Chap. 9 (1934); Bonbright, J. C., *Valuation of Property*, vol. 1, Chap. 10, vol. 2, pp. 1126–1140 (1937), a thorough analysis of the basis for depreciation charges; Brennan, J. F., "Depreciation by the Insurance Method," *Journal of Land and Public Utility Economics*, vol. 9, pp. 16–24 (February, 1933); Crunden, A. B., and Belcher, D. R., "The Straight-line Depreciation Accounting Practice of Telephone Companies in the United States," *Bell Telephone Quarterly*, vol. 8, pp. 259–295 (October, 1929); Grant, E. L., "Depreciation—An Operating Expense or an Appropriation of Earnings," *Journal of Land and Public Utility Economics*, vol. 4, pp. 251–256 (August, 1928); Interstate Commerce Commission, "Depreciation Charges of Telephone Companies," *118 I. C. C.* 295–411 (1926), a strong argument for depreciation accounting; Jones, Eliot, and Bigham, T. C., *Principles of Public Utilities*, Chap. 10 (1931); Kester, R. B., *Advanced Accounting*, Chaps. 9–14 (1938), a general treatment; Koontz, H. D., "The Depreciation Base in Railroad Accounting," *Journal of Land and Public Utility Economics*, vol. 13, pp. 1–13 (February, 1937); May, G. O., "Carrier Property Consumed in Operation and the Regulation of Profits," *Quarterly Journal of Economics*, vol. 43, pp. 193–220 (February, 1929); Nash, L. R., *Economics of Public Utilities*, Chap. 8 (1931), which advocates retirement accounting; Riggs, H. E., *Depreciation of Public Utility Properties* (1922). Saliers, E. A., *Depreciation: Principles and Applications* (1922); United States Supreme Court, "United Railways and Electric Company of Baltimore *v.* West," *280 U. S.* 234–291 (1930), and "Federal Power Commission *v.* Hope Natural Gas Company," *64 S. Ct.* 281 (1944); and Whitten, R. H., and Wilcox, D. F., *Valuation of Public Service Corporations*, vol. 2, Chaps. 32–33 (1928).

The problem of the weak and strong road is analyzed in Herring, J. M., *The Problem of Weak Railroads* (1929), and in Locklin, *op. cit.*, Chap. 19. The experience with the recapture of excess earnings and the division of joint rates is described in Sharfman, *op. cit.*, pp. 221–290. This question also receives attention in several of the references on consolidation, cited in Chap. XX.

CHAPTER - - - - - - - - - - - - - - - - - TEN

Valuation

THE preceding chapter pointed out that the Supreme Court no longer prescribes a judicial basis for rates; that the so-called "fair-value" doctrine need not be applied. As a result the problem of valuation has been shifted primarily to the commissions, has been simplified, but has not been eliminated. Establishment of a workable and reasonably definite basis for the rate level still seems essential, in order to provide investors a return which they can anticipate and depend upon with some certainty.

It has been said that the property valuation of rate cases is in reality an earnings base rather than a rate base; that in fixing rates at any given time, considerations of cost, including the return to capital, should be subordinated to other questions, such as price and rate relationships.[1] But reflection shows that if the valuation is an earnings base (and it is) it is also a rate base; for if it limits earnings, it limits rates. Valuation at a given figure does not necessarily indicate any *one* level of rates, and service rates cannot be mathematically computed from the valuation without reference to the nature of the demands for services; but valuation is a factor determining the return to capital, and reflection of this return obviously influences the points at which rates must be set. The usual procedure in general rate cases is to estimate the operating expenses and taxes, add the anticipated return on investment, and then adjust service rates so as to bring in the required gross receipts, according to the predicted demand for each of the services for which rates are quoted.

What should be the basis of valuation for rate making? The three leading standards are market value, original cost, and cost of reproduction. In considering these it is important to keep in mind that the choice of a valuation standard depends upon the purpose of the valuation.[2] In

[1] See de Chazeau, M. G., "The Nature of the 'Rate Base' in the Regulation of Public Utilities," *Quarterly Journal of Economics*, vol. 51, pp. 298–316 (February, 1937).

[2] See Bonbright, J. C., *The Valuation of Property*, vol. 2, Chap. 32 (1937). Valuations are made for the measurement of indemnity, establishment of the upset price in reorganizations, assessment of taxes, issuance of securities, fixation of rates, and for still other purposes.

rate regulation the purpose is to find a proper basis for the return to investors.

Market Value

Market value means exchange value as generally used by the economist. In the market, value is usually measured in money; and on the assumption that the purchasing power of money remains constant, the market value of an item of property may be found by ascertaining the number of dollars for which it will sell. Where property is frequently exchanged, value can be determined with reasonable accuracy from the prices constantly being established in the markets; but where property is infrequently or never sold outright, as in the cases of carriers and public-service companies generally, actual market prices are not usually available. Resort must be had to an estimate of what the property as a whole would sell for in a free market. Such an estimate can reasonably be based upon either one or both of two measures. The first is the capitalized value at the current rate of interest of the company's prospective net income. For example, if the average annual net earnings of a carrier are expected to be $30,000,000 and if the going rate of return for enterprises of the kind in question is 5 per cent, the capitalized or market value of the property will be $600,000,000. The second measure is the aggregate value of the company's stocks and bonds, which may be found by summing up the prices of the securities as registered on the exchanges. These prices are influenced by many factors, but fundamentally they depend upon the estimated future income of the company. Howsoever it may be measured, the market value of the property thus depends upon earnings.

Spokesmen for the carriers and other regulated industries strongly contend that market value is a satisfactory basis for rates, so long at least as probable earnings are not in their opinion too low. They say that "value means value" as ordinarily employed in economics, and that the "fair value" on which the companies have had the right to earn a fair return is market value. This, it is argued, is what the property would sell for; and to fix rates according to a lower standard would deprive the owners of property without due process of law.

The companies are of course correct in saying that value measures the sum for which the property could be sold; but it does not follow that market value constitutes a fair basis for rates. A simple illustration will prove that it is not a fair standard. Suppose that a railroad usually earns an annual net return of $1,000,000 and that the going rate of return for industries of similar risk is 5 per cent. The capitalized or market value of the railroad is then $20,000,000, and so long as rates and other factors remain unchanged the railroad will earn a return of only 5 per cent. Now suppose

that the rates are increased and that the earnings double, without any change in the going rate of return. The market value of the property rises to $40,000,000; and the company still earns only 5 per cent on its rate base, notwithstanding the fact that it receives $2,000,000, or twice as much as before, without the investment of a single additional dollar. The absurdity is apparent. To base rates on the market value of the property would nullify the control of profits and prevent the establishment of reasonable rates. It would justify the rates in effect, no matter how exorbitant the profits, because the standard for testing the reasonableness of the rates would depend upon the rates themselves.

Value, indeed, can never be a fair basis for rates in a regulated industry, whether the term be interpreted to mean market value or value in use; for value in both senses depends primarily upon income. When rates are fixed, earnings are limited, and value is *made*, not *found*. Value is value resulting from the charging of reasonable rates, and if value is the result it cannot be assumed before rates are established. It should be definitely recognized that the proper basis for rates is cost, and the use of the word "value" in this connection should be discontinued.

Original Cost versus Cost of Reproduction

Original cost and cost of reproduction do not normally measure value. The original cost of a property would equal its value only under exceptional circumstances, possibly when the property is first constructed. Similarly, the cost of reproducing a property would usually be equivalent to its value only if given a special meaning. Both types of cost may of course provide evidence of value.

Definition of Terms

For purposes of rate making, the original cost of the property means the number of dollars or their equivalent prudently expended for the property now employed in serving the public. Note the qualifying words. The term "prudently" excludes from the concept of original cost all moneys recklessly or dishonestly spent. The companies are not entitled to a return on investments merely because the investments have been made. Unusual foresight on the part of management should not be demanded, but if the expenditures are clearly fraudulent or improvident the burden should rest upon the investors, not the public. The phrase "now employed" implies the deduction from the recorded investment of all property retired and abandoned. The original cost includes the initial investment plus additions and betterments, whether the funds have come directly from security holders or from reinvested earnings; but it does not comprise expenditures that may not properly be capitalized. One type of such expenditures consists of replacements. If the company has made

provision for depreciation (and it is its privilege and duty to do so) the patrons have contributed the funds to cover replacements; and it would not be fair to capitalize these contributions and make the users of the service pay a return on money which they themselves supplied, or to allow the investors a return on funds which they did not supply.

The original cost of the property may be ascertained by cumulating the capital expenditures, *i.e.*, by adding to the cost of the property in the beginning all additions and betterments. Computed in this way, the original cost can be discovered only from the books and records of the company. The original cost of the property may also be found by determining the original cost of the present property. This cost is ascertained by making a physical count of the units of property now used and by multiplying these units by their actual costs as disclosed by the records of the company. In case company records are not available, the necessary information can usually be found from price data outside the business; for most of the property will be relatively new. In making the valuation it is necessary, of course, to allow for the depreciation of the property. Allowance must also be made for the overhead charges, such as organization expense and interest and taxes during construction. These charges would not be revealed in the inventory, yet they represent costs necessarily incurred.

Under correct accounting, the cost of the original property plus additions and betterments, and the original cost of the present property, come to the same thing. Consider the case of locomotives. Assume that the original cost of a locomotive purchased years ago was $50,000; that it has depreciated, despite repairs, until it is no longer fit for service; and that it has just been replaced by a locomotive costing $100,000. The original cost of the locomotive now used to draw cars is clearly $100,000. But this is also the original cost in the first sense. It will be recalled that the original cost in that sense includes the cost of the original property plus additions and betterments. The cost of the old locomotive was $50,000; and if proper accounting has been followed, this sum has been charged to operating expenses during the life of the locomotive and is locked up somewhere in the property now employed for the convenience of the public. The $50,000 would therefore be included in the recorded cost of the present property. In addition, $50,000 more would be reflected in the accounts as a betterment representing the excess cost of the new over the old locomotive. The asset accounts would have been debited altogether with $150,000, but the credit for the retirement would have reduced this sum to $100,000.

Though the two methods of computing the original cost produce the same result if scientific accounting has been followed, it is frequently necessary to rely primarily upon the second method. This is because the cost of the original property plus additions and betterments cannot always be ascertained. In many cases the required records are not available, so

that it would be impossible to cumulate the capital expenditures from the books. Many of the companies are old, and their investments were made in the early period before the science of accounting was well developed, or before accounting was subjected to public regulation. During that time some companies kept practically no serviceable accounts whatever; other companies failed to keep their accounts so as to disclose the true investment in the property; and still other companies intentionally or unintentionally allowed their records to be destroyed. In valuing the railroads the Interstate Commerce Commission found it quite impossible to cumulate all the investments of the older carriers.

Cost of reproduction relates, not to what the cost of property has been as a matter of history, but to what the cost would be under certain assumed conditions. For this reason the cost of reproduction normally differs from the original cost. If prices have risen since construction, the former tends to exceed the latter; if prices have fallen, the contrary is true. During long periods of rising prices, the companies therefore usually favor measuring the rate base by cost of reproduction. The public, on the other hand, is prone to defend the original cost. During times of falling prices, the contestants, being opportunistic, reverse their positions.

Cost of reproduction is subject to numerous interpretations. According to one view, it means the cost of the most advantageous substitute for the existing plant. This is sometimes called the cost of "reproducing the service."[1] The present plant is thought of as being wiped out and replaced with a modern plant capable of performing the service. Since techniques change, the cost of such a plant would usually be different from the cost of reproducing a plant like the one in use. And its cost would generally be very difficult to ascertain. It would be necessary to choose, among other things, between alternative physical assets and to estimate the capitalized value of the differential between the operating costs of the actual plant and those of the hypothetical plant. The practical difficulties of measuring such items are in fact so great that the cost of reproducing the service cannot be employed as a standard for rates, and it has been definitely ruled out by the Supreme Court. In the Indianapolis Water Case the Court said, "There is to be ascertained the value of the plant used to give the service and not the estimated value of a different plant. Save under exceptional circumstances, the court is not required to enter upon a comparison of the merits of different systems. Such an inquiry would lead to collateral issues and investigations having only remote bearing on the fact to be found, viz. the value of the property devoted to the service of the public."[2]

[1] On the cost of reproducing the service see Jeming, Joseph, "Public Utility Rates on a Reproduction-cost-of-service Principle," *Journal of Land and Public Utility Economics*, vol. 17, pp. 138–150 (May, 1941).

[2] *272 U. S.* 400, 417–418 (1926).

Assuming a plant substantially identical with that actually in operation, cost of reproduction may refer either to the cost of reproducing the property on the supposition that it is new, or to the cost of reproducing the property in its present depreciated condition. Ignoring depreciation, the first of these two concepts gives a relatively high valuation, and for that reason frequently represents the views of the companies. Spokesmen for the companies argue that a well-maintained property does not depreciate. But as we have explained, this argument fails to square either with the facts or with the position of the courts. Properly defined, depreciation begins to accrue from the moment depreciable property starts its life; and the Supreme Court has held that the depreciation existing in a property must be deducted in valuing the property.

Even if narrowed in meaning to denote the cost of a substantially identical reproduction of the existing property in its depreciated condition, the concept of cost of reproduction leaves many questions to be answered. Under what conditions is the hypothetical reproduction assumed to take place? How value nonreproducible property? What prices are to be employed in computing the cost of reproduction? We shall discuss the first two of these questions at this point and leave the other query to be considered along with the explanation of the manner in which the cost of reproduction is computed.

Does cost of reproduction equal the cost of replacing the property under the conditions existing when the property was constructed, or under present conditions? The question is important, as can readily be seen if one imagines the replacement of some particular railroad, say the Union Pacific. When this line was first built, efficient supporting means of transportation were unavailable; and the cost of transporting the men and materials necessary for replacement would be much greater if the original rather than present conditions be assumed. For today modern railroads and good highways are at hand. And again, if the original conditions are to prevail, much more clearing and grubbing would be required than under present conditions. Trees would stand on the right of way. Still further, if replacement under original conditions is assumed, the time required for construction would be far longer than if the replacement took place continuously at present; for much of the Union Pacific, like most railroads, has been constructed in a piecemeal fashion. This longer period would tend to increase both unit costs and overhead costs. But all these expenses are hypothetical, would not need to be incurred if the property were replaced today, and should not be saddled upon the public.[1] Practically, cost of reproduction must refer to the cost of a substantially

[1] This represents the view of the Interstate Commerce Commission. In valuing the railroads, the Commission generally refused to assume the original conditions. See *75 I. C. C.* 1, 115 (1918).

identical reproduction of the property now employed under present conditions at present prices, and unless otherwise stated, the term will be so used in the subsequent discussion.

Though given the meaning just indicated, the cost-of-reproduction theory cannot be applied literally to all property. Take railroad land. Since land is not actually reproducible, carrier land is usually valued under the cost of reproduction according to the present value of contiguous land. In the cities, where real-estate values are high, this procedure gives the companies a greatly enhanced valuation; in the case of cuts and tunnels through mountains, where adjoining land is practically worthless, it produces absurdly low valuations. In fact, the method is impossible of logical application. The railroad to be reproduced must be said not to be in existence; but in all other respects actual conditions rule, including the present value of adjacent lands. Yet these lands often receive their value largely because of the presence of the railroad, and it is not logical to postulate the absence of the road while at the same time valuing the carrier land by a standard that assumes the presence of the road.

Another instance in which the cost-of-reproduction principle cannot be strictly adhered to is in the treatment of railroad crossings. When one railroad crosses another, it is customary for the junior line to bear the expense of constructing the crossing. Under the cost of reproduction, the cost of the crossing could therefore logically be included in the valuation of first one railroad and then the other; for the railroad under consideration is assumed to be nonexistent and would always be the junior line. Obviously, the result would be a padding of the valuation. It was for this reason that the Interstate Commerce Commission, in valuing the railroads, avoided duplication by charging the bridge to the railroad actually using it. But the Commission did not avoid sacrificing a consistent application of the doctrine of cost of reproduction. All this goes to show that the principle of cost of reproduction is inherently faulty. Original conditions cannot be postulated, because of the unreality of the necessary assumptions; present conditions cannot be posited and logically pursued without leading to unacceptable results.

Computation of the cost of reproduction requires, first, a physical inventory of all used and useful property. This covers land, structures, rolling stock, and working capital in the form of cash, materials, and supplies. The property must be classified in great detail—rights of way, ties of various kinds, rails of different descriptions, yards of grading of stated types, bridges, stations, locomotives, cars, etc. And a field count must be made by specialists of the number of units of property in each class. When the field work is completed, the specialists must make their reports, which are usually checked in the office by accountants and other experts. For a large complex property like a railroad this taking and

checking of the inventory is a laborious undertaking. It calls for an elaborate staff, much expense, and a long period of time, as our discussion of the Valuation Act of 1913 indicated.[1]

The second major step in determing the cost of reproduction consists of the ascertainment of the unit prices of each plant element. Unit prices include not only the factory prices of the materials required for reproduction but also all expenses necessarily involved in putting the property in place, such as labor and transportation. Here arises the question of pricing referred to above. Should the unit prices represent spot prices as of the date of the inquiry, or average prices for a period of time? If spot prices are taken and if prices are showing marked fluctuations, it may be objected that they are not representative. Spot prices refer to the prices ruling on some given date; and since construction takes time, the prices on no single day would be strictly correct. If average prices are taken, it may be objected that they do not indicate the cost of reproduction at present. Prices extended backward show what the cost of reproduction would have been had replacement taken place preceding the date of inquiry; prices extended forward show what the cost of reproduction would probably be in the future. Some price, obviously, must be taken if the cost of reproduction is to be ascertained; but the choice is difficult and has never been definitely decided by the courts. The Supreme Court has emphasized the importance of spot prices, when they differ materially from past prices, but it has also recognized that spot prices may not be representative.[2] It seems reasonable to conclude that present prices should control if such prices appear to be fairly permanent. But if there is doubt concerning their continuance, they must be adjusted according to the reasonable expectations for the future.[3] The play of judgment is therefore of necessity given wide latitude.

After the property has been counted and priced, but before arriving at the final value, it is necessary to estimate and deduct the depreciation of the property. As stated above, the objective is to find the cost of reproducing the property in its present depreciated condition. Due allowance must also be made for certain intangible property, such as overhead charges and going value, which would not be revealed by the inventory. If properly limited, the nonphysical property constitutes a legitimate and important element of valuation, just as in the case of the original cost; but the determination of the cost of reproducing such property is surrounded by the greatest uncertainty, primarily because of the inherent nature of the intangibles.

[1] Cf. p. 168.

[2] McCardle *v.* Indianapolis Water Company, *272 U. S.* 400, 408 (1926).

[3] Bauer, John, and Gold. Nathaniel, *Public Utility Valuation for Purposes of Rate Control*, p. 159 (1934).

Depreciation

As we have pointed out, a deduction should be made for depreciation (including obsolescence)[1] in establishing the rate base, whether the standard of valuation is the original cost of the property or its cost of reproduction.[2] Such deduction is economically justified for reasons already set forth, and it has been required by the Supreme Court. Where valuation is based upon the cost of reproduction the Court has definitely ruled that depreciation shall be deducted.[3] Where original cost is involved there have been no clear-cut rulings, but the logic of certain decisions is that an allowance must be made.[4]

If accurate accounting has been followed, the allowance for depreciation should equal the net amount shown in the reserve for depreciation. The Supreme Court has sometimes favored the deduction of "observed" depreciation, as established by expert witnesses, rather than theoretical accrued depreciation;[5] but if the companies are able to convince the regulatory authorities that their property is "actually" depreciated for rate-base purposes only by an "observed" amount which is less than the reserve, a grave injustice will be done. The carriers will be allowed a return on capital contributed by shippers and travelers, whereas they are entitled to a return only on investors' contributions to the property. The observation method is valuable as a check on accrued depreciation; but used alone, it ignores depreciation not perceptible to the eye of the appraiser, and it does not indicate how long an asset will continue to render economical service. Where property is not open to inspection, as in the case of underground pipes, the observation method is altogether inapplicable.

There is one situation in which accrued depreciation should not be deducted. This is where the sinking-fund method has been followed.[6] Under this method the amounts charged to operating expenses as depreciation do not cover the original cost of the property; and in order to meet

[1] The Supreme Court has definitely recognized obsolescence as one of the factors of depreciation. *292 U. S.* 151, 167 (1934).

[2] See *124 I. C. C.* 3, 56 (1927), in which Commissioner Eastman said, "Whatever basis of valuation be used, in strict theory property which has thus ceased to exist ought not to be included in the inventory."

[3] *212 U. S.* 1, 9 (1909); *289 U. S.* 287, 312 (1933).

[4] *231 U. S.* 423, 447 (1913).

[5] *265 U. S.* 403, 406 (1924); *295 U. S.* 662 (1935).

[6] Another situation sometimes recognized is where a company has been unable through no fault of its own to recover accrued depreciation, on account of a niggardly commission-rate policy, or economic forces beyond the control of the carrier. However, the appropriate procedure in such cases is to give the carrier an opportunity to earn a higher rate of return until the deficiency in earnings has been recovered. See the opinion of Commissioner Eastman in *124 I. C. C.* 3, 56 (1927).

this cost it is necessary for the company to withhold from investors, out of earnings, the interest on the sums paid in as depreciation expense by the customers.[1] Were a deduction for depreciation made, on the ground that part of the capital has been recovered, investors would not receive a return on the investment figuratively set aside to earn interest. Under the straight-line method of depreciation no such result follows when depreciation is deducted. Here the sums collected from customers through the charges for depreciation cover the full cost of property consumed and become a part of the rate base. Not to make a deduction for accrued depreciation in this case would give investors a double return, one on the cost of property depreciated and one on the investment resulting from the depreciation charge.

Arguments for Original Cost

The issue of original cost versus cost of reproduction arises from price fluctuations and technological innovations. These changes cause one standard to produce different results from the other, and it becomes important to weigh carefully the relative advantages of each, putting into effect that basis which will best serve the interests of investors, shippers, and the general public.

The chief advantages of original cost are four in number.[2] (1) The original-cost standard can be effectively administered. This is because it is based upon actual costs. Being definite and of record, such costs are subject to relatively little dispute so long as honest accounting is practiced. The exercise of judgment, the time, and the expense required in the valuation of property are reduced to a minimum.[3] Rates can be adjusted with reasonable promptitude; thousands of dollars now spent on valuation can be saved; and much of the energy of company officials and regulatory authorities can be diverted from valuation disputes into more profitable channels.

It may be objected that the original cost of the property cannot be ascertained, on account of the absence of reliable records. As we have already explained, this is frequently true if the original cost is taken to mean the cost of the original property plus additions and betterments. But the original cost of the present property can usually be determined without too great difficulty. Most of such property will be relatively new and will have been acquired since the inauguration of accounting control.

[1] Cf. p. 227.

[2] The literature on valuation is voluminous, and it will be possible here to cover only the most important points.

[3] No basis of valuation dispenses entirely with the exercise of judgment. Even the original cost of the property may be difficult to ascertain in the case of joint properties where it is necessary to apportion joint costs. It is also difficult to decide whether investments have been prudent and how much to deduct for depreciation.

To ascertain the original cost of the present property it is necessary merely to take an inventory; to determine the actual cost of the various items from the records of the company, or from other sources; and thus, after deducting depreciation and adding the overhead charges, to arrive at the cost of the property as a whole. The original cost of much of the property can be determined in this way with a high degree of accuracy, though it may be necessary to resort in part to estimate. But estimate will be required only in the beginning, and it will diminish in importance as time goes on. More and more property will be replaced, so that the proportion of the investment for which definite figures are available will increase. According to the Interstate Commerce Commission, the original cost of the railroads as a whole can eventually be obtained with reasonable accuracy for about 90 per cent of all property other than land.[1] And it may be added that it is better to adopt a basis of valuation that requires an estimate of a portion of the property than to adopt one that requires an estimate of all.

Once a beginning is made, and on the assumption that the accounting is accurate, the original-cost basis can be kept up to date. This is highly important, for it will not be necessary to revalue the property completely in every general-rate case. The rate base for each succeeding case can be determined by adding to the initial valuation the cost of new items of property and by deducting the cost of properties abandoned, as disclosed by the records of the company. This makes possible prompt adjustment of rates.

In contrast with the original cost, the cost of reproduction can be administered only with the greatest difficulty. Resting upon obscure and conflicting basic concepts, and not obtainable in the form of definite facts from the records of the companies, the cost of reproduction is necessarily subject to the play of judgment and wide differences of opinion. Estimates of the cost of reproduction of a given property by various experts frequently differ by millions of dollars. Particularly is this true with respect to the nonphysical elements of value: overhead charges, franchise value, good will, and going value. Difficult though it may be to evaluate these elements under any standard, their appraisement under the cost of reproduction is next to impossible. Lack of space forbids full discussion of these items, but we may briefly indicate their nature and when, if at all, they should be included in the rate base.[2] Overhead charges consist of those costs necessarily involved in the construction of the property but which cannot be scientifically allocated to particular units, such as promotion expenses, outlays for general engineering, interest dur-

[1] *170 I. C. C.* 451, 465 (1931). Excluded would be such items as grading and tunnels.

[2] For a fuller discussion see Jones, Eliot, and Bigham, T. C., *Principles of Public Utilities*, pp. 230–239 (1931).

ing construction, and allowances for contingencies. Under the original cost the overhead charges go into the valuation at their actual cost at the time incurred, while under the cost of reproduction they enter the valuation according to the estimated cost that would have to be borne on the basis of assumed rather than actual conditions. Franchise value is the value of the company's franchise or right to do business. It should be allowed in the rate base only as a cost when granted or to be granted for a pecuniary consideration. As an item of value, it reflects income and should be disallowed. Good will is a special disposition on the part of shippers to patronize a company. Since its value depends upon earnings, it has no legitimate place in the valuation either under original cost or cost of production. Going value, when construed as a cost, means the accumulated deficiency in the fair return.[1] So defined, it may be included in the rate base, on condition that it has taken place through no fault of the company after the establishment of regulation. A more logical procedure, however, is to recoup past deficiencies through the rate of return.

The difficulty in administering the cost of reproduction becomes especially serious if rate modifications are frequent. If prices have changed, the cost of reproduction today is not the cost of reproduction yesterday. In order to ascertain the cost of reproduction today it is necessary to revalue the property, to take another inventory, and to price the items of property according to the new prices of labor and materials. Since this process takes a long time, to say nothing of the enormous expense, the valuation may be out of date before it can be completed. Rate adjustments, therefore, tend to lag behind changes in economic conditions. When prices are rising, rates cannot be increased fast enough without sacrifice of principle; and when prices are falling or when technological improvements are being rapidly introduced, rates cannot be reduced fast enough. The experience of the railroads during the decade preceding the First World War is a case in point.

The opponents of original cost contend that the cost of reproduction can be kept up to date without expensive revaluations, through the use of index numbers. But index numbers are subject to severe practical limitations, and according to the West Case do not meet with the full approval of the Supreme Court.[2] It is very difficult to construct satisfactory indexes. They cannot be employed at all in measuring such elements of value as obsolescence; and even indexes of construction costs are of limited utility in concrete cases. Labor costs vary from location to location, and the prices of materials are subject to price understandings. It may be argued that absolute accuracy in valuation is neither possible nor essential; nevertheless, the more certain the valuation the better.

[1] To define value as cost is illogical, but we follow common usage.

[2] *295 U. S.* 662, 677 (1935).

2. Readily administered and unaffected by changes in prices, the original cost stabilizes the investors' income. It gives investors a return, not on a variable amount like the cost of reproduction, but on the actual sums prudently invested. Such a return is an adequate means of attracting the capital needed for transportation, because it meets the reasonable expectations of investors. It may not meet the expectations of extreme speculators, but it seems reasonable to conclude that capital can be obtained without appealing to outright speculators.

Reasonable assurance of a normal return on the actual investment will attract capital at a relatively low cost. This is because it lessens the risk arising from price declines and from the delays and uncertainties surrounding the valuation of property. Reduced capital costs mean lower service rates.

The advocates of the cost of reproduction sometimes accord weight to the foregoing argument, but they contend that consumers will be unwilling to pay the rates requisite for the stabilization of income. They point out that during periods of falling prices the original cost calls for relatively high rates and that, because of reduced incomes, consumers will insist upon lower charges. It is admitted that the cost of reproduction means greater increases in rates during periods of rising prices than the original cost; but it is argued that, when incomes are larger, consumers will be less likely to object to increases. To this argument two replies may be made: (1) It seems probable that consumers will offer less objection to the maintenance of rates already in effect than to an increase in rates. (2) The companies should be allowed to build up reserves during prosperous times, so that rates can be kept lower during depressions.

The opponents of original cost also say that the cost of reproduction tends to reduce capital charges. In the first place, it is contended that the *chance* of large profits opened up by the cost of reproduction will attract stockholder capital at no extra cost. In the second place, it is argued that the cost-of-reproduction basis encourages construction during periods of declining prices, thereby making the rate base lower. Under the original cost, construction is more likely to take place during periods of rising prices.[1] Although these arguments seem reasonable, they overlook important counter considerations. The net effect of the reaction of stockholders to the chance of high profits is problematical. But even if equity capital is attracted at no extra cost, the advantage can be realized only at the expense of injecting into the transportation industry an element of instability. As for encouraging construction during low-cost periods, the art of forecasting prices has hardly advanced far enough to enable the companies successfully to budget construction in the light of future prices, even if it were practicable to postpone or expedite construction. In the case

[1] Graham, W. J., *Public Utility Valuation*, p. 17 (1934).

of secular swings in prices it would frequently be out of the question to regulate construction according to the trend of prices. The waiting period would be too long.

We have said that the original cost stabilizes the investors' income. By this was meant the income in dollars, not in goods and services. Since the purchasing power of the dollar fluctuates as prices rise and fall, the original cost does not stabilize the investors' real income. It gives no effect to changes in prices. For this reason it is said that the cost of reproduction, which does reflect price changes, is superior to the original cost. But the argument is largely fallacious, as explained below.

The original cost is also sometimes criticized on the ground that it allows investors a return on excess profits turned back into the business. In evaluating this criticism it must be admitted that valuations have frequently included surplus earnings. Yet this does not justify rejection of the original cost, for the inclusion of such earnings is just as much a weakness of the cost of reproduction. The excess profits of the past should have been prevented; but the people failed to control rates, and the profits cannot well be appropriated at this late date. To confiscate them now would be unfair. Some of the companies paid out their earnings in dividends, which cannot possibly be recovered. Other companies reinvested their profits, and the refusal of a return thereon would severely penalize the more conservative concerns. However, excess earnings realized after the establishment of regulation need not affect rates. Regulation implies only a reasonable return.

3. Insofar as the original cost stabilizes the return to capital, it promotes stability in service rates. Under the original cost, the valuation changes only as additions or retirements occur; while under the cost of reproduction, the rate base varies with prices. Rates must be modified, of course, regardless of the method of valuation, on account of the variability of operating expenses; but the fluctuations are less when the original cost is employed. Although absolute stability of rates is neither practicable nor desirable, all unnecessary changes should be eliminated, in order not to disturb industries that have become adjusted to existing charges.

4. The original cost prevents the companies from capitalizing against the public the unearned increment in land values. Land used by the carriers is valued at its actual cost at the time of aquisition; under the cost of reproduction carrier land is valued, regardless of whether it was purchased or donated, according to the cost of reacquisition, as measured by the present value of contiguous land. In the opinion of the companies, even this value may sometimes be too low. They argue that a valuation on the basis of adjacent land should be increased by multipliers, in order to cover additional sums which would have to be turned over to landowners. Since the companies are in fact frequently forced to pay more

than a reasonable price for the land they need, this argument appears on its face to be sound. But it is not logical to apply multipliers to a valuation which already reflects the presence of the carrier, and the practice is condemned by the Supreme Court. "The assumption of its (the railroad's) non-existence, and at the same time that the values that rest upon it remain unchanged, is impossible and cannot be entertained."[1]

Inasmuch as land tends to rise in value over the years, the cost of reproduction gives the companies a return which, being unearned, could be absorbed by the community without seriously checking the incentive to efficiency.[2] It is argued, of course, that appropriation by the community would be unjust because other businesses receive the benefit of the unearned increment. But this begs the question, for regulated businesses are not necessarily to be judged by competitive standards. If this distinction be granted, it is contended that if private industries gain the unearned increment, and the carriers do not, less can be paid for right-of-way lands; hence, the construction of facilities for transportation will be discouraged. This argument unduly emphasizes the importance of land as a factor in construction. It should also be pointed out that the contiguous-land standard may discourage desirable abandonments of plant. Where highly valued adjacent land increases the value of land used for transportation, relocations are less likely to be made than where land is valued at its original cost. For these reasons the weight of the argument seems to favor the appropriation of the unearned increment, at least in the future. It may not be fair to deprive the companies of the increase in land values which has taken place up to the present, for under past policy the benefit of the increase may have been reasonably anticipated. But once an initial valuation has been made, fortuitous future gains should be prevented.

Arguments for Cost of Reproduction

The principal arguments for cost of reproduction are also four in number. (1) The most popular is the so-called "depreciated-dollar" argument, which asserts that the cost of reproduction adjusts the investors' income to changes in the purchasing power of the dollar. For example, if it has cost $20,000,000 to construct a railroad and if prices have doubled since construction, the cost of reproduction would give investors a return on $40,000,000, or twice as many dollars as before the rise in prices; whereas the original cost would provide a return on only $20,000,000, or the same number of dollars. The cost of reproduction is therefore said to

[1] *230 U. S.* 352, 452 (1913).

[2] Land values may remain stationary or even decline during certain periods or in particular locations; yet in the long run the trend of values is steadily upward in most places.

stabilize the investors' real income; for after the rise in prices, it takes twice as many dollars to buy the same quantity of goods and services as could have been bought before. By keeping the dollar return the same, the original cost would cut the investors' real income in half. Similar results are said to follow if prices decline. If prices fall to half their former level after construction, the cost of reproduction gives investors half as many dollars as before; but these dollars buy as much as ever. On the other hand, the original cost furnishes investors with the same number of dollars and twice the purchasing power.

The depreciated-dollar argument is nullified by two factors. First, the change in the general level of prices may be disproportionate to the price movements of the various kinds of property that enter into the valuation. Though all prices are to some extent interdependent, it is conceivable that the general price level, which represents many items not required in the construction of a carrier, might remain undisturbed while construction prices doubled or fell by half. Considerable differences in the variation of general price indexes and those of construction costs are in fact revealed by concrete studies.[1] To the extent that the indexes diverge, the argument that the cost of reproduction stabilizes the investors' real income falls; for investors spend little of their money in purchasing goods needed for construction. Investors' real incomes can be stabilized much more readily through adjustment of the original cost by standard index numbers than through the adoption of the cost of reproduction.

The second factor that invalidates the depreciated-dollar argument is the capital structure of the companies. So long as bonds and preferred stock are issued, the investors' real income cannot be stabilized by means of the cost of reproduction. An illustration will make this clear. Suppose that the cost of reproducing a railroad is found to be $100,000,000 and that the fair rate of return is 6 per cent. Assume that the capitalization of the company is equal to the cost of reproduction and is represented by $60,000,000 of 4 per cent bonds, $10,000,000 of 6 per cent preferred stock, and $30,000,000 of common stock. If the gross receipts of the company are adequate, it will earn annually, over and above operating expenses and taxes, a fair return of $6,000,000 (6 per cent on the rate base of $100,000,000). Of this sum $2,400,000 will be paid to the bondholders, and $600,000 will normally go to the preferred stockholders. The remainder of the $6,000,000 will be available for the common stockholders. They receive a return of 10 per cent.

Now assume that the general price level doubles and that the cost of reproduction rises in proportion. The rate base becomes $200,000,000,

[1] See New York, *Report of Commission on Revision of the Public Service Commissions Law*, p. 347 (1930); Raver, P. J., *Journal of Land and Public Utility Economics*, vol. 3, p. 359 (November, 1927); and Graham, *op. cit.*, p. 22.

and if service rates are sufficiently productive the company will earn a return of $12,000,000 instead of $6,000,000. Of the $12,000,000 the bondholders and preferred stockholders together receive, as before, $3,000,000, leaving for the common stockholders $9,000,000, which is equal to a return of 30 per cent on the common stock, as compared with the previous 10 per cent. How can it then be said that real incomes remain unchanged? The bondholders and preferred stockholders are paid the same number of dollars as before and, since prices have doubled, their real incomes are cut in half. The common stockholders, on the other hand, gain greatly. They receive three times as many dollars, so that their real income more than keeps pace with the rise in prices.

The weakness of the depreciated-dollar argument is still more apparent if we assume falling rather than rising prices. Referring to the previous example, if the price level declines by half, the cost of reproduction becomes $50,000,000, and the return is reduced to $3,000,000. Of the $3,000,000 the bondholders are paid $2,400,000, and the preferred stockholders receive $600,000, or a total as before of $3,000,000. The position of the bondholders and preferred stockholders is much improved. They have the same number of dollars, but the dollars buy twice as much. The common stockholders, on the other hand, receive nothing whatever. They have neither dollar income nor real income. Should the prices fall more, the preferred stockholders would be wiped out; and if the decline continued, the company would eventually be thrown into the hands of receivers.

Whether prices rise or fall, it is absurd to say that the cost of reproduction keeps the purchasing power of the investors' income constant. When prices rise, the alleged benefit of the cost of reproduction goes entirely to the common stockholders; when prices fall, the full force of the decline is concentrated on the stockholders. Short of the stabilization of the dollar, there seems to be little that can be done, so far as the bondholders and preferred stockholders are concerned; and if the objective be to stabilize the real income of the common stockholder, the remedy is not the adoption of the cost of reproduction. It would be much better to make allowance for price changes through the fair rate of return, or at most through adjusting the equity of the common stockholders.

2. Another argument for the cost of reproduction is that it is the only standard that will bring about a proper allocation of capital. It is said to be the basis upon which investors receive a return in most enterprises, and for that reason to be the correct basis in the transport industries. To illustrate the argument, assume that a plant operating under competitive conditions has been constructed at a cost of $100,000,000 and that the rate of return required to attract capital is 6 per cent. So long as conditions do not change, a return of $6,000,000, or 6 per cent on cost, will

be adequate. Now suppose that the prices of labor and materials double, so that it would cost $200,000,000 to construct the plant. According to the argument, the $6,000,000 would no longer suffice; in order to appeal to investors, a return of $12,000,000 would be necessary. New plants could earn $12,000,000, or at the rate of 6 per cent; so that to attract additional capital, the old concern would have to earn $12,000,000, or at the rate of 12 per cent on its cost. On the other hand, if construction expenses are halved, $3,000,000, or 3 per cent on the cost of the old plant, would be ample. Since it would cost only $50,000,000 to build a new plant, 3 per cent on the original cost would be equivalent to 6 per cent on the cost of reproduction.

The competitive-industry argument is logical; but even if a close relationship between profits and cost of reproduction can be assumed, the so-called "competitive" basis is subject to two serious drawbacks. In the first place, the cost of reproduction to which profits are related in competitive industry is the cost of reproducing the service, not the cost of a substantially identical reproduction of the existing plant. As we have indicated, the cost of a hypothetical plant is a standard that cannot be administered. The expense and delay incident to valuation would more than offset any advantages that the cost of reproducing the service might have.

In the second place, competitive standards should not necessarily be applied to regulated industries; for the competitive system ruthlessly disregards the financial needs of the individual producer.[1] To the low-cost producer it yields handsome profits; to the high-cost producer it brings deficits and ruin. So long as competition is perfect, the system works to the advantage of the consumer; for if one producer fails, the consumer can turn to another. But what if a railroad comes to grief? Here there is a monopoly, or at least a partial monopoly, and the consumer cannot avoid the poor service or lack of service that will follow when the credit of the carrier is injured. "When the investors in small competitive enterprises fall, they may fall alone, but when the holders of railway securities fall, they force the whole community to become unwilling mourners of their downfall."[2] This statement is less conclusive today than formerly, on account of the rise of competing forms of transport; but within limits, it is still valid.

The advocates of the cost of reproduction might admit the ruthlessness of competition, yet still insist that the original cost will not attract enough capital if prices rise greatly and too much capital if prices fall. It may be replied that if fluctuating prices create difficulties under the origi-

[1] Bonbright, J. C., "Railroad Valuation with Special Reference to the O'Fallon Decision," *American Economic Review*, vol. 18, pp. 181–205 (Supplement, March, 1928).

[2] *Ibid.*, p. 205.

nal cost, the alternative is not the adoption of the cost of reproduction. In the first place, there is some tendency for the normal rate of return to adjust itself to price trends. It rises when prices move upward over long periods and falls when they move downward. In the second place, if an allowance for price changes proves to be necessary, other than through the rate of return, an adjustment can be made in the equity of the common stockholders. The bondholders and preferred stockholders receive the same dollar return regardless of the method of valuation, so that there is no need to alter the entire valuation.

3. A related argument for the cost of reproduction is that it makes possible a better balance between transportation rates and other prices.[1] When perfect competition prevails, prices are based in the long run upon costs, including a normal profit. Prices and the cost of production increase and decrease together. An approach to competitive conditions in regulated industries can be achieved by basing rates upon the cost of reproduction; for the original cost keeps rates down when other prices rise, and keeps them up when prices fall. This maladjustment encourages uneconomical transportation at the one time and discourages worth-while transportation at the other. The encouraged transportation is said to be uneconomical in the sense that it is purchased at a price below its competitive cost, while that discouraged is not available at its competitive price.

It is contended that rates below a level sufficient to earn a return on present cost would in the long run encourage more traffic than the existing plant could handle. Congestion would occur, because the profit earned would not permit new plant to be built; and traffic not worth enough to pay higher rates would crowd out traffic worth more. It would not be possible, so the argument runs, to construct new plant and charge higher rates on its business, while keeping the rates of the old plant low, because a choice cannot be made between traffic and shippers. All traffic would be carried at the lower level of rates, and this would unduly favor communities served by older systems at the expense of communities enjoying newer facilities. On the other hand, if prices fall and rates remain high, economical specialization is checked. Another disadvantage of keeping rates out of line with other prices is that it introduces an element of rigidity in the price structure. This intensifies the effects of business booms and depressions and delays necessary readjustments.

The foregoing argument, like that under heading (2), assumes the cost of reproducing the service—a standard that cannot be administered. But it may be observed on theoretical grounds that the validity of the argument rests upon the closeness of the relationship between the cost of re-

[1] See Brown, H. G., "Railroad Valuation and Rate Regulation," *Journal of Political Economy*, vol. 33, pp. 505–530 (October, 1925).

production and prices, in both regulated and unregulated industries. I prices are controlled by present costs in the unregulated field and if rate are determined on the same basis in the regulated, the cost of reproduction would undoubtedly promote a desirable balance between prices and rates. However, if either prices or rates are not so controlled, the argument for the cost of reproduction breaks down. What are the facts? It seems clear that prices are governed by cost only under strictly competitive conditions and that markets are not perfectly competitive, either outside or inside the field of transportation. Insofar as monopoly or oligopoly rules, neither the cost of reproduction nor any other measure of cost will automatically bring about an ideal adjustment.

Another answer to the competitive-price argument is that cost influences prices only indirectly in the long run. Especially is this true of an enterprise, such as a railroad, which has a huge investment in highly specialized, fixed plant. Although the rate base of a railroad helps determine capital charges and therefore affects rates, it bears directly upon the general level of rates. Particular rates are adjusted according to what the traffic will bear. Within limits, it is therefore possible to fix rates so as to avoid maladjustments with other prices, and there is little reason to assume that one rate base will necessarily give any better rate structure than another.

It may be true that the cost of reproduction permits a better adjustment of rates than the original cost, but over against the advantages of flexibility must be set the disturbing effects of change. Many industries and whole communities may be affected by modifications in rates, sometimes adversely even when rates are reduced. Though absolute fixity is undesirable, rates should be changed in an orderly manner, after due consideration of the consequences. It is entirely feasible so to change them under the original cost if the proper reserves have been created.

4. The cost of reproduction is defended on the ground that it puts new and old railroad lines on an equal competitive basis. To illustrate, if railroads X and Y connect points A and B, the two lines will have to charge the same rates between A and B; but if X was built when the cost of construction was low, and if Y was built under opposite conditions the original-cost basis of valuation would make it impossible for Y to earn a fair return, without giving too much to X. The cost of reproduction on the other hand, would raise the rate base of X, so that the valuation of the two roads would be about the same. This being true, both carriers could earn a reasonable return under the same level of rates.

This argument neither justifies the cost of reproduction nor condemns the original cost. It overemphasizes the importance of the capital charge and it is valid, if at all, only on the assumption that the rate base is measured by the cost of reproducing the service. It cannot be said that the

cost of a substantially identical reproduction of railroad *X* would be the same as that of *Y*. The costs of reproducing the two lines may differ, just as their original costs may vary. Railroad *X*, being the first in the field, would probably have followed the best route. Under such conditions, the cost of reproducing *X* might well be lower. Moreover, the operating costs of *X* might be less than those of *Y*. The problem of strong and weak railroads cannot be solved through the rate base. It would pay the people better to donate the amounts needed by railroads like *Y* rather than saddle upon the country the higher rates made necessary by the cost of reproduction.[1]

Conclusion

We conclude that the best basis for rates is the prudent investment. Though not a perfect standard, the original cost has much more to commend it than the cost of reproduction. It is practical because of the relative ease with which it can be administered. It is strong theoretically because it gives investors a return on their reasonable investment in dollars. This makes it possible to attract capital on favorable terms, stabilizes service rates, and gives the public the benefit of the unearned increment. The cost of reproduction can be administered only with great difficulty, tends to increase risk and the cost of capital, calls for more frequent changes in rates, and gives the unearned increment to the companies. The strong arguments for the cost of reproduction assume the desirability of applying competitive standards to regulated industries. But this is impracticable.

The original cost makes no allowance for changes in the price level, but no rate base can meet the evils of fluctuating prices. The cost of reproduction reflects price movements, yet it concentrates their effects upon the common stockholders and does little for the bondholders and preferred stockholders. If it is deemed best to protect the common stockholders' purchasing power, the allowance for fluctuations in the price level may best be made through the fair rate of return. It is not necessary to adopt the cost of reproduction. Should the allowance be made through the rate base, there is required an adjustment only in the equity of the common stockholders. To illustrate, assume that the original cost of a railroad is $100,000,000 and that it has outstanding $60,000,000 of bonds, $10,000,000 of preferred stock, and $30,000,000 of common stock. If prices have risen by 100 per cent, $30,000,000 rather than $100,000,000 would be doubled. The rate base would be $130,000,000 ($60,000,000 + $10,000,000 + $60,000,000). The purchasing power of the common stockholders would remain constant, for they would receive twice as many dollars. If the cost of reproduction were employed, the

[1] *124 I. C. C.* 3, 49–59 (1927).

rate base would be $200,000,000, and the common stockholders would receive more than enough to compensate them for the rise in prices.

The difficulties of valuation have brought forth proposals for fixing rates without reference to the value of the property. One suggestion is to abandon the attempt to regulate profits. The conclusive drawback to this plan is that it would not protect the public from unreasonable rates.[1] Another proposal is to adopt a credit standard for the general level of rates. According to this scheme the level of rates would be governed by the interest and dividend requirements of outstanding securities. In reality this is a capitalization standard, which has long since been repudiated.[2] Rates based upon the capitalization would penalize the undercapitalized companies and enrich the overcapitalized.

In our opinion, the proposals to regulate rates without reference to the valuation of the property are at fault in principle, to say nothing of the constitutional difficulties that might be encountered. One is inevitably led to the conclusion that a valuation of the property is necessary, for the restriction of profits requires a measure of their reasonableness. A rational measure is the original cost.

The companies sometimes assert that it would be unfair to apply the principle of original cost, at least to past investments. Stockholders argue that their investments have been made in the light of decisions by the Supreme Court which justify anticipation of the advantages of rising prices. Although the decisions of the Court have hardly pointed to any one standard of valuation, and although investments in regulated industries have of necessity been subject to change in public policy, yet it may be the part of wisdom to give stockholders the benefit of the doubt, in order to avoid charges of unfairness and to encourage investment. But compromise is required, if at all, only in valuing existing property. It can be made clear, if necessary through legislation, that the original cost shall apply to all future investments. This would be fair because new investments would be made in the light of known policy.

REFERENCES

There has been a plethora of writing on valuation, and it will be possible to cite only a few of the outstanding references. Some of the citations deal with public utilities, but the discussion therein applies in principle to transportation.

Among the strongest presentations in behalf of the original cost are the following: Bauer, John, *Effective Regulation of Public Utilities*, Chaps. 4–9 (1925); Bonbright, J. C., "Railroad Valuation with Special Reference to the O'Fallon Decision," *American Economic Review*, vol. 18, pp. 181–205 (Supplement, March, 1928); Brandeis, L. D., Dissenting opinion in "Southwestern Bell Telephone Company *v.* Public Service Commission of Missouri," *262 U. S.* 276, 289–312

[1] Cf. p. 585.

[2] See *125 U. S.* 680, 690 (1888).

(1923); and Eastman, J. B., in *75 I. C. C.* 463 (1923), *124 I. C. C.* 349 (1927), and *170 I. C. C.* 451 (1931).

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Of special significance are two recent decisions of the Supreme Court: "Federal Power Commission *v.* Natural Gas Pipeline Co.," *315 U. S.* 575 (1942), and "Federal Power Commission *v.* Hope Natural Gas Co.," *64 S. Ct.* 281 (1944). Comment may be found in Glaeser, M. G., "The United States Supreme Court Redeems Itself," *Journal of Land and Public Utility Economics*, vol. 18, pp. 146–154 (May, 1942).

CHAPTER - - - - - - - - - - - - - - - ELEVEN

Rate of Return

THE rate of return is quantitatively as important as the rate base. It is the return in dollars that enters into the cost of service, and this depends as much upon the rate of return as upon the rate base. An increase in the rate of return from 4 to 5 per cent is the equivalent of an equal percentage increase in the rate base, *i.e.*, 25 per cent. Notwithstanding this relationship, the rate of return has not received so much attention as the rate base.

Fair Rate of Return Defined

A fair rate of return is often defined as a rate that will attract capital. Properly interpreted, this brief definition suffices; but it may be restated in terms of certain qualifications. Thus conceived, the fair rate of return is that rate which, under honest accounting and responsible management, will lead to the investment of capital in adequate amount as it recurrently becomes necessary in the rendition of good service. Unless the accounting is honest, the fair return cannot readily be determined. And unless the management is efficient, the return may be unduly high, for a poorly managed company will not enjoy as good credit as a well-managed concern. Credit being weaker, a commission may in practice be forced to approve an abnormally liberal return in order to make possible adequate service.

Specific Rates of Return

The actual rates of return prescribed by the authorities vary with circumstances.[1] According to the Supreme Court of the United States, no single rate is fair at all times and places for all companies. In Wilcox *v.* Consolidated Gas Company, decided in 1909, the Court said, "There is no particular rate of compensation which must in all cases and in all parts of the country be regarded as sufficient for capital invested in business enterprises. Such compensation must depend greatly upon circumstances and locality. . . . "[2] This holding has been reaffirmed on numerous occasions since 1909.

[1] The fair rate of return is fixed first by the commissions, but ultimately by the courts.
[2] *212 U. S.* 19, 48 (1909).

The fair rate of return for transportation companies has seldom been an issue before the Supreme Court. In the Minnesota Rate Cases of 1913 a rate of 4.14 per cent was held by the Court to be confiscatory,[1] and in the Dayton Goose Creek Case of 1924 the Court indirectly approved the rate of 6 per cent set by the Interstate Commerce Commission under the Transportation Act of 1920.[2] But in the first case no definite rate was given as fair, and in the second case the rate approved referred to the railroads as a whole or in groups, not to an individual carrier. It is quite possible that the rate of 6 per cent was not necessarily the rate to which any given company had a constitutional right.[3]

The fair rate of return for public-service industries other than railroads has come before the Supreme Court a number of times. During the period before the First World War the Court generally refused to sanction rates of return of less than 6 per cent.[4] In the Consolidated Gas Case 6 per cent was held to be fair for a gas company. In City of Knoxville *v.* Knoxville Water Company, also decided in 1909, a rate of 6 per cent was tacitly approved for a water company.[5] And in City of Louisville *v.* Cumberland Telephone and Telegraph Company, decided in 1912, not less than 6 per cent was endorsed for a telephone company.[6] Six per cent was again set for a gas company in 1915.[7]

During the decade following the First World War the Supreme Court usually insisted upon a rate of return higher than 6 per cent. In Lincoln Gas and Electric Light Company *v.* City of Lincoln, a gas case of 1919, the Court said, "We cannot approve the finding that no rate yielding as much as 6 per cent. upon the invested capital could be regarded as confiscatory, in view of the undisputed evidence, accepted by the master, that 8 per cent. was the lowest rate sought and generally obtained as a return upon capital invested in banking, merchandising, and other business in the vicinity. . . . It is a matter of common knowledge that, owing principally to the world war, the costs of labor and supplies of every kind have greatly advanced since the ordinance was adopted. . . . And it is equally well known that annual returns upon capital and enterprise the world over have materially increased, so that what would have been a proper rate of return for capital invested in gas plants and similar

[1] *230 U. S.* 352, 471 (1913).

[2] *263 U. S.* 456 (1924).

[3] The Commission arrived at the 6 per cent rate by adding ½ of 1 per cent, as authorized, to the 5½ per cent specified for 2 years by Congress. In 1922 the Commission prescribed a rate of 5¾ per cent, which it held to be the equivalent of a 6 per cent rate if allowance were made for the corporation income tax.

[4] Smith, N. L., *The Fair Rate of Return in Public Utility Regulation*, p. 135 (1932).

[5] *212 U. S.* 1, 17 (1909).

[6] *225 U. S.* 430, 436 (1912).

[7] Des Moines Gas Company v. City of Des Moines, *238 U. S.* 153, 172 (1915).

public utilities a few years ago furnishes no safe criterion for the present or for the future."[1] In Bluefield Water Works and Improvement Company *v.* Public Service Commission of the State of West Virginia, decided in 1923, the Court held 6 per cent to be confiscatory for a water works;[2] and in McCardle *v.* Indianapolis Water Company (1926), another water-works case, the Court said that "a reasonable rate of return is not less than seven per cent."[3] A still higher rate of return was indicated for a street railway in 1930 in United Railways and Electric Company of Baltimore *v.* West. Here the Court declared, "In this view of the matter, a return of 6.26 per cent. is clearly inadequate. In the light of recent decisions of this Court and other Federal decisions, it is not certain that rates securing a return of 7½ per cent. or even 8 per cent. on the value of the property would not be necessary to avoid confiscation."[4]

More recently, lower rates of return have again met the approval of the Supreme Court. In Los Angeles Gas and Electric Corporation *v.* Railroad Commission of California, an electric-power case of 1933, the Court said, "Applying these principles, and considering the financial history of the Company, its relations and opportunities, and the general situation as to investments, we find it impossible to hold that a return of 7 per cent. is so low as to be confiscatory."[5] In Dayton Power and Light Company *v.* Public Utilities Commission of Ohio, a gas case decided in 1934, the Court refused to find a rate of 6½ per cent confiscatory, saying, "In view of business conditions, of which we take judicial notice . . . , the rate allowed was adequate."[6] In Driscol *v.* Edison Light and Power Company, another electric-power case, decided in 1939, the Court definitely stated that a 6 per cent return was not confiscatory.[7]

The aforesaid cases show clearly that the rate of return to which public-service companies are legally entitled varies according to general financial conditions. After the First World War the Supreme Court, taking note of the rising cost of capital, usually insisted that the pre-war rate of 6 per cent was inadequate and that investors should receive a return of at least 7 per cent.[8] During the decade of the thirties capital became available at less cost, and the Court held that a lower percentage was not confiscatory. Although the approved rate may be

[1] *250 U. S.* 256, 267–268 (1919).
[2] *262 U. S.* 679, 695 (1923).
[3] *272 U. S.* 400, 420 (1926).
[4] *280 U. S.* 234, 252 (1930).
[5] *289 U. S.* 287, 319–320 (1933).
[6] *292 U. S.* 290, 311 (1934).
[7] *307 U. S.* 104, 120 (1939).
[8] The average rate of return allowed by commissions for gas, electric, and telephone companies between 1915 and 1930 was 7.38 per cent. *Public Utilities Fortnightly*, vol. 8, p. 330 (Sept. 17, 1931).

sluggish in responding to economic conditions, as is sometimes claimed, it does change.[1]

Considerations Affecting the Rate of Return

What specific factors determine whether the rate of return in a particular case shall be 6 per cent, 7 per cent, or some other figure?[2] Answered in a broad way, this question involves consideration of the following: the prevailing interest rate, risk, efficiency of management, losses and surplus earnings, changes in the purchasing power of money, and financial structure. Other factors may also enter into the problem, but those listed are of general applicability.

Prevailing Interest Rate

The rate of return is a composite, including interest and profit. It is therefore affected by the rate of interest. For example, the prevailing interest rate rose during the First World War, and so did the fair rate of return. Interest rates have generally been somewhat higher in the South and West than in the East, and the rate of return has been a little more liberal in the first two territories. Insofar as it is composed of pure interest, however, the rate of return is comparatively stable. It is also more or less uniform. Since the securities of public-service companies are not usually absorbed locally, the significant factor tends to be the interest rate ruling in the general money market rather than in a particular section of the country.[3]

Risk

If the fair rate of return were measured solely by pure interest, it would be relatively low, approximating the rate of interest on long-term bonds of the national government. But to be adequate, the rate of return must include, in addition to interest, a reward for risk taking. For the return to capital is not guaranteed, and risk is inevitably present in the transportation business.[4] Apropos of the risk factor, we quote from a decision of the Interstate Commerce Commission: "In many countries the conduct of transportation by railway is undertaken by the government at the public expense. The government of the United States could

[1] On the sluggishness of the rate of return as determined by a state commission see Rose, J. R., *Public Utilities Fortnightly*, vol. 23, pp. 131–138 (Feb. 2, 1939).

[2] Whitten, R. H., and Wilcox, D. F., in *Valuation of Public Service Corporations*, vol. 2, pp. 1877–1878 (1928), list 13 factors that affect the rate of return.

[3] The commissions and courts sometimes take into account the legal rate of interest; but legal rates are more or less arbitrary and bear no necessary relation to the interest rate expected by investors.

[4] Two-fifths or more of the average rate of return probably represents profit.

probably borrow what money would be needed to buy or to build the railways of this country at from 2½ to 3 per cent. Ought the public to be taxed for the service rendered beyond this rate of interest? Plainly, no such test ought to be applied. This government does not undertake that duty, nor does it guarantee any rate of return upon the money invested. It would be clearly unjust to impose upon the private capital which performs this quasi-government function all the hazard without allowing it some participation in whatever profit may accrue."[1]

The hazards to which investors are exposed may be classified in two groups. Within the first group fall those risks against which the investor cannot readily be protected and which must be covered if possible through the rate of return. Among these risks are the following: competition from other means of transportation, loss of traffic on account of business depressions, the decline of population and industry in a given territory, delays inherent in the regulatory process, and extraordinary obsolescence.

Within the second group come unnecessary risks, which can be guarded against more easily. Among these may be listed cutthroat competition; unduly restrictive laws, such as the train-length statute of Arizona;[2] arbitrary commission decisions refusing justified rate advances; and the destruction of equities through dishonest accounting or financial manipulation. These and similar contingencies should be eliminated, in order to prevent the rate of return from being unnecessarily high. The greater the risk, the greater the cost of capital.

Although the investor should be protected from needless hazards, he should not necessarily be shielded from all risk. Complete protection would mean a public guarantee of the return to capital, and this would encourage inefficiency. As we shall explain later, the investor should have an opportunity to increase his return by marked efficiency of management, but he should also assume the chance of having it reduced through marked inefficiency. It has been suggested that the ideal system of control would be one which would eliminate risks over which the investor has no control, but which would leave a differential return to measure the worth of his performance.[3] Though such a system has not yet been devised, it is a standard toward which regulation can be directed.

It may be observed in this connection that certain business risks beyond the control of the investor have been reduced by regulation. The requirement of certificates of public convenience and necessity and the control of minimum rates provide relief from competition. The regulation

[1] *9 I. C. R.* 382, 401–402 (1903).

[2] In 1937 a train-length law of Nevada was held unenforceable as to interstate commerce. *18 F. Supp.* 393.

[3] Clark, J. M., *Social Control of Business*, p. 369 (1926).

of securities and accounting guards against financial exploitation. The right of the companies to turn to the courts checks arbitrary commission decisions.

These factors make the risk of investment in railroads and other public-service industries less than that in many strictly private enterprises, and the greater certainty should be reflected in the rate of return. "A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures."[1] Among the different means of transportation, risk is probably least in the pipeline industry and greatest in the aviation industry.[2]

Incentive to Efficiency

As already explained, the principle of a fair return on investment presupposes only reasonable efficiency of management. Where exceptional efficiency is present, it should be specially rewarded.[3] A reward is needed in order to encourage wise and skillful operation. The Interstate Commerce Commission has said, "A premium must be put upon efficiency in the operation of the American railroad. Rates can not be increased with each new demand of labor, or because of wasteful, corrupt, or indifferent management. Nor should rates be reduced with each succeeding improvement in method. Society should not take from the wisely managed railroad the benefits which flow from the foresight, skill, and planned cooperation of its working force. We may ruin our railroads by permitting them to impose each new burden of obligation upon the shipper. And we can make no less sure of their economic destruction by taking from them what is theirs by right of efficiency of operation—the elimination of false motion, of unneeded effort, and the conservation of labor and materials. The standard of rates must be so high that the needed carrier which serves its public with honesty and reasonable effort may live. And yet rates should be still so much below the *possible* maximum as to give high and exceptional reward to the especially capable management,

[1] *262 U. S.* 679, 692–693 (1923).

[2] Recognizing the financial hazards of air transport, the Interstate Commerce Commission has held that a rate of return of 8.7 per cent for an air-mail contractor is not excessive. *225 I. C. C.* 743, 753 (1938). For railroads see Chap. IX, Table IX.

[3] Spurr, H. C. *Guiding Principles of Public Service Regulation*, vol. 3, pp. 97–111 (1926). About half the state commissions are here listed as definitely providing for rewards to efficiency.

the well-coordinated force and plant. This is the ideal, unrealizable perhaps, but it points the way."[1]

Efficiency can be stimulated by varying the fair rate of return.[2] Where two or more companies must charge equal service rates, as in the case of many railroads, variations in the rate of return as between individual concerns may be impracticable; but not all rates of all carriers need be equal, and room remains for some differences. The procedure for compensating efficiency can be explained by means of an example. Assume that the rate base of a company is $100,000,000; that its capitalization amounts to $100,000,000, including $60,000,000 of 4 per cent bonds, $10,000,000 of 6 per cent preferred stock, and $30,000,000 of common stock; and that the fair rate of return for the carrier is fixed at 6 per cent, on the assumption of reasonably efficient operation. Under these conditions the fair return equals $6,000,000; and it will be the duty of the regulatory authorities to allow the company to charge rates which will produce this sum. If the operating expenses and taxes for the ensuing period are estimated to be $19,000,000, it will be necessary to fix the rates so as to provide a gross revenue of $25,000,000. Should the expenses and earnings turn out as expected, the net revenue from the year's operations will come to $6,000,000 ($25,000,000 less $19,000,000), and the company will just earn the anticipated return. Suppose, however, that unforeseen traffic increases the gross earnings to $25,500,000 and that, by means of unusually efficient methods, the carrier cuts operating expenses to $18,500,000. The return actually earned would then be $7,000,000, or $1,000,000 in excess of the expected return.

What should be done with the excess earnings? If needed for the stabilization of dividends, the $1,000,000 should be placed in a reserve against lean years, as explained under the next heading. But let us assume that an adequate reserve has already been created. Under this assumption, and if efficiency is to be rewarded, the proper policy for the ensuing year would be to divide the benefit of the increased traffic and low operating cost between the public and the company. Rates for the next year should be so reduced as to absorb the anticipated $500,000 due to fortuitous circumstances, plus possibly half the $500,000 arising from exceptional efficiency; but they should be kept high enough to give the company the other half of the sum arising from good management, *i.e.*, $250,000. In other words, the rate of return should be set at 6¼ per cent instead of 6 per cent, thereby offering the company a reward of ¼ of 1 per cent as a continued incentive. If the normal rate of return, operating expenses, and

[1] *20 I. C. C.* 307, 334 (1911).

[2] See State of New York, *Report of Commission on Revision of the Public Service Commissions Law*, Legislative Document no. 75, p. 24 (1930); also Jones, Eliot, and Bigham, T. C., *Principles of Public Utilities*, p. 263 (1931).

traffic are not expected to change, the fair return for the new year would be $6,250,000; operating expenses and taxes would be $18,500,000; and the company would be entitled to rates which would produce a gross revenue of $24,750,000 instead of $25,500,000. A commission could, of course, reduce rates so as to provide only $24,500,000, thus depriving the carrier of any reward other than the excess earnings secured through special effort during the first year; but such action would serve notice on the company that nothing could be expected from unusual efficiency except earnings accruing pending a reduction of rates. The better plan would seemingly be to offer a continuing reward so long as justified by operating results.

The fair rate of return might be reduced in a similar manner to penalize exceptional inefficiency. But abnormal inefficiency carries its own penalty. In addition, penalties upon inefficiency enhance risk and are not so practicable as rewards. There can be no objection, so far as the courts are concerned, to a reward for superefficiency; for a company so encouraged is given an opportunity to earn at least a normal return. But an outright penalty placed upon a carrier would reduce the return below normal and raise the charge of confiscation. It would then be necessary for the regulatory authorities to prove inexcusable waste, and the courts would be forced to pass judgment upon innumerable details of management.

Under present practice the reward for efficiency usually goes entirely to the common stockholders. But the surplus profit would probably offer a stronger inducement if shared in by management. Given entirely to stockholders, the reward ignores the contribution of management to efficiency. On the other hand, if handed over entirely to management, the reward overlooks the stockholders' contribution.[1] Many stockholders exercise little, if any, voice in the affairs of large corporations; yet stockholders as a group perform important functions of control. Those with enough voting power to count select the management and decide the basic business policies. If a satisfactory plan can be devised, it would seem to be the part of wisdom to divide the reward for efficiency between the managers and the stockholders, with perhaps the larger share going to management. By so doing the public would gain in the end through a reduction in both operating and capital costs. The prospect of a bonus would encourage managers to eliminate waste, and the chance of an extra dividend would stimulate investment. If the $250,000 surplus of our preceding illustration were apportioned on a basis of three-fifths to management, officials would receive a bonus of $150,000, and stockholders would receive an extra dividend of 33⅓ cents per share (assuming

[1] For arguments in favor of giving the reward to management, see Morgan, C. S., *Regulation and the Management of Public Utilities*, pp. 315*ff.* (1923).

the par value of the stock to be $100). On a basis of 6 per cent, the capitalized value of this reward to stockholders would be $5.50 per share.

Rewards for efficiency require the establishment of standards of management. Though measurement is difficult, guides can doubtless be devised with reasonable success.[1] A frequently employed standard in the utility industries is the level of service rates, as measured by the charges of companies similarly situated. For example, public-utility franchises sometimes provide that, as rates are reduced, there shall be an automatic increase in the rate of return.[2] However, an arrangement of this kind is open to the objection that it does not limit the reward to reductions in rates attributable to management. Lower rates may be the result of factors beyond the control of the company, such as declines in the price level. Mere reductions in rates are therefore not necessarily good criteria of the quality of operation. In fact, it is probable that no single formula should be rigidly applied. Factors other than rates to be considered are unit costs and quality of service.

Losses and Surplus Earnings

The fair rate of return should be viewed as a long-run concept, taking into consideration past losses and surplus earnings.[3] If these factors are recognized, rates will sometimes be lower than they would otherwise be, but it is equally true that they will sometimes be higher. And if low rates are offset by high rates on the average, neither the companies nor the public will have just grounds for complaint.

What weight should be given to past losses?[4] In answering this query, a distinction must be made between the preregulation and the postregulation periods. Prior to the establishment of regulation the companies of course had title to all earnings, whether reasonable or unreasonable; and if distributed, these earnings cannot now be recaptured. Since surplus earnings cannot be recovered, past losses should not be made good. It would be unfair to the public to allow the carriers to retain abnormal profits, at the same time permitting them to cover shortages.

Losses incurred after regulation stand on a different footing. If not the result of mismanagement, or other inexcusable fault of the company, these may fairly be retrieved. Reimbursement may be accomplished either by capitalizing the losses or by increasing the rate of return until they are

[1] The public utilities commission of Wisconsin has set up such standards.

[2] See Bussing, Irvin, *Public Utility Regulation and the So-called Sliding Scale* (1936).

[3] By past losses, we mean deficiencies in the fair return. Excess earnings carry the opposite meaning.

[4] Such losses impair the credit of a company and make the rate of return adequate to attract capital higher; but reference is not here made to this relationship. We have in mind the problem as to whether past losses may fairly be recovered through the rate of return.

covered. The more logical method is to make allowance for deficiencies through the rate of return; for the failure to earn a fair return does not add to the investment in the same sense as actual expenditures. But if the past losses are included in the rate base, no provision should be made through the rate of return; for it would obviously be improper to add going value[1] to the rate base and at the same time regain past losses by means of the rate of return. To do so would be to recover the same loss twice.

Surplus earnings should be handled in an analogous manner. Excess earnings antedating regulation should be treated as a closed issue, and those occurring after regulation should be impounded. For if the carriers are given an opportunity after regulation to make good their losses and are also permitted to capitalize their surplus profits, shippers are forced to contribute more than is reasonable. After giving the company such reward as may be deemed desirable for efficiency, to use at it sees fit, the remainder of the surplus earnings should be set aside to act as a bulwark when net receipts are below normal. The reserve could be allowed to accumulate until it amounted to possibly 20 per cent of the rate base, and it might reasonably be drawn upon until it fell to perhaps 5 per cent. When the reserve reached 20 per cent, rates could be reduced; when it declined to 5 per cent, rates could be increased.

Provided it is not included in the valuation and made the basis of a claim for higher rates, such a reserve would be highly advantageous to both shipper and company. Shippers would pay somewhat higher rates while the reserve was being built up, but lower rates while it provided dividends, which would tend to be at the very time when it would be hardest for shippers to bear the burden of capital charges. In the long run rates would probably be lower, on account of a stronger carrier credit. Some difficulty might be encountered in maintaining the liquidity of the reserve, but the companies would have the use of the reserve funds in building up their properties. This would strengthen borrowing power.[2]

Unfortunately, the plan outlined above, or any similar scheme that treats the fair rate of return as a long-run problem, has not enjoyed the approval of the Supreme Court. That past deficits have no legal claim to present or future compensation is indicated by the following: "Past losses cannot be used to enhance the value of the property or to support a claim that rates for the future are confiscatory."[3] That past surpluses cannot be offset against deficiencies is implied by these words, "Profits of the past cannot be used to sustain confiscatory rates for the future."[4] The position

[1] Accumulated deficiencies in the fair return.

[2] Companies with a strong credit could probably secure necessary cash through short-term loans.

[3] *271 U. S.* 23, 31 (1926). See also *262 U. S.* 625, 632 (1923).

[4] *271 U. S.* 23, 32 (1926). See also *258 U. S.* 165, 175 (1922).

of the Court seems to be that the fair rate of return must be decided irrespective of the past.

Changes in the Purchasing Power of Money

It was suggested above that the rate of return depends upon how the rate base is computed, *i.e.*, upon whether past losses are included in the valuation. Another related factor is the allowance, if any, for changes in the purchasing power of money. It is possible that special provision for fluctuation in the price level is unnecessary, but some authorities argue that an allowance beyond the normal movement of the rate of return is essential, in order to keep service rates in line with other prices. This is one of the chief contentions of the advocates of cost of reproduction.

An adjustment for prices can be put into effect either by modifying the rate base or by varying the rate of return. We refer to concession in behalf of the common stockholders. Bondholders and preferred stockholders receive the same number of dollars, regardless of fluctuations in the price level. On the assumption, then, that an allowance is essential for the common stockholders, and on condition that it is preferable to leave the rate base unchanged, the rate of return would depend upon the degree of variation in general prices. Using the example under the preceding heading, if the price level were to rise by one-third, it would be necessary to increase the rate of return from 6 to 7 per cent, so as to give the common stockholders $4,000,000 instead of $3,000,000. Since the purchasing power of the dollar is assumed to fall by one-third, the stockholders would need $1,000,000 more to purchase as much as they could before the rise in prices.

Financial Structure

What should be the relation between the rate of return and the financial structure of the companies? In order to attract capital on the most favorable basis, the carriers normally issue not only common stock, but also bonds, notes, and preferred stock; and the question is whether the existence of the different types of securities should be taken into account in ascertaining the return. According to one view, the return to which a company is entitled is that rate generally applicable to companies similarly situated, irrespective of the financial structure. No allowance should be made for variations in the earnings of common stockholders which arise from different proportions of the various kinds of securities. To illustrate, take the company of our preceding example, which had a rate base of $100,000,000 and a capitalization of $100,000,000, composed of $60,000,000 of 4 per cent bonds, $10,000,000 of 6 per cent preferred stock, and $30,000,000 of common stock. If the rate of return is 6 per cent, the receipts in addition to operating expenses would be $6,000,000, which

would be distributed as follows: $2,400,000 to the bondholders, $600,000 to the preferred stockholders, and $3,000,000 to the common stockholders, who would earn 10 per cent. Should interest rates subsequently increase and raise the normal rate of return to 7 per cent, the common stockholders would enjoy a profit of 13⅓ per cent.[1] Had we assumed a different financial structure, for example, $70,000,000 of 4 per cent bonds, $15,000,000 of 6 per cent preferred stock, and $15,000,000 of common stock, the common stockholders would receive $3,300,000, or 22 per cent. In other words, the earnings on the equity of the common stockholders would be nearly twice as great, simply because of a different capital structure. In addition to a return of 7 per cent on what *they* invested, the common stockholders would receive 3 per cent on the money borrowed from bondholders plus 1 per cent on the funds supplied by preferred stockholders.

Computed without reference to the character of the financial structure of a company, the fair rate of return gives common stockholders the full advantage of any financial arrangement that they may make. This, it is contended, is not necessarily objectionable. Although the stockholders may gain through the sale of securities bearing a stipulated return, they may likewise lose. Should earnings turn out to be less than anticipated, stockholders might receive little or nothing; and the larger the amount of fixed obligations in the capitalization, the greater the risk. If the rate of return for the company with the first capitalization ($60,000,000 of 4 per cent bonds, $10,000,000 of 6 per cent preferred stock, and $30,000,000 of common stock) were to fall from 6 to 5 per cent, the dividends of the common stockholders would decline from 10 to 6⅔ per cent. Under the same assumption, the company with the second financial structure ($70,000,000 of 4 per cent bonds, $15,000,000 of 6 per cent preferred stock, and $15,000,000 of common stock) would suffer a reduction in earnings on the equity of the common stockholders from 15⅓ to 8⅔ per cent.

The other view is that the financial structure of a company should be taken into consideration in arriving at the fair rate of return. According to this theory, the rate should be fixed so as to enable the company, capitalized as it actually is, or reasonably might be, to secure capital at the lowest cost. To illustrate, we refer again to the concern with a capitalization composed of $60,000,000 of 4 per cent bonds, $10,000,000 of 6 per cent preferred stock, and $30,000,000 of common stock. In explaining the first theory we assumed an increase in the rate of return from 6 to 7 per cent, which afforded the common stockholders a dividend of 13⅓ per cent. If the capital structure of the company had been taken into account, a

[1] Of the $7,000,000 constituting the fair return, the bondholders would receive $2,400,000; the preferred stockholders would get $600,000; and the common stockholders would have left $4,000,000, which would give them a return of 13⅓ per cent on $30,000,000.

somewhat lower rate of return might well have been adequate. The dividend rate required to dispose of $30,000,000 of common stock at par varies according to circumstances, but let us suppose 10 per cent to be sufficient. What would the fair rate of return then be? The sums needed would be as follows: bondholders, $2,400,000; preferred stockholders, $600,000; and common stockholders, $3,000,000, making a total of $6,000,000. The fair rate of return for this particular company would therefore be 6 instead of 7 per cent, even after the increase in interest rates. A similar result would follow with respect to the company whose capitalization consisted of $70,000,000 of 4 per cent bonds, $15,000,000 of 6 per cent preferred stock, and $15,000,000 of common stock. If 10 per cent were adequate for the common stock, the fair rate of return would be 5⅓ per cent. But in this instance the higher proportion of bonds would enhance the risk of the various security holders, so that a more liberal return might be needed. Suppose that the $70,000,000 of bonds could be sold on a basis of 4½ per cent; the $15,000,000 of preferred stock, 7 per cent; and the common stock, 12 per cent. Since the bondholders would then need $3,150,000, the preferred stockholders, $1,050,000, and the common stockholders, $1,800,000, the fair rate of return would come to 6 per cent. Although it is higher by ⅘ of 1 per cent, it is still lower by 1 per cent than it would be were the capital structure ignored. The reduction would save $1,000,000 in capital charges. Had we assumed a decrease in the going rate of return from 6 to 5 per cent, the company would have gained. If its capital structure had been disregarded, it would have failed by $1,000,000 to reward all investors adequately; but with its capital needs taken into account, the rate of return would have been maintained at 6 per cent.

Conservatively applied, the second view is in our opinion the sounder of the two theories. When the financial structure of a company is ignored in ascertaining the rate of return, the earnings on common stock are subjected to distortional changes. Such fluctuations enhance risk and increase the cost of capital, so that what the public loses when the normal rate of return rises is not fully counterbalanced by what it gains when the return falls. It may be objected that basing the rate of return upon actual capital costs affords an overcapitalized company a greater total return than a conservatively capitalized concern. But this result need not necessarily follow if the securities are regulated.

In relating the rate of return to the capitalization, arrangements made by the management should be given the benefit of the doubt. If the company has in fact raised all or practically all its capital through the issuance of common stock, relatively more weight should be given to the requirements of common stockholders, even though the fair rate of return is thereby somewhat increased. Likewise, if a company's actual capitalization consists largely of bonds, more weight should be given to

the contractual obligations, notwithstanding the fact that the fair rate of return would thereby be decreased. Unless there is substantial evidence to the contrary, it may be assumed that the management has arranged that proportion of the several types of securities which is best suited to the needs of the carrier.

The Supreme Court has apparently never explicitly passed upon the relationship between the fair rate of return and financial structures. Judicial pronouncement has applied the rate of return to the entire rate base rather than to the components of the capitalization; but this does not mean that the financial structure of a company cannot be considered. Inasmuch as numerous decisions have been handed down in which the financial commitments of the corporations have received weight, it would seem that a commission may determine the rate of return to a reasonable extent in accordance with actual capital requirements.

REFERENCES

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CHAPTER - - - - - - - - - - - - - - - TWELVE

Rate Technique: Classification and Distance Scales

HERE and in the five following chapters the discussion deals with particular rates. This chapter describes rates and rate structures as they now are—products of a gradual evolution, representing the work of the carriers themselves as modified by public authority, principally the Interstate Commerce Commission.[1]

Railroad Rates and Fares

The prices of railroad services include freight rates, passenger fares, and minor charges relating to baggage, express, and the like. Chief interest centers in freight rates. Passenger fares normally produce only 10 to 15 per cent of the railroads' annual operating revenues, though at one time they were more important, and they still provide a larger income than all l. c. l. freight.[2] In comparison with freight rates, passenger fares are simple. One reason for simplicity is that intercity passenger service is priced on the basis of one standard class of travel.[3] Another reason is that passenger rates, excepting commutation and excursion fares, are definitely related to mileage and are more or less uniform throughout the country. However, the railroads are divided into passenger-fare groups, and there is some variation in rate levels.[4]

[1] Commissioner Eastman said that the railroad rate structure of the United States "is the product of the efforts of freight-traffic managers seeking maximum revenue for their respective railroads, modified to some extent by public regulation." *100 I. C. C.* 513, 611 (1925).

[2] L. c. l. means "less than carload."

[3] This statement ignores the distinction between coach and Pullman travel, regular and limited trains, and standard and tourist traffic. At an early date the principle of passenger classification was carried further than now. See McGill, C. E., in Meyer, B. H. *History of Transportation in the United States before 1860*, p. 554 (1917).

[4] These groups are organized into the following passenger-fare associations: New England, Trunk-Line, Southeastern, Central, Southwestern, Western, and Transcontinental. Decisions as to fare changes are made through the associations. Freight rates are also fixed initially through associations or rate bureaus. As Commissioner Eastman pointed out, quotation through bureaus is essential to an economical and orderly publication. Much traffic is joint, so that a change in one rate may impel changes in other rates.

Freight rates produce about four-fifths of the annual operating revenues, and they are constructed in a highly complex manner. Complexity arises from the multiplicity of items, stations, routes, and companies for which rates are published. There are over 5,000 commodities that move in carload lots and severalfold more descriptions of commodities.[1] There are more than 34,000 points between which cars can move. And there are often numerous routes to and from the same pair of stations. For example, there are some 10,000 open routes between New York City and Dallas, Tex., alone.[2] Notwithstanding all that has been done toward simplification, the Interstate Commerce Commission has currently on file about half a million railroad tariffs and supplements ranging from 1 to 1,200 pages in length and containing tens of millions of rates.

Separate rates are of course not quoted for each and every item of traffic to and from each and every station by all available routes.[3] Practical considerations and the desirability of avoiding undue discrimination require simplification and at least a semblance of order. Simplification is accomplished by classifying commodities, by grouping points of origin and destination, and by quoting the same rate for opposite directions, or for two or more routes.[4] The initial step is classification, which is described in some detail under the next heading. In a simple way, classification is the division of articles into groups designated by a number or letter known as a class "rating."[5] Each commodity is grouped with other goods that are similar from a transportation standpoint.

The effect of classification is to reduce the number of rates, for all items within a class or subclass take one and the same charge. A thousand articles segregated in 10 classes reduces the number of rates from 1,000 to 10. But classification also has the effect of making rates inflexible, because changing a class rate changes the rate on all items within the class.

Railroad rates, as well as the rates of other common carriers, must be published in accordance with law, and the published rate is the only lawful rate.[6] Publication is arranged by the companies or their agents,

[1] Federal Coordinator of Transportation, *Freight Traffic Report*, vol. 1, p. 71 (1935). It should be noted that there may be several rates for the same good on account of different ways in which it is packed, or different quantities in which it is offered for shipment.

[2] Federal Coordinator of Transportation, *Merchandise Traffic Report*, p. 8 (1934).

[3] If they were so quoted, the number of rates would reach astronomical proportions.

[4] The rate from *A* to *B* does not apply from *B* to *A* unless it is quoted "between" *A* and *B*.

[5] The term "rating" is not to be confused with the actual rate of charge. The rating merely designates the class to which an article is assigned, whereas the rate is the price used in computing the total charge on a shipment.

[6] Actual rates of contract carriers are not generally known, being matters of agreement between shipper and operator.

under the supervision of the Interstate Commerce Commission, in books or pamphlets called "tariffs."[1] Freight rates are usually expressed in cents per 100 pounds to and from, or between, designated stations, rather than in terms of a given amount per mile.[2] The station-to-station charge may of course be based upon mileage.

Class rates, under which most items move, are the rates applicable to the limited number of classes into which goods have been grouped. To ascertain the class rate on a given commodity it is necessary (1) to consult the classification in order to fix the class in which the commodity falls, and (2) to turn to the appropriate tariff in order to determine the rate quoted for that class between the stations involved. Unless otherwise provided, a class rate is the rate that must be used. If it happens that a shipper offers an item not definitely covered in the classification, it is normally given the rating applicable to another similar item.

But not all shipments take class rates. On the contrary, the great bulk of traffic moves under, and most of the freight revenue is produced by, commodity rates.[3] These are specific rates quoted directly, rather than through the medium of classification, on designated services that for one reason or another require special rates. A commodity rate is usually lower than the class rate which it displaces and applies either to large shipments moving long distances, to low-grade articles taking short hauls, or to especially competitive traffic. Goods that generally take commodity rates, such as coal, ore, lumber, and grain, are classified along with other articles; and if a commodity rate is not quoted, they are carried at the appropriate class rate. But if a commodity rate is published, it takes precedence over the class rate, except in a few instances of alternative or intrastate rates.[4] A commodity rate published as a fixed percentage of

[1] Publication through agents reduces the cost of publication. The tariffs of common carriers must contain the following information: the places between which freight or passenger is carried; the freight classification governing the tariff; the general and special charges separately stated; the privileges or facilities granted by the carrier; and the rules and regulations that affect the charges.

[2] Rates are sometimes stated in terms of tons, cars, boxes, or other units.

[3] Commodity rates produce a larger portion of total tonnage than of total revenue, because they are lower than class rates. Some are lower than the lowest class rate. They may be general, applying to a number of items; or specific, applying to a single article. Of the carloads of freight originating on Sept. 23, 1942, on all railroads, 85.2 per cent moved under commodity rates, 14.8 per cent under class rates or exceptions. Commodity rates accounted for 77.6 per cent of the revenues from carload traffic, class rates for 22.4 per cent. Interstate Commerce Commission, *Class Rate Investigation*, Docket no. 28,300, exhibit no. 228 (1942). Of the less-than-carload tonnage terminated by Class I railroads during the period Sept. 8 to 14, 1939, about 21 per cent moved on commodity rates, 79 per cent on class rates. Association of American Railroads, *Analysis of L. C. L. Traffic* (1939).

[4] Alternative rates are sets of rates which are published in different sections of a single tariff. The lowest published rate always applies, and this might be a class rate. Tariff

class rates is known as a "column" rate; and when so related, constitutes in substance an expansion of the freight classification. Removing an item from the classification promotes flexibility, but it also increases the number of rates.

Rates that to some extent ignore the kind of commodity are called "all-freight" or "all-commodity" rates. These are generally carload rates applying to mixed carloads, irrespective of the ratings given the various items in the classification. Like cargo rates, all-freight rates have been employed by the railroads to recapture some of the merchandise traffic lost to competitors.[1] Frequent users of all-freight rates are freight forwarders.[2]

Rates are designated according to haul as "local" and "joint," either of which may be a class or a commodity rate. Local rates, necessarily published for every railroad, are those charged for hauls confined to the lines of a single company. Joint rates are published rates applying between stations on the lines of different companies. Subject to the approval of the Interstate Commerce Commission, these rates and the division of the resulting revenue are determined by mutual agreement between the participating railways.[3] If a joint rate is not quoted in the tariff, the shipper using two or more lines pays what is known as a "combination" rate, which is ascertained by adding together two or more rates published in different tariffs.[4] The rates added may be local or joint. When more than one combination can be made (generally the case where stations are widely separated), the shipper is entitled to the one that produces the lowest total charge. Combination rates give way to joint rates, even if lower, and are not so convenient as the latter. As a rule, however, joint rates are lower than combinations and simplify the problem of ascertaining rates.

A component of a combination may be a proportional rate. This is a rate employed by the railroads in competing for long-distance traffic. It

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ambiguities are construed against the maker; and when two tariff descriptions are equally appropriate, the shipper is entitled to have applied the one specifying the lower rates. *259 I. C. C.* 335, 337 (1944).

[1] *223 I. C. C.* 421 (1937). See also a number of other Commission cases, including *226 I. C. C.* 455 (1938), and *238 I. C. C.* 327 (1940).

[2] When one shipper loads l. c. l. freight destined to several consignees into a single car, he obtains what is called "pool-car" service. When the freight of two or more shippers is consolidated into a single car, the service is known as "consolidated-car" service.

[3] The Commission has the power, with restrictions, to order the establishment of joint rates if the companies cannot agree.

[4] The term "joint rate" is frequently used inaccurately as a synonym for the term "through rate," which is broadly any rate from point of origin to point of destination. A joint rate is of course a through rate; but so is a combination rate a through rate, even though it is not published. Joint rates are sometimes referred to as "one-factor rates."

is substituted for another generally higher rate on condition that the traffic moves beyond the point to which the other rate otherwise applies.[1] A proportional rate might govern from *A* to *B* on shipments originating at *A* and routed by way of *B* to *C*, but it would not apply to shipments originating at *A* and destined to *B*. The reason for the proportional rate could be that another shorter route might be open from *A* to *C* by way of *D*, so that a combination equal to the sum of the rates from *A* to *B* and from *B* to *C* would exceed the sum of the two rates on the *D* route. *B* might therefore be equalized with *D* on through traffic by means of a proportional rate that would make the two sums equal.[2] Specialized forms of proportional rates are import and export rates. As implied, these are used on import and export traffic, frequently in order to equalize rival seaports, and they are lower than the corresponding domestic rates. Other terms for proportional rates are "lake-cargo," "ex-river," and "ex-lake" rates.

Rates that vary according to the size of shipment are known as "less-than-carload," "carload," and "cargo" or "multiple-car" rates. The first is a rate applying when an article moves in less-than-carload lots; the second, when it moves by the carload;[3] and the third, when it moves in multiple-car lots, or by the trainload.[4]

Railroad Classifications

Aside from approved exceptions to the classifications, all classified interstate traffic, and most intrastate traffic, are governed by one or more of three major classifications: Official, Southern, and Western. The Official Classification applies to the territory of the United States bounded on the south by the Ohio River from its mouth to Cincinnati, Ohio, and by a line from Cincinnati through Kenova, W. Va., to Norfolk, Va.; and on the west by Lake Michigan to Milwaukee, Wis., thence by a line southwest to the Mississippi River, and by the Mississippi to its junction with

[1] The Commission has defined a proportional rate as a rate dependent for application upon previous transportation to, or subsequent transportation from, the point from or to which the rate applies. A flat rate is not dependent upon any previous or subsequent transportation. *262 I. C. C.* 783, 784 (1945).

[2] Traffic from Chicago to Birmingham, Ala., must move a longer distance over the first leg of the route when sent by way of Cairo, Ill., than when sent through Cincinnati. The local rate of the Illinois Central from Chicago to Cairo is therefore higher than the local rate of the Big Four from Chicago to Cincinnati. Other things being equal, shippers would naturally prefer the Big Four route. In order to overcome this preference the Illinois Central quotes a proportional rate, lower than the local rate, between Chicago and Cairo on traffic destined to Birmingham.

[3] Carload rates apply only when a carload is shipped from one station.

[4] On multiple-car rates see *235 I. C. C.* 485 (1939). Until recently the Commission has usually opposed such rates, on the ground that they tend to favor large shippers. *41 I. C. C.* 617 (1916).

the Ohio.[1] Southern Classification applies to the territory south of the southern boundary of Official Territory and east of the Mississippi. Western Classification applies to the territory west of the other two. Near the boundaries of the classification territories there is some overlapping, certain border points lying in one territory if traffic moves in one direction and in a different territory if the movement is opposite. The three major classifications are shown on the accompanying map.[2]

There are a few state classifications, of which the most important is that of Illinois, a state lying partly in Official Territory and partly in Western. The state classifications apply within designated states, but they are more or less similar to the major classifications except with respect to carload lots.[3]

The classification relevant to a particular shipment is specified in the tariff containing the rate. As a general rule, interstate traffic and intrastate traffic not subject to a state classification, if confined to a major territory, are governed by the classification of that territory within which the traffic moves. The classification applicable to traffic moving from a point in one classification territory to a point in another depends upon whether the traffic takes a joint rate or a combination rate. If a joint rate has been established, the entire haul is subject either to the classification of point of origin or to that of destination. Both classifications do not apply, for every tariff is governed by a single classification. Which one of the two classifications it shall be is shown in the tariff and is decided by the railroads that agree to the joint rate. If no through rate is published, so that a combination must be used, each of the components of the

[1] "Official classification applies between all points in the part of the country known as official territory, and which may be described as lying generally east of the following line: Lake Michigan, including west-bank car-ferry ports on official-territory traffic, south to Milwaukee, Wis., thence the line of the Chicago, Milwaukee, St. Paul & Pacific Railway (the Milwaukee) to Rugby Junction, Wis., thence the line of the Minneapolis, St. Paul & Sault Ste. Marie Railway to Duplainville, Wis., thence the line of the Milwaukee through Watertown to Madison, Wis., thence the line of the Chicago & North Western Railway to Dodgeville, Wis., thence the line of the Illinois Central Railroad to the Illinois Stateline and west along the latter to the Mississippi River, thence south along that river, including west-bank crossing points on official territory traffic, to the Ohio River; and lying generally north of the following line: the Ohio River east from its mouth, including south-bank crossing points on official-territory traffic, to Cincinnati, Ohio, thence east on the line of the Chesapeake & Ohio Railway to Kenova, W. Va., thence on the main line of the Norfolk & Western Railway to its crossing with the line of the Virginian Railway west of Roanoke, Va., thence on the Virginian Railway to Suffolk, Va., thence on the main line of the Norfolk & Western to Norfolk, Va." Interstate Commerce Commission, *Consolidated Freight Classification*, Docket no. 28,310, Report Proposed by P. O. Carter and W. J. Koebel, sheet 7 (1943).

[2] See Interstate Commerce Commission, *Consolidated Freight Classification*, Docket no. 28, 310 (1939); *262 I. C. C.* 447 (1945).

[3] The Illinois Classification has limited interstate application.

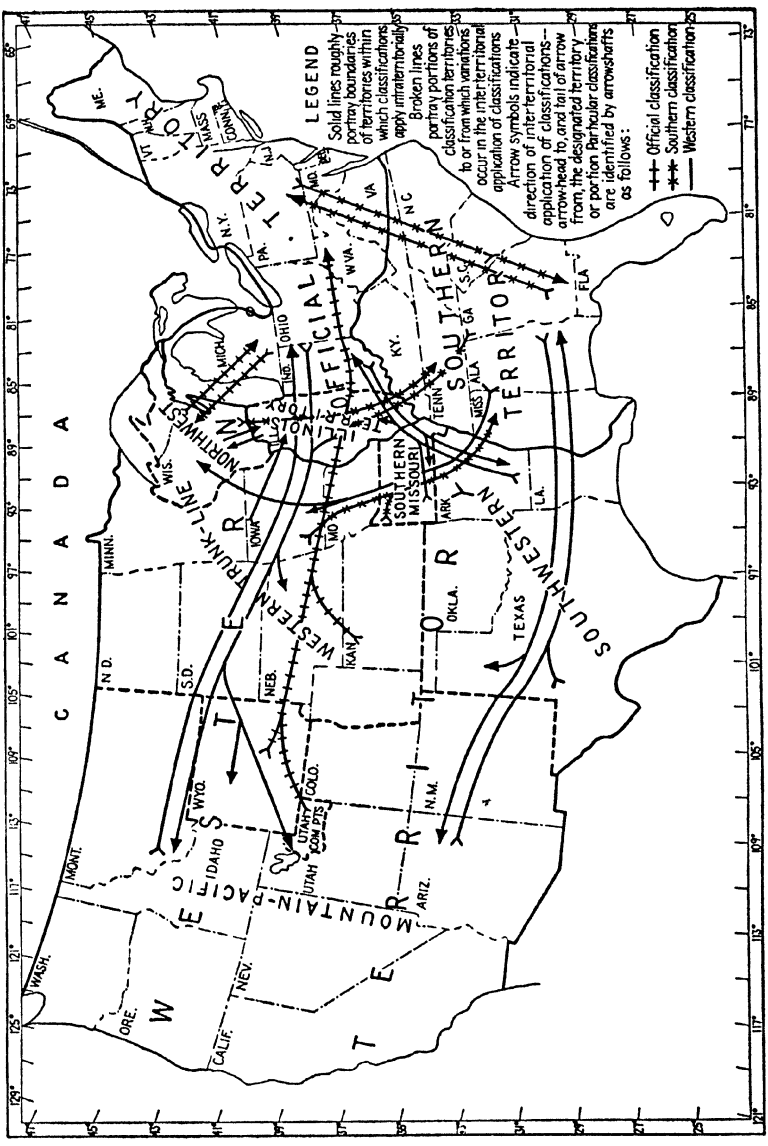

FIG. 18.—Railroad classification territories and the application of classification.

combination may be subject to a different classification; hence, two classifications can be applicable to a single shipment. The interterritorial application of the classifications is indicated in general by the arrows on the map. Southern—Official traffic is governed by the Southern Classification; and Southern—Southwestern, Western Trunk-Line—Southwestern, Western Trunk-Line—Illinois, Southwestern—Official, and Transcontinental, are controlled by the Western Classification. Between Western Trunk-Line Territory and that part of Official Territory east of Illinois the Official Classification usually applies. From the South to Western Trunk-Line Territory the Western Classification governs, while in the opposite direction Southern Classification takes effect.

The three leading classifications are now published along with the Illinois Classification in one volume called the *Consolidated Freight Classification*, which is drawn up and frequently revised by committees selected and employed by the participating railroads.[1] Companies that do not subscribe entirely to a classification issue tariffs of exceptions to the classification, usually to meet competition by giving some commodity a special rate.[2] Exceptions may be issued individually or jointly by two or more lines, but all must be approved by the appropriate committee, after hearing, or must be ordered by the Interstate Commerce Commission, which has jurisdiction over classification. The issuance of exceptions of course greatly complicates classification and tends to defeat its purpose. Since the *Consolidated Classification* does not list exceptions, in determining a class rate it is necessary first to ascertain whether exceptions are in force. Sometimes they are almost as bulky as the classification, and the volume of traffic moving thereunder exceeds the traffic to which the classification applies.[3]

All the classifications provide for several main classes, designated either by numbers or by letters, and all have additional multiple ratings in excess of first class, as well as ratings stated in terms of percentages of first class. The Official Classification has 7 regular classes; the Southern, 12; and the Western, 10.[4] Every rating is definitely related to first class,

[1] There is a committee for each of the major territories, and the chairmen of these committees constitute the Consolidated Classification Committee, which supervises the publication work. The committees sit constantly, holding hearings on the numerous problems of classification. The jurisdiction of the committees also extends to commodity rates.

[2] Other reasons are to expedite publication, to restrict the application of particular rates, and to reduce the differences between class rates or between less-than-carload and carload rates.

[3] Nine-tenths of carload traffic moves under exceptions or commodity rates. However, the greater part of less-than-carload tonnage is subject to the classification, except in the South. In Texas only half the less-than-carload tonnage moves on classification ratings.

[4] The totals of all classes, namely, regular, multiple, and percentage, are, respectively, 27, 28, and 26, counting equivalent regular and percentage classes as one. Ratings in excess of first class are used primarily for any-quantity and less-than-carload shipments.

in compliance with orders of the Interstate Commerce Commission. If multiple and column ratings are considered, the ratings vary from as low as 13 per cent of first class to as high as 400 per cent. The degree of variation is generally different from territory to territory, but the percentage

TABLE X.—CLASS DESIGNATIONS AND THEIR PERCENTAGE RELATIONSHIPS TO FIRST CLASS

Per cent of class 100	Regular class designation				
				Western	
	Official	Illinois	Southern	Western Trunk-Line and Southwestern Territories	Mountain-Pacific Territory
100	1	1	1	1	1
85	2	2	2	2	2
70	3[a]	3	3	3	3
60	...	...	..	..	4
55	R26	R26	4	4	
50	4	4	..	..	5, A
45	...	...	5	A	
40	...	A	6	..	B
37½	...	...	..	5	
35	5	5	7		
32½	...	B	..	B	
30	...	...	8	C	C
27½	6	6, C			
25	...	...	9	..	D
22½	...	D	10	D	
20	...	E	11	..	E
17½	...	...	12	E	

[a] Formerly Official Classification provided Rule 25 ratings, for which 70 per cent of class 100 was prescribed in the Eastern revision. It has been since replaced by class 3 in the classification, although it may still appear in some tariffs.

relationships of the first four classes are the same in all three classifications.[1] Thus the rates applicable to classes two and three are, respectively, 85 and 70 per cent of those applicable to class one. It should be definitely understood, of course, that these class-rate relationships are reflections of

[1] Eastern Class-rate Investigation, *164 I. C. C.* 314, 379 (1930); Southern Class-rate Investigation, *100 I. C. C.* 513, 630 (1925); Consolidated Southwestern Cases, *205 I. C. C.* 601, 651 (1934); Western Trunk-Line Class Rates, *164 I. C. C.* 1, 195 (1930).

class tariffs and do not appear in the classifications themselves.[1] Classification deals with relative rather than actual rates; it merely indicates that the class rate to be charged for transporting a specified item must bear the same relation to the first-class rate for the haul, whatever the latter may be, as every other commodity within the class in which the item falls.

The regular class designations in the principal classifications and their percentage relationships, as reflected in the tariffs applicable to the respective rate territories, are set forth in Table X.

A classification is more than a simple list of goods. It includes the names of the carriers concerned, rules and regulations governing packing, descriptions of items, minimum carload weights, designations of class divisions, and ratings. Descriptions, rules governing packing and minimum carload weights, and less-than-carload and any-quantity ratings on articles rated third class or higher, are virtually the same for all three major classifications. Other ratings, however, are not uniform. Table XI, an excerpt from the *Consolidated Classification*, shows how articles are listed and rated. Opposite the descriptions of articles are shown in parallel columns the less-than-carload ratings, carload minimum weights or indication of any quantity, and carload ratings. Where the rating is uniform in all classifications, a single figure appears in the rating column.[2]

The principles underlying classification are discussed in general in the next chapter; and the specific cost and demand factors, such as loading density and commodity value, are explained in Chap. XV. These principles and factors are of great importance; for the assignment of an article to a certain class automatically makes the rate on that item identical with the rate on every other item in the same class, and different, according to the class spread, from the rates on all articles in other classes.

Uniformity and Simplification of Classification

The railroad classifications now in effect represent a great improvement over former conditions. The first classifications, modeled after those of canal or wagon companies, were few and simple. One early railroad is said to have grouped all its published rates under five heads: heavy goods, light goods, case goods, logs, and whisky.[3] But as traffic grew in variety and as numerous companies were organized, each with one or more schemes of its own, ratings multiplied by the hundred and classification

[1] Rates for multiple classes are not always published in the tariffs. They must be computed by applying designated multipliers to the first-class rate.

[2] Ratings often vary on a given article according to the way it is packed, or whether it is set up or knocked down. A given article may also have more than one carload rating, depending upon different minimum weights.

[3] Widell, C. E., *Nation's Business*, vol. 28, p. 25 (January, 1940).

TABLE XI.—PAGE FROM A SUPPLEMENT TO CONSOLIDATED FREIGHT CLASSIFICATION NUMBER 16

Item	Cancels item (original issue, except as noted)	Articles	Less than carload ratings	Carload minimum, pounds	Carload ratings
♦1792-A	1792	**Aluminum flux,** noibn, in barrels or boxes or in double bags or in multiple-wall paper bags, see Rule 40, Section 10 (c)	3	36,000	5–6–5
		BAGS:			
3692	.....	★ **Paper, insulated with macerated paper,** in machine pressed bales or machine pressed in boxes	3	30,000	37½–37½–5
3695-A	3695	—**Paper,** insulated or padded, noibn, in boxes or machine pressed bales	2	18,000R	R26–4–4
		BOOTS, SHOES, OR BOOT OR SHOE FINDINGS:			
5545-A	5545	**Boots or Shoes, old, used,** leather, having value other than for reclamation of raw materials, prepaid, see Note 2, item 5550, in packages; also CL, loose	2	†◆36,000	†♦50
5550-A	5550	**Note 2.**—Old used shoes rebuilt or repaired, will be rated as shoes, noibn. († Issued in compliance with decision of the Interstate Commerce Commission in Case No. 29053 of March 16, 1945.)			
		BOXES OR CRATES, INCLUDING FIBREBOARD, PAPER OR PULPBOARD BOTTLES OR CANS:			
⊕6125-B	6125-A (Sup. 21)	**Boxes, bottles or cans,** fibreboard, paper or pulpboard, with or without metal tops or bottoms, noibn, SU:			
		Outside measurement not exceeding 1 inch in depth, or outside measurement exceeding 1 inch in depth but not exceeding 15 united inches, length, width and depth added, see Note 5, item 6130-B, LCL, in boxes, crates or in packages 677 or 810, CL, loose or in packages	1	12,000R	3
		Outside measurement exceeding 1 inch in depth and exceeding 15 united inches, length, width and depth added, see Note 5, item 6130-B:			
		▲Nested or not nested, see Notes 6 and 6½, items 6135-B and 6136, LCL, in boxes, crates or package 810, CL, loose or in packages	1½	12,000R	3
		Nested solid (applies only on boxes not exceeding 19 united inches), LCL, in boxes, crates or package 810, CL, loose or in packages	1	12,000R	3
⊕6130-B	6130-A (Sup. 21)	**Note 5.**—To obtain outside measurement of a cylindrical box, can or bottle, add the depth and twice the greatest diameter.			
⊕6135-B	6135-A (Sup. 21)	**Note 6.**—Boxes each containing partitions of honeycomb type of weight equal to or greater than boxes when empty will be considered as being nested.			
⊕6136	.	**Note 6½.**—Ratings also apply on LCL shipments of not less than 4,000 lbs., in bundles when boxes are each less than 35 united inches or loose when boxes are each not less than 35 united inches. Owner to load and unload.			
		BUILDING OR PAVING MATERIALS, MISCELLANEOUS:			
6978	. . . .	★ **Culvert end sections,** flared, iron or steel, plate or sheet, unfinished, nested solid or in sections nested solid, loose or in packages	3	36,000	5–37½–5
7025-A	7025	♦**Doors, rolling,** see Note 2, item 7035-A, aluminum and iron or steel combined, in packages; also CL, loose	2	24,000R	R26–4–4
7030-A	7030	♦**Doors, rolling,** see Note 2, item 7035-A, iron or steel; or wood covered with iron or steel or tin plate, in packages; also CL, loose	3	30,000	5–6–5
7035-A	7035	**Note 2.**—Ratings include iron angles, bars, castings, chain, guides, hoods, pipe, rollers, springs or sprocket wheels necessary for installation.			
		BUILDING METAL WORK, INCLUDING ROOF TRIMMINGS OR GUTTERING OR VENTILATORS:			
7972	.....	★ **Stair risers or treads,** pulpboard, steel and carpet or linoleum combined, in boxes	2	30,000	R26–4–4

For explanation of abbreviations, characters and ratings, see page 169 of Classification and page 14 herein; for packages, see pages 409 to 432 of Classification as amended.

became exceedingly complex.[1] At one time there were no less than 138 separate classifications in Trunk-Line Territory alone, and by 1886 there were at least 50. Under such circumstances much unjustifiable discrimination and confusion occurred, especially in the case of long-distance traffic calling for through routes and billing over the lines of more than one railroad. In fact, the ascertainment of rates was frequently next to impossible; for one set of rates and rules might govern over a portion of a route, while another set might control over the remainder.[2]

The obvious advantages of simplification to carrier and shipper alike, and pressure by Congress and the Interstate Commerce Commission, eventually led to greater uniformity.[3] During the late eighties the railroads adopted the three major classifications described above. In 1919 the three classifications, originally published separately, were combined under one cover in the volume referred to as the *Consolidated Freight Classification*.[4] At the same time rules, descriptions, packing requirements, and minimum carload weights were made practically identical. In 1936 the carriers adopted uniform less-than-carload and any-quantity ratings on articles rated third class or higher,[5] and in 1939 the Commission ordered a comprehensive investigation to determine whether all ratings should be made uniform.[6] This investigation was combined with a similar inquiry into class rates.[7]

Notwithstanding these steps toward uniformity, classification is far

[1] In 1883 one railroad had in effect nine different classifications for traffic originating on its own line.

[2] A shipper desiring to determine freight rates over the Wabash in 1883 might be compelled to consult a classification for the Middle and Western states in 6 classes; one for the Southern Railway and Steamship Association territory in 18 classes; one for the Mississippi Valley business in 5 classes; one known as the Revised Western in 9 classes; the Trunk-Line East in 13 classes; the Trunk-Line West in 5 classes; a classification for Texas in 8 classes; and two for the Pacific coast, according to direction, in 8 and 9 classes, respectively. Ripley, W. Z., *Railroads: Rates and Regulation*, p. 308 (1912).

[3] For the work of the Commission during the first 25 years see *25 I. C. C.* 442, 459 (1912). Subsequently, uniformity was recommended in a number of comprehensive proceedings.

[4] *54 I. C. C.* 1 (1919). Centralized control of all railroads by the United States Railroad Administration greatly facilitated this step.

[5] *223 I. C. C.* 657, 662 (1937). An any-quantity rating is a rating assigned to a commodity irrespective of the quantity that may comprise a single shipment. It applies to goods not moving in carload quantities, on account of limited use or undeveloped trade. An example is dental cement.

[6] Interstate Commerce Commission, *Consolidated Freight Classification*, Docket no. 28,310 (1939); Committee on Public Relations of the Eastern Railroads, *Railroad Data*, vol. 18, no. 15, p. 31 (July 21, 1939). The movement for uniformity is reviewed in Barton, F. L., "Uniform Freight Classification and the Interstate Commerce Commission," *Journal of Land and Public Utility Economics*, vol. 18, pp. 312–322 (August, 1942).

[7] Interstate Commerce Commission, *Class Rate Investigation*, Docket no. 28,300 (1939); *262 I. C. C.* 447 (1945).

from homogeneous: Three main schemes continue in effect, though published in one volume, and several state classifications are in force. The number of classes, the class designations, and the relationships between the classes vary from classification to classification. Many exceptions and supplements, often published by several independent agents, make the diversity actually greater than appears from an examination of the classifications proper.

Numerous items having the same transportation characteristics take different ratings according to territory, as indicated by Table XII.[1] This is true even of the relatively uniform any-quantity and less-than-carload ratings. Thus an any-quantity rating of 55 in the Southern Classification may be 100 in the Official and Western classifications. Again, items having a less-than-carload rating of 50 in Official range from 30 to 70 in Southern, from 55 to 85 in Western. Items rated 70 in Southern vary from 50 to 100 in Official, from 55 to 85 in Western. And items rated 55 in Western have ratings from 40 to 100 in Official, from 30 to 100 in Southern.

TABLE XII.—COMPARISON OF RATINGS IN THE MAJOR CLASSIFICATIONS

	Any-quantity		Less-than-carload		Carload		Grand totals	
	Number of ratings	Per cent	Number of ratings	Per cent	Number of ratings	Per cent	Number of ratings	Per cent
Totals	80	100.00	10,134	100.00	10,664	100.00	20,878	100.00
Uniform in the three classifications	64	80.00	8,622	85.08	3,868	36.27	12,554	60.13
Alike in								
Official and Southern	67	83.75	9,343	92.18	5,114	47.96	14,524	69.57
Official and Western	76	95.00	8,876	87 59	4,522	42.40	13,474	64.53
Southern and Western	64	80.00	8,822	87.05	6,320	59.27	15,206	72.83
Unlike in any two classifications	1	1.25	337	3.32	2,444	22.92	2,782	13.33

The diversity in carload ratings is especially marked. For example, items rated 35 in the Official Classification vary from 17½ to 55 in the Southern and Western classifications. Items rated 40 in Southern range from 27½ to 70 in Official, from 17½ to 40 in Western. And items rated 45 in Western are from 27½ to 85 in Official, from 30 to 55 in Southern.

The relationships between less-than-carload and carload ratings are inconsistent. In one territory the two ratings for a given item may be equivalent, in another territory different. On most items the less-than-

[1] Interstate Commerce Commission, *op. cit.*, Report Proposed by P. O. Carter and W. J. Koebel, sheets 19–20 (1943).

carload ratings are higher than the carload in all territories, but the spreads vary widely.

Ratings differ in still other ways. They may depend upon whether a commodity moves intraterritorially or interterritorially, although on most items this distinction is not made. Sometimes the rating is governed by the direction of movement. For example, between Western Trunk-Line Territory and that part of Official Territory referred to as Trunk-Line nearly 40 per cent of the commodity descriptions take one rating eastbound and another westbound.

Diversity in classification affects relative rates of charge. Insofar as rate levels and progressions are the same in the respective territories, a difference in rating means that shippers pay unequal rates unless they ship in common territory. Even if rate levels are not the same, a disparity in rating may not be counterbalanced by an opposite variation in the rate. Where traffic moves from one territory to another under joint rates subject to a single classification, it is difficult to maintain a reasonable relationship between interterritorial and intraterritorial rates.

In the opinion of some students, classification is much too complex, irrespective of lack of uniformity in ratings.[1] Counting exceptions to the classification, the classes are said to be more numerous than necessary, illogically related, and designated by a confusing array of numbers, letters, and symbols. In Official and Southern territories there are, respectively, 122 and 159 classes for less-than-carload traffic alone.[2] The factors of classification are multitudinous and the rules are voluminous. No less than 25 more or less distinct factors have been listed, and the rules governing l. c. l. packing alone embrace 25 pages of meticulous description. So complex is rate making, that many shippers are forced to maintain unnecessarily expensive traffic departments. One result has been a tendency to divert railroad traffic to truckers.

It is generally admitted that a uniform classification adapted to modern conditions would simplify and systematize rate making, but uniformity is supported chiefly on the ground of reduction or equalization of rates. Regulatory authorities and shipper organizations of the South and West contend that the present classifications have been made largely useless through the publication of exceptions or commodity rates, and that the differences in classification create rate relationships more favorable to shippers in Official Territory than warranted by traffic conditions. Motor carriers favor a classification based upon a formula that will enable them to compete more effectively with the railroads for less-than-carload traffic.

[1] Federal Coordinator of Transportation, *Merchandise Traffic Report*, p. 7 (1934).

[2] Jensen, C. J., *Some Suggestions for Improvement in Railroad Class Rates*, p. 92 (Report prepared for the Commission's recent class-rate investigation, 1941).

Uniformity of classification, except as to matters of detail such as nomenclature, is generally opposed by the railroads, by public officials and shippers of Official Territory, and by certain interests in the South and West. These groups assert that substantial uniformity has already been achieved as to the descriptions of articles, packing requirements and rules, and ratings of 70 or higher, and that the principal remaining differences are to be found among carload ratings. It is asserted that the latter ratings should not be uniform, on account of variations among the territories in rate levels, in competition, and in composition of traffic. Considering such conditions, the belief is that uniformity of classification would seriously disturb commercial relationships, deplete the revenues of the carriers, and bring about more commodity rates or exceptions to the classification. If numerous special rates were published, a so-called "uniform" classification would be only nominally effective.

It is difficult, in the absence of much detailed information, to pass judgment upon the case for and against uniformity of classification, except in a general way. Although committees appointed by the railroads have more than once concluded that uniformity is impracticable,[1] a single classification for the United States has been recommended again and again by the Interstate Commerce Commission and by other impartial authorities.[2] The decision depends primarily upon whether there are sufficient variations in traffic conditions coterminous with the respective territories to justify diversity. The principal conditions alleged to vary greatly, in addition to rate levels, are competition and composition of traffic. But it has not been shown that significant differences in these factors vary enough by major territories to justify three classifications.

The adoption of a uniform classification would doubtless disturb certain rate relationships and might reduce the revenues of particular carriers, but these effects could be remedied by readjustments in rates. The railroads argue that the approach to improvement of the classification should be from the particular to the general rather than the reverse. But so long as the basic scheme remains at fault, correction of individual ratings is often precluded except at the expense of confusion.

In 1945 the Commission provided for uniformity in its decision in the class-rate case.[3] The Commission pointed out that the present classifications are unreasonable and result in undue preference; that existing

[1] In 1887 an unsuccessful attempt was made to unify the Official and Western classifications, and a proposed classification drawn up by a committee of railroad representatives to go into effect in 1890 was never adopted. Another committee reported unfavorably on uniformity in 1908.

[2] See *Annual Reports of the Interstate Commerce Commission;* Federal Coordinator of Transportation, *Merchandise Traffic Report,* p. 20 (1934), and *Freight Traffic Report,* vol. 1, p. 33 (1935).

[3] *262 I. C. C.* 447 (decided May 15, 1945).

ratings vary widely; that basic unity in classification ratings is essential to the maintenance of just relationships between class rates; that uniformity of classification is entirely feasible; and that allowance can be made for special conditions through the issuance of exceptions to the classification. In view of these circumstances, the carriers were ordered to advise the Commission within 90 days whether they would undertake to devise a single uniform classification.[1] A proposed classification was formulated consisting of 30 classes and including every class rating in the three major classifications. Twenty-three classes were first class and lower, and seven classes were higher than first class. The percentages ranged from 13 to 400. Individual exceptions could be published provided they did not violate some provision of the Interstate Commerce Act, conflict with the national transportation policy or impair the general requirement of uniformity. Since the actual preparation of a single detailed classification for the United States is a task of great magnitude, a considerable period may ensue before uniformity becomes a reality.

Railroad Rates in Relation to Distance

The point-to-point rates of railroads may be discussed under the following headings: intraterritorial class rates, interterritorial class rates, commodity rates, equalization of rate levels, types of departure from distance scales, advantages and disadvantages of distance rates, and problems in applying the distance principle.

Intraterritorial Class Rates

Railroad rates are fixed in the first instance largely through carrier freight-traffic associations for five major territories. These territories, indicated on the map, are Eastern or Official, Southern, Western Trunk-Line, Southwestern, and Mountain-Pacific.[2] The first corresponds with Official Classification Territory; the second with Southern Classification Territory; and the last three together with Western Classification Territory. Besides the five principal territories there are several subterritories and zones, the most important of which are Zones I-IV of Western Trunk-Line Territory.

Intraterritorial class rates, and commodity rates expressed as percentages of class rates, are based primarily upon distance, though they do not vary in proportion to distance. In general they agree (according to the class) with maximum scales of first-class rates prescribed and modified

[1] In the summer of 1945 the carriers complied with this order, giving an affirmative answer.

[2] See Board of Investigation and Research *Report on Interterritorial Freight Rates*, House Document no. 303, 78th Cong., 1st Sess., p. 1 (1943).

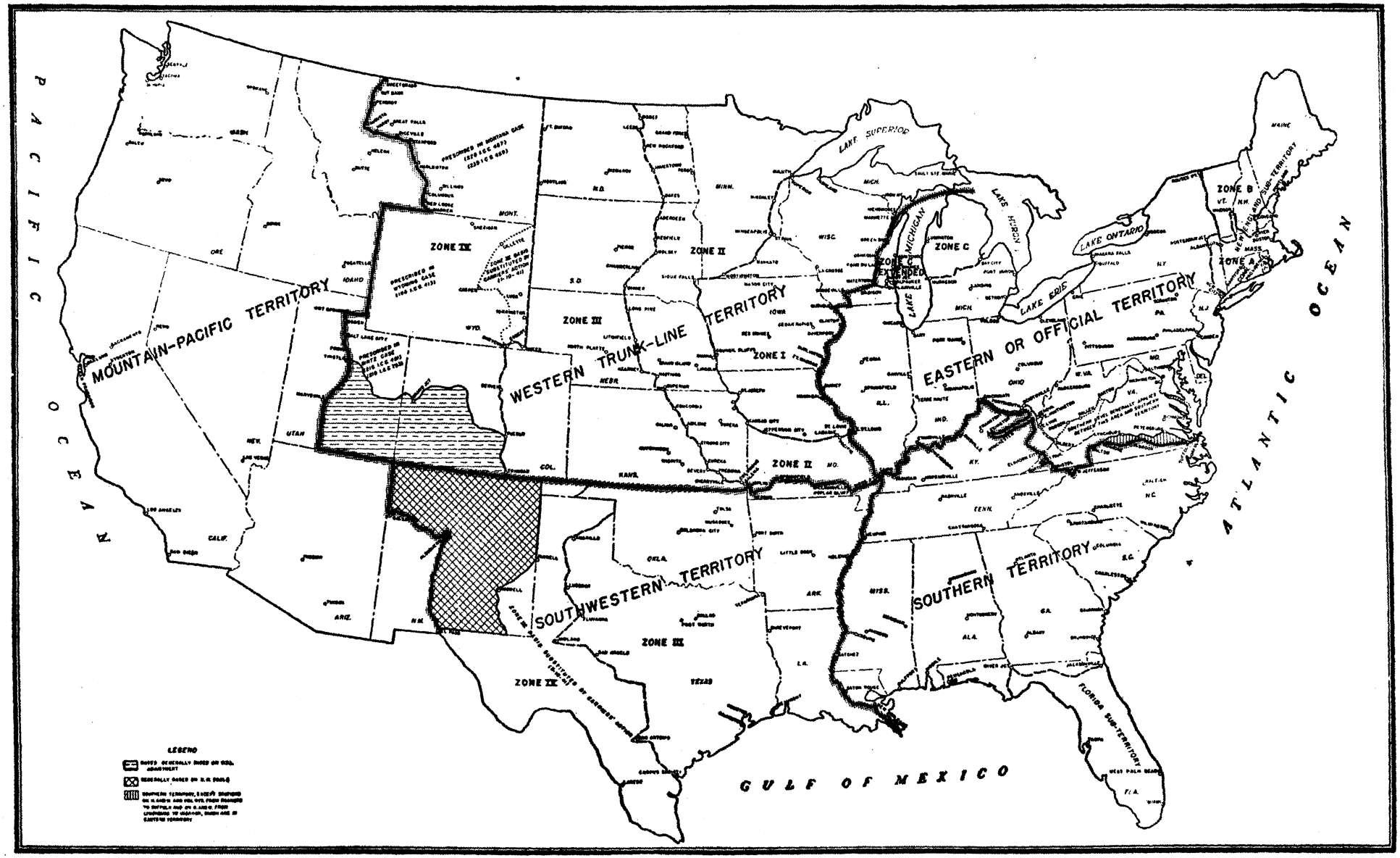

FIG. 19.—Railroad class-rate territories in 1942.

over a period of years by the Interstate Commerce Commission.[1] These scales begin with an initial charge to cover terminal costs and progress a few cents at a time by blocks which gradually increase in size as the haul lengthens. Blocks are used in order to simplify rate making, and the steps from block to block are made relatively small so as not to cause too great a disparity in rates between near-by communities lying in adjacent blocks. Rates progress at a declining rate. In computing distances for the application of the scales, the route employed is generally that over which carload traffic can be moved without transfer of lading.

Limited departures from the basic scales of rates exist in all territories. One type of departure occurs where zones are established, in order to provide for a higher level of rates in regions where traffic conditions are unfavorable. A second sort of deviation consists of arbitraries, which are added to the standard scales so as to permit special rates for weak or short lines. A third kind of divergence is caused by the grouping of near-by points at origin or destination, for the purpose of equalizing competition, avoiding violation of Sec. 4, or simplifying rate making.

The standard scale of intraterritorial class rates applicable in Eastern or Official Territory was prescribed by the Commission in the Eastern Class Rate Investigation.[2] It started with a first-class rate of 30 cents for 5 miles or less and increased by 5-mile blocks up to 100 miles, 10-mile blocks to 240 miles, 20-mile blocks to 800 miles, and 25-mile blocks to 1500 miles.[3] The charge per 100 pounds increased in the first 100 miles from 30 to 56 cents, or 26 cents; in the next 100 miles, 17 cents; in the next 100 miles, 14 cents; in the next 400 miles, 12 cents for each 100 miles; and thereafter 10 cents for each 100 miles.[4] In three zones within Eastern Territory higher rates were ordered as follows: zone A, 5 per cent; zone B, 15 per cent; and zone C, 10 per cent. Higher rates, in the form of arbitraries, were also fixed for certain branch lines and weak railroads. Rates lower by a few cents than the basic charges were prescribed for differential all-rail routes, rail-and-lake routes, and ocean-rail

[1] *Ibid.* The Board's report was made under the direction of Prof. D. P. Locklin. See also Daggett, Stuart, "Mileage Rates and the Interstate Commerce Commission," *Quarterly Journal of Economics*, vol. 46, pp. 281–315 (February, 1932); and Interstate Commerce Commission, *Class Rate Investigation*, Docket no. 28,300, Statement no. 4351 (1943).

[2] *164 I. C. C.* 314 (1930). See also supplemental decisions: *171 I. C. C.* 481 (1931); *177 I. C. C.* 156 (1931); and *203 I. C. C.* 357 (1934). The rates originally prescribed became effective Dec. 3, 1931. Prior to the decision of the Commission in this case, Eastern Territory was divided into three subterritories, each with a different rate structure: New England, Trunk-Line, and Central Freight Association.

[3] A supplemental decision extended the distance from 900 to 1,500 miles.

[4] The basic rates in the East, as in all territories, were subject to the 10 per cent increase authorized in *226 I. C. C.* 41 (1938) and to the temporary increase of 6 per cent permitted in *248 I. C. C.* 545 (1942). The latter increase was suspended.

routes.[1] Still other departures from the standard scale consisted of slightly lower specific rates between key points. These key rates gave rise to some grouping at origin or destination, for they were to be observed as maxima at intermediate points.

Intraterritorial class rates in the South are based upon the decision of the Commission in the Southern Class Rate Investigation.[2] The basic scale finally put into effect, known as the "K-2" scale, began with a rate of 34 cents per 100 pounds and increased by blocks equal to those described above for Eastern Territory. Rates progressed 42 cents in the first 100 miles; 26 cents in the next 100 miles; 20 cents per 100 miles in the next 200 miles; 15 cents per 100 miles in the next 400 miles; and 12 cents per 100 miles thereafter.[3] As in the East, the Commission permitted some departures from the standard rates. Arbitraries of about 15 per cent of the basic rates were added to the Southern scale to cover traffic in the peninsula of Florida south of the line of the Seaboard Air Line Railway from River Junction to Jacksonville. These were designed to give the railroads in Florida additional compensation on account of the small volume of overhead traffic. Arbitraries providing for higher rates were also allowed on certain weak roads. Still another departure from the basic scale was approved on traffic between points in that portion of Virginia in Southern Territory and points in North Carolina.[4] Within limits, grouping was permitted.

The class-rate structure in Western Trunk-Line Territory is an outgrowth of the decision of the Commission in Western Trunk-Line Rates.[5] Scales of rates were prescribed for four different zones within the major territory, rather than for the territory as a whole, in order to make allowance for alleged variations in traffic conditions, and to build up rates gradually to the level in Southwestern Territory. Rates increased by blocks equivalent to those in the East and South, but the initial rates and the progressions were different in each zone. The initial rates for zones I, II, III, and IV were, respectively, 32, 34, 36, and 38 cents per 100 pounds. Zone I rates progressed 22 cents in the first 100 miles; 18 cents per 100 miles in the next 500 miles; 13 cents in the next 100

[1] The differential all-rail routes apply in connection with Canadian lines.

[2] *100 I. C. C.* 513 (1925). See also supplemental decisions: *109 I. C. C.* 300 (1926); *113 I. C. C.* 200 (1926); and *128 I. C. C.* 567 (1927). Rates became effective Jan. 15, 1928.

[3] These rates were slightly reduced up to 190 miles after decisions of the Commission in *238 I. C. C.* 225 (1940), and *248 I. C. C.* 479 (1942).

[4] *213 I. C. C.* 259 (1935). Rates between these points were not covered by the Southern Class Rate Investigation.

[5] *164 I. C. C.* 1 (1930). See also supplemental decisions: *173 I. C. C.* 637 (1931); *178 I. C. C.* 619 (1931); *181 I. C. C.* 301 (1931); *196 I. C. C.* 494 (1933); *197 I. C. C.* 57 (1933); *204 I. C. C.* 595 (1934); *210 I. C. C.* 312 (1935); *246 I. C. C.* 119 (1941). The rates originally prescribed became effective Dec. 3, 1931.

miles; 14 cents in the next 100 miles; and 13 cents in the next 100 miles up to 1,000 miles. The scales for zones II and III were, respectively, about 112 and 120 per cent of the zone I scale, and the scale for zone IV was approximately 115 per cent of the zone III scale. Rates between points in different zones were constructed by applying the scale of the lowest rated zone to the total distance of haul, then adding the differentials in the higher rated zone or zones for the length of haul therein. As in the East and South, arbitraries for weak lines and a certain amount of grouping were authorized.

Class rates in Southwestern Territory are based upon the decision of the Commission in Consolidated Southwestern Cases.[1] Rates were originally prescribed for two zones in the Southwest, but in 1941 zone IV was eliminated and zone III rates were applied throughout the territory. These rates were equivalent to the rates for zone III in Western Trunk-Line Territory, the initial charge, length of blocks, and rates of progression being identical. The usual special treatment was given to weak lines, and certain points were grouped for distances in excess of 200 miles.

In Mountain-Pacific Territory a comprehensive class-rate structure has never been prescribed. Several scales are in effect. One of the most important is the so-called "Arizona" scale, which is indicated on the chart.[2] The Arizona scale began with a rate of 25 cents for 10 miles or less; increased by 10-mile blocks up to 100 miles; 20-mile blocks up to 1,000 miles; and 25-mile blocks thereafter. The rate of progression was 45 cents in the first 100 miles; 31 cents in the next 100 miles; 27 cents per 100 miles in the next 300 miles; 25 cents in the next 100 miles; 24 cents per 100 miles in the next 400 miles; and 17 cents per 100 miles for distances in excess of 1,000 miles. Competition between the Pacific coast ports reduced the rates between these points below the scales otherwise applicable.

The major scales for all territories are compared graphically on the chart.[3] Beginning rates range from 25 cents for the Arizona scale to 38 cents for the zone IV scale in Western Trunk-Line Territory. Eastern Territory has the lowest scale, zone IV the highest. Computed from a summation of rates at equal intervals of distance, the average levels of first-class rates in the different territories in terms of the level in the East are as follows: Eastern or Official, 100; Southern, 139; Western Trunk-Line zone I, 128; Western Trunk-Line zone II, 146; Western

[1] *123 I. C. C.* 203 (1927). See also 31 supplemental reports. The rates originally prescribed were revised in *205 I. C. C.* 601 (1934), and the revised rates became effective Apr. 9, 1937.

[2] *113 I. C. C.* 52 (1926). Others are the Portland, Klamath, and Utah scales.

[3] The scales would be slightly higher if they reflected the temporary rate increases of 1942. See Board of Investigation and Research, *op. cit.* p. 17 (1943).

Trunk-Line zone III, and Southwestern, 161; Western Trunk-Line zone IV, 184; and Mountain-Pacific, 166.[1]

If classification were uniform throughout the United States, these percentages would portray the relationships of all class rates in the respective territories. But classification is not uniform, and it is necessary to take into account variations in ratings and exceptions to the classification. After making these adjustments, the relative levels of class

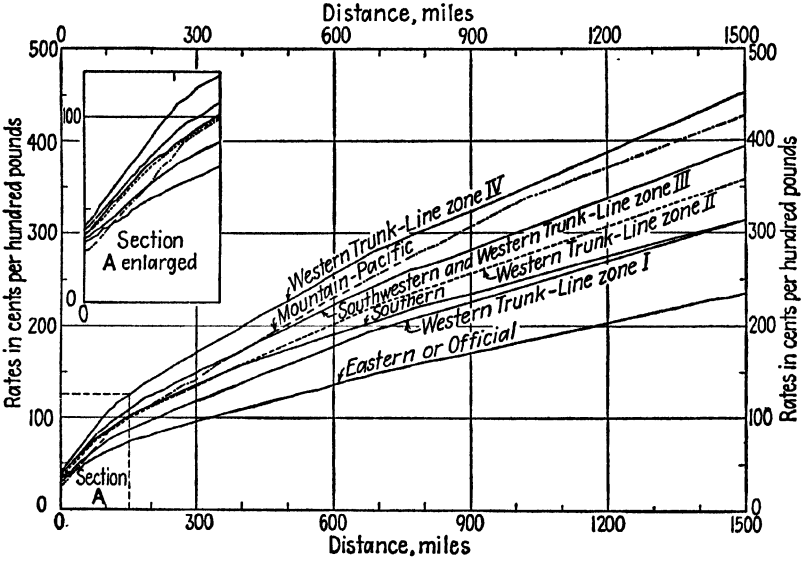

FIG. 20.—Intraterritorial scales of first-class rates.

rates are Official, 100; Southern, 133; Western Trunk-Line, 127, 145, 160, and 183, in zones I, II, III, and IV, respectively; and Southwestern, 153.[2] The revised figures are somewhat lower than those for first-class rates only, but the territorial differences in the levels of all class rates are nevertheless substantial.[3] Prior to the First World War they were apparently even greater.[4]

The foregoing ratios cover carload and less-than-carload class rates. The relative levels of the two stated separately, after making allowance

[1] *Ibid.*, p. 20.

[2] *Ibid.*, p. 91.

[3] Since the average relationship of ratings to first class are nearly the same in all territories except Mountain-Pacific, the differences in the two sets of percentages are caused primarily by exceptions to the classification.

[4] Decisions of the Commission since 1914 have narrowed the spread by raising the class rates in Eastern Territory.

for exceptions, are shown in Table XIII. It will be observed that the less-than-carload differences are slightly greater except in the South.

TABLE XIII.—RELATIVE TERRITORIAL LEVELS OF RAILROAD CLASS RATES

Territories	Carload	Less-than-carload
Official	100	100
Southern	141	128
Western Trunk-Line:		
Zone I	126	128
Zone II	144	146
Zone III	159	161
Zone IV	181	184
Southwestern	141	161

To the extent that commodity rates are consistently related to class rates in each territory, as in the case of certain column rates, the percentages indicate large territorial differences in the average levels of all rates. Commodity rates are of course not always so related. Separate measures of their average levels are unavailable, but some data on the levels of particular commodities follow the next heading.

Interterritorial Class Rates

Interterritorial class rates differ from the intraterritorial both in structure and in level. Excepting Western Trunk-Line—Southern, the prescribed interterritorial rates are based in part upon distance scales similar in general to the scales in effect intraterritorially.[1] The interterritorial schedules are usually constructed by adding to a basic scale, applicable to the entire haul, a differential equivalent to the difference between the levels of rates in the respective territories for the distance traveled in the higher rated territory.[2] A scale so constructed is commonly referred to as a "laminated" scale. It represents a blending of intraterritorial rates, but the blending is imperfect by virtue of the fact that the interterritorial rates are generally higher than the blended basis would produce if the rates reflected the intraterritorial levels in proportion to the distance of haul in each territory.

[1] The leading cases prescribing interterritorial rates are as follows: Southern—Official, *100 I. C. C.* 513 (1925) and supplementary decisions; Western Trunk-Line—Official, *164 I. C. C.* 1 (1930) and supplementary decisions; Western Trunk-line—Southern, *226 I. C. C.* 497 (1938) and supplementary decisions; Western Trunk-Line—Southwestern, supplemental report in *205 I. C. C.* 601 (1934); Southwestern—Official, *ibid.*; and Southwestern—Southern, *ibid.*

[2] The basic scale may be an intraterritorial scale or an independent schedule more or less closely related thereto.

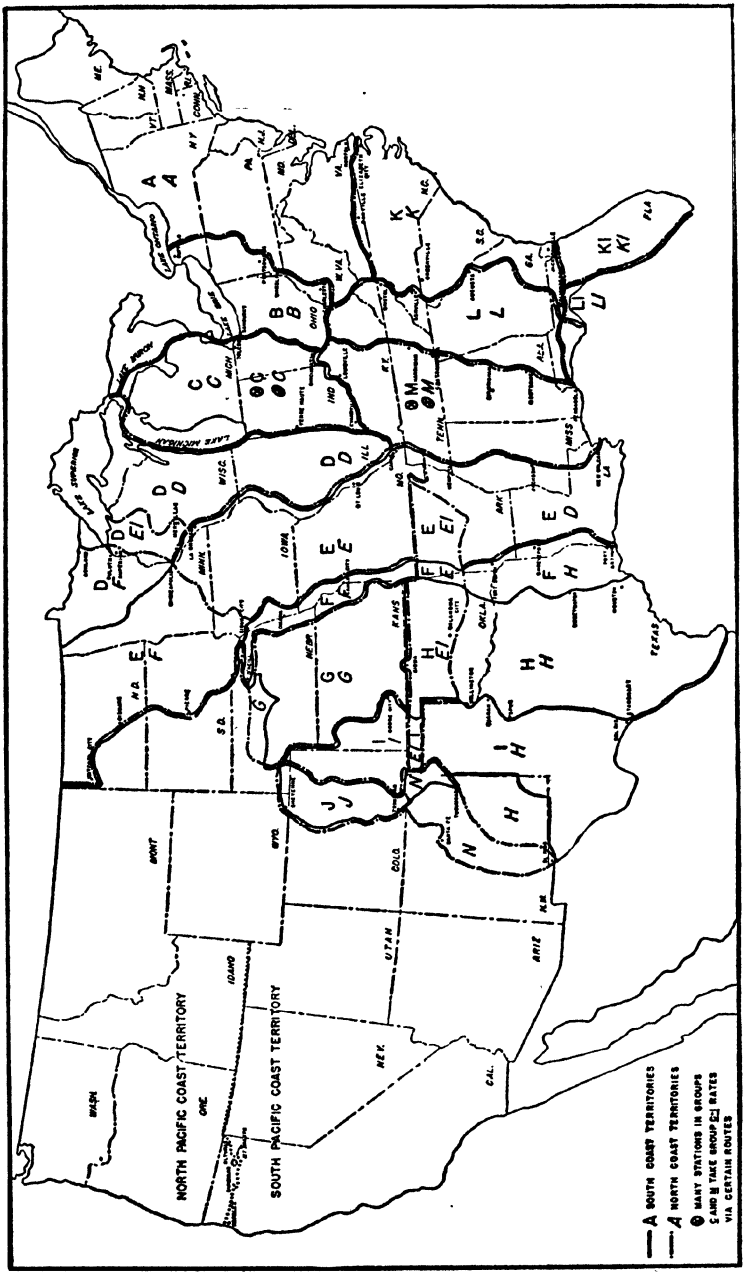

FIG. 21.—Transcontinental freight-rate groups.

Key-point rates also apply interterritorially and to the exclusion of distance rates between Western Trunk-Line and Southern territories. The key rates approximate in level the distance scales and consist of specific rates prescribed between important cities. For competitive reasons, contiguous points at origin and destination are generally grouped, taking the same rate. Frequently the groups are extensive, so that interterritorial rates violate the distance principle more than intraterritorial rates, even though some grouping occurs in the intraterritorial structures. Grouping in connection with transcontinental traffic is indicated by the foregoing map.[1] Less extensive though rather large groups have also been established between the East and South.

Since interterritorial and intraterritorial rates are imperfectly blended, special adjustments have been prescribed in order to prevent sharp differences in the rates payable at points on each side of the territorial boundaries. Rates between Official Territory and points in "border" territory south of the Official-Southern boundary are based, not upon the Southern schedule for that part of the haul in Southern Territory, but upon a scale of "factors" the effect of which is to reduce the rates as the points of origin or destination in Southern Territory approach the border. Rates between Official Territory via Mississippi River crossings, Memphis and south thereof, and points in the Southwest not more than 170 miles from the crossings are based upon the rates applicable east of the crossings plus special "bridge" arbitraries.

In addition to all-rail rates between the territories, rates differentially lower have been prescribed for routes involving water hauls. As a rule, the longer the water portion of the haul, the greater the differential. Rail-water and rail-water-rail rates apply between Southern Territory and the eastern part of Official Territory; lake-and-rail rates are quoted between Western Trunk-Line and the eastern part of Official; and ocean-rail rates are published between Western Trunk-Line and the Atlantic ports. Ocean-rail rates, constructed on a distance basis and depending upon the ports of entry, are in effect between Southwestern and Official territories.

The levels of interterritorial rates, though below the intraterritorial rates of the highest rated territory involved, are generally higher than justified by the length of haul in the lower rated territory. Distance scales between the North and South are closer to the Southern level, even when more than half the haul lies in Official Territory. In some cases key-point rates are lower than the rates for corresponding hauls under distance scales, but the key rates also tend to approach the level of the higher rated territory.

[1] See Board of Investigation and Research, *op. cit.*, p. 164 (1943).

Commodity Rates

The commodity-rate structures of the railroads are so complex as virtually to defy description except in terms of particular commodities.[1] In general they are subject in greater degree than class rates to the influence of competition, and for that reason are less closely related to the distance of haul. Some commodity rates are tied to class rates, as in the case of cotton piece goods and salt. Other commodity rates exhibit a more or less distinct structure of their own. For example, the rates on cement, fertilizer, lime, and road aggregates are based largely on distance scales. Lumber rates are characterized by grouping. Still other commodity rates consist of specific point-to-point rates adjusted to meet the needs of particular situations. Among these are the rates on fresh meats and pulpwood, which show no consistent plan.

Comparison of the levels of the commodity rates which have been analyzed indicates substantial regional differences. In general they are higher in the South and West than in the East, although the differences are not so marked as in the case of class rates. Coke and sugar rates are approximately the same in Southern and Official territories. Brick, fertilizer, and lumber rates are lower in Southern than in Official. Fresh meats moving less than 500 miles take lower rates in Western Trunk-Line than in Official. Pulpwood rates are lower in Southwestern than in Official. Frequently there are variations of level within a major territory, as in the case of rates on sand, gravel, and crushed stone.

Interterritorial commodity rates are sometimes combinations of local rates to and from border points, or of proportional rates. In either case they are usually higher than intraterritorial rates. At other times commodity rates are through rates. As such they may be (1) related to first-class rates, or to constructive first-class scales; (2) based on special scales, or the scales in the lower rated territory plus arbitraries; or (3) constructed on a point-to-point or group basis. Frequently the rates are set at the level of one of the territories, while in other cases they represent blends of intraterritorial rates. In some instances the interterritorial rates are the same in both directions, but quite often they are based upon the level in destination territory. Competitive influences are especially significant, as indicated by the equalization of rates to and from competing points.

Equalization of Rate Levels

It has been shown that there are marked territorial differences in the average levels of railroad class rates and in the levels of many important

[1] For descriptions of selected commodity rate structures see Board of Investigation and Research, *op. cit.*, Chap. 4, 7; also Healy, K. T., *The Economics of Transportation in America*, Chaps. 13, 21 (1940).

commodity rates. Probably there is some variation in the levels of railroad rates as a whole. A rough measure of the over-all level in each territory is the average revenue per ton-mile received by the carriers.[1] During the period 1930 to 1941 the revenue was about the same in the East and South and somewhat higher in the West.[2] Since average hauls are longer in the South and West than in the East, it is reasonable to believe that the general levels of rates are probably higher in the South and West. This conclusion is supported by the following figures showing what the revenue index numbers would have been had the haul in the East been the same as in the South and West: East, 100; South, 105.5; and West, 116.6.[3] High class rates in the South and West are apparently only partly offset by a large volume of traffic moving under more favorable rates.

Spokesmen for the South and West have expressed growing dissatisfaction with the territorial differences and technical features of railroad rates.[4] General increases in rates during the depression years made the transportation burden heavier; the Tennessee Valley Authority sponsored a widely publicized study setting forth and attacking the variations in class rates;[5] the National Emergency Council issued a report on economic conditions in the South, which was favorably received by the President of the United States;[6] and the Commission decided the Southern Governors' Case, which focused attention upon the rate levels and called in question the bases upon which the variations had been justified.[7] It became evident that present rate structures, though modified to some extent by the Commission, are essentially historical rather than scientific products.

Largely as a result of these developments, the interterritorial rate problem became a political issue. Hearings were held by Congress; bills were introduced putting into effect the destination principle of rate mak-

[1] This measure is affected by differences in the composition of traffic and in the average length of haul.

[2] The Pocahontas carriers have much the lowest level because of the large volume of coal traffic.

[3] *Statement of Ford K. Edwards in Reply to the Criticisms of Exhibits Introduced by Him*, p. 50 (Class Rate Investigation, 1939). The ratios are subject to criticism on the ground that they are based upon gross rather than net revenues. They also reflect existing divisions of carrier revenues.

[4] For a detailed review of this rate controversy see Joubert, W. H., *History of Railway Freight Rates in the South* (Doctoral dissertation, University of North Carolina, 1943); *Florida, the South, and Freight Rates*, Economic Leaflets, University of Florida (June, 1943).

[5] Alldrege, J. H., *The Interterritorial Freight Rate Problem of the United States*, House Document no. 264, 75th Cong., 1st Sess. (1937); *Supplemental Phases of the Interterritorial Freight Rate Problems of the United States*, House Document no. 271, 76th Cong., 1st Sess., (1939).

[6] National Emergency Council, *Report on Economic Conditions of the South* (1938).

[7] *235 I. C. C.* 255 (1939).

ing; the Transportation Act of 1940 proscribed undue preference and prejudice in rates as between territories; and the Board of Investigation and Research undertook an analysis of interterritorial rates.[1] In its report the Board recommended legislation by Congress directing the Interstate Commerce Commission to order a uniform classification and scale of class rates throughout the United States.[2]

In 1939 the Interstate Commerce Commission announced a general investigation of class rates.[3] This proceeding, which involved extensive hearings and voluminous data,[4] was continued notwithstanding the outbreak of war, and in May, 1945, the Commission handed down its decision. Since this decision has been bitterly contested, may be modified, and will probably not become effective for a considerable period of time, it seems desirable to explain the issues involved.[5]

Equalization of rates receives strongest support from Southern and Western manufacturing interests, represented chiefly by the Southern Governors' Conference, who desire to be placed upon a basis of rate equality with manufacturers of high-grade commodities in the East. Special emphasis is placed upon class rates. Territorially, these appear to differ more than commodity rates. Moreover, class rates apply directly or indirectly to a larger number of items, tend to govern manufactures, and are of particular significance to newly established industries in that they generally control until the growth of traffic leads to the publication of commodity rates. The last consideration explains why there is objection to the scheme as well as to the level of rates in the South and West. In the opinion of Southern spokesmen it is not enough to say that high class rates are largely offset by low commodity rates.

Equalization of rates is opposed by manufacturers in the East, represented through the New England Governors, by various chambers of commerce, and by other organizations, all of whom wish to retain their present advantages. Other opponents, speaking through the Southern States Industrial Council, are the producers of low-grade manufactures in the South and West, who fear that a revision of existing structures

[1] *Freight-rate Discriminations*, Hearings before a Subcommittee of the Committee on Interstate Commerce, United States Senate, 76th Cong., 1st Sess., (1939); Board of Investigation and Research, *op. cit.* (1943).

[2] Chairman Nelson Lee Smith dissented from the recommendations of the Board, primarily on the ground that they constituted an unjustified interference with the administrative discretion of the Commission.

[3] Interstate Commerce Commission, *op. cit.*

[4] Among the more significant exhibits may be mentioned those of the Commission's staff: Messrs. Edwards, Carter and Kobel, Stevens, Hobbs, Jensen, and Aitchison. See also exhibits of the interested parties.

[5] Late in 1945 the Commission issued a supplemental report which denied a petition for reconsideration and made only minor modifications in the original order.

will increase their rates.[1] Still others resisting the move to equalize rates are the railroads themselves, north, south, and west. Their objections are based fundamentally upon the unpredictable revenue effects of drastic changes in rate structures.

It seems certain that equalization, particularly of class rates, would encourage industry in the South and West in the long run, although the effects would probably not be so great as alleged. High rates increase cost and limit the markets of those who ship within or to and from the higher rated territories. It is sometimes argued that the South and West have progressed industrially notwithstanding high rates, or that industrialization in the East does not rest upon low rates; but this argument, even though true, fails to indicate what the industrialization might have been had rates been different. It is also sometimes asserted that industrialization, through increasing the volume of traffic, is a cause rather than a result of low rates. The truth, of course, is that the relation between industrialization and low rates is mutual.

In appraising the effects of rates upon industrial location, it is necessary to distinguish between types of industries. Those industries which tend to locate near the source of raw materials would probably not be drawn away from such places by rate changes, although low rates on finished products may affect the ability of the industries to thrive in a particular locality. For example, sugar refineries and fruit canneries are to be found near raw materials because of the perishability of materials; makers of newsprint, glass bottles, and rolled steel, because of the advantages of integration; and lumber mills, coke ovens, and dehydration plants, because of the loss of weight in the process of manufacture. A second class of industries only indirectly affected by changes in freight rates includes factories tending to locate near the market. Bakeries and ice-cream factories find locations near consumers advantageous because of the perishability of product; breweries, soft-drink works, sulphuric acid factories, and fertilizer plants, because of the ubiquitousness of a major raw material; and the automobile, steel, and flour industries, because of the gain from combining near the market various materials drawn from a number of sources. A third group of industries not directly influenced by rate changes comprises those established largely according to nontransportation factors. Aluminum plants locate where cheap electric power is to be found; low-grade cotton factories where cheap labor is available; and makers of expensive pottery where skilled labor is at hand. These and similar industries seek sites where freight rates are favorable only if the locational factors other than transportation are evenly balanced.

[1] It is probable that the increase, if any, in the average level of commodity rates would not be great.

The group of industries most subject to relocation through modifications in freight rates includes those located according to the relation between the rates on their raw materials and their finished products. Examples are meat packing and flour mills. If the rates on live cattle and grain are high relative to the rates on packing-house products and flour, meat packing and milling are drawn closer to the source of raw materials. If the reverse is true, the industries migrate toward the market. It should be emphasized that the important consideration is the relationship rather than the level of rates, and that the differences in rates must be sufficient to overcome the advantages of an early start.

The foregoing relationships between rates and the industrial pattern of the various rate territories cannot reasonably be ignored, but the question of equalization should be decided primarily on the basis of transportation conditions. The chief factors are the costs of transportation and the revenue needs of the carriers. Another consideration alleged to be valid is the value of the service, the argument being that a system of high class rates and low commodity rates in the South and West, and the reverse in the East, may be justified even though the average territorial costs of transportation are the same. It is said that the railroads in the East enjoy a relatively large volume of high-grade traffic on which they can afford to charge low rates, while the railroads in the South and West, with a small proportion of high-grade traffic, must charge high rates thereon in order to compensate for lower rates on the other traffic. But the facts seem to be that the regional variations in the composition of traffic are slight;[1] and even if substantial differences exist, it does not follow that a large volume of low-grade traffic necessitates high rates on classified traffic. As in the case of the Pocahontas railroads, much low-grade business may so increase earnings as to make possible lower rates on the better paying commodities. Strictly speaking, the value of the service is pertinent to the quotation of rates on particular articles, not to the determination of rate levels for broad classes of traffic. If a carrier does not transport a sufficient quantity of low-rated commodities, the average level of rates on high-rated goods may of course have to be higher than would otherwise be required. But the significant matter is the total volume rather than the composition of the traffic.

How do the costs of transportation in the territories compare? Until its finding in the Southern Governors' Case, the Interstate Commerce Commission had stated in numerous decisions that costs were generally higher in the South than in Official Territory, primarily on account of a

[1] Board of Investigation and Research, *op. cit.*, p. 299. It may be observed that the classifications of traffic upon which this conclusion is based are the broad groupings used by the Commission in publishing commodity statistics.

lower traffic density.[1] Similar statements had been published indicating higher costs in Western Territory.[2] Some of these declarations were made despite the fact that a study directed by Dr. M. O. Lorenz as of 1928 had revealed slightly lower carload costs in the Southern Region.[3] Traffic density was about twice as great in the East, and the line-haul cost there was somewhat more favorable; but terminal costs were low enough in the South to give it an over-all advantage, at least for distances up to about 300 miles. Another analysis made by the Commission's Bureau of Statistics as of 1936 showed that the regions ranked as follows on the basis of the cost of handling carload freight per loaded car-mile, including less-than-carload and passenger deficits: New England, 168.1; Central Eastern, 104.6; Western, 102.7; Eastern, 100; Southern, 94.6; and Pocahontas, 78.5.[4] The order of rank was about the same on several other bases.

The most recent and elaborate analysis of territorial costs is the Edwards cost study, made in connection with the Class Rate Investigation.[5] Taking into account the effect of differences in the composition of traffic, this study shows costs by classes of equipment on five different levels, dependent upon the treatment of return on investment and of less-than-carload and passenger deficits. Nearly all the computations indicate that the costs in the South are slightly below the average for the United States and still further below the costs in the East. Average costs in the West exceed the United States average; New England costs are considerably above the average for the country and for the East; and Pocahontas costs are the lowest of any region. The 1939 territorial averages of fully distributed costs of carload traffic for a haul of 300

[1] *38 I. C. C.* 411, 430 (1916); *55 I. C. C.* 697, 700 (1919); *89 I. C. C.* 285, 294 (1924); *144 I. C. C.* 731, 766 (1928); *182 I. C. C.* 493, 495 (1932); *211 I. C. C.* 692, 723 (1935); and *234 I. C. C.* 175, 189 (1939).

[2] *205 I. C. C.* 601, 650 (1934); *216 I. C. C.* 661, 665 (1936); and *222 I. C. C.* 467, 470 (1937).

[3] Interstate Commerce Commission, *Territorial Variation in the Cost of Carload Freight Service on Steam Railways in the United States for the Year 1928*, Statement no. 3018 (1930).

[4] Interstate Commerce Commission, *Territorial Variation in the Cost of Carload Freight Service on Class-I Steam Railways in the United States for the Calendar Year 1936*, Statement no. 3812 (1938).

[5] *Railroad Freight Service Costs in the Various Rate Territories, 1939*, Exhibit no. 2; *Cost Scales by Territories and Classes of Equipment*, Exhibit no. 3; *Railway Freight Service Costs for the Year 1939*, Exhibit no. 4; *Relative Territorial Costs 1939 and 1941, Analysis of Switching Costs and Other Data*, Exhibit no. 11; *Territorial Rail Costs Based on a Separation of the Out-of-pocket and Constant Expenses, 1939*, Exhibit no. 12; *Territorial Unit Costs for Railroad Freight Service, 1939*, Exhibit no. 13; *Unit Costs for the Eastern Territory Including and Excluding the Pocahontas Territory and the State of Kentucky, Unit Costs for the Southern Territory Including and Excluding the State of Kentucky*, and *Other Data; and Statement of Ford K. Edwards in Reply to the Criticisms of Exhibits Introduced by Him.*

miles, based upon the actual loads in box, gondola and hopper, flat, stock, refrigerator, and tank cars were, in terms of the United States average, as follows: East, including New England, 101; Pocahontas, 67; South, 99; and West, 110.[1] The fully distributed less-than-carload costs were New England, 112; Eastern, excluding New England and northern Illinois, 92; Pocahontas, 87; Southern, 87; and Western, 122. Costs were slightly higher in the East when New England was included, and were lower in the South when Kentucky was included. With Kentucky omitted, southern costs were slightly above the average for the country. Similarly, the inclusion or exclusion of the Pocahontas lines affected costs.

The somewhat lower costs in the South arise from several factors. Terminal expenses are not so great as in the East. Compensation per employee per annum and the ratio of empty to loaded car-miles are more favorable. Miles actually run per hour per train and engine employee, and transportation service car-miles per employee, are greater in the South. On the other hand, traffic density, number of tons per car, and number of cars per train are not so favorable in the South. Since terminal expense is less and line-haul cost is more in the South than in the East, the Southern advantage is greatest on short hauls, although it does not disappear on hauls of 900 miles.

The Edwards cost study has been criticized on numerous grounds, many of which relate to details of apportionment that cannot be of great significance because of the fact that the important consideration for rate equalization is relative rather than absolute costs. One criticism which, if valid, might seriously weaken the findings, is that the costs represent comparisons of different things, *i.e.*, traffic of varying composition. However, it would seem that comparison on the basis of type of equipment makes as much allowance for differences in the composition of traffic as is practicable or necessary for general rate proceedings.[2] The more important units of cost, such as carloads, tons, car-miles, and ton-miles, are not affected by the sort of commodity in a car of given type or by the particular commodity constituting a ton. Insofar as differences in the composition of traffic influence the average loading of a car, they are reflected in the cost figures. This would not be true of variations in the average tonnage of trains, but the proportions of traffic moving by heavy-tonnage trains appear to be about the same in the territories, excepting the Pocahontas region.

Another criticism is that the cost findings conflict with the record of carrier earnings. It is said that if the rates in the South and West are as high, and the costs are as low, as alleged, the railroads in these terri-

[1] Fully distributed costs include less-than-carload and passenger deficits.

[2] Average costs may be invalid in adjusting particular rates. See *258 I. C. C.* 471, 486 (1944).

tories should be more prosperous than the Eastern roads. As to the South, the supposed contradiction is largely nonexistent for the following reasons: the weighted average of actual rates, as contrasted with published rates, is only from 3 to 5 per cent higher in the South than in the East; the Southern passenger-fare level has been lower; and from 1937 to 1941 the return on investment was somewhat higher in the South, except in 1940. Although the operating ratios have been slightly unfavorable to the South, the ratios of operating expenses, rents, and taxes to revenues have not been adverse. Freight operating ratios are favorable in the South. As to the West, the alleged contradiction can be wholly or partly resolved by the relatively large passenger deficits and the inflated book costs in that territory.

It seems reasonable to conclude that present differences in the territorial levels of railroad class rates are greater than can be justified by variations either in the cost of service or in the composition of traffic. In order to establish more uniformity, the Interstate Commerce Commission might proceed, as it has largely done in the past, on a piecemeal basis, gradually approaching equality through particular proceedings. Although this method would result in a minimum disturbance of existing rates, it would be slow. It would also be difficult because of the impracticability of consistently deciding particular cases before the underlying inequalities are removed. Another fault with the piecemeal approach is that it gives the large shipper an advantage over the small, since the former is better equipped to obtain rate concessions. A corollary is the handicap to new industries.

The better procedure appears to be a comprehensive attack upon rate structures, and it is in line with this principle that the Commission decided the interterritorial rate case.[1] As already indicated, the Commission ordered the establishment of a single classification for the entire United States. It also prescribed for Official, Southern, Southwestern, and Western Trunk-Line territories one basic scale of first-class rates, beginning with a rate of 40 cents for 5 miles or less and gradually increasing by blocks to $3.75 for a distance of 2,500 miles. In general level the scale was above that in Official Territory and below the average of the other territories. Provision was made for the publication of key-point rates, but the existing territorial arbitraries were to be eliminated. Pending revision of the classifications and the application of the new scale, interstate class rates within and between Southern, Southwestern, and Western Trunk-Line territories, and between these and Official Territory, were to be reduced by 10 per cent, subject to prescribed minima.[2] At the

[1] *262 I. C. C.* 447 (1945).

[2] No change in exception or column ratings was contemplated. The interim adjustment was to take effect on Nov. 30, 1945, but the effective date was later postponed

same time interstate class rates in Official Territory were to be increased by 10 per cent. During the interim the various territorial arbitraries were to continue in effect.

Types of Departures from Distance Scales

Certain departures from distance scales of rates have been indicated. They result from the following practices: (1) equalizing the rates to or from locations at different distances, (2) grouping points of origin or destination, (3) creating rate blankets, and (4) granting especially low rates to favored points. Point-to-point rates are the same under either equalization, grouping, or blanketing, but the terms refer to different degrees of departure from the distance principle. Equalization, grouping, and blanketing arise from competition; from a desire to simplify rate making; and from the practice of "blanketing back" rates to intermediate points in order to avoid violation of the Long- and Short-haul Clause. Special rates are largely the result of competition.

1. Equalization is illustrated by the decision of the Interstate Commerce Commission in the Mississippi River Case.[1] Here the rates to the upper cities were more closely related to the level of the lower cities and were made the same, even though the distances involved were in most instances different. Prior to the decision, the rates to the upper crossings had been substantially higher than the rates to the lower. The former had been justified by the greater volume of traffic moving over the St. Louis route and by the fact that shipments to the upper crossings involved two-line hauls, but the Commission made concessions to competition.

2. Concrete instances of grouping have already been mentioned. A famous case is the rate structure formerly applicable on traffic to Texas. That part of the state east of a line running from Corpus Christi through San Antonio, San Angelo, and Big Spring to Quanah was designated as "common point" territory; and the rates from Houston to all points therein were made the same. Similarly, the rates from Kansas City, St. Louis, Memphis, and New Orleans to common points were equalized and balanced with the Houston rate. This system, besides producing simplicity of structure, increased competition within the territory and appealed to shippers as being fair in that it treated them all alike. But it seriously violated the cost-of-service principle and tended to destroy short-haul traffic.

3. The Texas structure might be referred to as a blanket-rate system, but a more extreme blanket once governed in the transcontinental service. In this instance all points in the United States lying east of a line through

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until Jan. 1, 1946. On Dec. 21, 1945 a federal district court issued a temporary injunction restraining the Commission from putting into effect the interim rates.

[1] *28 I. C. C.* 47 (1913).

El Paso, Denver, and Cheyenne took the same rate on traffic to terminals on the Pacific coast, regardless of distance. This meant that the rate from Portland, Maine, to San Francisco was the same as the rate from Chicago to San Francisco. Blanketing also occurred in connection with eastbound traffic. On certain commodities, rates from the Pacific coast were the same to all points in that territory east of the Missouri River—a region more than 2,000 miles wide. Although this system has been greatly modified, it still exists to some extent because of grouping.

4. Departures from distance scales produced by the granting of especially low rates to specific points create a situation different from that caused by grouping or blanketing. Under the latter, rates to different destinations are equal, but special rates to specific points mean unequal charges. Graphically, the effect of grouping, insofar as traffic within the group is concerned, is to make a rate scale horizontal to the base; while a special rate creates a downward movement in the scale at the distance involved. Well-known examples of special rates that violate the distance principle are the old basing-point rates of the South and the rates once applicable to traffic from the East to the Pacific coast. Under the basing-point system certain competitive centers, situated on the seashore, accessible to transportation by river, or served by two or more railroads, were designated as basing points. These centers enjoyed relatively low through rates, while cities not so designated were charged the rate applicable to the nearest basing point plus the local rate from that point to destination, even though the destination might be closer to the place of origin than the basing point. Under the transcontinental system the rate to such inland centers as Spokane, Wash., was the rate to the terminal Seattle plus the local rate therefrom eastward to the inland point. Both the basing-point and the transcontinental systems had the effect of building up seaports and other favored locations at the expense of cities that enjoyed an advantage on a distance basis.

Advantages and Disadvantages of Distance Rates

A rate of the distance type measures the quantity of service performed and harmonizes in general with the cost-of-service principle; one of the opposite sort agrees more closely with the value-of-the-service principle. The chief advantages of rates based upon distance are five in number: First, they tend to prevent unjust place discrimination, for they are based upon a criterion of reasonableness which is definite and which gives weight to the natural advantage of location. "In public regulation, because of the desire to avoid unlawful discrimination, the tendency has been toward closer adherence to the distance principle."[1] Distance is of course not the only test of defensible discrimination. Second, distance rates help stabilize

[1] *100 I. C. C.* 513, 611 (1925).

the rate structure. Obviously they change less than rates that reflect fluctuating commercial conditions. "The distance adjustments of class rates which we have prescribed in other territories have proved stable and have given general satisfaction."[1] Third, rates that increase with distance discourage wasteful transportation, for they enable the carrier with the shortest route to control traffic. The shortest route may not always be the most economical, owing to grades, curves, cost of construction, weather conditions, volume of traffic, etc.; but when conditions other than distance are similar, society gains in the long run if traffic moves by the direct line. It was estimated on the basis of 1932 traffic that the reduction of circuitous routing through consolidating the railroads of the United States into seven systems would make possible an annual saving in train expense of nearly $21,000,000.[2] Fourth, rates based upon distance weaken the bargaining advantages of old industries and large shippers as against new industries and small shippers, thereby lessening the concentration of industry and population. They may not encourage decentralization as much as postage-stamp rates, but they do so more than rates determined by market competition. For a similar reason, distance rates facilitate the migration of industry. Fifth, rates that accord with distance are simpler and easier to understand than rates adjusted to a multitude of competitive forces. This lessens the difficulty of rate quotation and improves public relations.

Distance rates have three disadvantages: First, they sometimes reduce the total volume of traffic, impair carrier revenue, and force the average unit cost of service upward. The average rate for all hauls, long and short, will not in all cases need to be any higher when rates agree with distance than when they reflect the value of the service; but the volume of traffic is likely to be less, and the average cost greater, insofar as the charge for long hauls exceeds what the traffic will bear. This is particularly true in the case of low-grade commodities. A rate on coal of 10 cents per ton per mile would add $1 to the mine price of the coal for each 10 miles of haul and would so increase its final selling price as to prevent profitable shipment for long distances. Second, and for similar reasons, rates based upon distance have a tendency to prevent competition. Provided competition can be permitted without too great violation of the cost-of-service principle, it may be in the public interest. It should be understood, however, that distance rates by no means preclude competition. Third, rates in accord with distance check the growth of cities and sections of the country that are unable to find markets for their products except at long distances. According to traditional policy, such cities and sections should be

[1] *Ibid.*, p. 612 (1925).

[2] Federal Coordinator of Transportation, *Regulation of Railroads*, Senate Document no. 119, 73 Cong., 2d Sess., p. 140 (1934).

given an opportunity to grow. "Respecting the argument here also made for protestants . . . it should be stated that the law contemplates, indeed commands, fair opportunity."[1] Other arguments frequently listed against distance rates are that they sometimes prevent the use of the most economical route; that they are not necessarily simple; and that they create undue rigidity in the rate structure.

Problems in Applying the Distance Principle

In applying the distance principle several important questions arise.

1. At what rate, if any, should the unit charge progress as distance increases? In answer, it is generally agreed that the total charges should increase with distance; for if other things are equal, the longer the haul the greater the cost and quantity of service. But rates should not increase in proportion to distance, for three reasons: First, terminal expenses are substantial, especially for l.c.l. traffic; and, aside from intermediate yardings, they are the same for 500 miles as for 5 miles.[2] Being constant, terminal costs cause the total rate per mile to increase more slowly than distance. If the terminal expense involved in moving a commodity amounts to $2.95 per ton, and if the line-haul cost is 0.5 cent per ton per mile, the total cost of transporting 1 ton 10 miles would be $3, and the charge per mile would be 30 cents. For a haul of 100 miles the total cost would be $3.45, and the rate per mile would be 3.45 cents. If terminal expense were assessed separately from the line-haul charge, as in England, it would of course have no effect upon the distance scale.

The second reason for the declining rate of progression is that the line-haul cost does not increase in proportion to distance, except insofar as longer distances involve additional transfers.[3] Long-haul traffic normally moves by through trains, especially when distances exceed 150 miles; while short-haul traffic generally moves by local or "way" trains, which are more expensive to operate.[4] Data gathered by the Federal Coordinator of Transportation as of 1932 showed that carloads handled by way-freight trains produced about 14 per cent of the total rail ton-miles but were responsible for 28 per cent of the total cost.[5] It was also indicated that a full-tonnage cargo train moving from a single-origin track to a single-

[1] *165 I. C. C.* 731, 765 (1930).

[2] The significance of terminal expenses is revealed by an analysis of railroad costs as of 1932. In that year terminal yardings accounted for about 37 per cent of costs, intermediate yardings for 16 per cent, and road service for 47 per cent. On the average a freight car was given a yarding (terminal or intermediate) every 70 miles, or six times in its normal journey. Federal Coordinator of Transportation, *Freight Traffic Report*, vol. 1, pp. 98–101 (1935).

[3] *100 I. C. C.* 513, 643 (1925).

[4] On the average, cars in through trains are loaded more heavily.

[5] Federal Coordinator of Transportation, *op. cit.*, p. 101.

destination track, without break in the train line, could move at a line cost of less than 2 mills per ton-mile.[1]

The third and most important reason for the tapering of mileage scales is that if rates increased as fast as distance, the total charge for long hauls would often exceed the value of the service. As mileage increased, the ratio of the freight charge to the value of the good would rise, thereby destroying the market of distant shippers. If rates increased in proportion to distance, California oranges could not compete in the New York market with Florida oranges of equal quality. The development of the California industry would therefore be checked.

2. What distance should be employed in establishing mileage scales? If there are several routes of varying length, this question is important, for the rate might be unduly low if the shortest possible route is used, and unduly high if the longest route governs. The standard now approved by the Interstate Commerce Commission is the shortest route over which carload traffic can move without transfer of lading.[2] The advantage of this basis is that it is simple and definite. Objections are that the route may be uneconomical and that it may deprive a carrier of the long haul. Rates over the alternative routes may be equalized; but if this is done, there may be violation of the Long- and Short-haul Clause. For example, suppose that railroad *X* extends directly from *B* to *C*, and that *Y* connects *B* and *C* indirectly via *A* and *D*. If both railroads quote the same rate and if the rate is based upon the *X* route, there may be violation of the fourth section at *D*; for the rate from *B* to *C* via *A* would be lower than the rate from *B* to *D* via *A*.[3] In such cases the Interstate Commerce Commission sometimes allows relief from the Long- and Short-haul Clause.

3. What should be the level of distance scales? The answer depends fundamentally upon the revenue needs of the carriers. Revenue needs, in turn, are governed by the cost of service, including both terminal and line-haul expenses. From this it follows that the level of rates should, if possible, vary according to the carrier or territory, except where the cost of construction, operating conditions, volume of traffic, or other factors make costs equal. Carriers and territories enjoying favorable transport conditions should quote rates on a relatively low level, while those less advantageously situated should charge higher rates; for, if rates are equal and costs are different, low-cost carriers will earn a higher rate of return than their competitiors, and low-cost territories will be deprived of their

[1] *Ibid.*, p. 103.

[2] As a rule the number of separate lines allowed in establishing such route is three when the distance is 200 miles or less, four when the distance is from 200 to 500 miles, and five when the distance is greater than 500 miles.

[3] For an illustration see p. 384.

natural advantages. However, rate differentiation is subject to limitations in the interest of uniformity. As we have seen, the Interstate Commerce Commission has prescribed different rate levels for various zones and has approved higher rates for weak lines, but it has also given weight to the principle of equalization.

4. What level or levels of rates should be adopted in quoting interterritorial rates? One way of dealing with the problem is to apply either the low or the high level throughout the haul. But if the high level governs, rates will be too high in the low-rated territory; and if the low level controls, rates will be too low in the high-rated territory. Another solution is to follow the high scale for that portion of the through haul in the corresponding territory and the low scale for the remainder of the distance. An obvious objection to this plan is that it includes the terminal charges twice and may create a sharp break in the scale of rates at the territorial border. Still another more logical method, a refinement of the second, is to use an average rate weighted by the length of haul in each territory. This, however, may create difficulties near the border. A fourth plan, commonly employed, is to adopt a scale of "arbitraries." Under this arrangement the different levels of rates gradually blend into each other. A good illustration is the system used for interterritorial traffic to and from the peninsula of Florida. That part of Florida south of the line of the Seaboard Air Line Railway from River Junction to Jacksonville is designated as arbitrary territory, and the portions of interstate hauls therein are charged the rates applicable in general throughout the South plus arbitraries beginning at the line referred to. The arbitraries are approximately 15 per cent of the southern scale, and they rise gradually from 6 cents per 100 pounds for a distance of 19 miles to 25 cents for distances of more than 500 miles. To show how the system operates, assume a first-class shipment moving 100 miles into arbitrary territory to a destination 500 miles from origin in Georgia. According to the Southern scale, the first-class rate for 500 miles is $1.57. The arbitrary for 100 miles is 12 cents. The total rate in this case would therefore be $1.69. Arbitraries are also used for other territories of the United States as well as for handling traffic moving between standard and weak railroads.

Water-carrier Rates and Classifications

The rate structures of water carriers, although relatively simple, are similar in general to the structures of railroads. But only the common carriers publish rates in full. Contract carriers publish minimum rates only, the Interstate Commerce Commission not having authority to prescribe maximum rates.[1] The charges of common carriers tend to be based upon

[1] Prior to 1940 not all common carriers were subject to regulation, even as to rates. Cf. p. 200.

railroad rates, while contract-carrier rates reflect more closely the cost and character of waterway service. Contract rates are therefore generally lower and vary with the size of shipment, subject to a minimum quantity of from 300 to 500 tons.

Common carriers publish class rates as well as commodity rates.[1] These may be port-to-port rates, or joint rates such as water-rail or water-truck. Joint rates with other types of carriers are especially important in water transportation for reasons already explained.[2] Both port-to-port rates and water-rail rates are usually differentially lower than all-rail rates. On the Mississippi River the port-to-port rate is typically 80 per cent of the all-rail rate, and the rail-water rate is based upon the same differential. Question has been raised as to the soundness of this relationship, and it is not always rigidly observed.[3]

Water rates, like railroad rates, vary to some extent with the length of haul. But they have a greater tendency than rail rates to disregard distance. For example, in intercoastal shipping many widely separated ports frequently take the same rates to or from a single origin. One reason for departure from the distance basis is that carrier costs do not increase with distance so much as in the railroad business. Another reason is carrier and market competition.

Most water carriers that practice classification have adopted railroad classifications, largely because much of their traffic is interchanged with the railroads. Coastwise and Great Lakes carriers use railroad classifications in full, or with only minor modifications. Carriers on the rivers and canals employ rail classifications in connection with joint rail and water traffic, but other classifications sometimes apply in connection with port-to-port traffic. The classification in effect is shown by the tariff.

Motor-carrier Rates and Classifications

In discussing the rates of motor carriers we have in mind primarily the freight rates of common carriers, as in the case of railroads and water lines. In the early period motor rates were matters of individual bargaining; hence, they had little semblance of order. But with the development of regulation, particularly by the federal government, rates assumed in considerable degree the form of a structure. The elements of the structure are similar to those in the railroad business: point-to-point rates expressed in terms of weight or space, class rates, exceptions to the classification, commodity rates, and truckload and less-than-truckload

[1] Overseas carriers usually employ "general" commodity rates instead of class rates. They also use special commodity rates, leaving the general rate to apply to articles not specified.

[2] Cf. p. 23.

[3] *153 I. C. C.* 129, 138 (1929).

rates. There are also special truck rates based upon the size of articles hauled, irrespective of the quantity necessary to constitute a truckload.[1]

The principal classification utilized in trucking is the *National Motor Freight Classification*, which applies generally to interstate commerce and in about 40 states to intrastate commerce.[2] This classification was adopted in response to the Motor Carrier Act of 1935, and it is similar to the Consolidated Freight Classification of the railroads, except that it contains a smaller number of classes, the ratings of which do not generally run so low as the lowest rail ratings.[3] It is now published by an agent in one volume and contains separate ratings for three major territories which correspond generally with Official, Southern, and Western rail territories.[4] It shows rail l. c. l. ratings for less than truckloads and rail carload ratings for truckload or volume shipments. Some of the 8,000 or more articles listed are given the same rating in each of the major territories, while others are given different ratings.

Not all the common-carrier truckers are parties to the *National Motor Freight Classification*. Some participate in other truck classifications, such as the *Official Motor Freight Classification* which has been applicable in New England. Still other truckers join with the railroads and follow the *Consolidated Freight Classification*.[5] In addition, a number of states have prescribed truck classifications applicable to intrastate commerce. These are sometimes based upon rail classifications, sometimes designed especially for trucking. It is to be expected that the stabilization of the trucking industry through regulation will eventually result in a greater uniformity of classification, especially when truckers cooperate with the railroads in publishing joint rates.

Truck class rates are frequently based directly upon rail class rates and are sometimes identical with railroad rates. Truck commodity rates, however, are more often determined independently, in accordance with circumstances surrounding the truck haul.[6] It would seem that a greater degree of independence should also be exercised in fixing truck class rates.

Motor rates are in general more closely related to distance than

[1] By March, 1936, there had been filed with the Interstate Commerce Commission nearly 40,000 initial motor tariffs and schedules. *Annual Report of the Interstate Commerce Commission*, 1936, p. 76.

[2] *44 M. C. C.* 501, 502 (1945).

[3] "The motor-carrier class rates and ratings, for the most part, follow the rail plan of class rates and ratings. A notable difference between them is that the motor-carrier class rates, particularly of the longer distances, are not as low as the rail class rates." Interstate Commerce Commission, *Transamerican Freight Lines, Classes in Central Territory*, Investigation and Suspension Docket no. M-2233, p. 190 (1944). *43 M. C. C.* 189, 190 (1944).

[4] East, South, and West.

[5] Some 500 truckers have followed this practice.

[6] *4 M. C. C.* 641, 643 (1938).

either rail or water rates. Carrier costs are largely variable and depend primarily upon the length of haul. Terminal expenses are relatively unimportant. However, rates may be depressed where truckers encounter strong competition from railroads, particularly on long hauls.

Air-carrier Rates

Local and joint passenger fares of the principal air lines, including rules and regulations, are published by the Air Traffic Conference of America. Like railroad fares, they are based primarily upon distance, although the rate per mile, reflecting competition, is not always uniform. Rate scales are determined largely by first-class rail fares plus Pullman charges, since Pullman service constitutes the chief source of commercial competition for the passenger business. However, until recently, the level of air-line rates has been somewhat higher than the total charges by Pullman. Because of the saving of time and other factors, the air carriers have been able to compete with the railroads without equalizing rates. As in the case of railroads, various departures from basic one-way fares occur in the form of reductions for round trips, circle trips, excursions, commuters, government employees, children, etc.

Air express rates are published by the Railway Express Agency, which joins with the air lines in handling express.[1] They are stated in cents per pound, or in fractions of a pound for the lighter packages, and are the same for practically all commodities, there being very little classification.[2] Rates increase with distance by 100-mile blocks, and declining arbitraries are added to the base rate to cover short hauls. Charges to off-line points are combinations of the air-express rate to the airport nearest the point and the rail-express rate from the airport to destination.

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[1] See Air Express Division of Railway Express Agency, *Table of Air Express Rates in Cents* (1943).

[2] An important exception has been reduced rates for newspapers.

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CHAPTER THIRTEEN

Principles Underlying Particular Rates

THE principles underlying the rate structures described in the preceding chapter may be formulated in the light of three rational rate-making objectives: First, each rate should contribute toward the total cost of the service, as defined in connection with the rate level. Second, each rate should stimulate the maximum economic amount of traffic, for reasons indicated below. Third, each rate should bear its fair share of cost in comparison with other rates. This is not the same as saying that a rate should contribute something toward total cost, because it is quite possible for the rate to produce more or less than it ought to relative to some other rate.

Another end sometimes recognized in fixing particular rates, especially by legislative authorities, is the furtherance of nontransportation objectives per se: promotion of prosperity in an industry other than transportation, such as agriculture; relief of urban congestion; stimulation of foreign trade; control of the traffic in a given commodity; and encouragement of market competition. But so long as the means of transportation are privately owned and operated, nontransportation objectives have limited applicability in rate making.[1] Where the earnings of a carrier are liberal enough to permit the quotation of special rates without unduly burdening investors or other traffic, such purposes may occasionally be appropriately achieved through the medium of rates; but, as a rule, ends of this kind should be given weight only insofar as they do not conflict with transport principles of rate making.[2] It is one thing to reduce rates to stimulate traffic, quite another thing to cut them in order to bolster up some industry. If the demand for service justifies a reduction in rates and if the reduction promotes the industry, well and good; but lower rates secured at the expense of reasonable earnings are unfair to the companies and, when burdensome to nonfavored traffic, are unfair to shippers of that traffic. Speaking with reference to the issue raised by a

[1] See Bye, R. T., "Social Welfare in Rate Making," *Political Science Quarterly*, vol. 32, pp. 522–541 (December, 1917).

[2] *281 U. S.* 658, 669 (1930). This would seem to be true at least until our methods of taxation are improved,

Senate resolution of 1890, which implied that rates on certain food products should be so limited as to enable the products to be marketed at actual cost of production, the Interstate Commerce Commission said, "This basis or limit of compensation for transportation services will hardly stand the test of fair dealing. It would compel those who invest in or operate railroads to assume and bear the losses resulting from the improvidence, mismanagement or unprofitable employment of others. There are many considerations other than the cost of such transportation service which enter into the prices of all commodities, and while railroad charges may influence such prices they do not make or control them. To the extent that excessive rates contribute to unremunerative prices the roads may justly be held responsible for them and to that extent only. . . . Unfortunate it may be, but still of necessity, the claims of the shipper must wait upon the rights of those whose services he employs and whose property he uses."[1] If it were proper for the carriers to reduce rates to aid depressed industries, it would also be proper for them to increase rates so as to absorb part of the profits of prosperous industries.

Since the general level of rates has already been discussed, we may appropriately assume at this point that the total revenue necessary to meet the cost of service is known. The problem of rate making then becomes one of so adjusting the rates for each commodity or haul as to cover this cost, maximize the traffic, and equitably distribute the burden. The solution of the problem differs somewhat according to the type of transportation; but the difference is one of degree, and the basic principles can be adequately explained in terms of railroad transportation. The chief distinction to be kept in mind is that in those industries marked by costs which are largely constant more weight should be given to the demand for service, while in the industries with highly variable costs particular rates must be based primarily upon the cost of service. As indicated in Chap. IV, railroads and pipe lines, and in lesser degree airways, are characterized in the short run by constant costs. Motor- and water-carrier costs, especially the former, tend to be variable even in the short run.

Economy of Increased Traffic

What, then, should be the basis of particular railroad rates? Briefly, that basis which will stimulate all the traffic that it will pay to handle. Additional traffic reduces the average unit cost of transportation, thereby making possible a lower level of rates and increasing the availability of service.[2] Average unit cost decreases (1) because of the economies of

[1] *3 I. C. R.* 93, 101 (1890). The policies of the Commission with respect to nontransportation objectives are examined further in Chap. XV.

[2] If traffic is maximized by encouraging wasteful transportation, more is lost than gained.

fuller utilization of plant, (2) because of the economies of large-scale production. It is on account of the latter economies that the railroad industry is said to be characterized by decreasing costs. The larger the plant, the lower the cost if traffic is adequate.

In explaining the economies of fuller utilization of plant, it is necessary to recall that for short periods total railroad costs increase more slowly than business.[1] As traffic grows, the average cost per ton-mile (the unit) therefore falls. The decline in the constant or overhead cost per unit more than counterbalances the rise, if any, in the variable cost per unit. Average cost will continue to fall as traffic increases until the point of most efficient utilization is reached, after which it will rise.

A larger volume of traffic may be desirable in the long run even though the best utilization of the existing plant has been attained. This is because of the economies of large-scale production. Unless the limits to plant size have been reached—in which case it would be better to construct another line—it will be economical to enlarge the railroad. The system of proper size when the volume of traffic is small would not be the one of best size when the volume of traffic is larger. Since additions to plant are expensive, for a time after expansion the average unit cost may increase, because the traffic immediately offered may not be sufficient fully to employ the additional equipment. Eventually, however, as traffic continues to grow, the plant will again approach maximum utilization. And when this point has been reached, the average unit cost will be less than it was with the smaller plant fully utilized.

The enlargement of railroads frequently takes the form of multiple tracks. This is one reason for the greater economy of a larger plant. A railroad can handle twice the traffic with a double track at a smaller unit cost than it can handle half the traffic with one track. Delays inherent in single-track operation can be avoided. The gain is still greater when a third track is built.

What are the limits to size? When does it cease to be profitable to operate on a larger scale? If there are no limits or if they are far from being reached, we can look forward to a continuing efficiency in railway operations; but if the limits have been reached or soon will be, the future tendency of rates will be upward. No definite conclusion can be drawn. There are cases in which railways cannot now be enlarged without incurring prohibitive costs because of unfavorable geographical or terminal conditions, but such restrictions do not apply to all railroads. The difficulty of managing a large system is a limiting factor; but the art of management is improving, and no one knows the scale of maximum efficiency. It may be that certain companies are already large enough. It was the majority opinion of the members of an advisory committee appointed to consider the so-called "Prince" plan of combination that the consolida-

[1] Cf. pp. 100–105.

tion of the railroads of the United States into seven groups would not produce the best operating results.

The principle of economy from increased traffic in the railroad industry may be illustrated by a diagram. Let output in ton-miles be measured on the *OX* axis, the total average cost per ton-mile on the *OY* axis. If *OF* is the scale of operations, any point on the curve *AE* indicates the average unit cost when the traffic is that amount shown on *OX* between *O* and the intersection of a perpendicular dropped from the point. For example, if the volume of traffic is *OB*, the unit cost is measured by *CB*. When the output has reached *OF* and excess capacity disappears, the average unit cost is *EF*, which is less than *CB* because of the economies of

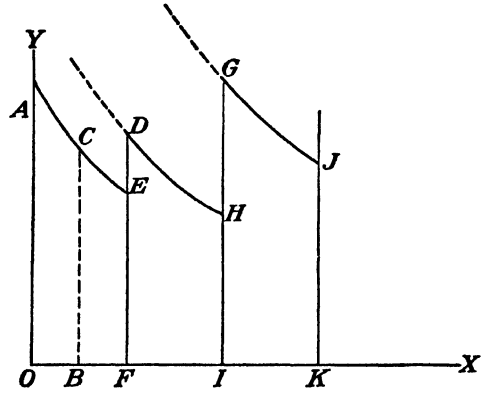

FIG. 22.—Effect of increased traffic upon the average unit cost of railroad service.

fuller utilization of plant. Now assume that the demand for service increases and that equipment is expanded to handle additional shipping measured by *FI*. The scale of operations would then be *OI*. The cost curve for the larger plant would be *DH* (not shown throughout its length). At first the total average unit cost would be higher; until business increased, it would be *DF* on account of the new investment. But in time traffic would reach a scale of *OI*, fully employing the enlarged plant. The average unit cost would then be *HI*. This indicates the gain from operating on a larger scale. When the small plant *OF* is fully utilized, the average unit cost is *EF*; but when the large plant is functioning at capacity, the average unit cost is *HI*, which is less than *EF*. The scale of maximum efficiency is shown to be *OI*. If the railroad were again expanded to handle a volume of traffic represented by *OK*, the average unit cost would be higher for all amounts of traffic than it was before, the curve *GJ* lying well above *DH*.[1]

[1] It is recognized that this illustration oversimplifies railroad expansion, for investments tend to be made continuously. Nevertheless, large investments do produce a "saw-tooth" effect upon costs.

Cost of Service

In many industries requiring less capital than railroads, such as trucking, the maximum economical output tends to be brought about when individual prices are equated with total average unit cost; but in the railroad industry this is generally not true. So long as unutilized capacity is present and the plant has not reached its best size, rates based strictly upon average unit cost prevent the movement of paying traffic. Under a cost standard, the rates on articles of low value relative to bulk and weight would have to be raised, while the rates on goods of high value would need to be lowered. Such a readjustment would be undesirable, for it would reduce the total volume of traffic; force the average unit cost upward; and in some cases make it impossible for railroads to operate. Shipments of articles of high value would increase, but the increase would be more than offset by a decrease in the movement of low-class articles. This is because the demand for the transportation of high-grade goods is generally more inelastic. The greater the inelasticity, the less the response of traffic to a change in rates. Similarly, the less inelastic the demand, the greater the response.

An equalization of rates on all articles would also discourage the movement of basic commodities and stimulate the transport of so-called "luxuries." The raw materials of industry could move only short distances, despite the circumstance that these materials are frequently far removed from the centers of manufacturing. If the present rates on the products of mines were raised to the average level of all rates, the long-distance transportation of mineral products would be practically destroyed.

Still again, rates based solely upon cost would deter an even development of the country. Being in accord with distance, such rates would tend to prevent the equalization of opportunity. Industries near their markets would be greatly encouraged; those in distant locations would be checked. Competition in the production and sale of goods would probably be lessened. Within limits, an even development of the country would seem to be desirable, though to promote transportation from distant places merely at the expense of nearer points is uneconomical. Transportation of goods is purely instrumental, is a cost, and should be economized where possible.

With reference to cost as a basis for particular rates, the Interstate Commerce Commission said soon after its organization, "It was very early in the history of railroads perceived that if these agencies of commerce were to accomplish the greatest practicable good, the charges for the transportation of different articles of freight could not be apportioned among such articles by reference to the cost of transporting them severally,

for this, if the apportionment of cost were possible, would restrict within very narrow limits the commerce in articles whose bulk or weight was large as compared with their value. On the system of apportioning the charges strictly to the cost, some kinds of commerce which have been very useful to the country, and have tended greatly to bring its different sections into more intimate business and social relations, could never have grown to any considerable magnitude, and in some cases could not have existed at all, for the simple reason that the value at the place of delivery would not equal the purchase price with the transportation added. . . . On the other hand, the rates for the carriage of articles which within small bulk or weight concentrate great value would on that system of making them be absurdly low. . . . It was, therefore, seen not to be unjust to apportion the whole cost of service among all the articles transported, upon a basis that should consider the relative value of the service more than the relative cost of carriage. Such method of apportionment would be best for the country, because it would enlarge commerce and extend communication; it would be best for the railroads, because it would build up a large business, and it would not be unjust to property owners, who would thus be made to pay in some proportion to benefit received."[1]

Even if cost-determined rates were altogether advantageous, they could not be established other than arbitrarily. Only the out-of-pocket cost of service is actually ascertainable. Theoretically, this is the special cost of the particular haul for which a rate is quoted; but practically it is the added cost of a larger unit of service, such as an extra car or train. In either case, however, it would be inexpedient to fix rates so as to cover merely the ascertainable costs; for under conditions of unutilized capacity, the common expenses would not be met.[2] These expenses must be allocated in some way, and there is no scientific cost method by which an allocation can be made. A division of the overhead according to the variable expense, or as required by some other formula of cost accounting, would give an appearance of reality which might not exist; for common or joint costs are not affected by particular services. As the Interstate Commerce Commission has said, "The rates and charges of a railroad can not be based entirely on the cost for each particular character of service rendered."[3] "To claim that rates shall automatically be fixed on the basis of cost of carriage is to claim what is impossible."[4]

[1] *Annual Report of the Interstate Commerce Commission*, 1887, pp. 30–31.

[2] Rates might conceivably be equated with out-of-pocket costs; but unless this cost happened to coincide with average unit cost, total earnings would be either too large or too small. This would necessitate recapture or subsidization through taxation.

[3] *123 I. C. C.* 685, 702 (1927).

[4] Acworth, W. M., *The Elements of Railway Economics*, p. 58 (1924).

If productive capacity were closely adjusted to traffic, rates could of course be fixed at cost. But it is difficult to balance capacity and business. Although a balance may be attained at a given time, the necessity of plant expansion, and the changing conditions of transportation, will cause unused capacity to reappear.

Though it seems reasonable to conclude that individual rates cannot be based altogether upon cost, the cost principle is an important factor in fixing rates for two reasons. In the first place, cost, that is special or out-of-pocket cost, sets the lower limit of a rate. Since out-of-pocket cost is that cost which would be incurred if a particular haul takes place but which could be avoided if the haul does not occur, it is clearly unsound to charge less. More would be gained by foregoing the business. If the out-of-pocket cost of a prospective haul is 5 mills per ton-mile, a paying rate could not be 4 mills because 1 mill would be lost on every ton-mile of additional traffic. A common working rule of the railroads is that the out-of-pocket cost is half the average cost. In the short run for moderate increases in traffic this estimate may be accurate enough. Much depends upon the weight and distance involved. Whatever the special cost may be, however, it fixes the floor below which individual rates should not fall. "Cost of transportation may be said to determine the minimum rate that may be charged as, on the other hand, the value of the service to the shipper marks the maximum of a reasonable rate or charge."[1]

Rates quoted below out-of-pocket cost would be uneconomical for the community at large, as well as for the carrier. They would lead to an improper development and location of industry; for goods and services would be provided at less than their full cost of production (including transportation). Suppose that the out-of-pocket cost of transporting brick and stone is the same, but that the rates on brick are below cost and are lower than the rates on stone. Brickmaking would be aided and stone quarrying would be hindered, irrespective of the relative advantages of the two industries. If it happened that stone could be quarried and cut more economically than brick could be made, and if the difference in the rates more than counterbalanced this advantage in production, builders would be encouraged to use a material that, on other accounts than transportation, would be more expensive than a competing material. The community would be deprived of the natural advantages of stone quarrying, and what the users of brick gained the carriers would lose. Or, again, suppose that the out-of-pocket cost of transporting flour is greater than that of wheat, but that the rates on flour are below its special cost. Flour mills would be encouraged to locate too near the wheat-growing areas. Were the rates on flour not unduly low in comparison with the rates on wheat,

[1] *46 I. C. C.* 66, 112 (1917).

the flour-milling industry would locate nearer the market for the finished product.

Cost is important in adjusting particular rates, in the second place, because it determines the aggregate revenue to be produced by all the rates. Total cost does not definitely fix particular rates, but it has a bearing thereon. Rates designed to produce an aggregate revenue of one amount would require readjustment should a larger or smaller revenue be needed. If analysis showed that an increase in the expenses of a railroad had raised the average unit cost (ascertainable) from 5 mills per ton-mile to 10 mills, and if part of the traffic were being carried profitably at a maximum possible rate of 5 mills per unit, some of the business would have to be handled at rates in excess of 10 mills in order for the company to earn a reasonable return. Although the Interstate Commerce Commission will not recognize earnings as a controlling factor in fixing rates,[1] the need for revenue generally receives weight, as when it said, "Both on account of the relative lack of financial prosperity of the initial carriers and the ability of copper to bear the rate, we can not, under the present conditions, find the rate under attack unreasonable in itself."[2] Revenue considerations assume special importance when the traffic in question constitutes a substantial portion of the total business of a carrier.

Value of the Service

Departing from cost, rates for particular commodities and hauls are determined according to the principle of discrimination. They are so fixed (1) because the elasticity of the demand is not the same for every service and (2) because monopoly and the independence of demand prices make it possible to take into account the variations in elasticity.[3] If the elasticity of the demand for every service were unity, rates would differ only to the extent of divergence in out-of-pocket expenses, and each commodity or haul would make a proportionate contribution to the common costs. But all demands are not of unit elasticity; and those services characterized by inelastic demands can be given relatively high rates, while those having elastic demands must receive low rates.

Demand prices depend upon the value of the services performed. Value of the service refers to the pecuniary worth of a particular service to the individual shipper. It is not necessarily what the shipper actually pays; it is what he would pay, if required, rather than forego transportation. Measured objectively, the value of the service is equivalent to the

[1] *10 I. C. R.* 505, 538 (1905); *151 I. C. C.* 391, 406 (1929).

[2] *25 I. C. C.* 357, 363 (1912). See also *2 I. C. R.* 289, 293 (1888); *40 I. C. C.* 146, 148 (1916).

[3] Cf. p. 109.

maximum demand price, or the highest rate that can be charged without destroying traffic.[1]

Excepting passenger journeys undertaken for the inherent pleasure afforded, transportation is purchased for business reasons; and the maximum rate that the shipper will pay turns primarily upon the margin of profit that he expects to realize as a result of shipment. In the immediate sense, this profit is governed by the difference in the values of a good at point of origin and at destination. Values diverge because of many factors, including transportation itself.

If a railroad or other means of transportation had a monopoly, if it could price its services freely without government restriction, or fear of potential competition, and if it knew the demand prices of all shippers for all hauls—under these conditions the railroad could make the greatest profit if it charged rates equal to the full value of the service. The carrier would in fact tend to exact such rates, since they could be quoted without curtailing traffic. Shippers would prefer lower rates; but since no rate would exceed the demand price for the service involved, the high rates would be paid. There would tend to be a separate rate for every commodity, for each individual shipper, and for different hauls of the same article.

The adjustment of rates under complete discrimination is illustrated by the accompanying diagram. Let each of 10 parallelograms represent a shipment of 100 pounds of a good between two points by 10 different individuals; assume that the height of a parallelogram indicates the maximum amount in cents which one customer would pay for transportation; and suppose that the distance of the line *CC* above the base measures the out-of-pocket costs of the services. The areas of the parallelograms above *CC* would then indicate the excess over special costs which the railroad could collect from each shipper without preventing his shipment; and it is clear that the carrier would charge 10 different rates, every one equal to the full value of the service. The total contribution to overhead would be the sum of the parallelograms less the area below *CC*.

But the conditions essential to a strict application of the value-of-the-service principle do not exist. As explained in Chap. IV, neither the railroads nor other types of carriers, as a whole or individually, constitute complete monopolies. They face competition, and they are regulated. Even in the absence of restraint, complete discrimination would be impracticable, on account of the difficulty in ascertaining every demand price and because of the necessity of grouping commodities and places in order to reduce the complexity of rate making.

[1] On the various meanings of the expression "value of the service" see Heyman, Eleanor, "The Value of the Service: Its Various Meanings and Uses," *Journal of Land and Public Utility Economics*, vol. 9, pp. 252–265 (August, 1933).

The value of the service is nevertheless significant in rate making because it helps determine the ceiling for rates. A rate can be below the highest demand price, but it cannot be above. So long as any traffic whatever moves, it is evident that the rate is less than the value of the service to some shipper. If no traffic occurs, the rate exceeds the value of the service to all shippers. The value of the service is thus closely related to the volume of business. The Interstate Commerce Commission has said, "Among other factors, not only the cost of the service, but its value to the user, must be considered."[1]

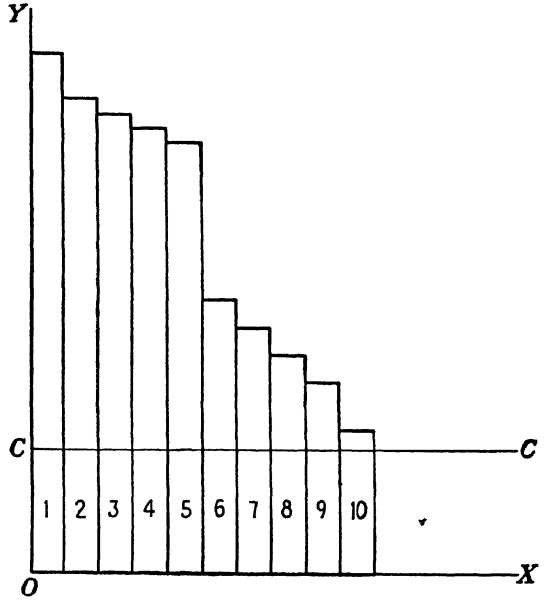

FIG. 23.—Rate making under complete discrimination.

It should be emphasized, however, that the value of the service does not fix an absolute limit to rates. The fundamental reason for this is that value is expressed in terms of the demand for service, which depends upon the rate itself. As explained above, the profit to be realized through transportation, hence the value of the service, is governed immediately by the difference in the prices of a commodity at origin and destination; and insofar as the charge for transportation determines this difference, the value of the service cannot be employed as a standard for the reasonableness of rates without involving circular reasoning. Only in the relative sense is the value of the service generally used in rate cases, the reason-

[1] *64 I. C. C.* 85, 98 (1921).

ableness of rates for particular commodities and hauls being determined through comparison with the rates for similar services.

The value of the service is sometimes said to depend directly upon the value of the article. As evidence is cited, the circumstance that the rates on goods selling at high prices do in fact exceed the rates on goods marketed at low prices by far more than would be justified by differences in insurance rates or other costs. But the evidence does not necessarily support the conclusion. When measured in cents per hundred pounds, the value of the service is generally greater for articles of high value. Yet this might not be true if demand prices and rates were expressed in terms of cents per dollar of final commodity value. In fact, goods of low value contribute to transportation a larger fraction of final price than goods of high value. All that can be said with reasonable certainty is that a highly valued article will stand a relatively high rate simply because the transportation charge normally constitutes a small portion of the selling price of the commodity. A freighting charge of $100 for a carload of shoes weighing 20,000 pounds and worth $40,000 would have a negligible effect upon the retail price of a pair of shoes, while the same levy upon a carload of coal weighing 50,000 pounds and worth $200 would increase the price of a ton of coal by 50 per cent. It is evident that shippers of shoes could much better afford to pay $100 for service than shippers of coal; for the sale of shoes would hardly be disturbed by the rate, while the sale of coal would be seriously curtailed.

The value of the service is also indefinitely related to distance. Cost of service increases with distance, but there is no reason why the value of the service should always do likewise. One reason rates so often ignore distance is that there is no necessary relation between length of haul and the value of the service. Differences in costs of production or other factors which determine shipper profit from transportation may be greater when distances are short than when long.[1]

What the Traffic Will Bear in the Monopoly Sense

Instead of quoting rates strictly according to the value of the service, the railroads and other carriers follow the practice of "charging what the traffic will bear." This principle has been variously interpreted. As one authority said, "It is a veritable 'nose of wax' which can be given a twist in any direction by the adroit manipulator."[2] Sometimes it is referred to as a means of extortion, on other occasions as a method of alleviation. Apparently, the confusion arises from the fact that charging

[1] The value of the service might vary with distance in the case of a passenger journey undertaken for the pleasure of the ride, though even in this instance value would probably vary less than in proportion to distance.

[2] Daniels, W. M., *The Price of Transportation Service*, p. 27 (1932).

what the traffic will bear is related to the value of the service and is a species of monopoly pricing. Under conditions of true competition, it would be virtually impossible except in the case of joint cost.

Charging what the traffic will bear in the monopoly sense signifies rates that will provide the largest net returns. This is not equivalent to exacting the maximum possible revenue from every customer. On the contrary, rates apply between specified points and are quoted for particular commodities or classes thereof, not for individuals. Rates may be set above the demand prices of some potential shippers, but they will be below the demand prices for enough services to maximize profit, taking into consideration the effect of rates upon the volume of traffic.

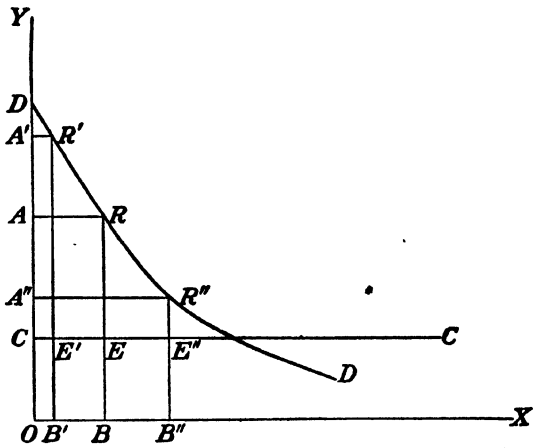

FIG. 24.—Charging what the traffic will bear in the monopoly sense.

In the preceding illustration the rate charged would be equal to the value of the service for the fifth shipper. Another way of expressing the matter is charging that rate which will contribute the most to the overhead expenses.

The principle may be explained by another diagram. Let *OX* measure traffic; *OY* rates; *DD* the demand for service; and *CC* the variable cost per unit. The best paying rate is shown to be *OA*. At that rate, the traffic is *OB*; the gross receipts are represented by the parallelogram *OARB*; the total variable cost by *OCEB;* and the contribution to the overhead by *CARE*. This contribution we assume to be at a maximum. The higher rate of *OA'* would produce more revenue per unit, but would reduce the traffic to *OB'*. The contribution to the overhead would be *CA'R'E'*, or less than *CARE*. On the other hand, the lower rate *OA''* would encourage more business; but the smaller margin of profit on each

unit would reduce the contribution to the overhead to $CA''R''E''$, which is also less than $CARE$.

It is evident that the best paying rate depends upon the elasticity of the demand for service. Elasticity in turn is affected by monopoly and competition. On monopolized business the rates will be established with reference to what the traffic will bear without being *destroyed.* Here the most profitable rate is governed primarily by the nature of the commodity. On competitive business the rates will be fixed according to what the traffic will bear without being *diverted.* Here the controlling factor is the rate charged by a competitor.

As a rule the elasticity of the demand for service is least, and the rate highest, under one or more of the following conditions: (1) when there is no good substitute means of transportation, (2) when the demand for the commodity itself is relatively inelastic, (3) when the freight charge constitutes a small part of the final selling price of the article, and (4) when a slight decline in the amount of the good purchased will produce a large fall in its price at point of origin. In the last case producers with large overhead costs may be willing to absorb all or a part of the rate in order to avoid loss of sales.

Variations in elasticity mean different contributions to the overhead, and it might appear that the traffic handled at rates below the average unit cost increases the rates on the other traffic; in other words, that the low-rated business moves at the expense of the high-rated, is parasitic. Charging what the traffic will bear has been adversely criticized on this score. But the criticism is not necessarily valid. If the high-grade traffic is charged rates that will maximize the excess over out-of-pocket costs, as would be the case when charging according to what the traffic will bear in the monopoly sense, the burden would not be made heavier. An increase in the higher rate would reduce the profit. Where some traffic moves at rates below the average cost, other traffic must be priced above the average, if the railroad is to operate profitably; but the low rates do not make the high rates higher than they would otherwise be. Provided the low rates produce revenues in excess of out-of-pocket expenses, they increase the profits of the company. Without this profit, it might well be impracticable for the railroad to operate at all, the maximum return from the high-grade traffic not being great enough alone to meet all the expenses.

Although it is true that low rates do not necessarily increase other rates, it is equally true that charging what the traffic will bear may fail to prevent rates from being higher than they ought to be. Competition is not pervasive enough to assure reasonableness. Charging what the traffic will bear by the monopolist calls for the best paying rates, not the rates that will merely produce a fair return. Unrestrained, the practice

fails, therefore, to encourage the maximum economical volume of transportation. This may be readily demonstrated. Suppose that the out-of-pocket expenses for handling a particular kind of traffic on a railroad are 5 cents per ton-mile and that the railroad can count on a regular traffic of 1,000,000 ton-miles if the rate is 10 cents per ton-mile; 2,000,000 at 9 cents; 5,000,000 at 8 cents; 8,000,000 at 7 cents; and 10,000,000 at 6 cents. What rate would be chosen? Obviously 7 cents. That rate would contribute to the overhead $160,000 (gross revenue of $560,000 less out-of-pocket expenses of $400,000) and any other rate would produce less. A rate of 6 cents would pay and would stimulate the most transportation, but it would not pay best. No further proof is needed to show that charging what the traffic will bear in the monopoly sense may lead to unreasonable profits and curtailed transportation. Only if it proves to be impossible for the carriers to earn a fair return can this practice be justified.

What the Traffic Will Bear in the Cost Sense

If total profits are kept at a reasonable level, charging what the traffic will bear is a sound principle of rate making. But in this case the concept assumes another meaning. Perhaps a new expression is needed. Here the standard for a particular rate is its contribution to the overhead *in comparison with the rates on other traffic*. This implies a charge far different from the rate that will net the largest possible sum above the out-of-pocket expenses. When required profit is less than the maximum obtainable, each rate need not necessarily produce *all* that it can. The rate's revenue needs exceed the added costs only to the extent required in properly apportioning the overhead. Its share may therefore be less than its potential contribution. If the total return is too liberal and if a particular rate can be set at a lower level, still leaving more for the profits than a reduction in the rates on other traffic, the rate in question should be cut. The correct goal is low rates and more business, not high rates and less business. Lower rates do not always increase traffic, but frequently they do, at least in the long run.

A problem will clarify the principle. Assume that a railroad carries only two commodities, lumber and iron ore; that it is a monopoly; and that it charges for each article the rates yielding the largest net returns. Assume further that the traffic offered at these rates produces an excessive return on the railroad's investment and does not fully utilize the plant. A reduction of rates is in order. How should it be carried out? Should a reduction be made in the charge for lumber alone, in that for iron ore alone, or in both? And how great should the reduction be?

If we assume that the demands for service are alike, equal reductions should be made on both commodities until the return on the investment

becomes reasonable. The effects upon the overhead and volume of traffic would be the same in either case. But let us assume that the demand for the transportation of iron ore is more elastic than that for lumber. In this case equal reductions would not bring about the best results. On the contrary, the greatest reduction should be made in the rate for iron ore. It is conceivable that a cut in this rate, say of one-fourth, would net almost as large a profit as before and would increase the volume of traffic more than a third. It is also conceivable that if the rate for lumber were reduced by an equal percentage, the return above variable costs would be halved with practically no increase in traffic.

If the reduction of one-fourth in the rate on iron ore proved to be sufficient as regards the return on the investment, no further adjustment should be made, and the rate on lumber would remain undisturbed.[1] But if profits were still too high, another reduction would be required in either one or both rates. If the overhead contribution were again less affected than in the case of lumber, a second cut should be made in the rate on ore. This process should continue so long as the stated conditions hold good. Sooner or later, however, a point would probably be reached where it would be better to leave ore undisturbed. If the return on the investment were then excessive, it would be correct procedure to lower the rate on lumber. By successively reducing one or both of the rates, profits would eventually become reasonable.

The ultimate limit to the reductions in either case would be the out-of-pocket costs, but this level would normally never be reached. Before a rate could fall to the lowest possible point, a reduction would be required in some other rate, or the return on the investment would become inadequate. Every item of traffic should contribute something to the overhead, small though the amount may be.

If the problem had been to increase rather than decrease rates, the procedure would have been reversed. It would then have been proper to raise the rate on lumber; for an upward revision of this rate would cause a smaller decrease in the volume of traffic and would add more to the overhead than a corresponding change in the rate on iron ore. The reader may perhaps have noted that the final adjustment of rates would correspond to competitive prices determined under conditions of joint cost. Each rate would cover the related special costs and contribute toward the common costs according to the relative intensity of the demands, but both rates together would produce an aggregate revenue equal only to total costs.

Rates fixed in accordance with the principles just outlined are generally accepted by regulatory authorities and economists as being in the public interest. The people as a whole benefit because such rates make

[1] For purposes of illustration, we may ignore smaller reductions.

possible the maximum economical volume of transportation, which in turn reduces the average unit cost of service and encourages specialization and large-scale production. Charging what the traffic will bear in the monopoly sense, though permitting the promotion of traffic to some extent, calls for higher rates.

Rates established in the joint-cost manner also rationally distribute the cost burden.[1] The charges are of course relatively high where the demand for service is inelastic, but such rates are justified. The users of high-rated service secure transportation at a lower price than they would if rates were based upon cost. Should the overhead be divided proportionately among the high-grade and the low-grade traffic, much of the latter, as we have seen, would be destroyed, to the disadvantage of the former. The plant would not be utilized as near capacity; average unit cost would rise; and if the railroad expected to continue profitable operation, the rates on the high-grade traffic would have to be increased. Provided the rates for the favored business exceed the out-of-pocket expenses by as much as proves economical, it is better for the other business. The low-grade traffic also gains, of course, from the high-grade; but this does not justify an equalization of the overhead contribution. More is gained by not equalizing. It should be emphasized, however, that the rates on the high-grade traffic should not be kept higher than would be necessary if the low-grade traffic did not move. Our problem made it clear that shippers should not be forced to pay high rates simply because they will pay. The upper limit of the rates on the better paying traffic should be the cost of providing transportation for that traffic alone.

In practice, rates have not always been fixed at the best levels, nor is it likely that they will ever be exactly scientific. Rate making is an art and involves the exercise of judgment. Absolute standards are not available, and between the upper and lower limits of reasonableness may lie a considerable zone. As a traffic officer once said, rates are governed by the rule of the three C's: competition, comparison, and compromise. Some rates may therefore be too high, others too low. Certain authorities believe that undue emphasis has been placed upon demand, to the neglect of cost. They point out that in the long run railway expenses are variable in much greater degree than is generally assumed, and that low-rated traffic is being carried at less than its actual cost.[2] Insofar as this holds

[1] We do not mean to imply that differential charging is to be justified on the basis of the ability-to-pay principle as defined in taxation. Its justification in rate making rests upon the economy of increased traffic, while in taxation the primary consideration is ethical in character. Rate differentiation should not be permitted merely because it seems equitable.

[2] Lorenz, M. O., "Constant and Variable Railroad Expenditures and the Distance Tariff," *Quarterly Journal of Economics*, vol. 21, pp. 283–298 (February, 1907); also Daniels, *op. cit.*

good, a gradual readjustment is in order; for rates below cost lead to circuitous routes, uneconomical methods of transportation, wasteful development of industries, and destruction of natural advantages. Insofar as costs are constant, however, significant room remains for adjusting rates according to the conditions of demand.

REFERENCES

Since rate making is closely connected with transportation costs, the reader should consult the references at the close of Chap. IV.

A general survey of the literature on railway rate theory is Locklin, D. P., "The Literature of Railway Rate Theory," *Quarterly Journal of Economics*, vol. 47, pp. 167–230 (February, 1933). Railway rates are explained in terms of joint cost in Taussig, F. W., "A Contribution to the Theory of Railway Rates," *Quarterly Journal of Economics*, vol. 5, pp. 438–465 (July, 1891), while the monopoly aspects of rate making are emphasized in Pigou, A. C., *The Economics of Welfare*, part 2, Chap. 18 (1932). The differences between the two points of view are set forth in *Quarterly Journal of Economics*, vol. 27, pp. 378–384, 535–538, 687–694 (February, May, August, 1913). Another article on the joint-cost controversy is Haney, L. H., "Joint Costs with Especial Regard to Railways," *Quarterly Journal of Economics*, vol. 30, pp. 233–252 (February, 1916). An attempt to distinguish between discrimination based upon each of the three factors, monopoly, joint cost, and overhead cost, is Wallace, D. H., "Joint and Overhead Cost and Railway Rate Policy," *Quarterly Journal of Economics*, vol. 48, pp. 583–619 (August, 1934).

Probably the fullest discussion of the way in which economic principles applicable to industry in general apply to railroads in particular is Knoop, Douglas, *Outlines of Railway Economics*, Chaps. 1–15 (1913). Chapters on rate theory may also be found in numerous texts on economic theory.

Other references, in addition to those cited in connection with Chap. IV, include Acworth, W. M., *The Elements of Railway Economics* (1924); Brown, H. G., "The Basis of Rate-making as Affected by Competition Versus Combination of Railroads," *Yale Review*, vol. 16, pp. 79–86 (May, 1907); Clark, J. M., *The Economics of Overhead Costs*, Chap. 14 (1923); Hadley, A. T., *Railroad Transportation, Its History and Its Laws*, Chap. 6 (1885); Jackman, W. T., *Economic Principles of Transportation*, Chap. 4 (1935); Johnson, E. R., and Van Metre, T. W., *Principles of Railroad Transportation*, Chap. 21 (1924); Miller, S. L., *Inland Transportation*, Chap. 30 (1933); Noyes, W. C., *American Railroad Rates*, Chaps. 1–3 (1905); Seligman, E. R. A., "Railway Tariffs and the Interstate Commerce Law," *Political Science Quarterly*, vol. 2, pp. 223–264 (June, 1887); Vanderblue, H. B., and Burgess, K. F., *Railroads: Rates, Service, Management*, Chap. 7 (1924); and Van Metre, T. W., *Transportation in the United States*, Chaps. 17–18 (1939). Attention should again be called to Daniels, W. M., *The Price of Transportation Service* (1932).

CHAPTER - - - - - - - - - - - - - FOURTEEN

Personal Discrimination

IN THIS chapter we begin the discussion of the regulation of rate relationships in more concrete terms. It has been shown that rates should be adjusted according to what the traffic will bear within limits set by the cost of service. But this is a generalization which in the process of regulation must be given definite content. What shall be the relationship of rates for different commodities or hauls when the circumstances surrounding traffic are substantially similar? What shall be the relationship when the circumstances are dissimilar? What cost factors create dissimilarity of conditions? What value factors have this effect? To what extent, if at all, shall competition be considered?

Personal Discrimination Defined

The first principle to be applied when the circumstances and conditions surrounding traffic are substantially similar is the common-law rule of impartial treatment of shippers.[1] Personal discrimination implies partial treatment. It occurs when one shipper or passenger is charged more than another for the same service, or receives better service than another at the same rate. This does not mean that persons making shipments between different points must be quoted the same rates in order to avoid discrimination. Distances may vary. Neither does it mean that individuals are to pay identical rates on different articles. The commodities may not be analogous for purposes of transportation. Even if two persons ship the same article between the same points, there can be differences in rates which are not discriminatory. For example, the rate on less-than-carload traffic may be higher than that on carloads,[2] that on carloads may exceed that on trainloads,[3] and regular fares need not be so low as commutation or excursion fares.[4] Reasonable allowances

[1] Kline, B. M., "The Origin of the Rule against Unjust Discrimination," *University of Pennsylvania Law Review*, vol. 66, pp. 123–156 (February, 1918).

[2] *9 I. C. R.* 318, 345 (1902).

[3] *235 I. C. C.* 485 (1939).

[4] Mileage, excursion, and commutation tickets are specifically permitted by the Interstate Commerce Act.

can be made for dissimilarities, not only in the cost of the service but also in the value of the service. Factors creating a dissimilarity of conditions are explained in the next two chapters.

Reasons for Personal Discrimination

Personal discrimination is usually caused by competition for traffic.[1] When the expenses of a carrier are in considerable degree constant, as in the case of most railroads, it pays to quote discriminatory rates, if they are necessary to attract business, so long as the rates more than cover out-of-pocket costs.[2] If the discriminatory rates are not put into effect, the constant expenses "go on" and the carrier loses the contribution which the favored traffic can make toward these expenses. Such contribution could be secured, of course, simply by charging low instead of discriminatory rates, but this would mean a loss of profit through the reduction of rates for all shippers. Unless every shipper is equally powerful in demanding low rates, the better policy from a selfish point of view is to distinguish between the shippers. It is for this reason that personal discrimination tends to be secret and to the advantage of the strong. If reductions in rates are not kept secret, a carrier's competitors will hold their business by meeting the reductions; and if concessions are not made to the large shipper, profitable traffic may be diverted to another route, or perhaps the shipper will provide his own transportation. Thus in 1885 the Cincinnati and Marietta Railroad charged the Standard Oil Company a rate of 10 cents per barrel for carrying crude oil from Macksburg, Ohio to Marietta, Ohio, while it charged the independent shippers 35 cents. The railroad then turned over to the Standard Oil Company the 25 cents excess paid by the independents.[3] Standard was in a position to enforce this concession by virtue of its power to construct a pipe line.

According to one view, competition is as much a justification of personal discrimination (openly practiced) as it is of discrimination between commodities and places. And to some extent it is so recognized in England.[4] In this country, however, a distinction is drawn, the rule being that, while competition may be given weight in establishing rate relationships under Secs. 3 and 4 of the Interstate Commerce Act, it cannot be considered in Sec. 2 cases. Interpreting the law strictly, the Interstate Commerce Commission holds that differences in rates must be based upon the conditions of carriage and not upon the character of the

[1] In some instances it has been caused by favoritism toward companies in which the officials of a carrier are interested.

[2] Cf., p. 110.

[3] On discrimination in favor of the Standard Oil Company see United States Bureau of Corporations, *Report of the Commissioner of Corporations on the Transportation of Petroleum* (1906).

[4] See Daggett, Stuart, *Principles of Inland Transportation*, p. 285 (1941).

shipper.[1] This holding is consistent with the construction of Sec. 2 by the Supreme Court in the famous Wight Case. Here a carrier had paid cartage costs for the movement to its line of the goods of a shipper who had direct track connection with another carrier, but had refused to pay cartage costs for another shipper without track connection.[2] The circumstances surrounding the traffic were similar except for the fact that one shipper enjoyed the advantage of railroad competition, and the Court decided that the presence or absence of competition did not create such a dissimilarity of conditions as to justify unequal treatment of the two persons.[3]

Objections to Personal Discrimination

Personal discrimination is highly objectionable, especially when premeditated and secret. It was a primary factor in bringing about transport regulation. "It cannot be challenged that the great purpose of the act to regulate commerce, whilst seeking to prevent unjust and unreasonable rates, was to secure equality of rates to all and to destroy favoritism. . . . "[4] Much the same could be said of the Elkins Act of 1903 and of the Hepburn Act of 1906.[5]

From the point of view of society, personal discrimination is objectionable, first, because it is opposed to the principle of democracy. The avenues of commerce, even when privately owned, are in a real sense public highways. To such highways every citizen should have equal access. Speaking of railroads, the Interstate Commerce Commission has said, "The very name 'common' carrier implies equality; it signifies common to all; the servant of the public. The adoption of the vocation carries with it the assurance imposed by one of the elementary principles of the common law, that every customer shall be served alike. . . . "[6] Second, personal discrimination is wasteful. The best interests of a competitive society demand that the efficient producers be encouraged, but carriers permitted to discriminate may not confer their favors upon the efficient. In all probability they will prefer the larger shippers, or those who most diligently seek advantages, whether such persons are efficient producers or not. Insofar as the high-cost shippers secure special concessions, the low-cost enterprises will tend to be forced out of business,

[1] *7 I. R. C.* 286, 311 (1897); *14 I. C. C.* 422, 434 (1908); *16 I. C. C.* 512, 517 (1909); *17 I. C. C.* 354 (1909).

[2] *167 U. S.* 512, 518 (1897).

[3] See also *220 U. S.* 235 (1911) and *254 U. S.* 57 (1920).

[4] *200 U. S.* 361, 391 (1906).

[5] Modifications of the Act of 1887 for the purpose of preventing personal discrimination are reviewed in Newcomb, H. T., "Rebates," *Yale Review*, vol. 16, pp. 119–155 (August, 1907).

[6] *1 I. C. R.* 813, 814 (1888).

so that production will not take place under the most favorable conditions. Personal discrimination also substitutes the individual bargain for the more convenient fixed-price system, diverting the energies of shippers and carrier officials from more useful to less useful occupations. It increases the risk of doing business, thereby tending to enhance profits and consumer prices. Third, personal discrimination promotes monopoly, for the larger, more monopolistic firms, because of the traffic they can provide, are generally better able to demand concessions than smaller businesses. It has been said that the railroad rebate was the key to the success of the Standard Oil trust. Production under conditions of monopoly may in some cases be more efficient than production under competitive conditions, yet it is by no means always so. And frequently only a slight difference in rates gives the preferred concern a controlling advantage. Preferential rates of a few cents on flour at one time forced prejudiced millers at Buffalo, N. Y., to close their mills.[1]

From the point of view of the carriers (as a whole) personal discrimination is inexpedient because it reduces revenue. One carrier may gain through personal discrimination if its concessions are not matched; but when competition prevails they are almost certain to be matched, for what is one carrier's gain is another's loss. If all resort to rate cutting, no one gains and all lose. It is for this reason that the railroads favored the passage of the Elkins Act, which made the published rate the standard of lawfulness. After this law went into effect it could be said, "The effect of that legislation in many cases was to bring about an increase of railroad charges. While in some instances tariffs were reduced to the basis of secret rates previously granted, the far more general result was to advance rates to the tariff standard. The extent to which revenues were thereby augmented can not of course be ascertained, but the aggregate amount was undoubtedly large."[2]

Typical Forms of Personal Discrimination

Among the innumerable forms of personal discrimination, eight will be described as typical: departures from published tariffs, rebates, sudden tariff changes, underclassification and false billing, unreasonable allowances for shippers' facilities, excessive payments for supplies, undue extensions of credit, and unfair rendition of carrier services. It should be understood that the list is not exhaustive, for there are many variations.[3]

[1] Cf., p. 362.

[2] *Annual Report of the Interstate Commerce Commission*, 1903, p. 12.

[3] At one time free passes constituted a notorious form of discrimination. Other variations not listed under the eight headings include excessive allowances for damages; low rentals for carrier property; failure to collect demurrage; guarantees of bank loans to shippers; payment of large salaries to railroad agents, to be divided with shippers; and

Opportunities for favoritism arise at almost every point of contact between carrier and shipper. Instances of abuse are continually being brought to light, some of which are deliberate and some of which are unintentional.

1. Departure from the published tariff for one shipper, but not for another similarly situated, is an obvious form of discrimination. In the early period it was very common among the railroads and was frequently stipulated in contracts. For example, in 1877 the New York Central entered into a contract with a miller at Buffalo to transport flour from Buffalo to New York at lower rates than those charged other millers, on condition that the agreement be kept secret.[1] Before the passage of the Act to Regulate Commerce, railroads were not required to publish rates; and prior to the enactment of the Elkins Act, disregard of the published tariff did not imply unjust discrimination if similarly situated shippers were treated alike. At present a departure from the published tariff is illegal in and of itself, whether the rate actually charged is or is not discriminatory.

2. Rebating means charging a shipper the regular rate in the first instance and subsequently returning a portion of the rate. From the standpoint of a carrier this form of discrimination has the advantage of being more secretive than simple tariff departures. Shipping papers, which show the charges collected, indicate that the proper rate has been assessed and contain no record of the revenue returned. The refund may of course be reflected in the books of the carrier in some form, but if the accounts are not regulated the company need not necessarily bother about the matter. For example, much of the Standard Oil rebating during the eighties was carried on almost openly, and it was said that Standard received from the Trunk-Line railroads some $10,000,000 in rebates.[2] Even if the accounts are regulated, vouchers may be destroyed and the refunds concealed by means of fictitious entries. Thus in 1893 the books of the Santa Fe showed nearly $4,000,000 of refunds as assets.[3] Among the recipients of the hidden rebates were the meat packers of Chicago.[4] Not until rebating and violations of the Commission's accounting orders were severely penalized was it possible to curb such flagrant favoritism.

3. Changes in the published tariffs, although nominally conforming to law, may actually be a means of discrimination. If they occur without public notice, or on very short notice, and if a favored shipper is warned in advance of the prospective changes, shipments can be for-

donations of land to shippers for the purpose of constructing plants that will provide traffic for certain carriers.

[1] *Report of the Senate Select Committee on Interstate Commerce*, Senate Report no. 46, 49th Cong., 1st Sess., Testimony, p. 78 (1886).

[2] *Ibid.*, p. 49.

[3] Ripley, W. Z., *Railroads: Rates and Regulation*, p. 190 (1912).

[4] *Annual Report of the Interstate Commerce Commission*, 1901, p. 6.

warded before rates are increased, or withheld until after rates are reduced. In view of the many tariff changes that are continually taking place, other shippers will for a time be unaware of developments; and before they can take advantage of the new rates, another tariff restoring the old rates may be filed. To illustrate, the Chicago, Burlington, and Quincy once agreed with the packers to quote a rate of 23 cents per 100 pounds until Dec. 31, 1905, and then filed prior to that date an amended tariff, presumably for all shippers, of 35 cents per 100.[1] Tariffs of this kind have been called "midnight" or "flying" tariffs. An attempt was made through the Hepburn Act of 1906 to curb their use by requiring 30 days' notice for changes in rates; but since a carrier could file notices restoring rates at about the same time changes were published, Congress found it necessary to authorize the Commission in the Mann-Elkins Act of 1910 to suspend proposed changes in rates. The Commission may now suspend rail, motor, and water rates for a period of 7 months.

4. Underclassification and false billing are closely related forms of discrimination often involving outright dishonesty. A box of expensive cutlery falling in first class may be represented as cheap tableware taking a lower rating and thus a lower rate. A shipment may be billed to a destination receiving a low rate but actually unloaded at a point subject to a higher rate. Again, the weight of a consignment may be understated. Falsifications such as these have been very common and are often difficult to detect. The inspection bureaus of the railroads during the nineties uncovered tens of thousands of misrepresentations,[2] and in one period of 3 months 630 of 1,098 cars billed to New York and turned over to a belt-line railroad at Chicago did not reach their destination.[3] More recently, there have arisen instances of freight charges computed on the basis of minimum weights for cars ordered rather than the weights for cars actually furnished.[4] Sometimes the carriers connive with the shippers in such acts, while at other times the shippers alone are responsible; but in either case the dishonest shipper secures an unfair advantage.

5. Discrimination through unreasonable allowances for shippers' facilities or services has frequently occurred in connection with private cars and industrial railways.[5] The railroads own most of the cars which they utilize, but refrigerator, tank, livestock, and coal cars have often been provided by private companies. Carriers using the cars have ordi-

[1] Ripley, *op. cit.*, p. 198.

[2] See *Report of the Industrial Commission*, vol. 4, p. 675 (1900).

[3] Ripley, *op. cit.*, p. 191.

[4] *Annual Report of the Interstate Commerce Commission*, 1942, p. 74.

[5] Another shipper service that has received excessive remuneration is the elevation of grain. *10 I. C. R.* 309 (1904; *12 I. C. C.* 85 (1907); *14 I. C. C.* 317 (1908); *24 I. C. C.* 197 (1912); *34 I. C. C.* 442 (1915).

narily paid the owners thereof rentals varying from about ½ cent to 2 cents per loaded and empty car-mile. Industrial railways, usually owned by large industries such as steel and lumber companies, include (1) common-carrier switching or tap lines, which serve the public as well as the proprietary companies, and (2) plant facilities. The common-carrier lines receive payments for the use of their property from the line-haul railroads through the division of joint rates and, if the lines perform switching services, they collect in addition switching charges. Plant-facility railways cannot lawfully be paid divisions of joint rates, but may receive switching allowances, provided the allowances cover services which the line-haul railroads are obligated to perform.

As defined by the Commission, carrier service ends "at the point where the carrier is prevented from performing at its ordinary operating convenience any further service, by the nature, desires, or disabilities of a plant."[1] The spotting of cars on tracks within a plant is not a carrier service.[2]

Reasonable allowances for private property not furnished by the regular carriers for purposes of transportation do not result in discrimination. But if the payments are excessive, or if they cover services which the line-haul railroads are not expected to perform, the owners of the private cars and railways receive in effect rebates. In 1903 the Interstate Commerce Commission stated that refrigerator "cars engaged in the export meat trade from Chicago frequently earn $30 and upward per month, a sum which in three years would probably amount to as much as the cost of a refrigerator car and its maintenance in the meantime."[3] As a rule the car companies divided their mileage allowances with the packers. The Commission also called attention to the Hutchinson Salt Company, which organized an industrial railroad, published joint through rates with the Santa Fe and the Rock Island, and obtained from these carriers a division amounting to 25 per cent of the rate on salt from Hutchinson, Kans. to Kansas City, Omaha, and other points.[4] The Hutchinson and Arkansas River Railroad Company, the railroad organized, owned only about 5,000 feet of track, furnished no equipment, and did no switching, yet it received one-fourth of the total rate charged for transporting salt long distances. Similar abuses occurred through the organization of the Illinois Northern Railroad by the International Harvester Company, and of the Chicago, Lake Erie and Eastern by the United States Steel Corporation.[5]

[1] *209 I. C. C.* 11, 34 (1935). This ruling was upheld by the Supreme Court on Mar. 27, 1944, in the Staley Case. *88 S. Ct.*, Law. ed. 582.

[2] *209 I. C. C.* 11 (1935); *301 U. S.* 402 (1937).

[3] *Annual Report of the Interstate Commerce Commission*, 1903, p. 23.

[4] *Ibid.*, p. 20.

[5] *Annual Report of the Interstate Commerce Commission*, 1904, pp. 19–23.

The private car makes available equipment needed for special purposes during limited periods at less cost than it could be provided by the carriers, and the industrial railway may be especially economical for general transportation if it is also required for the operation of plants; but the foregoing examples indicate that both have been dangerous means of favoring large shippers, particularly when the car companies and industrial railways are controlled by the shippers. For this reason the Commission was given jurisdiction over all cars as well as authority to prescribe car rentals and divisions of rates.[1] The determination of reasonable allowances is very difficult, however, and more direct means of dealing with the problem have been proposed. It may be that the industrial ownership of cars and railways should be prevented.

6. Excessive payments by the carriers for supplies constitute discrimination in a form apparently unrelated to rates. Most of the millions of dollars of supplies purchased annually are doubtless bought at current market prices, but some materials may be obtained at inflated prices in order to encourage the seller who is a shipper to patronize the purchaser. In 1907 it was found that the railroads were turning over to the Standard Oil Company $2,000,000 per year in excess payments for oil.[2] Agreements may be entered into between the carrier and the shipper, whereby each agrees to purchase from the other. This is known as "reciprocal purchasing" and need not necessarily be discriminatory, although it is opposed to the open-market principle. An examiner for the Interstate Commerce Commission has recommended that the railroads be forced to buy their supplies at the lowest price established through competitive bidding, and that shippers be deprived of their right to choose the route over which their shipments are to be made.[3]

7. Undue extension of credit arises when one shipper is required to pay freight charges upon the delivery of freight, while a preferred shipper is granted time in which to make payment. The Bureau of Inquiry of the Commission said in 1942 that order-notify shipments were delivered at destination in advance of the surrender of the bills of lading therefor, and "advise shipments" were delivered to the advise party named in the bills of lading before the surrender by that party of the order from the consignor authorizing the carriers to make such deliveries.[4] By thus allowing possession of shipments in advance of the payment of drafts attached to

[1] See the Hepburn Act of 1906, the Car Service Act of 1917, and the Transportation Act of 1920. Allowances were fixed in the Private Car and Tap Line Cases. *50 I. C. C.* 652 (1918); *31 I. C. C.* 490 (1914).

[2] United States Bureau of Corporations, *Report on the Petroleum Industry*, part 2, pp. 66–67 (1907).

[3] *188 I. C. C.* 417 (1932).

[4] *Annual Report of the Interstate Commerce Commission*, 1942, p. 75.

the bills of lading and to delivery orders, the receivers of shipments were in effect enabled to do business with consignors' funds. Fines aggregating $34,000 for such offenses were imposed upon defendants other than shippers.

8. Unfair rendition of carrier services may be as valuable to shippers as rate concessions. Included under this heading is the preferential distribution of cars, which has been especially serious in the coal traffic. Coal mines have been given "ratings" and are entitled to the assignment of a proportionate number of coal cars in time of shortage; but before the Commission promulgated an assigned-car rule, the coal-mining companies which owned cars secured an advantage over other companies by not counting these cars against their distributive shares.[1] Later the Commission abolished the fixed rule, because the assigned cars might exceed a mine's prorata share of available cars.[2] Other carrier services that have been rendered preferentially are drayage, switching and spotting of cars, delivery of freight by trap car, and storage of less-than-carload shipments.[3]

Illegality of Personal Discrimination

Whatever its form, personal discrimination is contrary to federal law and to the laws of most states. The Interstate Commerce Act prohibits unjust discrimination as well as undue preference by railroads and pipe lines, and undue preference by motor and water carriers.[4] The Civil Aeronautics Act forbids undue preference by air carriers.

Section 2 of the Interstate Commerce Act, the unjust-discrimination clause, is very inclusive. Reflecting the determination of the people to outlaw favoritism, it provides "That if any common carrier subject to the provisions of this part shall, directly or indirectly, by any special rate, rebate, drawback, or other device, charge, demand, collect, or receive from any person or persons a greater or less compensation for any service rendered, or to be rendered, in the transportation of passengers or property, subject to the provisions of this part, than it charges, demands, collects, or receives from any other person or persons for doing for him or them a like and contemporaneous service in the transportation of a like kind of traffic under substantially similar circumstances and conditions, such common carrier shall be deemed guilty of unjust discrimination, which is hereby prohibited and declared to be unlawful." It will be

[1] *12 I. C. C.* 398 (1907).

[2] *80 I. C. C.* 520 (1923).

[3] *43 I. C. C.* 472 (1917); *140 I. C. C.* 627 (1928); *57 I. C. C.* 745 (1920); *60 I. C. C.* 575 (1921); *19 I. C. C.* 579 (1910); *30 I. C. C.* 552 (1914); *44 I. C. C.* 455 (1917).

[4] The words "unjust discrimination" and "preference and prejudice" have been used in innumerable instances by the Commission and by the courts as interchangeable.

observed that this prohibition against unjust discrimination is absolute, the Commission being specifically given no discretionary power in its administration. The Elkins Act omits the adjective "unjust," thereby making the prohibition against personal discrimination even more strict.

Section 3, the undue-preference clause, declares that "It shall be unlawful for any common carrier subject to the provisions of this part to make, give, or cause any undue or unreasonable preference or advantage to any particular person, company, firm, corporation, association, locality, port, port district, gateway, transit point, region, district, territory, or any particular description of traffic, in any respect whatsoever; or to subject any particular person, company, firm, corporation, association, locality, port, port district, gateway, transit point, region, district, territory, or any particular description of traffic to any undue or unreasonable prejudice or disadvantage in any respect whatsoever." Practically identical regulations are imposed upon motor carriers by Sec. 216 and upon water carrers by Sec. 305.

Other provisions of the act supplement the foregoing general prohibitions by striking at particular forms of discrimination. Section 1 seeks to check excessive allowances for supplies or services, and unfair provision of equipment, by giving the Commission jurisdiction over accessorial facilities and services. It also aims to prevent the railways from favoring their own private industries, by prohibiting a carrier from transporting in interstate commerce an article which it has produced or in which it has an interest, except articles to be used by the railroad in its business of common carriage.[1] Finally, Sec. 1 makes illegal the granting of free passes or transportation to classes of persons other than those specified. A corresponding regulation is applied to motor carriers by Sec. 217 and to water carriers by Sec. 306.

Sections 3, 223, and 318, respectively, prohibit railroads, motor carriers, and water lines from delivering shipments at destination until all transportation charges have been paid, except under rules prescribed by the Commission. The purpose of these clauses is to prevent discrimination through the extension of credit to shippers.

Section 6 is intended to check secrecy in rate making, stop sudden changes in rates, and make the published rate the standard of lawfulness. All rates, fares, and charges must be filed with the Commission and posted for public inspection. No change may be made therein except after 30 days' notice to the Commission and to the public published, provided that the Commission may allow changes upon less notice. Carriers are not to transport passengers or property for which rates have not been filed or published, and the strictest adherence to such rates is required. No carrier "shall charge or demand or collect or receive a greater or less

[1] This is known as the "commodities clause."

or different compensation . . . than the rates, fares, and charges which are specified in the tariff . . . nor shall any carrier refund or remit in any manner or by any device any portion of the rates, fares, and charges so specified, nor extend to any shipper or person any privileges or facilities . . . except such as are specified in such tariffs." According to this section, the published rate must be charged even if the tariff is manifestly in error;[1] charges can be paid only in cash, not in goods or services; and rates or charges may not be refunded through rebates of any kind. Comparable restrictions are imposed upon motor carriers by Sec. 217 and upon water carriers by Sec. 306.

Sections 10, 222, and 317 prohibit false billing, false classification, and false weighing, either by carriers or by shippers. Severe penalties are levied upon those who violate the law, including persons who solicit concessions from the carriers. The penalty for unlawful discrimination in the case of railroad transportation includes a fine of $5,000 for each offense, imprisonment for a term not exceeding 2 years, or both. Somewhat more moderate penalties apply in motor and water transportation.

Personal Discrimination at Present

The grosser sorts of personal discrimination have largely disappeared because of stringent regulation, restraints upon competition, realization by the carriers that favoritism is often a losing game, rising moral standards, and possibly for other reasons. But the less open abuses, such as occur in connection with collateral transactions, are by no means unknown today. As late as 1942 the Interstate Commerce Commission cited a number of instances of discrimination involving car service and unauthorized deliveries of shipments.[2] These cases concerned railroads, which are more inclined to engage in favoritism than other types of carriers on account of the character of railroad costs; but evidence of discrimination is not entirely lacking in the motor- and water-carrier industries.[3] Truckers have frequently been fined for discriminatory practices.[4]

Although personal discrimination is not a thing of the past, it is generally disapproved by the public, by shippers collectively, and by the carriers. This accounts for the strictness of the laws forbidding discrimination. It also explains why the carriers have endorsed prohibitory legislation, or at least have not actively opposed it. Many of the cases of discrimination now chargeable to the companies are unintentional. In

[1] This is true whether the erroneous rate results in charging the shipper too little or too much.

[2] *Annual Report of the Interstate Commerce Commission*, 1942, pp. 73–78.

[3] Federal Coordinator of Transportation, *Regulation of Transportation Agencies*, Senate Document no. 152, 73d Cong., 2d Sess. (1934).

[4] See "Motor Act Prosecutions" in current issues of the *Traffic World*.

sharp contrast with the attitude toward other types of discrimination, there has been little agitation for relaxation of the rules against personal favoritism.

REFERENCES

General discussions of personal discrimination are as follows: Brown, H. G., *Transportation Rates and Their Regulation*, Chap. 7 (1921); Daggett, Stuart, *Principles of Inland Transportation*, Chap. 14 (1941); Jones, Eliot, *Principles of Railway Transportation*, Chap. 7 (1924); Locklin, D. P., *Economics of Transportation*, Chap. 22 (1938); and Vanderblue, H. B., and Burgess, K. F., *Railroads: Rates, Service, Management*, Chap. 6 (1924).

Much illustrative material may be found in Parsons, Frank, *The Heart of the Railroad Problem* (1906), and *The Railways, the Trusts, and the People*, Chaps. 3–4 (1906); *Report of the Industrial Commission*, vol. 4 (1900); *Report of the Senate Select Committee on Interstate Commerce*, Senate Report no. 46, 49th Cong., 1st Sess. (1886); Ripley, W. Z., *Railroads: Rates and Regulation*, Chap. 6 (1912); and United States Bureau of Corporations, *Report of the Commissioner of Corporations on the Transportation of Petroleum* (1906).

Cases of personal discrimination decided by the Interstate Commerce Commission are well illustrated and analyzed in Sharfman, I. L., *The Interstate Commerce Commission*, part 3, vol. B, pp. 359–413 (1936). Numerous reports of the Commission have been referred to in footnotes to this chapter.

Personal discrimination in relation to the common law is explained in Kline, B. M., "The Origin of the Rule against Unjust Discrimination," *University of Pennsylvania Law Review*, vol. 66, pp. 123–156 (February, 1918).

CHAPTER - - - - - - - - - - - - - - - FIFTEEN

Adjustment of Rates on Particular Commodities

PARTICULAR rates must be adjusted from two points of view: the standpoint of the commodity and the standpoint of the haul. It is in the interest of the public and of the companies that rates be so fixed that they are from both standpoints sound in and of themselves and properly related to each other. Section 1 of the Interstate Commerce Act requires rail and pipe-line rates to be reasonable per se, and Secs. 3 and 4 prohibit undue preferences in rates. Other sections apply the same principles to motor and water carriers, 216 (*a*)-(*d*) and 305 (*a*)-(*c*).

If the circumstances surrounding the traffic in different commodities, or between different points of origin and destination, are substantially similar, rates must be equal, as the preceding chapter explained. There remain to be discussed the levels at which the rates should be set and their relationship when circumstances are dissimilar. This chapter deals with these questions from the point of view of the commodity; the next chapter considers them from the point of view of the haul.

Both Commodity and Distance Relationships

As will presently appear, the problem of adjustment differs in important respects according to whether commodity or distance relationships are involved, but there are certain generalizations applicable to both. First, rates may be sound in themselves, *i.e.*, at a reasonable maximum or minimum level under Sec. 1, and yet create undue preference or prejudice under Secs. 3 or 4.[1] The issue in the one case is rates; in the other, differences in rates. Rates lying within a zone of reasonableness can still result in unjust discrimination.[2]

Second, questions of reasonableness and preference are generally decided on the basis of transportation conditions, and not according to the needs of shippers or public welfare, although considerations such as these have at times been given weight. For example, in the adjustment of

[1] *145 U. S.* 263, 277 (1892); *259 I. C. C.* 449 (1945).
[2] *263 U. S.* 515, 524 (1924); *142 I. C. C.* 597, 603 (1928).

rates on commodities the Commission has refused to order especially low charges on schoolbooks.[1] However, it has commended high rates on luxuries and low rates on necessities or raw materials such as soap, flour, salt, and fertilizer.[2]

Likewise, in the adjustment of distance relationships the Commission will not "prescribe rates to enable shippers to overcome their natural disadvantages of location" or of productive power,[3] although it will permit the carriers to reduce rates voluntarily in order to allow shippers to reach a market. Neither will the Commission prevent the carriers from raising depressed rates for the purpose of protecting interests that have been built up on the basis of the low rates.[4] Although the latter rule sometimes works to the disadvantage of shippers who have been led to expect especially favorable treatment, sound general policy would seem to require that decisions as to the reasonableness of rates be based as nearly as possible upon the conditions of transportation. Otherwise, the Commission would become an economic arbiter of production.

A third generalization is that rate adjustments as between commodities and places are usually effected through comparison, even when the problem is one of reasonableness per se. The propriety of the rate on one commodity is determined by contrasting the rate in question with the rates on other commodities having similar transportation characteristics.[5] The rate between two points is balanced against other rates in the same or different territory, sometimes directly and sometimes in terms of earnings per ton-, car-, or train-mile. This procedure is followed largely because of the practical difficulties in setting up independent bases for adjustment, and in part because of a presumption in favor of established rates, particularly if the rates adopted as a standard have been prescribed by the Commission. The comparative method applies to both maximum and minimum rates.[6]

Care must of course be taken to see that the rates employed for measurement constitute fair guides. "One of the best tests of the reasonableness of a rate is by comparison with rates on like traffic in the same

[1] *129 I. C. C.* 372, 374 (1927).

[2] *22 I. C. C.* 604, 623 (1912); *3 I. C. R.* 131, 137 (1890); *4 I. C. R.* 373, 379 (1893); *91 I. C. C.* 45, 48 (1924); *22 I. C. C.* 407, 410 (1912); *113 I. C. C.* 389, 421 (1926); *165 I. C. C.* 595, 602 (1930).

[3] *24 I. C. C.* 315, 317 (1912). Reference was made to prescribing high rates for one shipper in order to allow a competing shipper to overcome a disadvantage. See also *259 I. C. C.* 584, 592 (1945) and the decision of the Supreme Court in *222 U. S.* 42 (1911).

[4] *35 I. C. C.* 163, 168 (1915). The Commission has been forced to take this stand by court decision. *219 U. S.* 433 (1911).

[5] The determination of the rates on liquefied petroleum gas by comparison with the rates on gasoline is an example. *259 I. C. C.* 55 (1944).

[6] *92 I. C. C.* 388, 410 (1924).

territory."[1] But "it is not difficult to perceive that a rate may fail to afford a fair basis of comparison because it is in fact less than what would be a reasonable rate."[2] For this reason the Commission has often refused to accept rates compelled by competition as standards of reasonableness.[3]

The comparative method is generally most useful where the differences in transportation conditions are not too great. To relate the rate on rough lumber to that on logs is obviously much more practicable than to adjust the lumber rate to the bicycle rate. Comparison is also likely to be more practicable in prescribing maximum as contrasted with minimum rates, because relatively few minima have been established by the Commission.

A fourth principle is that the carriers are entitled to charge rates equal to, though not exceeding, reasonable maxima. "We have said a number of times that we are without power to fix maximum reasonable rates designed primarily to meet competition if the resulting rates would be lower than if based on rail-transportation standards alone."[4] But the carriers may voluntarily quote rates that are lower than the legal maxima, and often do so to meet competition. In thousands of cases the railroads have been permitted to publish low competitive rates, and the same privilege has been extended to other carriers.[5] "It is the privilege of a carrier, in its own interest, to meet . . . competition, but it is not the privilege of a shipper to demand less than normal rates because of the existence of a competition which the carrier in its own behalf does not choose to meet."[6]

A fifth rule is that rates must be compensatory. Although the carriers have the right to a considerable degree of latitude in making adjustments, there are limits to reductions as well as to increases. Rates cannot lawfully be less than out-of-pocket costs. If failing to meet such costs, rates are noncompensatory and tend to impose a burden upon other traffic.[7] In fact, the Commission has power to fix the level of rates above out-of-pocket costs and frequently does so in the exercise of its authority over discrimination and minimum rates, if it appears that rates are too low on a comparative basis or yield less revenue than seems reasonable.[8] Where there is doubt as to the compensatory character of rates, the Commission is inclined to resolve the doubt in favor of the carriers.[9]

[1] *120 I. C. C.* 7, 14 (1926).
[2] *2 I. C. R.* 162, 172 (1888).
[3] *128 I. C. C.* 51 (1927). But see *225 I. C. C.* 630 (1938).
[4] *251 I. C. C.* 475, 480 (1942).
[5] *4 M. C. C.* 187, 190 (1938).
[6] *23 I. C. C.* 374, 377 (1912).
[7] *89 I. C. C.* 512, 530 (1924); *36 I. C. C.* 349, 365 (1915).
[8] *234 I. C. C.* 525 (1938); *4 M. C. C.* 187 (1938); *251 I. C. C.* 361 (1942).
[9] *227 I. C. C.* 485 (1938).

Reasonableness of Rates on Commodities

In the prescription of rates on the commodity as distinguished from the haul, most emphasis is placed upon the propriety of rates as such, though questions of undue preference or prejudice are by no means disregarded. We shall therefore discuss the adjustment of commodity relationships with special reference to the conditions determining the reasonableness of rates under Sec. 1 and corresponding provisions. However, preference and prejudice will not be disregarded.

The factors affecting the reasonableness of rates relate to the cost of or the demand for service, both of which have been previously analyzed in a general way. Articles alike as to cost and demand are given the same rates; articles unlike as to cost and demand are given different rates. Distinctions should of course not be carried too far. If the lines are drawn too fine, rate making becomes unduly complex and unjustified discrimination may arise. As a general rule, the Interstate Commerce Commission will insist that the variations in cost and demand be substantial.[1] Cost factors are those that cause differences in the cost of transportation. Demand factors are those that determine the ability of commodities to stand rates.

Relative Cost Factors

The characteristics of commodities that affect the relative cost of movement are numerous.[2] We shall confine the discussion to four of the most important: (1) density of loading, (2) risk and liability to damage, (3) volume of movement, and (4) special facilities and services. It is not necessary to consider weight itself as a factor because rates are usually expressed in terms of weight. Neither is the size of shipment generally pertinent to the adjustment of rates on different commodities, for most goods move at times in about equal quantities. But the size of the individual shipment is significant in the provision of different ratings for the same article. Out-of-pocket cost depends in substantial degree upon the quantity of a consignment, being greater per pound when the quantity is small than when it is large. The higher cost of the small consignment is due in part to the lower density arising from the irregular shapes and sizes of packages, or from the greater risk caused by loading heavy parcels along with light ones. It is also due in part to the relatively high handling costs attached to small shipments. Such consignments are ordinarily loaded and unloaded by the employees of the carrier, whereas carload freight is generally loaded by the shipper and unloaded by the

[1] *12 I. C. C.* 215 (1907).
[2] See *4 I. C. R.* 285, 287 (1893).

consignee. Again, small shipments entail much greater clerical costs per 100 pounds. Finally, small shipments must often be carried by local freight trains, which cannot be operated as cheaply as through trains. Through package cars can be employed, but the carrier must still bear the expense of loading and unloading, storage, and clerical work. Although there are any-quantity ratings which make no distinction between the sizes of consignments, the same commodity is generally given a rating lower by at least one class when it moves by the carload than when it moves in less-than-carload lots.

1. Density of loading, which depends upon the weight density and capacity for compactness of an article, determines the number of pounds of freight that can be placed in a given vehicle. It is therefore an important rate-making factor, for the greater the net load per unit of transport equipment the less the carrier cost per pound of revenue freight.[1] Relatively less equipment, yard space, and switching are required. Line-haul expense is not so great, for movement expenses vary with the gross rather than with the net load, *i.e.*, with the total weight of the car and its contents and not with the weight of the contents alone. The freight rate being stated in terms of net load, it follows that the rate on an article that loads lightly should be higher than the rate on an article that loads heavily. Furniture when set up requires a higher rate than when knocked down. Cotton or wool when not compressed takes a higher rate than when compressed. Empty barrels carry a higher rate than the staves out of which they are made. Sometimes, of course, a good that loads lightly is given a lower rate than another that loads heavily because the article may not be able to stand so high a rate as the other, but the good in question would generally be accorded a still lower rate if it loaded more compactly. Density of loading is today one of the most important of all classification elements.

The loading factor is taken into account in fixing carload minima. These refer to the minimum weights to which carload rates can be applied. Such weights depend upon the physical characteristics of commodities as well as upon commercial considerations. If the minimum weight is relatively low, the carrier receives less profit, because the carload rate per 100 pounds is usually lower than the less-than-carload rate. For this reason articles having low carload minima, such as fresh fruit, take higher rates than articles having high minima.[2] On the other hand, if the minimum weight that must be placed in a car before the carload rate takes effect is above the normal loading of a commodity, the actual charge for transportation is increased.

2. The transportation of goods involves the possibility of loss of or

[1] *52 I. C. C.* 598, 616 (1919); *148 I. C. C.* 66, 68 (1928).

[2] Fresh fruit must be so loaded in a car as to provide for the free circulation of air.

damage to articles in the course of shipment. Loss or damage may be caused by rough handling, wrecks, exposure to the elements, theft, misplacement, leakage, explosion, and the like. Damage to one article may harm other articles.

Common carriers are peculiarly liable for loss or damage.[1] They are liable "as warehousemen" for loss or damage due to their own negligence. They are liable "as insurers" for loss or damage arising from factors beyond their control, except that caused by an "act of God," by public enemy, by public authority, by act or default of the shipper, and by the inherent nature of the article transported.[2] Liability cannot be wholly contracted away. With the following exceptions, the carrier must make good the full actual loss suffered by the shipper: baggage carried on trains handling passengers; and other commodities, not including ordinary livestock, upon which the Interstate Commerce Commission has authorized released rates.[3] The latter are especially low rates granted to the shipper on condition that he relieve the carrier of liability beyond a stated value. But exemption from liability is limited even in the case of released rates. The carrier is liable for the agreed value in any case, and released rates can be authorized by the Commission only if it finds that the commodity has a wide range of values and at the same time a high degree of exposure to loss and damage. Action for the recovery of damages is brought in the courts.

Inasmuch as the risk of loss or damage constitutes a cost that is not covered by a separate insurance charge, or by other arrangement (except in the case of released rates), this should be reflected in rates to the extent that the carriers assume liability and the goods vary in susceptibility to loss and damage.[4] Other things being equal, the following articles require somewhat high ratings for the reasons indicated: fragile items because they are easily broken; fresh fruit because it spoils quickly; cigarettes and shoes because they are subject to pilferage; small packages because they are readily lost; acids and explosives because they can damage other goods.[5]

The chance of loss or damage is affected by the manner of packing or

[1] Unusual liability is a stimulus to adequate caution on the part of the carrier and is imposed upon the companies largely because of the difficulty in proving carrier negligence.

[2] An "act of God" includes such things as abnormal but not ordinary storms; an act of a public enemy embraces destruction by armed forces during war, but not destruction by strikers; an act of public authority covers losses occasioned by quarantine regulations; default of shipper relates to the failure to mark, pack, or load goods properly; and the inherent nature of the article has reference to fermentation and similar processes. Under certain conditions, carriers are not liable for damage arising from strikes.

[3] Liability with respect to ordinary livestock cannot be limited at all. Other-than-ordinary livestock refers to racing, show, or breeding animals.

[4] In ocean shipping, risk is usually covered by a separate insurance premium.

[5] *25 I. C. C.* 19, 20 (1912).

loading. Liquids packed in glass jars are more likely to leak and cause damage than liquids shipped in metal cans; small iron castings are more quickly lost when shipped loose than when wired together. Packing is therefore a leading factor in the rating of a commodity. If improperly packed, the shipment will not be accepted by the carrier, and if packed in such a way as to enhance risk, it will be given a comparatively high rating. It should be noted that packing also affects the density of loading, though its relation to risk is probably more significant.

3. Volume of movement as a separate rate factor refers, not to the size of an individual consignment, but to the total volume of traffic in a given commodity over a period of time.[1] Within limits, the larger the volume of traffic in a commodity the less the out-of-pocket cost. The plant can be especially organized to transport the goods, particularly if the business can be counted on regularly.[2] Labor can be further divided; mechanical handling devices can be installed; schedules can be better arranged; and cars can be more effectively utilized. Commodities that have received favorable rates on such grounds include, among others, live stock and ore.[3]

The traffic in a given commodity must of course be sufficiently large and regular to justify specialization. Otherwise, volume cannot properly be permitted to influence rates. Although the Commission has placed considerable emphasis upon volume of movement, especially in permitting exceptions to the classification and in prescribing commodity rates, it has apparently not always analyzed the relation between volume and cost with adequate clarity.[4] The out-of-pocket cost of carrying a particular commodity, and that only, is not necessarily less merely because its volume of movement is large. As the Commission has stated, volume rates may in reality constitute a discount in favor of large shippers.[5]

4. Special facilities refer to specialized types of equipment, such as refrigerator cars. There are also special services, which include, among other things, expedited movement for perishable goods; unusual care, as in feeding and watering livestock; protection from cold; refrigeration; and reconsignment. Such facilities and services increase the out-of-pocket costs of shipments. Not all commodities need special services, but those goods which do require them may appropriately be given relatively high ratings, unless separate charges cover the services.[6] Differences in

[1] *129 I. C. C.* 25, 42 (1927).
[2] *120 I. C. C.* 481, 485 (1926).
[3] *11 I. C. R.* 296, 335 (1905); *78 I. C. C.* 611, 633 (1923).
[4] See Sharfman, I. L., *The Interstate Commerce Commission*, part 3, vol. B, p. 516 (1936).
[5] *258 I. C. C.* 635, 638 (1944).
[6] *3 I. C. R.* 554, 561 (1891).

rates should of course be no greater than justified by the variations in costs.

Relative Demand Factors

The nature of the demand for service is exceptionally important in the adjustment of rates as between commodities, on account of the difficulty in allocating costs to particular items. One factor affecting the demand for service, the value of the commodity, has already been referred to. Other factors are the use of a commodity and competition between commodities, although use is not recognized as an independent element by the Interstate Commerce Commission. Still other factors sometimes considered in rate cases are stage of manufacture, prosperity of an industry,[1] and public welfare. But the stage of manufacture is significant primarily because of its relation to value, and it will be discussed under that heading. The condition of an industry is pertinent only to the extent that it affects what the traffic will bear, and is generally so regarded by the Commission.[2] As for welfare matters, it seems reasonable to conclude that they have affected rates chiefly through their influence upon transportation costs and value factors.

1. That the value of the commodity is an important rate-making factor has become almost axiomatic. It was formerly of even more significance than at present. Although there is no invariable relation between value and what the traffic will bear, the Commission has said, "The value of a commodity is one of the material considerations in the adjustment of rates, and it is just as unsound to say that rates upon carloads of equal tonnage and equal cost of movement, one of a low-grade, cheap commodity and the other of a high-grade and valuable commodity, should be made the same, except for the difference that might be allowed for the single item of increased risk, as it is to say that every commodity should be charged all that it can stand or bear."[3] One of the best illustrations of the value factor is the rate on batteries. A charged battery is given a higher rating than a spent battery, notwithstanding the fact that the two are physically the same and involve almost identical costs of service.

It is evident that articles of high value take high rates simply because they can stand such rates better than goods of low value; that is, they will continue to move under relatively high rates.[4] Valuable articles, such as the charged battery, increase carrier liability for loss or damage; but the value element, although obviously related to risk, is in reality distinct

[1] *281 U. S.* 658, 667 (1930). Cf. p. 322.
[2] *63 I. C. C.* 107 (1921); *91 I. C. C.* 105 (1924).
[3] *26 I. C. C.* 159, 163 (1913).
[4] Cf. p. 332.

therefrom. Risk is essentially a matter of cost rather than of demand. "Where two commodities are similar except for a difference in value the difference in rates may and should be more than an amount just sufficient to provide insurance against loss or damage in transit."[1] Likewise, various grades of the same article may require separate rates, for differences in grade may constitute in effect unlike items. For example, a low rating on overalls has been approved on condition that their value did not exceed a certain price per dozen.[2]

Quotation of separate ratings for different grades of a particular good is of course practicable only within limits. Minute distinctions would not only complicate rate making but would also open up opportunities for evading the higher rates. This explains why the Commission has generally refused to order the carriers to establish rates according to grade.[3] However, the carriers have been permitted to publish such rates voluntarily.[4] For example, they have been quoted on damaged goods and on the cheaper grades of clothing.

The principle of separate rates for different grades of the same article is closely related to the practice of assigning lower ratings to raw materials, or to partly completed items, than to finished goods.[5] Such differentiation is usually due to the higher value of the finished product, though it may sometimes be explained by greater special costs in transporting the product, or by indirect competition between the raw materials and their products. Wheat, corn, and oats are accorded lower rates than breakfast foods. Doors and moldings take lower rates than cabinets. It sometimes happens, of course, that the finished product is not much more valuable than the raw material, as in the case of cotton and cheap cotton fabrics. Moreover, the manufactured article may not load so compactly. In such instances there would normally be little difference in rates. The Commission has clearly stated that raw materials do not necessarily take lower rates than completed products.[6]

Although the value of the commodity is an important element in classification, the discussion above has indicated that there are limits to its use. One definite limit is out-of-pocket cost.[7] This limitation is most likely to apply where the value of an article is low or where high terminal costs leave little room for the application of the value principle. But if an item is high in value and has little terminal expense, the rate will usually more than provide for prime cost. The rates that are highest in relation

[1] *136 I. C. C.* 201, 204 (1927).
[2] *100 I. C. C.* 471, 475 (1925).
[3] *16 I. C. C.* 405, 406 (1909).
[4] *123 I. C. C.* 547, 549 (1927).
[5] *13 I. C. C.* 109, 114 (1908).
[6] *24 I. C. C.* 134 (1912).
[7] *148 I. C. C.* 97, 105 (1928).

to cost are to be found in connection with articles of high value that load densely and move by the carload. Another limit is the complexity that would arise if minute value distinctions were made. Candy alone would require dozens of ratings, for it varies in price from 10 cents to $1.75 per pound. Shoes range in value from $1 to $20 per pair. Still another limit is that a valuable article may not be able to stand a high rate, on account of competition. These considerations make clear that a fixed relation between value and rates cannot be maintained. It is only one element in a composite whole.

Value in this connection means market value, not value in use; for it is the former which is most directly related to what the traffic will bear, to say nothing of the impossibility of measuring value in use.[1] The market-value standard involves difficulties arising from the fluctuations and wide range of prices; but in view of the inexact relation between rates and values, absolute accuracy is unnecessary. The Commission has concerned itself with typical rather than extreme prices.[2] It would manifestly be impracticable to modify rates with every price change. On the other hand, rates must sometimes be adjusted to long-time fluctuations in prices.[3] As the price of an article drops, its ability to stand rates tends to decline. The reverse is of course true when the price rises. In a recent case the Commission approved higher rates for fish oils on the ground that the value of this product had greatly increased.[4]

2. The way a commodity is used tends to affect value, but it also appears to be a rate-making factor on its own account.[5] When a commodity serves several ends, its demand for one purpose may be more inelastic than for another purpose. This can arise from the circumstance that the good constitutes a less important or essential element of final production in one direction than in another. Copper in electrical appliances and on the roofs of houses is a case in point. The price of copper could probably rise to high levels without appreciably affecting its employment in connection with appliances, on account of its essential character, while the same rise might completely stop its purchase for roofing purposes because of competition from substitutes. In the one instance the demand is inelastic, in the other it is elastic. Since the demand for the transportation of a commodity parallels to a certain extent the demand for the commodity itself, it follows that in cases of the kind referred to the same commodity can stand rates better when

[1] *3 I. C. R.* 74, 77 (1890).
[2] *34 I. C. C.* 652, 693 (1915).
[3] *157 I. C. C.* 581, 584 (1929).
[4] *258 I. C. C.* 323 (1944).
[5] See Strombeck, J. F., *Freight Classification*, p. 96 (1912).

employed for some purposes than when applied to others, even though its price is the same for all uses.

Though it would seem that the use made of a commodity should constitute an independent factor, the Interstate Commerce Commission has said in plain words that "Transportation charges may not be properly predicated upon the use to be made of an article offered for transportation. Whenever reference is made in this report to the use of an article, it is for the purpose of reaching some conclusion with respect to its relative value."[1] In taking this position the Commission may have been motivated by two limitations upon the use principle. First, use does not affect the cost of transportation, for obvious reasons. Second, rates dependent upon use are open to abuse. Shippers can allege that a commodity is destined for that purpose taking the lowest rate, and it is difficult for the carriers to check the truth of the allegations.

The Commission has somewhat weakened its position, however, by permitting different rates on the same article, when used for more than one purpose, on the ground that separate uses may in effect create distinct commodities. Thus it has approved lower rates on horses to be slaughtered than on horses employed as draft animals,[2] and on lime for fertilizer than on lime for construction purposes.[3]

3. As explained in Chap. XIII, discrimination in pricing depends in part upon the independence of the demands for different services. If the demand for the transportation of one commodity is unrelated to that for another, a high charge for the one will have no effect upon the traffic in the other. Full force can then be given to cost and value in rating the commodity. Cream of Wheat does not compete appreciably with flour, and it may be rated higher.[4] But if two commodities do compete, so that a high rate on one will raise its price and lead to the substitution of the other, the rating for both will tend to be the same even though the articles are not alike. Thus a decrease in the rating on soap might necessitate a corresponding change in the rating on washing powder, because the two articles are competitive. For a similar reason, the rates on inedible tallow and soap stock are related.[5] Since the basic justification for a relatively low rate on articles unable to stand higher rates is that the low rate will stimulate a larger total volume of traffic, it follows that if the low rate merely changes the type of article carried it loses its justification.

[1] *25 I. C. C.* 442, 499 (1912); *262 I. C. C.* 384, 386 (1945).
[2] *161 I. C. C.* 677 (1930).
[3] *112 I. C. C.* 7 (1926).
[4] *91 I. C. C.* 45, 49 (1924).
[5] *258 I. C. C.* 355, 360 (1944).

Undue Preference and Prejudice

The relationship of the rate on a particular commodity to the rate on some other good is often of more interest to shippers than the level of the rate. If the rate on a raw material such as live cattle is unreasonably high in relation to the rate on a finished product such as dressed beef, packers near the market compete at a disadvantage with those located at the source of supply; if the rate relationship is the reverse of the one stated, the packer at the market has an advantage.[1] If the rate on corn is high relative to the rate on hogs, corn may have to be fed rather than marketed, to the disadvantage of farmers not in a position to feed hogs. If the rate on washing powder is much in excess of the rate on soap, people may substitute soap for powder, thereby forcing the producers of powder to discontinue business. If the rate on less-than-carload lots is high in comparison with the rate on carloads, jobbers may be forced to locate near consuming centers. In many instances these effects can be brought about by only a slight difference in rates. A change of 2 or 3 cents in the rate on flour has at times been sufficient practically to destroy the profit from flour milling in certain locations.

As explained at the beginning of the chapter, rates can be reasonable per se and at the same time create undue preference and prejudice. A high rate on one commodity and a low rate on another may each be reasonable in and of itself, and yet the high rate may be prejudicial, or the low rate preferential, in violation of Sec. 3 of the Interstate Commerce Act, which applies to "any particular description of traffic" as well as to persons. But it is important to observe that Sec. 3 prohibits only undue discrimination among commodities. In contrast with the law applicable to personal discrimination, the rule is not absolute. If it were, rates could not be adjusted according to the value of the service.

Any difference in rates as among commodities gives the shipper of a lower rated good an advantage in a general way, but rates are not ordinarily found to be unduly preferential or prejudicial unless articles are connected in some such fashion as indicated in the second paragraph above;[2] that is, unless the commodities act as substitutes for each other, are related as material and product, or compete in some other way. "To constitute undue prejudice under Section 3, a competitive relation between the . . . descriptions of traffic concerned must generally appear."[3] The competitive relationship must of course be real and important. For example, Cream of Wheat and flour compete to a certain extent, yet not

[1] The rates on livestock and dressed beef have been so adjusted as to permit the concentration of the meat-packing industry in the Middle West rather than in the more populous East.

[2] *50 I. C. C.* 558, 568 (1918).

[3] *64 I. C. C.* 744, 746 (1921).

enough to make unlawful the charging of higher rates on the breakfast food.[1] In like manner, sheet iron and roofing need not take the same rates.[2]

Section 3 cases have been especially significant when articles are related as material and product. Here there is involved a confiict of interest between producers located near the source of raw materials and those located near the market; the first group preferring low rates on finished goods, the second low rates on materials. Under the impact of shifts in population and other economic changes, the relative advantage of each group is continually being altered, so that cases of alleged preference or prejudice naturally arise. Since industry tends to become adapted to rates already in effect, these cases present to the Commission the very difficult problem of reconciling vested interests. The Commission has appeared to favor the adjustment of rates on material and product according to the cost of service, thereby permitting production to take place in the most economical manner; but those who would gain from the adoption of a cost basis are not the same as those who would lose by it, and the Commission has been forced to follow a flexible rule. For example, railroad rates on flour, which favor Western millers, have generally been the same as the rates on wheat, notwithstanding the fact that it costs considerably more to transport flour.[3] Another illustration is the adjustment of rates on crude oil and refined products.[4]

Differences in rates are usually decided to be prejudicial only where competitive relationships exist, because there can be no finding of undue prejudice except when some person is positively harmed by a rate adjustment. To prove harm it is necessary for the shipper of an article to show that he is injured by a rate that prefers a competitor[5] and that the injury is appreciable.[6] Unless the articles were in some way competitive, this showing could hardly be made; for if the commodities were not related, the rates thereon would not be related. The rate on an item might be below the out-of-pocket cost and thus put a burden on another, but an attack upon the rate of this ground would ordinarily proceed under Sec. 1 of the Interstate Commerce Act. If the issue is the relationship of rates, the articles must be competitive.

It is not to be inferred, however, that the establishment of a competitive relationship between two commodities necessarily means that rates must be equal, even when it has been shown that differentials in favor of a competing article are ruinous to a producer. On the contrary,

[1] *91 I. C. C.* 45 (1924).
[2] *23 I. C. C.* 414, 416 (1912).
[3] *164 I. C. C.* 619, 710 (1930).
[4] *20 I. C. C.* 649 (1911).
[5] *122 I. C. C.* 739, 742 (1927).
[6] *10 I. C. R.* 428 (1905).

rates on rival goods may differ just as the rates on unrelated commodities vary. The Commission does not undertake to equalize competitive opportunity,[1] and it has been upheld in this policy by the Supreme Court.[2] Differences in the rates on competing commodities create undue preference and prejudice only when they fail to conform to appropriate tests of adjustment.

The cost and demand factors determining whether differences in rates are unduly preferential are essentially the same as those determining the reasonableness of rates per se. Among these factors, competition is only one. It is not necessarily controlling, just as no other single element is controlling. An article that clearly loads more densely than another can be given a lower rate than the other, assuming that density of loading is not offset by some opposing factor.[3] Even though the two articles are competitive, the low rate will not be held to be unduly prejudicial insofar as it recognizes the advantage in cost. The principle is the same with respect to other cost factors.

Certain decisions of the Commission have seemed to imply that cost factors should govern the adjustment of rates, when items compete, to the exclusion of demand factors.[4] If this were the rule, there could be no real discrimination among competing commodities. Any difference in the rates on such goods not justified by variations in cost would create undue preference and prejudice. More typically, however, the Commission has deemed demand factors, such as the value of the commodity, to be pertinent. In a case involving the rates on dust mops and dust cloths the Commission declared, "But, even though there is competition between dust cloths and dust mops, the ratings for the two articles need not be the same if their classification characteristics are substantially different. The record shows that dust cloths have a substantially greater value per pound than mops."[5]

It has been pointed out that the foregoing rule is not always sound for the higher rate adds to the disadvantage that the more valuable good already suffers in price competition with the cheaper article, thus tending to check the movement of the more valuable.[6] If the demand for the latter were very inelastic, this objection would of course not apply.

Another demand factor which has sometimes influenced the adjustment of rates on rival articles is competition between carriers. In transporting one commodity the carriers may compete and publish for tha

[1] *3 I. C. R.* 515, 521 (1891).
[2] *263 U. S.* 515, 524 (1924).
[3] *167 I. C. C.* 12, 15 (1930).
[4] *3 I. C. R.* 515, 522 (1891).
[5] *120 I. C. C.* 40, 42 (1926). See also *128 I. C. C.* 675, 677 (1927).
[6] Locklin, D. P., *Economics of Transportation*, p. 542 (1938).

good a relatively low rate, but the reverse may be true in handling the other item. Although the economic desirability of recognizing this factor is questionable, it has in fact received consideration. We have already called attention to the rate adjustment that tends to favor the packing industry of the Middle West. In 1905 the Commission found that the rates on livestock were unduly prejudicial thereto;[1] but the order was set aside by the Supreme Court, on the ground that the Commission did not give proper weight to the fact that railroad competition had forced down the rates on packing-house products and had not so affected the rates on livestock.[2]

Increased Significance of Cost

Interagency competition, particularly between railroads and motor trucks, has emphasized cost as distinguished from value in the adjustment of rates. Competition for the transportation of those commodities which have been given relatively high rates in relation to out-of-pocket costs (the better paying traffic) has caused the railroads to publish numerous commodity rates and exceptions to the classification. Hundreds of reductions have been made in connection with less-than-carload traffic. The railroads have also put into effect new types of rates. The all-freight rates described in Chap. XII apply, with exceptions, on all commodities loaded in a car, regardless of variations in the transportation characteristics of the separate items.[3] These charges have been designed to meet corresponding truck rates which, because of competition within the trucking industry, tend to ignore value distinctions.

Insofar as trucking concerns have adopted railroad classifications, the older methods of rate making have been perpetuated. But the Official and Coordinated motor classifications of New England do not closely follow the railroad pattern. Even the motor classifications which are practically the same as those of the railroads have been none too successfully maintained. So long as contract- and private-carrier truckers are permitted to compete with common carriers, rates will probably gravitate toward a cost basis.

All-freight rates have been approved, with some reluctance, by the Interstate Commerce Commission. Those for railroads received the assent of the Commission in 1937 and in a number of cases subsequent thereto.[4] Those for trucking, while condemned in several instances,[5] have likewise

[1] *10 I. C. R.* 428 (1905).
[2] *209 U. S.* 108 (1908).
[3] *173 I. C. C.* 377 (1931).
[4] *223 I. C. C.* 421 (1937); *226 I. C. C.* 455 (1938); *234 I. C. C.* 673 (1939); *238 I. C. C.* 327 (1940).
[5] *10 M. C. C.* 556 (1938); *26 M. C. C.* 634 (1940).

been approved on numerous occasions.[1] In pursuing these policies the Commission has recognized the necessities of competitive situations and the partial breakdown of monopolistic rate making, but it has also feared the disrupting effects of all-freight rates upon established rate structures. Certain members of the Commission have generally opposed these rates.[2] It should be observed that they overlook cost as well as value factors. For this reason, all-freight rates might well be limited to commodities having substantially similar cost characteristics.[3]

Flexibility in the Adjustment of Rates

Changes in the conditions surrounding the production and transportation of goods make it essential, within appropriate limits, to readjust rates continually, notwithstanding the fact that touching one point in the web of rates may disturb other points. The Transportation Conference concluded that freedom to meet competition requires more flexibility in the rate-control sections of the Interstate Commerce Act than had prevailed prior to 1934.[4] In order to facilitate readjustment the railroads have proposed that Sec. 3 be so amended as to allow common carriers to change rates independently of other rates and claimed relationhips thereto, when such change is made necessary by competition for traffic with any agency of transportation other than railroads.[5] In cases of competition this proposal would transfer the Commission's discretionary authority over discrimination to the carriers.

In considering the proposed amendment it must be admitted that the rise of new forms of transportation has emphasized the importance of readjustments in rates and that the carriers should be allowed a reasonable amount of freedom in that respect. Yet it does not follow that the amendment should be enacted. On the contrary, the weight of the argument seems to point in the opposite direction. The prohibitions of the Interstate Commerce Act against unfair discrimination have been in effect more than half a century and have had to be strengthened from time to time in response to definitely established abuses.[6] These abuses have generally occurred because of competitive influences, and there is little reason to expect that they would not arise again in the presence of competition. If the regulation of discrimination is to be relaxed, it should

[1] *20 M. C. C.* 5 (1939); *21 M. C. C.* 677 (1940); *28 M. C. C.* 161 (1941).

[2] *234 I. C. C.* 673, 676 (1939); *20 M. C. C.* 5, 7 (1939).

[3] See National Resources Planning Board, *Transportation and National Policy*, p. 106 (1942).

[4] *Report of the Transportation Conference of 1933–1934*, p. 29 (1934).

[5] Federal Coordinator of Transportation, *Regulation of Transportation Agencies*, Senate Document no. 152, 73d Cong., 2d Sess., p. 63 (1934).

[6] Cf. pp. 151–166.

probably occur through Commission interpretation rather than through modification of the Interstate Commerce Act.

Those who would liberalize Sec. 3 sometimes say that the Commission is too strict in its interpretations. Although this may occasionally be true, it is equally true that the Commission has often accepted competition as an excuse for differences in rates, when other considerations called for equality; and no very persuasive evidence has been presented to show that it has given inadequate weight thereto. In fact, there is good economic ground for believing that competition has played too large a part in the adjustment of disputed rate relationships. The established rates on materials and products are cases in point. Much can be said for adhering more closely to the cost of service.

Company spokesmen also frequently allege that the system of regulation unduly delays the adjustment of rates. But in this connection it is important to remember that rates are made in the first instance by the carriers, not by the Commission. And notice of only 30 days is required for changes in rates. With the approval of the Commission, even this period can be shortened. The Commission can of course suspend proposed changes in rates for a period of 7 months, yet the vast majority of thousands of changes never come before the Commission.

REFERENCES

Most of the literature on commodity rate adjustments deals with the reasonableness of rates per se. References on freight classification at the close of Chap. XII are also pertinent to this chapter. Other general discussions are as follows: Alldredge, J. H., *Rate-making for Common Carriers*, Chap. 5 (1929); Brown, H. G., *Transportation Rates and Their Regulation*, Chaps. 6, 11 (1921); Jackman, W. T., *Economic Principles of Transportation*, Chap. 6 (1935); Jones, Eliot, *Principles of Railway Transportation*, Chap. 8 (1924); Locklin, D. P., *Economics of Transportation*, Chap. 20, pp. 538–545 (1938); Lorenz, M. O., *Commodity Values and Freight Rates* (1930); Noyes, W. C., *American Railroad Rates*, Chap. 4 (1905); Ripley, W. Z., *Railroads: Rates and Regulation*, Chap. 9 (1912); and Strombeck, J. F., *Freight Classification* (1912).

The policies of the Interstate Commerce Commission in the adjustment of rates as among commodities are explained in Hammond, M. B., *Railway Rate Theories of the Interstate Commerce Commission* (1911); and Sharfman, I. L., *The Interstate Commerce Commission*, part 3, vol. B, pp. 413–538 (1936).

The proposed amendment of Sec. 3 is discussed briefly in Federal Coordinator of Transportation, *Regulation of Transportation Agencies*, Senate Document no. 152, 73d Cong., 2d Sess., pp. 63–66 (1934).

CHAPTER - - - - - - - - - - - - - - - - SIXTEEN

Adjustment of Rates between Places

THE adjustment of rates between places is distinguished by the prominence of problems of discrimination. Because of the keenness of carrier and market competition, the haul, as contrasted with the commodity, is particularly sensitive to differences in rates. We shall therefore discuss distance relationships primarily as a matter of undue preference and prejudice, with special reference to the distinction between place discrimination which is economically defensible and that which is indefensible. Brief attention will be given first, however, to the reasonableness of rates per se.

Reasonableness of Rates between Places

As in the case of commodity relationships, it is convenient in considering the reasonableness of rates between places to bring in question factors affecting (1) the cost of the service and (2) the demand for service. Insofar as rates have been prescribed by the Interstate Commerce Commission, emphasis has been placed upon cost factors. Probably the primary reason for this is that there exist no objective value-of-the-service tests for the measurement of point-to-point rates.

Cost Factors

Some of the more important cost factors are (1) length of haul, (2) density of traffic, (3) conditions of operation, (4) direction of haul, and (5) number of lines involved.

1. Length of haul is an important factor in fixing rates because the cost of transportation necessarily increases with distance, though not in proportion thereto. It is in recognition of this relation between haul and cost that the Interstate Commerce Commission has prescribed mileage scales. Many rates of course seriously disregard the distance principle. This is particularly true of water rates and railroad commodity rates. Under the impact of competition, the carriers have quoted rates designed to hold or to gain traffic; and the Commission, receiving authority over various rate structures subsequent to their formation, has frequently seen fit to permit the continuation of nondistance charges.

The distance principle finds expression in the rule that the rate to a distant point shall not exceed the sum of the rates between intermediate points. A higher rate, resting upon the erroneous assumption that cost increases faster than distance, is regarded by the Commission as prima facie unreasonable.[1] But rates that are merely prima facie unreasonable are not necessarily condemned. Occasionally, where competition depresses intermediate rates,[2] the Commission will permit violation of the rule, if the carrier can show positively that the rate to the distant point is not unreasonable in terms of the cost of service and that it compares favorably with other rates for like distances on the same or analogous commodities.[3] For example, competition of truckers for the short-haul traffic of the railroads has sometimes depressed intermediate rates below the charges for longer hauls.[4]

Rates that are higher for a short than for a long haul are also prima facie unreasonable.[5] This is true irrespective of statutory requirements.[6] The Motor Carrier Act has no long- and short-haul clause, yet the Commission has accepted the principle of such clause in its regulation of motor rates.[7] The presumption of unreasonableness can be overcome by showings similar to the evidence required in connection with the aggregate-of-intermediates rule.[8]

2. The greater the volume of traffic handled, the less, up to a point, the total average unit cost of service, the constant expenses being spread over a larger number of commodities or hauls.[9] For this reason the rates between points served by lines having a high traffic density can be lower than the rates for equal distances on lines with a sparse traffic. Differences in the territorial levels of railroad rates have been justified on this ground.[10] Arbitraries for weak lines provide another illustration.[11] Higher rates on branch than on main lines are still another,[12] although a carrier is not permitted to publish separate rates for every portion of its system.[13]

3. The conditions surrounding operations obviously affect transpor-

[1] *14 I. C. C.* 579 (1908). See also *44 M. C. C.* 320 (1945). This principle was incorporated in Sec. 4 of the Interstate Commerce Act by the Mann-Elkins Act of 1910.

[2] *107 I. C. C.* 600 (1926). See also *38 I. C. C.* 301, 303 (1916).

[3] *78 I. C. C.* 107 (1923); *115 I. C. C.* 33 (1926).

[4] *210 I. C. C.* 216 (1935); *215 I. C. C.* 488 (1936); *219 I. C. C.* 206 (1936).

[5] *139 I. C. C.* 225, 227 (1928).

[6] *269 U. S.* 1, 11 (1925).

[7] *2 M. C. C.* 530, 546 (1937).

[8] *147 I. C. C.* 135 (1928); *142 I. C. C.* 291 (1928).

[9] Cf. p. 323.

[10] Cf. p. 309.

[11] *100 I. C. C.* 513, 650 (1925); *164 I. C. C.* 314, 422 (1930).

[12] *26 I. C. C.* 37, 41 (1913).

[13] *156 U. S.* 649, 665 (1895); *19 I. C. C.* 71, 75 (1910).

tation expense; and they may vary, as does the density of traffic, from territory to territory, line to line, and on different sections of the same line. Insofar as operating conditions show diversity, distance does not accurately reflect the cost of service, and rates need not be the same for hauls of equal length. For example, operating conditions have been said to justify lower railroad rates in the South than in the East.[1] Typical of unfavorable operating factors are terminal congestion, steep grades, and unusually low temperatures.[2]

4. If the transportation conditions are substantially similar, rates must be the same in one direction as in the other;[3] if they are not similar, rates in opposite directions can vary. For instance, traffic may be unbalanced, thereby justifying reduced rates on the back haul.[4] Similarly, rates may be lower in the direction of steady movements, as contrasted with sporadic movements.[5] Again, rates can be lower in the downgrade than in the upgrade direction.[6]

Lower rates in one direction than in the other are consistent with joint-cost pricing, but they may undermine the rate structure. In the trucking industry the Commission has been inclined to question them. Proposed back-haul truck rates below average costs have been denied on the following grounds: out-of-pocket pricing tends to be perpetuated; competitors may be forced to reduce rates in the direction of the back haul; and rates may be depressed in both directions through competition from truckers having less-than-capacity loads in opposite directions.[7]

5. In some cases rates should be higher for hauls involving several lines than for hauls of equal length involving only one line.[8] This is because multiple-line hauls tend to increase switching and billing expenses.[9] Such expenses may be about as great, however, when traffic remains on a single system, and a multiplicity of lines does not always justify higher rates.[10] Allowances for interline movements complicate rate making and, like terminal costs, become less important as distance increases.[11]

[1] Cf. p. 310.

[2] *30 I. C. C.* 488 (1914); *62 I. C. C.* 345 (1921); *43 I. C. C.* 641 (1917).

[3] *61 I. C. C.* 308, 334 (1921); *136 I. C. C.* 327, 332 (1927).

[4] *11 I. C. R.* 627, 630 (1906).

[5] *58 I. C. C.* 196 (1920). See also *42 I. C. C.* 29 (1916).

[6] *181 I. C. C.* 229, 247 (1932).

[7] *4 M. C. C.* 187 (1939). For a criticism of the Commission see Morrison, Hunter, "Rate Policy of Interstate Commerce Commission for Back-hauls of Trucks: Pricing and Joint Cost," *Journal of Land and Public Utility Economics*, vol. 19, pp. 329–338 (August, 1943).

[8] *23 I. C. C.* 656, 661 (1912); *104 I. C. C.* 514, 515 (1926).

[9] *59 I. C. C.* 141, 144 (1920).

[10] *26 I. C. C.* 638, 649 (1913).

[11] *98 I. C. C.* 183, 248 (1925); *100 I. C. C.* 513, 627 (1925).

Demand Factors

As regards regulation, the demand for service affects the reasonableness of rates between places primarily in a negative way. By this we mean that the carriers may make adjustments according to the conditions of demand but that the Commission will not order them. The principal demand factor is competition, and the right of the carriers to meet competition has often been recognized.[1] For example, it has led to the quotation and approval of equalized and blanketed charges. Rates below reasonable maxima are lawful provided they are compensatory and do not create undue preference and prejudice.[2] But the Commission will not prescribe depressed rates, and neither will it prevent increases that lie within the zone of reasonableness.[3]

Discrimination between Places

The vital influence of transportation upon economic life is in considerable degree a matter of rate relationships rather than of rate levels. If competing producers reaching a market from separate places all pay the same rate, the transportation charge can generally be passed on to consumers in the form of higher prices, and industry tends to be diffused. But if certain producers pay lower rates, their prices govern the market, and industry becomes more concentrated. Only a slight disparity in rates, service being equal, will frequently determine the route taken by a shipment, or the market to or from which an article moves. A difference of 1 or 2 cents in the rate on grain will cause Kansas wheat to move south to Gulf ports rather than east to Atlantic ports.[4] Thus it is relatively easy through rate adjustments to build up cities, or even entire regions.[5]

Meaning of Local Discrimination

Differences in the rates between places, like variations in the rates on commodities, may or may not create discrimination. Differences become discriminatory when not based upon cost.[6] For example, it is discrimination for a carrier to charge more for transporting a commodity from *A* to *B* than it does for transporting an equal quantity of the same commodity in like manner from *A* to *C*, *B* and *C* being equidistant from

[1] *16 I. C. C.* 149 (1909). Shipper prosperity and other nontransportation matters have also probably had some influence upon rates.

[2] *68 I. C. C.* 665, 672 (1922); *241 I. C. C.* 465 (1940).

[3] Cf. p. 352.

[4] United States Tariff Commission, *Preferential Transportation Rates and Their Relation to Import and Export Traffic of the United States* (1922).

[5] Hadley, A. T., *Railroad Transportation*, p. 108 (1903).

[6] *128 I. C. C.* 63, 82 (1927).

A; or for a carrier to charge the same from *A* to *B* as from *A* to *D*, *B* being nearer than *D* to *A*.[1] Even a lower rate to the nearer point *B* can discriminate. In terms of distance, the rate may not be low enough.[2]

A simple case of local discrimination in the economic sense is illustrated by the first figure in which the carrier *A B* charges $1 on traffic from *A* to *B*, while the carrier *A C* charges $1.20 for a similar service over an equal distance from *A* to *C*. We shall refer to this type of unequal treatment as Sec. 3 discrimination, although other conditions are necessary to a finding of undue preference and prejudice. A case of charging more for a short than for a long haul, which will be referred to hereafter as Sec. 4 or long- and short-haul discrimination, is illustrated by the next figure. This shows that a carrier charges a rate of $1 from *A* to the distant point *C* and $1.20 from *A* to the nearer and intermediate locality *B*. Assuming that the $1 rate is based upon a reasonable mileage scale, there would be discrimination against *B* in the economic sense if the rate from *A* to *B* were $1, or even if it were 90 cents; but long- and short-haul discrimination as defined by the Interstate Commerce Act can occur only when the rate to the intermediate point is greater in the aggregate. It is not enough that the short-distance rate be higher per mile.

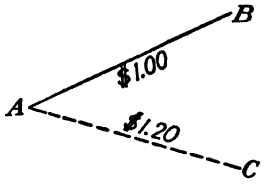

FIG. 25.—Simple local discrimination.

Local discrimination is sometimes lawful, sometimes unlawful.[3] Section 3 of the Interstate Commerce Act (the general clause against railroad discrimination) and the corresponding sections applicable to motor and water carriers only prohibit the giving of *undue* preference or prejudice to a particular "locality, port, port district, gateway, transit point, region, district, territory."[4] Similarly, Sec. 4 does not absolutely forbid discrimination. Since the statutes neither define the word "undue" nor specify the conditions of departure from Sec. 4, it is up to the Commission to decide when differences in rates are unreasonable.[5]

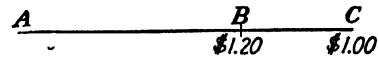

FIG. 26.—Long- and short-haul discrimination.

The conditions necessary to a finding of undue preference or prejudice between localities are similar to the conditions required in litigation in-

[1] *128 I. C. C.* 349 (1927); *160 I. C. C.* 345 (1929).

[2] *178 I. C. C.* 237 (1931).

[3] The common law does not prohibit place discrimination. At common law the carriers deal with individuals, not with places.

[4] *246 U. S.* 457, 481 (1918); *162 U. S.* 197, 219 (1896).

[5] *Ibid.*

volving unjust discrimination between commodities.[1] Ordinarily a competitive relationship must be found, between the places themselves, or between industries located thereat.[2] It must also be established that the rates in question benefit the point preferred and actually injure the point prejudiced.[3] In proving actual injury, evidence demonstrating the diversion of traffic from the prejudiced to the preferred point has often been required. This test, however, is frequently inappropriate; for the shippers of a locality may be able to continue shipments despite a prejudicial rate, or they may be unable to continue even though they are charged a preferential rate.[4]

Assuming that unjust discrimination has been found to exist, the Commission may order its correction by directing the carriers to reduce the prejudicial rate or to raise the preferential rate. Orders are generally issued in the alternative, thereby permitting flexibility of adjustment.

Discrimination cannot be charged to a particular carrier unless the company has power to remove the discrimination. This means that the carrier must serve both the prejudiced and the preferred points over its own rails, or that it must participate in the rates to both places in such manner as to be able to correct the maladjustment.[5] In the first diagram above, discrimination could not be removed unless *C* were served by the same railroad as *B*. The Commission has said, "The law does not deal in these matters with all carriers collectively as a single unit or system, but its commands are directed to each, with respect to the service which it is required to perform."[6] And "It would be quite absurd to charge a railroad with giving preference or advantage to a community which it does not serve . . . ."[7] Although this rule doubtless keeps down needless litigation, it tends to retard rationalization of the rate structure.[8]

Why Local Discrimination Occurs

Local discrimination is to be explained primarily in the same way as other forms of discrimination; *i.e.*, by the nature of carrier costs, mon-

[1] The conditions under which violations of the long- and short-haul principle occur are fully described in connection with the Long- and Short-haul Clause.

[2] *169 I. C. C.* 247, 252 (1930).

[3] *161 I. C. C.* 287, 288 (1930); *182 I. C. C.* 102, 114 (1932). In a few cases the Commission has found a potential injury sufficient to prove undue preference and prejudice. *107 I. C. C.* 219 (1926).

[4] *60 I. C. C.* 5, 11 (1920); *98 I. C. C.* 405, 407 (1925); *122 I. C. C.* 739 (1927). In the absence of data on traffic diversion, relief may turn on the question as to whether the removal of prejudice will be of benefit to the locality alleging injury.

[5] *257 U. S.* 247, 259 (1921); *289 U. S.* 627, 646 (1933).

[6] *16 I. C. C.* 323, 332 (1909).

[7] *4 I. C. R.* 65, 78 (1892).

[8] See remarks by Commissioner Eastman. *177 I. C. C.* 217, 224 (1931); *223 I. C. C.* 9, 43 (1937).

opoly, and competition.[1] Costs furnish the motive for discrimination; monopoly, the opportunity; and competition, the occasion. Since the expenses of carriers with substantial investments are largely constant for short periods, it pays, at least immediately, so to adjust rates as to attract as much business as possible, provided the rates contribute what they can above out-of-pocket costs. If competition is unevenly distributed, as is often the case, rates can be kept relatively high between places where it is not encountered; but between the other places rates must be maintained at the level set by competition. Sometimes this means that charges are the same regardless of distance, as when origins or destinations are grouped or when a territory is blanketed. In other instances rates are higher for a short haul than for a long one. Frequently the rates to the near and distant points apply over the same line, the short haul being included in the longer.

Uneven competition may be that of carriers, either of the same or different type, or it may be that of markets, although the rivalry always lies between carriers in the immediate sense. If a roundabout or weak railroad is to share the traffic between two points with a direct or stronger line, it must meet the rates charged by the latter, even though these rates are lower than the rates that the weak line can generally afford to charge. If a railroad is to divide the traffic between competitive points with a low-cost water carrier or trucker, the conclusion is similar. If the producers of an unfavorably located area are to sell their products in some market and if the carriers concerned are to haul the products, then the rates to the market must frequently be equal to the rates paid by better located producers. Or perhaps producers at a competitive disadvantage because of location may seek through their carriers to tap, not markets, but some source of raw materials. Again, producers located between two lines, so that traffic can be diverted to either, may be able to force the quotation of especially favorable rates via junction points on the lines. The effect of these competitive influences is indicated by the following examples of discrimination. In some cases the discrimination is defensible; in other cases it is indefensible.

Local discrimination is very common. Cases are continually being brought before the Interstate Commerce Commission. To some extent discrimination is inherent in the existing rate structure. For example, group rates discriminate. The nearer points suffer; and the larger the groups, the more the discrimination. However, the differences in distance are less significant on the longer hauls. There are also a great many cases of discrimination not caused by grouping. In fact, one author has stated

[1] Local discrimination has sometimes been the result of abuse of trust by carrier officials, who have sought to build up particular places for the purpose of increasing the value of lands owned thereat by the officials.

that a billion or more examples of long- and short-haul discrimination exist.[1]

Outstanding Examples of Local Discrimination

Although local discrimination often occurs, it is less marked than before the establishment of regulation. Among the thousands of instances of the past only a few will be cited from the experience of the railroads, which have been the chief offenders. An especially large number of cases were once to be found in the region east of the Mississippi River and south of the Ohio and Potomac rivers. In this territory, characterized by the basing-point method of rate making, local discrimination was in fact almost the rule rather than the exception. Under the basing-point system certain competitive centers were designated as basing points: cities like Charleston, S. C., situated along the coast; Vicksburg, Miss., accessible to transportation by river; or Atlanta, Ga., served by two or more railroads. These places enjoyed relatively low through rates, while cities not so designated were charged the rate applicable to the nearest basing point plus the local rate from that point to the city of destination, even though the destination might be closer to the point of origin than the basing point. Thus the all-rail rate on first-class traffic via the Southern Railway from New York to Charleston, 846 miles, was at one time 84 cents; while the rate over the same route to the intermediate point Ridgeway, S. C., 691 miles from New York, was $1.19.[2] In the famous Alabama Midland Case, Troy, Ala. complained that the rates from New York and Baltimore to Troy were higher than to Montgomery, 52 miles farther away.[3]

The basing-point system is shown graphically by the subtended figure. *A B D* and *A E B C* are two railroads crossing at *B*. The cities *w*, *x*, *y*, and *z* are local stations on the two lines. Since *B* is a competitive center, it may be designated as a basing point. The rate from *A* to *w*, *x*, *y*, or *z* will be the *A B* rate plus the *Bw*, *Bx*, *By*, or *Bz* rate. In conformity with the usual practice, we shall assume that the local rates are scaled higher than the through rate, and it follows that the rates from *A* to *w*, *x*, *y*, or *z* are more per mile than the *A B* rate. It also follows that the rate *Aw* is higher in the aggregate than the rate *A B*, notwithstanding the fact that traffic from *A* to *B* passes through *w*.

Another section of the United States marked by much local discrimination in the form of basing-point rates was the Mountain-Pacific territory. Here the basing points were the terminals on the Pacific coast, such as Seattle, Portland, San Francisco, and San Diego, which were served

[1] Dewey, R. L., *The Long and Short Haul Principle of Rate Regulation*, p. 9 (1935).

[2] *30 I. C. C.* 153, 164 (1914).

[3] *Final Report of the Industrial Commission*, House Documents, vol. 82, 57th Cong., 1st Sess., p. 443 (1902).

by water lines as well as by railroads. Unlike the southern basing points, the coastal cities all took the same rate; but the rate to the terminals constituted the basis of the rates to the interior cities, even when the latter were intermediate. For example, the rate from Chicago to inland centers like Reno, Nev., was the Chicago-San Francisco rate plus the local rate from San Francisco eastward to Reno. Though the full local rate was not always added, the discrimination against the intermountain cities was substantial.[1] In the case of Spokane, Wash., the rates from Chicago were about 80 per cent above the coastal level, even though Seattle was 400 miles farther west. The prescription of mileage scales and the enforcement of Sec. 4 have modified the basing-point method of making rates, but many charges are still built around key cities, some of which were formerly basing points.

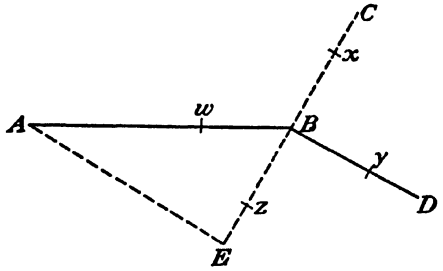

FIG. 27.—Basing-point system of rates.

Local discrimination also extended throughout large territories as a result of rate blankets. Under the blanketing system, all points in the areas affected took the same rate, yet discrimination occurred because of violation of the distance principle. The transcontinental rate structure was characterized by blanket rates as well as by basing-point rates. In this instance the western carriers, seeking to build up the Middle West, competed for Pacific coast traffic with the eastern carriers and water lines. As explained in the chapter on rate technique, all points in the United States east of Denver took the same rate to terminals on the Pacific coast, regardless of differences in distance often exceeding 1,000 miles. There was also marked violation of the distance principle on certain commodities eastbound from the coastal cities. Another illustration of discrimination through the blanketing of rates was the Texas "common-point" system. Because of competition for the Texas market between the all-rail routes from the Middle West and the water-rail routes from the Gulf coast, all points in the eastern half of the state took the same rate despite the fact that the differences in length of haul often amounted

[1] *15 I. C. C.* 376 (1909).

to several hundred miles. To some extent these blankets are still reflected in the rate structure.

The rates in the territory north of the Ohio River were more nearly in accord with distance, yet discrimination also took place there. An extreme case cited by Prof. Ripley involved a merchant of Wilkes-Barre, Pa., who purchased a carload of potatoes in Rochester, N. Y. The potatoes were billed to Philadelphia, but the shipper stopped and unloaded them at Wilkes-Barre, after paying the freight. By so doing, he expected to save $12; for the rate to Philadelphia was $48, as compared with $60 to Wilkes-Barre, although the latter point was 100 miles nearer Rochester. A few days later he received a bill of $12 "for not hauling the carload on to Philadelphia."[1]

Arguments for Local Discrimination

Local discrimination is acceptable to the carriers and is approved to some extent by spokesmen for the public. An offending company generally argues that it is necessary to charge relatively low rates between preferred points in order to secure traffic; that the company cannot afford to charge equally favorable rates to prejudiced points; and that the depressed rates benefit rather than harm the prejudiced localities, so long as the rates contribute what they can. Underlying the arguments are three assumptions: the low rates are forced upon the carrier; its plant is adequate to handle both the competitive and the noncompetitive traffic; and the reduced rates bring about a fuller utilization of plant. Insofar as the assumptions are valid, the position of management seems plausible. Should the rates at the preferred points be maintained at the noncompetitive level, the carrier would lose traffic, its constant expenses would continue, and the rates at the prejudiced points might be higher without than with the discrimination. Should the rates at the prejudiced places be reduced to the competitive level, the carrier might not be able to continue in business, thus depriving shippers of service.

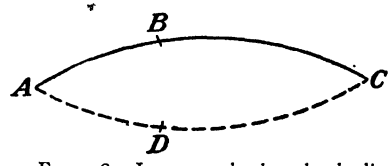

FIG. 28.—Long- and short-haul discrimination by competing routes of equal length.

To explain by means of a diagram, assume that two railroads connect *A* and *C*; that *B* and *D* are intermediate stations, respectively, on the lines *A B C* and *A D C*; and that the rates between *A* and *C* are lower than the rates between the terminals and the intermediate points. If *A B C* meets a low through rate quoted by *A D C*, *B* is said to have no real complaint. If *A B C* makes the rate and *A D C* meets it, *D* is in a similar position. By assumption, the *A C* traffic covers terminal and line-

[1] Ripley, W. Z., *Railroads: Rates and Regulation*, p. 215 (1912).

haul out-of-pocket costs and makes some contribution toward the constant expenses. Should either railroad not be allowed to participate in the *A C* traffic, the rates paid by shippers at *B* or *D* would be higher; or the railroad might well be forced to cease operations, unless the traffic to and from the intermediate points alone was sufficient to support it. In fact, if the line in question had not had an opportunity to participate in the through business, it might never have been built. So runs the argument. From the point of view of a particular carrier, it is essentially sound.

From the standpoint of the public, local discrimination is defended, if at all, largely on the ground that it encourages competition and tends to equalize opportunity. When not controlled by cost, the rates *to* a given market can be so adjusted as to allow the community to draw its supplies from a maximum number of competing sources; or the rates *from* the locality can be so fixed as to enable it to sell its products in competition with numerous other distributing centers. This may be referred to as the principle of equalization. Rates based upon distance likewise allow competition, because of differences in the cost of production at various locations; but the argument is that nondistance rates permit the carriers and producers to compete more freely.[1] As a result of the increased competition, the public is alleged to gain enough in the form of lower prices to more than offset such waste as may occur. Adversely criticizing the rigid mileage rates of the railroads of Germany in 1906, one student justified discriminatory charges as follows: "Their introduction would go far toward making the whole of Germany into a common market, to which the different producing and distributing centers would have access, and thus give producers and consumers the benefits of competition which now exists only in a modified form. Manifestly many resources that now lie unused would be developed."[2] This theory has had a significant influence upon rate structures, but it is opposed to the principle of natural advantage.

Objections to Local Discrimination

Based only upon competition, local discrimination is generally indefensible from the public point of view. Whereas differential pricing as between commodities makes possible a larger total volume of traffic and reduces the average unit cost of service, discrimination as between places merely redistributes traffic. One carrier's gain through discriminatory charges is another's loss. Except under special circumstances, local discrimination produces no saving from the standpoint of the transportation plant as a whole.

[1] Cf. p. 314.

[2] Meyer, H. R., *Government Regulation of Railway Rates*, p. 32 (1906). A somewhat similar position is taken in Noyes, W. C., *American Railroad Rates*, p. 95 (1905).

Uneconomic Location of Industry. The chief objection to local discrimination is that it encourages industry at preferred points and discourages it at prejudiced points. At the former there tends to exist a depression in rates, at the latter a depression in business. Insofar as the preferred places are not favorably situated and equipped for industry, production fails to take place according to the principle of natural advantage. The presence of competition at the preferred points is not of itself proof that such points possess advantages. Competition is largely an artificial condition.

The diseconomy of local discrimination may be explained by referring to the immediately preceding figure, which represents a case of long- and short-haul discrimination by lines of equal length.[1] The arguments of the carriers in such instances overlook important considerations. What is the real reason for the low rates on traffic between *A* and *C* and the high rates on traffic to and from *B* and *D*? The answer is merely the unevenness of competition. Rates are high at the intermediate points because of the absence of competition thereat, and they are depressed between the terminals for the simple reason that one line cuts its rates to keep from losing traffic to the other. The excuse of each road for discrimination is furnished by the other, for neither line has an advantage in cost. There being no evidence to the contrary, it cannot be argued that higher rates between *A* and *C* will destroy the traffic, or that lower rates to and from *B* and *D* will fail to encourage traffic. It is altogether possible that a reduction in the rates at the intermediate points will stimulate traffic as much or more than the reduction in the *A C* rate; for *B* and *D* may be as well suited to production as *A* and *C*. The total business and the utilization of the plant of both carriers are therefore not necessarily increased any more by low competitive rates than by low noncompetitive rates.

Failing to stimulate traffic as a whole, discrimination can only harm the nonpreferred points. Insofar as the competitive traffic fails to make a proportionate contribution toward the constant expenses, the noncompetitive traffic must bear higher rates if the carriers are to operate at a profit. In case the noncompetitive traffic cannot stand higher rates, the prejudiced points are still at a disadvantage because their rates are above the rates at the preferred points. Despite the natural advantages that such places as *B* and *D* possess in terms of distance, industry is encouraged to locate at *A* and *C*. To the extent that these advantages of location are not offset by disadvantages, discrimination causes production to take place in an uneconomical manner, thereby lessening the wealth of the country.

The same reasoning applies to local discrimination under Sec. 3. In

[1] The lines may also be assumed to be of equal strength.

the figure below railroads *X* and *Y* serve *A* and *C*. Railroad *Y* also serves *E*, a place the same distance from *C* as *A*. On account of competition the *A C* rate is lower than the *E C* rate, and *A* is preferred over equally well-located *E*. As in the preceding case, the cost of transportation to *C* from *E*, the prejudiced point, is no higher than to *C* from *A*, the preferred point. The argument of carrier *Y* that it is justified in charging a lower rate from *A* to *C* than from *E* to *C* is not conclusive, whether it is responsible for the low *A C* rate or whether carrier *X* is responsible. If *X* reduces its rate, which it probably has the right to do, *Y* may be forced to meet the rate or lose traffic, and *E* will pay no more because of the action of *Y*. Nevertheless, this does not alter the fact that *E* is deprived of a natural advantage. In such instances the only solution may be the regulation of the minimum rate between *A* and *C*.

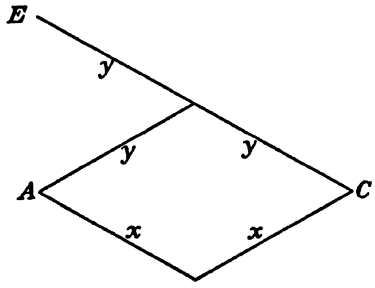

FIG. 29.—Local discrimination under Sec. 3 by competing routes of equal length.

It is possible, though not certain, that the Commission can control Sec. 3 discrimination through authority granted by the Transportation Act of 1920.[1] Carrier *X* could not be required to raise the rate from *A* to *C* on the ground of discrimination against *E*, for *X* does not serve or join in serving *E*; but if the Act of 1920 can be interpreted as having superseded the particularist approach, the Commission might prescribe a floor for the *A C* rate on the ground of discrimination. In one case the Commission adopted the broader concept and did not follow the Ashland principle.[2] It was overruled, however, by a closely divided court, and the Commission has subsequently proceeded under Sec. 3 according to the traditional rule. For this reason students have suggested that legislation be passed empowering the Commission where necessary to treat the carriers as a unit in matters of discrimination.

Long- and short-haul discrimination by lines of equal length is usually disapproved by the Commission,[3] and discrimination under Sec. 3 by equal lines is presumably subject to the same rule, although the Commission's policy in this connection has not been so clearly defined as in Sec. 4 cases. In some instances the Commission has permitted such discrimination, yet this has generally occurred where disapproval of long-

[1] See Mansfield, H. C., "The Minimum Rate Power and the Control of Carrier Competition," *Yale Law Journal*, vol. 45, pp. 1406–1425 (June, 1936).

[2] *160 I. C. C.* 345, 356 (1929).

[3] *24 I. C. C.* 192, 196 (1912); *36 I. C. C.* 317, 320 (1915).

prevailing competitive adjustments would too greatly disturb existing rate relationships.[1]

The prevention of local discrimination by lines of equal length is consistent with the Commission's pronouncements concerning natural advantages. According to the Commission, the carriers cannot deprive a place of its inherent advantages, which might consist of low costs of extraction or manufacture, or of low costs of transportation. The latter may arise from nearness or from favorable operating conditions. In the Eau Claire lumber case, where the rates on lumber from Eau Claire, Wis., were made higher than the rates paid by rival producing centers, in order to enable these centers to overcome Eau Claire's productive advantage, the Commission said, "Each community is entitled to the benefits arising from its location and natural conditions, and any exaction of charges unreasonable in themselves or relatively unjust, by which those benefits are neutralized or impaired, contravenes alike the provisions and the policy of the statute."[2] The carriers have of course often reduced rates to promote their own shipping points; and in its subsequent consideration of such rates the Commission has given weight to the vested interests established thereunder.[3] In the opinion of the Commission, maintenance of existing rates is sometimes of great importance.[4] But the fact that a rate has long been in effect is of itself no justification for the charge.[5]

Although a community cannot be deprived of its natural advantages, at least directly, it cannot push its advantage of location beyond the cost of transportation. This rule has been recognized by the Commission in its approval of group rates, when the costs of transportation at varying distances are not greatly different.[6] Grouping simplifies rate making and may not seriously injure any of the places grouped.[7] The greater the length of haul, the larger the group may reasonably be.[8] Group rates are generally disapproved only when they cause a positive injury to nearer points, as where the rates, bringing to market the output of distant producers, restrict the output of nearer producers.[9]

It should be emphasized, however, that group rates are to a certain extent necessarily prejudicial to nearer points; and the larger the group,

[1] *22 I. C. C.* 519 (1912).

[2] *4 I. C. R.* 65, 77 (1892). See also *51 I. C. C.* 738, 742 (1918); *57 I. C. C.* 157, 161 (1920).

[3] *Annual Report of the Interstate Commerce Commission*, 1887, pp. 16–20.

[4] *2 I. C. R.* 313, 315 (1889).

[5] *15 I. C. C.* 491 (1909).

[6] *2 I. C. R.* 162 (1888).

[7] *165 I. C. C.* 561, 566 (1930).

[8] *23 I. C. C.* 219, 224 (1912).

[9] *2 I. C. R.* 436 (1889).

the greater the discrimination.[1] For this reason the Commission has sometimes condemned such rates.[2] According to critics it has not condemned them enough. A wholesale breakup of group rates would of course seriously disturb present rate structures.

Wasteful Transportation. Along with preventing the development of industry where it should expand, local discrimination may encourage wasteful transportation, the cost of which must be borne in one way or another by the community. This is shown by the preceding figure on long- and short-haul discrimination. Point *B* may have as great advantages as *A* in producing commodities marketed in *C*, yet discrimination causes production to take place at *A*. The result is that the goods have to be carried the long distance from *A* to *C* rather than the shorter distance from *B* to *C*. To the extent of the haul between *A* and *B* there is waste. Labor and capital are absorbed in producing an unnecessary number of ton-miles of traffic. Should the line *A B C* be longer than its competitor, as indicated by the subtended diagram of carriers of unequal length, the waste may be even greater.[3] Only under special circumstances is it economical to move traffic via roundabout routes. Wasteful transportation may also be caused by the grouping or blanketing of localities; in fact, by any method of fixing rates not based upon cost.

Reduction of waste helps explain why the Commission places limits upon the circuity of lines allowed relief from the Long- and Short-haul Clause.[4] For the same reason and because of the larger number of places likely to be involved, the Commission looks with skepticism upon market competition as an excuse for discrimination.[5] When the rates to and from numerous producing or consuming centers are equalized,[6] so that competitive producers can invade the natural markets of each other, all manner of crosshauling and unnecessary transportation may occur.[7] For example, equalization of the rates on export grain to the North Atlantic ports, and as between these cities and Gulf ports, has prevented much of the grain from moving over the shortest routes.[8]

[1] *12 I. C. C.* 324 (1907).

[2] *7 I. C. R.* 92 (1897).

[3] In June, 1910, the rate on wool over the Northern Pacific from Billings, Mont., to Chicago was $1.55, while the rate from Seattle, Wash., to Chicago, 1,000 miles farther by the same road, was $1, and the extra distance involved expensive hauls over steep grades. *Long and Short Haul*, Senate Report no. 1768, 75th Cong., 3d Sess., part 2, p. 2 (1938).

[4] Cf. p. 398.

[5] *24 I. C. C.* 192, 194 (1912).

[6] Equalization does not necessarily imply that rates are exactly the same. It does mean, however, that rates are so adjusted as to enable producers to compete.

[7] *88 I. C. C.* 345, 353 (1924); *151 I. C. C.* 543, 549 (1929).

[8] Grain-rate adjustments are discussed at some length in Daggett, Stuart, *Principles of Inland Transportation*, Chap. 18 (1941).

The Commission has often accorded weight to market competition, especially where a petitioning carrier wishes to meet the rate of another line from a rival producing area into a common market,[1] but important limitations have been laid down.[2] As in other cases of local discrimination, it must appear that the carrier seeking relief is at a competitive disadvantage, and that the prejudiced points are not entitled to as low rates as the preferred locations. A mere showing of differences in rates is not sufficient.[3] The Commission has pointed out that it is difficult to establish reasonable rate relationships once the force of market competition is admitted, and some commissioners have gone so far as to say that market rivalry should never justify fourth-section relief.[4] The Commission also places limits upon the levels of rates at the preferred and prejudiced places.

Defensible Local Discrimination

The Interstate Commerce Act encourages competition; and if this policy is wise, local discrimination is to some extent defensible. Under certain conditions it works no immediate disadvantage to prejudiced places and at the same time permits healthy rivalry. Typical, though not exhaustive, of these conditions are the situations described below. It will be observed that the discrimination occurs where one carrier competes at a disadvantage.

Carriers of Unequal Length. One situation in which local discrimination can be justified is where there is competition between unequal carriers of the same sort, say two railroads. When a roundabout line competes with a direct line for the traffic between two junction points, the circuitous carrier may discriminate against an equidistant locality which is not on the route between the two; or the carrier may discriminate against an intermediate locality which is on the route. The first is an instance of Sec. 3 preference and prejudice and would be illustrated by the preceding diagram if railroad *X* had the shorter route between *A* and *C* and if railroad *Y* preferred *C* at the expense of *E*. The second is an example of Sec. 4 preference and prejudice.

Since both cases can be justified in the same way, the analysis may be confined to the long- and short-haul discrimination. In the accompanying figure the circuitous railroad *A E D C* competes with the direct

[1] *30 I. C. C.* 153, 277, 279 (1914). Similar action has occurred where competing lines connect rival distributing points with a consuming market. *88 I. C. C.* 512 (1924). But competition between distributing centers has not been given so much weight as competition between producing areas.

[2] In the early period the Commission tended to disregard market competition.

[3] *241 I. C. C.* 331, 332 (1940).

[4] *151 I. C. C.* 543, 549 (1929); *88 I. C. C.* 345, 351 (1924).

line *A B C*. *A* and *C* are competitive points, and *B*, *D*, and *E* are non-competitive. Assume that the *A C* rate is $1 and that it is based upon the distance between *A* and *C* via the direct route. Assume also that the *A D* rate, likewise based upon distance, is $1.20, *D* being farther from *A* than *C*. Had the *A C* rate been made according to distance by the longer carrier, it might have been $1.40; but under the circumstances *A E D C* must meet the rate quoted by *A B C*, and conceivably more than do so, in order to compensate for the longer time required to move traffic over the circuitous route. Long- and short-haul discrimination therefore arises at *D*; for the rate charged by the roundabout line from *A* to *C* is $1, whereas the rate from *A* to *D*, an intermediate point, is $1.20. Has *D* valid reasons for complaint? The answer is not necessarily, even though *D* is forced to pay higher rates on *A* goods than *C*.

The rate to *D* is not made high by the discrimination. Charging a lower rate to *C* places no burden upon *D*. If the railroad *A E D C* were ordered to raise the *A C* rate to $1.20, all the *A C* traffic would move over the direct line. *D* would still pay $1.20. In fact, the loss of the through traffic by the circuitous line might make the rate higher, owing to the circumstance that the railroad would then have to be supported by the intermediate traffic alone. On the other hand, if the railroad is allowed to share in the *A C* traffic, *D* may be benefited. So long as the through traffic more than covers the out-of-pocket costs, contributing what it can toward the constant expenses, the tendency is toward lower rates at intermediate locations. In terms of the absolute charge, *D* may thus gain rather than lose as a result of discrimination.

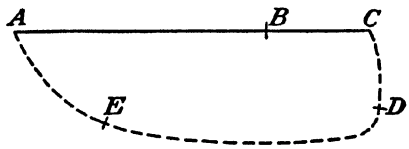

FIG. 30.—Long- and short-haul discrimination by lines of unequal length.

Relative to *C*, *D* is at a disadvantage. Such disadvantage can be eliminated in either one or both of two ways, but neither is desirable. One way is to reduce the *A D* rate to $1, thereby placing *D* and *C* on an equal footing. But the *A D* rate is a reasonable charge based upon distance and should be higher than the rate for the shorter haul to *C* via the direct route. *D* has no legitimate claim to a lower rate. Should the railroad serving *D* be required to charge less than $1.20, it might be deprived of a fair return, or perhaps it would be forced to discontinue service. The other way of removing *D*'s disadvantage is to increase the *A C* rate to $1.20. If this were attempted by the railroad *A E D C*, the results would be fruitless, as already explained. *A B C* might increase the rate, but it would not do this voluntarily, and to force the direct line to raise its rate so that the indirect line can share the through traffic without discrimination would be unfair to *C*. In contrast with the situation previ-

ously described, where the competing railroads were of equal length, the through rate is not subnormally low. The *A C* rate is determined by cost, not merely by competition, and is lower than the *A D* rate by virtue of the fact that *C* is nearer *A* than *D*. Requiring *C* to pay more than $1 on traffic from *A* would tend to destroy its natural advantage of location. Though *D* pays a higher rate and competes with *C* at a disadvantage, it must bow to the force of circumstances. Less reason can be cited for removing this disadvantage than for not removing *C*'s advantage.

Although *D* and other intermediate places on the indirect line are not necessarily injured by discrimination, this is less likely to be true of places on the direct line. Points *B* and *C* can argue that participation by the circuitous railroad in the through traffic lessens the volume of freight carried by the shorter railroad, thus raising the level of rates charged by the latter. As an increase in the business handled by *A E D C* tends to reduce its rates, so does a decrease in the business of *A B C* tend to raise its rates. Insofar as the level of rates can be adjusted according to the needs of particular carriers and insofar as it is more economical to move the through traffic along the direct route, *B* and *C* have a valid complaint. The public may also suffer because of an unnecessary multiplication of the number of ton-miles of service. Other things being equal, it costs more to carry goods from *A* to *C* over a devious route than over a direct one.

It should be emphasized, however, that discrimination by an indirect route is not necessarily injurious to points on a direct line. In case the railroad *A B C* cannot secure enough business at rates enabling it to earn a fair return, the diversion of traffic to *A E D C* may have little effect upon the rates at *B* and *C*. To the extent that traffic moves from *A* to *C* by the roundabout route, more ton-miles of service are performed, and society tends to lose, although it does not always do so. If the direct line is fully utilized without the *A C* business, neither the places on *A B C* nor society will suffer as a matter of course. For the additional cost of transporting goods over the incompletely utilized roundabout railroad may be less than the additional cost that would be incurred through enlarging the plant and transporting the goods over the direct railroad. It may be argued that the longer line should never have been constructed unless it can support itself at normal rates without discrimination, but the argument is not necessarily conclusive. When the line has already been built, the best policy may be to make use of the invested capital to the fullest extent possible.

Although we conclude that local discrimination by the longer of two competing railroads may sometimes be defended, discrimination by the shorter line is justified only under unusual circumstances. Point *B* and other intermediate locations on *A B C* can properly urge that they are

entitled to rates which the direct railroad can afford to charge without discrimination.

One special circumstance where discrimination by a short line is defensible is where the cost of transportation between competitive points by a circuitous route is less than by the direct route. Because of a large volume of intermediate traffic, railroad *A E D C* may be able to quote from *A* to *C* rates which railroad *A B C* cannot afford to charge. In such case *A B C* must meet an *A C* rate controlled by the longer railroad, and discrimination against the intermediate point *B* on the direct line can be justified. *B* may be benefited thereby, insofar as the *A C* traffic of *A B C* contributes toward its constant expenses; and society may gain through the saving in ton-miles unless the operating costs per ton of the short line, perhaps constructed for light traffic, happen to exceed the corresponding costs of the long line.

Carriers of Different Type. Another condition under which local discrimination may be warranted occurs where carriers of different types compete, as in the accompanying figure. A railroad having a monopoly on traffic to and from *A* and *B* is there represented to compete with an ocean line for traffic between *D* and *C*.[1] Since transportation by a natural waterway is usually cheaper than by rail, it may be assumed that the water carrier controls the rate from *D* to *C*. Suppose that this rate, met by the railroad, is $1. Assume also that the rates from *A* to *B* and from *A* to *C* are on a mileage basis, respectively, $1.10 and $1.20. Inasmuch as the rail distances from *A* to *C* and from *D* to *C* are equal, the railroad is guilty of Sec. 3 discrimination against *A* in favor of *D* and of Sec. 4 discrimination against *B* in favor of *D*. This situation is nominally like the immediately preceding case of discrimination by the shorter of two railroads, for the distance from *D* to *C* by water is greater than the distance by railroad. In reality, however, it is analogous to the case of discrimination by the longer of two railroads. Although the railroad route from *D* to *C* is shorter in miles than the water route, it is longer in terms of cost.

Discrimination against either *A* or *B* is defensible, although in this instance we shall confine the analysis to the Sec. 3 discrimination against *A*. As in the case of discrimination by the longer of two railroad routes, the rate from *A* to *C* is not higher because of the discrimination. On the contrary, it tends to be lower, insofar as the railroad's *D C* traffic contributes what it can toward the constant expenses. The *A C* rate is of

[1] Water competition has been an important factor causing local discrimination by railroads. Early settlements were made along the waterways, and railroads, later built to connect these settlements, naturally came into competition with water lines. Competition from this source was in fact felt at places not on the waterways, for railroads serving such places often competed with railroads subjected directly to water competition.

course higher than the *D C* rate, but this is because *A* is economically farther away from *C* than *D*. Paying a reasonable rate in terms of distance, *A* has no legitimate claim to a lower charge; and the rate from *D* to *C*, likewise based upon the cost of transportation, cannot be increased without destroying *D*'s natural advantage of location.[1] Places served by the water carrier may suffer because of the diversion of a portion of the *D C* traffic to the railroad, though the nature of water transportation expenses makes serious injury unlikely.

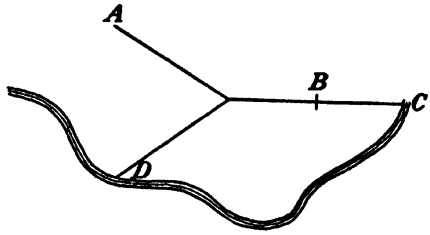

FIG. 31.—Local discrimination by a railroad competing with a water route.

General Attitude of the Supreme Court and of the Commission

The Supreme Court of the United States has generally taken an eclectic position on local discrimination. The Court has insisted that competition be considered in the administration of Secs. 3 and 4, as in the Alabama Midland Case;[2] but it has not declared that competition necessarily excuses discrimination,[3] notwithstanding certain decisions apparently to the contrary.[4] Neither has the Court laid down a rule for distinguishing between defensible and indefensible discrimination. Provided the Interstate Commerce Commission does not ignore competition, it is to determine whether in a particular case local discrimination is justified.

The Commission has acted on a similar theory. In view of the fact that the Congressional policy has been to supplement rather than displace competition, and in the light of the compelling force of competition in actual situations, the Commission has often refused to alter rates that are preferential and prejudicial. In numerous instances it has pointed to the need for flexibility in rate making[5] and for the exercise of managerial

[1] "A discrimination in its (*D*'s) favor merely recognizes the discrimination of nature." Noyes, *op. cit.*, p. 93.

[2] *168 U. S.* 144, 167 (1897). See also *175 U. S.* 648 (1900). This applies to both carrier and market competition.

[3] *263 U. S.* 515, 525 (1924).

[4] *181 U. S.* 1, 18 (1901); *289 U. S.* 627, 636 (1933).

[5] *95 I. C. C.* 539, 566 (1925).

discretion,[1] which would be limited by a strict application of the cost principle. The cases show that the Commission may accept competition of any kind as an excuse for discrimination—market, rail, water, pipe line, or motor.[2] However, it will not order the carriers to meet competition.[3]

At the same time the Commission realizes the evils of discrimination and has sought to keep the play of competition within bounds. Market competition will be recognized as a justification for discrimination only on a special showing.[4] Moreover, a carrier will not be permitted to discriminate when it itself is responsible for the preferential rate.[5] An additional restriction is that a low competitive rate cannot be charged at one point and not at another place where the conditions are similar.[6] Still other limitations are explained later.

Long- and Short-haul Clause

Violating the distance principle in an extreme way, long- and short-haul discrimination appears at first sight to be altogether obnoxious. It has been absolutely prohibited by certain states and is condemned in general by the federal government.[7] The federal restriction is set forth in Sec. 4 of the Interstate Commerce Act. The evolution of the Long- and Short-haul Clause, as Sec. 4 is generally known, and the Commission's administration thereof constitute the subject matter of the present subheading.[8]

It is in connection with the Long- and Short-haul Clause that the policies of Congress and of the Commission toward local discrimination, and the complexity of the issues involved, have been best revealed. Section 4 has been substantively amended three times, in 1910, 1920, and 1940, and the Commission has received thousands of applications for relief from its provisions. So numerous have been the cases that the Commission has created the Fourth Section Board to expedite administration.[9]

Section 4 at Present. Paragraph (1) of the Long- and Short-haul Clause now reads as follows: "It shall be unlawful for any common carrier subject to this part or part III to charge or receive any greater

[1] *7 I. C. R.* 612, 658 (1898); *139 I. C. C.* 367, 390 (1928); *182 I. C. C.* 119, 124 (1932).

[2] *40 I. C. C.* 111 (1916); *167 I. C. C.* 276 (1930); *174 I. C. C.* 9, 15 (1931); *188 I. C. C.* 307 (1932).

[3] *23 I. C. C.* 374, 376 (1912); *89 I. C. C.* 512, 524 (1924).

[4] *258 I. C. C.* 427, 432 (1944).

[5] *32 I. C. C.* 1, 10 (1914).

[6] *15 I. C. C.* 79, 87 (1909); *43 I. C. C.* 458, 465 (1917); *194 I. C. C.* 269, 272 (1933).

[7] Some states have written long- and short-haul clauses into their constitutions.

[8] A comprehensive discussion is Dewey, *op. cit.* See also Sharfman, I. L., *The Interstate Commerce Commission*, part 3, vol. B, pp. 538–693 (1936).

[9] Over 17,000 requests for relief had been filed by 1938. *Long and Short Haul*, Senate Report no. 1768, 75th Cong., 3d Sess., part 2, p. 6 (1938).

compensation in the aggregate for the transportation of passengers, or of like kind of property, for a shorter than for a longer distance over the same line or route in the same direction, the shorter being included within the longer distance, or to charge any greater compensation as a through rate than the aggregate of the intermediate rates . . . but this shall not be construed as authorizing any common carrier . . . to charge or receive as great compensation for a shorter as for a longer distance: *Provided*, That upon application to the Commission such common carrier may in special cases, after investigation, be authorized by the Commission to charge less for longer than for shorter distances for the transportation of passengers or property; and the Commission may from time to time prescribe the extent to which such designated common carrier may be relieved from the operation of this section, but in exercising the authority conferred upon it in this proviso the Commission shall not permit the establishment of any charge to or from the more distant point that is not reasonably compensatory for the service performed; and no such authorization shall be granted on account of merely potential water competition not actually in existence: *And provided further*, That tariffs proposing rates subject to the provisions of this paragraph may be filed when application is made to the Commission . . . and in the event such application is approved, the Commission shall permit such tariffs to become effective upon one day's notice." Paragraph (2) provides that wherever a railroad in competition with a water route reduces the rates to or from competitive points, it shall not be permitted to increase such rates unless the Commission finds that a proposed increase rests upon changed conditions other than the elimination of water competition.

Certain features of the Long- and Short-haul Clause should be emphasized. It applies to railroads and to common carriers by water, but not to motor carriers. The latter have not generally resorted to long- and short-haul discrimination, although occasional complaints indicate that truckers have sometimes done so. The clause also covers passengers as well as freight. It is chiefly significant, however, in connection with freight, for long- and short-haul discrimination against passengers is impracticable.

The three conditions essential to violation of the Long- and Short-haul Clause are a higher aggregate charge for a shorter than for a longer distance; transportation of passengers, or of like kinds of property; and shipment over the same line in the same direction, the shorter haul being included within the longer. Where these circumstances prevail, it is unlawful to charge more for a short than for a long haul except after approval by the Commission.

Question arises as to the relation of Sec. 4 to Sec. 3, for both refer to

local discrimination and both endow the Commission with discretionary power. The primary distinction is that Sec. 4 is preventive, while Sec. 3 is remedial. Long- and short-haul discrimination is of itself unreasonable, and to depart from the provisions of Sec. 4 the carriers must apply to the Commission and assume the burden of justifying departure. Carriers become guilty of discrimination under Sec. 3 only upon complaint and proof by complainant of undue preference and prejudice. So far as it goes, Sec. 4 is more restrictive than Sec. 3, even though the Commission can grant relief from its provisions.

Section 4 Prior to 1910. As originally enacted in 1887, Sec. 4 prohibited the charging of more for a short than for a long haul "under substantially similar circumstances and conditions," but it did not define the phrase and prescribed no specific limitations upon the Commission's administrative authority. If the circumstances and conditions at near and distant points were dissimilar, was it necessary for the carriers to secure the permission of the Commission before charging more for short than for long hauls? What constituted a dissimilarity of circumstances and conditions? In the leading early case the Louisville and Nashville Railroad argued that conditions at near and distant points were often dissimilar for a number of reasons, the chief one being the unevenness of competition, which might consist of rivalry from water carriers, railroads, or markets.[1] The railroad further asserted that the Act to Regulate Commerce did not prevent competition and that, when competition made it necessary for a carrier to disregard the long- and short-haul principle, Sec. 4 did not apply.

The Commission answered the first question affirmatively.[2] It agreed that when the circumstances and conditions at near and distant points were dissimilar, application for relief from Sec. 4 was unnecessary. Since the carriers made rates in the first instance, this meant that they themselves could decide the question of similarity. However, in case of complaint against a higher charge for a short than for a long haul, the carriers had to assume the burden of proving dissimilarity. And the Commission, against the claims of the carriers, definitely stated that competition did not necessarily create a dissimilarity of conditions, although it might do so. It was essential to examine the nature of the rivalry.

According to the Commission, charging more for a short than for a long haul was justified where a railroad encountered competition from a water carrier, provided the rate to the distant point was not below actual cost or was not unduly depressed by action of the railroad itself. The

[1] *1 I. C. R.* 278 (1887).

[2] In the beginning the Commission had ruled that all departures from Sec. 4 required its prior approval, but an overwhelming number of applications caused it to take a more liberal view.

reason for this rule was that water transportation was not under the jurisdiction of the Commission. This was true likewise of competition from a foreign railroad, such as a Canadian line. As to domestic railroads, the conclusion was less certain. The Commission deferred judgment on competition from an intrastate rail line and stated that competition between interstate lines justified departure from the long- and short-haul principle only in special cases. Insofar as competition between carriers subject to the act did not create a dissimilarity of circumstances, departures from Sec. 4 required prior approval by the Commission.

During the period from 1887 to 1897 the Long- and Short-haul Clause, as interpreted by the Commission, was generally accepted by the carriers and was applied with considerable success.[1] Except in certain parts of the South, the more glaring cases of discrimination were removed.[2] Favoritism occurred elsewhere principally on the basis of water competition. The Commission found it expedient, however, to clarify its original ruling. Because of the fact that the railroads tended to regard all competition as justification for departure from Sec. 4, the Commission held in 1892 that circumstances and conditions manifestly became dissimilar only if the competition in question was with a carrier not subject to the Act to Regulate Commerce. Except in such instances, the Commission ruled that the decision as to the dissimilarity of conditions should not rest with the carriers.[3] In the great majority of cases it then became incumbent upon the companies to apply to the Commission for relief.

In 1897 the Commission's revised interpretation was disapproved by the Supreme Court in the Alabama Midland decision.[4] The question at issue in this case was the familiar one of what constituted a dissimilarity of circumstances and conditions, the Alabama Midland Railroad arguing that rail competition at Montgomery, Ala., and not at Troy, created such a difference of circumstances as to justify lower rates between Montgomery and northern points than between less distant Troy and northern points. The Commission had rejected this defense, but the Court held that the mere fact of competition, which could include competition between interstate railroads, brought about that dissimilarity of circumstances and conditions contemplated by the statute, and that a carrier on its own initiative could take the situation into account in fixing a competitive rate. Though the language of the Court was none

[1] For a condensed review of this period see *Final Report of the Industrial Commission*, House Documents, vol. 82, 57th Cong., 1st Sess., pp. 433–444 (1902).

[2] *Annual Report of the Interstate Commerce Commission*, 1897, p. 41.

[3] *4 I. C. R.* 120 (1892).

[4] *168 U. S.* 144 (1897). A year earlier the Supreme Court had overruled a decision of the Commission that competition did not justify lower railroad rates on imports than on domestic traffic from ports. *162 U. S.* 197 (1896).

too clear, later cases soon indicated that the foregoing interpretation correctly expressed the meaning of the decision.[1]

As explained in Chap. VI, the Alabama Midland Case nullified Sec. 4. In the words of the Commission, "Competition is the only reason why a carrier would desire to charge less to the more distant point, and if competition justifies him in so doing, there is nothing left for the section to act upon."[2] Competition made the circumstances and conditions at near and distant points dissimilar; and the circumstances being different, the carriers need not apply to the Commission before charging more for short than for long hauls. Practically speaking, the only check against local discrimination was Sec. 3. Within 5 days after the decision, the Trans-Missouri Freight Bureau raised rates to intermediate points in an area of more than 100,000 square miles.[3]

The effectiveness of Sec. 4 was not restored until the passage of the Mann-Elkins Act in 1910—13 years after the Alabama Midland Case and 4 years after the Hepburn legislation. During the period 1906 to 1910 the Commission's lack of power to prevent long- and short-haul discrimination was indicated by the failure of the carriers to file a single application for fourth-section relief.[4] The Commission had repeatedly called attention to the weakness of the "emasculated" clause, and spokesmen for the Southern and Intermountain territories, where Sec. 4 discrimination was most pronounced, had advocated a stronger law; but the Commission proposed no specific change in 1906, and Congressional action was opposed by the carriers and by eastern manufacturers and jobbers. These shippers feared that a more rigid clause would lead to higher through rates to Southern and Western markets.

Legislation Restoring Section 4. The Mann-Elkins amendment has been the most important long- and short-haul legislation since the Act of 1887. Its provisions still remain in the Interstate Commerce Act, and Sec. 4 policy has taken shape primarily thereunder. The legislation of 1920 and 1940, referred to in Chap. VII, put into effect policies already developed by the Commission. The newer changes will again be indicated at appropriate points below.

The most significant change made by the Mann-Elkins Act in revitalizing Sec. 4 was the elimination of the words "under substantially similar circumstances and conditions." This made it unlawful to charge more for short than for long hauls under the conditions specified in Sec. 4, regardless of the justification that might be offered for so doing, except

[1] *175 U. S.* 648, 671 (1900); *181 U. S.* 1 (1901).

[2] *Annual Report of the Interstate Commerce Commission*, 1897, p. 42.

[3] *Ibid.*, p. 43.

[4] *Short and Long Distance Hauls*, Senate Document no. 50, 68th Cong., 1st Sess., p. 3 (1924).

after application to and approval by the Commission. In recognition of the fact that the carriers had published thousands of rates violating the long- and short-haul principle, and in order to prevent a sudden disturbance of rate structures, the act further provided that such rates might be continued until hearing if covered by applications filed within 5 months after the effective date of the new law.[1] During this period the carriers filed 5,031 applications, and from June 18, 1910, to Feb. 28, 1920, there were filed 11,442 applications.[2] Many years elapsed before these petitions, frequently covering thousands of rates, were disposed of.

In the meantime the Mann-Elkins Act had been contested, and the Supreme Court in the Intermountain Rate Cases had upheld the following rulings of the Commission: that Congress meant in 1910 to strengthen Sec. 4, that the carriers were not themselves to make exceptions therefrom, and that there should be deviation from the long- and short-haul principle only in special cases to meet transportation circumstances beyond the carriers' control.[3]

The other parts of the Mann-Elkins Act relating to local discrimination require only brief comment. One provision prevented an increase in rail rates once reduced to meet water competition, unless the increase rested on grounds other than the elimination of such competition. This was significant in that it expressed the Congressional intent to encourage interagency competition.[4] Another provision prohibited a through rate higher than the aggregate of intermediate rates and was designed to check a less important form of rate preference quite the reverse of long- and short-haul discrimination.[5] Finally, the act replaced the words "over the same line" with the phrase "over the same line or route," thus clarifying the Commission's jurisdiction.

Administration and Amendment of Section 4 since 1910. After 1910 the much-contested Fourth Section became a very important means of restraining local discrimination.[6] The Commission's policies can conveniently be described by classifying the situations in which it has granted relief from Sec. 4.[7] Most cases have turned on competition of

[1] The same principle was followed when the Transportation Act of 1940 applied Sec. 4 to water carriers.

[2] Administration of Fourth Section, *87 I. C. C.* 564, 567 (1924); *Short and Long Distance Hauls, op. cit.*, p. 3.

[3] *234 U. S.* 476, 484–486 (1914).

[4] This provision has never been very effective in preventing increases in rates. Reductions approved by the Commission are not subject to the restriction.

[5] Cf. p. 369.

[6] The Commission's applications of Sec. 4 in modifying rate structures in all sections of the United States are analyzed by Dewey, *op. cit.*, Chaps. 6–10.

[7] These situations are reviewed in "The Interstate Commerce Commission and the Long-and-short-haul Problem," *Yale Law Journal*, vol. 45, pp. 1426–1462 (June, 1936).

one form or another, although there are two types of situations in which competition has not been the immediate consideration. One is where the Commission, in order to preserve group rates, allows a carrier to charge less at destination points in a low-rated zone than at intermediate points in a higher rated zone through which the carrier passes on its way to destination.[1] This applies where the variation in rates arises from differences in classification as well as from differences in rate scales.[2] Another sort of situation sometimes occurs during emergencies, as when the Commission permits especially low rates to localities suffering from flood or drought. Of similar nature is temporary relief, pending more thoroughgoing modification of rates.[3]

Rail and Water Competition. The competitive circumstances under which the Commission allows long- and short-haul discrimination correspond in general with the illustrations of defensible discrimination analyzed above. Interagency competition has generally meant competition between railroads and water lines. Recently, however, other modes of transportation have become factors.[4] For example, in 1940 the Commission gave certain railroads relief from Sec. 4 in quoting rates on truck-competitive traffic moving under any-quantity rates.[5] Competition between railroads and pipe lines has also been recognized.[6]

The Commission's policies where rail and water carriers compete are well illustrated by its decisions in the long Transcontinental rate controversy, which arose because the railroads charged lower rates at Pacific coast terminals than at intermediate points in Intermountain territory. In the first important case after 1910 representatives of the Intermountain localities, believing that their rates were made higher or more prejudicial by depressed terminal rates, argued that water competition was insufficient to force abnormally low railroad rates at the terminals, and that the existing rates, which were reasonable, should apply at the intermediate points.[7] The railroads replied that water competition compelled the lower rates, that the charges at intermediate places were reasonable, that these places did not suffer by reason of the discrimination, and that modification of the established rate structures would be contrary to public policy.

The Commission took a conservative view, apparently desiring to

[1] *104 I. C. C.* 578 (1925); *259 I. C. C.* 5 (1944).

[2] An example is the rate adjustment to and from so-called "border" points adjacent to the boundary between Official and Southern territories. *259 I. C. C.* 148, 150 (1944).

[3] *Annual Report of the Interstate Commerce Commission*, 1913, pp. 26–28.

[4] *173 I. C. C.* 263 (1931); *253 I. C. C.* 509 (1942).

[5] *238 I. C. C.* 379 (1940). See *Railway Age*, vol. 108, p. 824 (May 11, 1940).

[6] *183 I. C. C.* 24 (1932).

[7] *21 I. C. C.* 329 (1911).

relieve the Intermountain cities without ordering a drastic revision of rates. It recognized the force of water competition, even though only potential, but refused to give as much weight to this factor as the carriers desired.[1] Stating that the railroads quoted low rates from the Middle West to the coastal terminals primarily because of the rivalry of Eastern jobbers, and not on account of water competition, the Commission prescribed an adjustment of rates based upon the force of water competition as determined by the distance of origin points from the Atlantic coast. Five groups or zones were marked out. On westbound traffic originating in the most westward zone, where water competition was of little influence, there was to be no difference between the terminal and intermediate rates. On traffic from the next most westward zone the intermediate rates might be 7 per cent higher than the terminal rates; from the next zone, 15 per cent higher; and from the easternmost zone, where water competition had the greatest effect, 25 per cent higher.[2] In accordance with this decision, the carriers made adjustments which remained in effect for about 3 years.

When the Panama Canal was opened, intercoastal water transportation became more effective; the water carriers made substantial reductions in their rates; and the railroads asked permission to meet the intensified competition by increasing the spread between terminal and intermediate rates. On articles listed in Schedule C the request was granted, the Commission having found that the proposed low rates more than covered out-of-pocket costs.[3] Schedule C included commodities well adapted to water transportation and originating on or near the Atlantic seaboard. Schedule B included commodities somewhat less susceptible to transportation by water, to which the carriers had applied the percentages authorized in the decision of 1911; and Schedule A included commodities which were either unsuited to water transportation or which originated far enough from the Atlantic to make transport by water impracticable.

During 1915 and 1916 intercoastal shipping declined in importance because of landslides in the Canal and the outbreak of the First World War. Thereupon the Intermountain cities asked the Commission to reopen the hearings on transcontinental rates, alleging that the disappearance of water competition had removed the justification for fourth-section departures. Since water competition was in fact negligible, the Commission decided for the complainants and ordered the railroads to eliminate

[1] In the beginning the Commission had refused to recognize potential water competition. *1 I. C. R.* 278, 291 (1887).

[2] No rates were prescribed for Zone V covering the southeastern section of the United States.

[3] *32 I. C. C.* 611 (1915); *33 I. C. C.* 480 (1915); *34 I. C. C.* 13 (1915).

the differentials, notwithstanding the argument of the carriers that the decline in water transportation was only temporary.[1]

By this time the Commission had begun to question its earlier rule that potential water competition warranted relief from Sec. 4; for once abandoned, water service might never rise again. However, the Commission recognized such competition in another case and did not definitely reverse its original holding until 1919.[2] In that year it handed down a decision involving rates in the Mississippi Valley which made it clear that potential water competition was no longer to be accepted as an excuse for long- and short-haul discrimination.[3]

The principle that potential water competition shall not be recognized was incorporated in the Transportation Act of 1920. In theory it seems reasonable, but in practice the line between actual and potential competition is sometimes difficult to draw.[4] If actual water competition is defined too liberally, Sec. 4 is unnecessarily weakened. If it is defined too strictly, there is encouraged water transportation which may not be able later to hold its own. The Commission has decided that the absence of actual movement is not necessarily the test.[5] "To justify reductions in rates, potential competition must be something that threatens to assume the form of reality in the near future rather than an uncertain contingency, and it must consist of something more tangible than a mere intention expressed by a shipper to engage in the transportation of his own products."[6]

After the First World War was over shipping through the Panama Canal revived, and the railroads requested permission to restore the system of differentials removed in 1917.[7] Since the Transportation Act of 1920 provided that the rate to or from a distant point must be reasonably compensatory for the service performed, the carriers proposed new terminal rates based upon the theory that railroad rates compelled by water competition are reasonably compensatory if they contribute anything above out-of-pocket expenses. The Intermountain cities, on the other hand, argued that a reasonably compensatory rate is equivalent to the

[1] *46 I. C. C.* 236 (1917). The railroads removed the differentials by advancing the terminal rates to the level of intermediate rates, greatly displeasing the Intermountain interests.

[2] *50 I. C. C.* 540 (1918).

[3] *55 I. C. C.* 515 (1919). In 1940 the Commission denied relief from Sec. 4 on imported and intercoastal wood pulp from North Atlantic ports to Central Territory on the ground that the Second World War caused a decline in coastal shipping. *Railway Age*, vol. 108, p. 983 (June 1, 1940). *238 I. C. C.* 515, 517 (1940).

[4] *208 I. C. C.* 395 (1935); *214 I. C. C.* 647 (1936); *220 I. C. C.* 264 (1937).

[5] *220 I. C. C.* 264 (1937).

[6] *238 I. C. C.* 625, 628 (1940).

[7] *74 I. C. C.* 48 (1922).

full average cost of service, including the return on investment. The Commission, accepting neither view, enunciated a definition of its own. Since this definition has become standard, we quote from the decision: "In the light of these and similar considerations, we are of the opinion and find that in the administration of the fourth section the words 'reasonably compensatory' imply that a rate properly so described must (1) cover and more than cover the extra or additional expenses incurred in handling the traffic to which it applies; (2) be no lower than necessary to meet existing competition; (3) not be so low as to threaten the extinction of legitimate competition by water carriers; and (4) not impose an undue burden on other traffic or jeopardize the appropriate return on the value of the carrier property generally, as contemplated in Section 15*a* of the act."[1]

The true economic test of the compensatory character of a rate is the first requirement, and the Commission's standard cannot be understood except in the light of the Transportation Act of 1920. In addition to amending Sec. 4, the Act of 1920 (Sec. 500) declared it to be the policy of Congress "to promote, encourage, and develop water transportation." This largely explains the second and third requirements.[2] The Act of 1920 also directed the Commission to initiate rates that would provide the carriers a fair return upon the value of their property. This furnishes reason for the fourth requirement and constitutes the principal ground upon which the railroads' request of 1922 was partly denied. Although the Commission allowed the carriers relief from Sec. 4 on certain commodities eastbound, it refused relief on most westbound traffic primarily because the proposed rates, though apparently compensatory, did not appear likely to produce enough earnings through increased business to offset the loss from traffic that would continue to move under the old rates.

Two other decisions on Transcontinental rates were handed down in 1926 and 1932. In both instances the issues were substantially the same as in the preceding cases, and in both the carriers' applications for relief were denied. The Commission's grounds for denial in the first case were as follows: the proposed rates, as in 1922, would probably encourage rate cutting and produce an inadequate revenue; would tend to neutralize the natural advantages of seaports on the Atlantic in favor of the Middle West; and would divert traffic from the water carriers in contravention of the policy declared in Sec. 500.[3] The basis for denial in the second case

[1] *Ibid.*, p. 71.

[2] Section 500 may have been weakened by a decision of the Supreme Court to the effect that it did not mean that the railroads were required to maintain high rates in order to prevent a reduction in the profits of water carriers. *292 U. S.* 282 (1934).

[3] *107 I. C. C.* 421 (1926).

was that the proposed rates were not reasonably compensatory as defined in 1922.[1]

Competition between Railroads.[2] Competition between railroads is recognized by the Commission as justification for long- and short-haul discrimination when the petitioning carrier competes at a disadvantage with respect to the traffic involved. The disadvantage generally consists of a longer route between the competitive points, but it sometimes takes other forms. For example, a weak railroad may be accorded relief in order to meet a rate set by a standard line.[3] This has occurred frequently in Southern Territory. Again, a carrier operating through a territory having a high rate level may be permitted to charge more at an intermediate point than at a more distant point served by a competitor traversing a lower rated territory.[4] Still another sort of disadvantage is illustrated by the granting of relief to carriers charging a joint-line arbitrary and competing at the more distant point with a single-line route.[5]

Competition between direct and indirect routes was a factor frequently recognized in the Commission's modification of the basing-point system in the South.[6] The leading Southern case granted the railroads relief to meet water competition, but it also allowed departures on the part of circuitous rail routes competing with direct routes, provided the intermediate rates were reasonable and the competitive rates did not burden other traffic.[7] Direct routes were not permitted to discriminate, and indirect routes could do so only when the roundabout distance between competitive points exceeded the short-line mileage by 15 per cent or more.[8] Shorter indirect routes were held to be at no competitive disadvantage. Other cases also prescribed maximum limits of circuity, the object being to make depressed rates reasonably compensatory.[9] The common limits have ranged between about 115 and 170 per cent.[10] According to the Fourth Section Board, the percentage of permissible circuity should

[1] *182 I. C. C.* 770 (1932).

[2] Most Sec. 4 cases involve rail competition. Between Feb. 28, 1920, and Nov. 1, 1923, only 4 applications were granted to meet water competition, while 550 were granted to meet some form of railroad competition. *Short and Long Distance Hauls, op. cit.*, p. 4.

[3] *107 I. C. C.* 190 (1926).

[4] *80 I. C. C.* 157 (1923); *198 I. C. C.* 603 (1934).

[5] *77 I. C. C.* 473 (1923); *98 I. C. C.* 688 (1925).

[6] A recent case is *258 I. C. C.* 389 (1944), which involved class rates in the Midwest and Southwest.

[7] *30 I. C. C.* 153 (1914); *32 I. C. C.* 61 (1914).

[8] See also *Annual Report of the Interstate Commerce Commission*, 1911, pp. 27–41.

[9] *100 I. C. C.* 513, 709 (1925); *253 I. C. C.* 325 (1942).

[10] *39 I. C. C.* 497, 512 (1916); *59 I. C. C.* 202, 203 (1920); *53 I. C. C.* 21, 27 (1919); *50 I. C. C.* 213 (1918); *91 I. C. C.* 235, 264 (1924); *123 I. C. C.* 73, 78 (1927); *104 I. C. C.* 578, 586 (1925); *122 I. C. C.* 747, 749 (1927); *258 I. C. C.* 459 (1944).

depend upon the short-line distance, decreasing as that distance increases.[1]

Another limitation upon discrimination by indirect routes was definitely set forth in a case decided in 1917. The Commission there ruled that when a railroad received relief because of its circuity, the low rates should apply only on traffic between junction points whose distance by the direct route was less than the distance between the intermediate locality and the junction.[2] This principle, described in Chap. VII, became the equidistant clause of the Transportation Act of 1920.[3]

The equidistant rule is sound only when the transportation conditions on roundabout and direct routes are substantially similar except as to circuity.[4] The Commission has found it desirable to permit numerous exceptions, as when the indirect route consists of a weak railroad, or more lines than the direct route.[5] Upon the recommendation of the Coordinator of Transportation[6] and with the approval of the Commission,[7] the equidistant clause was repealed by the Transportation Act of 1940. This of course simply restored the rule to its status prior to 1920. It could still be applied in the administration of Sec. 4.[8]

Summary of Section 4 Policy. The Long- and Short-haul Clause, applicable to railroads and water carriers, prohibits the charging of more for a short than for a long haul over the same line in the same direction, the shorter haul being included in the longer—a type of local discrimination once widespread and still common in the United States. In special cases the Commission may permit exceptions. The primary basis for departure is competition, which may mean market or interagency competition, chiefly between railroads and water lines but which refers in the vast majority of cases to intraagency rivalry between direct and indirect railroad routes. Competition does not necessarily justify departure. The circumstances under which it does do so have been gradually formulated over the years by the Commission in accordance with its interpretation of the intent of Congress.

A petitioning carrier seeking relief from Sec. 4 must show affirmatively (1) that competition is of controlling force, (2) that the rates applicable at intermediate points are reasonable in themselves,[9] and (3) that the

[1] *Traffic World*, vol. 74, p. 18 (July 1, 1944).
[2] *46 I. C. C.* 712, 748 (1917).
[3] Cf. p. 177.
[4] See *151 I. C. C.* 763 (1929).
[5] *107 I. C. C.* 190 (1926); *77 I. C. C.* 473 (1923).
[6] Federal Coordinator of Transportation, *Regulation of Transportation Agencies*, Senate Document no. 152, 73d Cong., 2d Sess., pp. 66–72 (1934).
[7] *Annual Report of the Interstate Commerce Commission*, 1937, p. 105.
[8] *253 I. C. C.* 423 (1942).
[9] *22 I. C. C.* 519, 529 (1912).

rates on long hauls are reasonably compensatory.[1] The first requirement means that the competition must be actual rather than merely potential,[2] that it must be of importance,[3] that it compels the carrier to quote the low rate or forego the traffic,[4] and that the carrier is not the active party in the rate cutting.[5] The carrier must be at a real disadvantage.[6] The second requirement means that the intermediate rates must measure up to the previously explained standards governing the reasonableness of rates between points; *i.e.*, the rates must bear an appropriate relation to the length of haul.[7] The third requirement means that the through rates are more than adequate to cover the special expenses attributable to the traffic, no lower than necessary to meet competition, not so low as to threaten legitimate water competition, and sufficiently high not to place a burden on other traffic or lessen the ability of the carriers to earn the return contemplated in Sec. 15*a* of the Interstate Commerce Act.[8] In order to protect there turn, limits are placed upon circuity. It is evident that long- and short-haul discrimination, although not absolutely prohibited, is subject to substantial limitations.[9]

Proposed Amendment of Section 4. Certain groups have advocated substantive modification of Sec. 4. Typical of the measures designed to make it more prohibitive were the Gooding bills of the twenties, which would have prevented the railroads from receiving relief to meet water competition.[10] Senator Gooding represented localities of the Intermountain Territory. He also spoke for certain cities of the Mississippi Valley, such as Memphis, which feared that a freer rate policy for the railroads would check the development of inland waterways. Joining these cities were the Atlantic ports especially interested in cheap intercoastal shipping. Though strongly supported, the Gooding bills and similar measures failed to pass Congress.

During the thirties a concerted effort was made to nullify rather than strengthen Sec. 4. The most widely debated measure was the Pettengill bill, which in essence substituted for Sec. 4 a provision merely prohibiting rates in excess of the aggregate of intermediate rates.[11] The prohibition

[1] 1 *I. C. R.* 278, 284 (1887); *9 I. C. R.* 221, 239 (1902).
[2] *1 I. C. R.* 278, 291 (1887).
[3] *85 I. C. C.* 270, 289 (1923).
[4] *32 I. C. C.* 1, 10 (1914); *46 I. C. C.* 236, 270 (1917).
[5] *2 I. C. R.* 41, 46 (1888).
[6] *30 I. C. C.* 153, 304 (1914); *88 I. C. C.* 765, 766 (1924).
[7] Cf. p. 368.
[8] *74 I. C. C.* 48, 71 (1922); *182 I. C. C.* 770 (1932).
[9] Section 4 procedure is described in Dewey, *op. cit.*, Chap. 9.
[10] *Report of the Committee on Interstate Commerce*, Senate Report no. 302, 68th Cong., 1st Sess. (1924).
[11] See Koontz, H. D., "Transport Competition and Proposed Repeal of the Long-and-short-haul Clause," *Journal of Political Economy*, vol. 46, pp. 153–175 (April, 1938).

against higher intermediate charges, the reasonably compensatory clause, the equidistant provision, and the requirement as to potential water competition were to be stricken from the law. In other words, the Pettengill bill would in reality have eliminated the Long- and Short-haul Clause. Should the measure have been enacted, the carriers would have remained subject to the general prohibition against undue local discrimination in Sec. 3; but it would have been unnecessary for the companies to obtain permission from the Commission before charging more for short than for long hauls. Procedurally there would have been reversion to the situation existing prior to 1910.

The Pettengill bill received strong support from the railroads, chiefly on the ground that it would permit greater flexibility in rate making, thereby enabling them to compete more effectively with carriers not subject to Sec. 4.[1] The companies argued that the existing machinery governing departures from Sec. 4 was too slow and cumbersome and that the Commission had not been liberal enough in granting relief. They further stated that long- and short-haul discrimination is the same in kind as local discrimination which falls under Sec. 3, and that this section, together with the Commission's power to fix minimum rates and suspend proposed changes in rates, furnishes ample protection against undue preference and prejudice.

The Pettengill bill was also endorsed by certain shippers. Among these were sugar producers in Colorado and copper miners in Utah, who believed that a more liberal railroad-rate policy would result in lower rates on their products. Another group favoring the bill were the shippers of the upper Mississippi Valley, who were dependent on railroad transportation and who competed on the Pacific coast with manufacturers in the East having access to intercoastal routes. Still other interests desiring repeal of Sec. 4 included most shippers on the Pacific coast and many in the interior sections of the East. On the Pacific coast lumbermen and growers of citrus fruit endorsed repeal primarily because they relied largely upon the railroads for transportation to eastern markets. Shippers in the interior took a similar position because they, too, wanted low rail rates to distant markets.[2]

The proposed nullification of Sec. 4 twice passed the House only to fail in the Senate. It was opposed by those groups traditionally in favor of stricter legislation, and it was disapproved by the Interstate Commerce Commission.[3] Speaking in general for the Commission, Mr. Eastman testi-

[1] See Committee on Interstate Commerce, *Long and Short Haul*, Senate Report no. 1768, 75th Cong., 3d Sess. (1938). Part 1 of this report presents the case for the Pettengill bill; part 2 gives the arguments against it.

[2] For a map illustrating the clash of interests on the Pettengill bill see Daggett, *op. cit.*, p. 444.

[3] Committee on Interstate Commerce, *op. cit.*, part 2, pp. 30–60.

fied that the passage of the bill would encourage the reappearance of an evil which Congress had long sought to prevent. Section 3 plus the suspension powers of the Commission would afford some protection against discrimination, but it would be inadequate. More important, enactment of the Pettengill measure would be interpreted by the courts and the Commission as Congressional approval of greater liberality toward local discrimination. This would be undesirable primarily because of the impetus to rate making on an out-of-pocket cost basis. Long-haul rates so made would tend to place a burden on noncompetitive traffic. As evidence, was cited the fact that the railroad rates on coal in the East had been increased since the First World War by more than four-fifths. Moreover, it was pointed out that much of the support for the bill represented market competition, which, if recognized, would lead to endless difficulties and serve to destroy the natural advantages of localities. As a whole, the carriers themselves would lose, particularly the water lines; for the approval of rates on an out-of-pocket basis for one carrier would mean similar rates for another. The companies expecting to gain most from the measure in question were said to be a few railroads dissatisfied with the Commission's decisions in the Transcontinental rate cases.

With regard to Commission policy, Mr. Eastman suggested that it was unnecessary to enact the Pettengill bill in order to secure a prompter adjustment of rates. If the Commission was too slow in passing upon requests for relief from Sec. 4, a time limit could be enacted, as in suspension cases. Under the existing law the railroads had published an enormous number of truck-competitive rates which had rarely been disapproved by the Commission. They had also been allowed reasonable leeway in meeting water competition. Of 306 applications filed between Jan. 1, 1930, and Dec. 31, 1937, temporary or continuing relief had been granted in 239. Only 40 had been denied, and these were not necessarily the important ones, even though the disallowed transcontinental applications were among the number. Substantial relief had been granted in connection with the citrus-fruit business of Florida, certain traffic on the Pacific coast, and bulk freight on the Mississippi and Ohio rivers. The average time taken by the Commission in disposing of the applications to meet water competition was 150.6 days, and temporary relief was granted in an average of 47.3 days. The hearings on Sec. 4 cases seldom lasted more than half a day. Much of the objection to Sec. 4 on the ground of delay was removed when the Transportation Act of 1940 provided that tariffs may become effective upon one day's notice.

The Gooding and Pettengill bills have been described as types of legislation, in order to bring out the principles and clashes of interests involved in regulating local discrimination. In our opinion the evidence has failed to show that Sec. 4, or the Commission's administration thereof,

has been either unduly liberal or too restrictive. Experience has demonstrated the desirability of a flexible law against discrimination, and rigid requirements of the Gooding sort should be avoided. But the general prohibitions against local discrimination should not be relaxed, and the Commission should be permitted gradually to place rates more nearly on a distance basis. With its fuller authority over all forms of transportation, such a policy should now be easier to accomplish than formerly. Room for competition will remain under a system of rates based largely upon cost.

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Proposed amendments of Sec. 4 are considered in the following: Committee on Interstate Commerce, *Long and Short Haul*, Senate Report no. 1768, 75th Cong., 3d Sess. (1938); Federal Coordinator of Transportation, *Regulation of Transportation Agencies*, Senate Document no. 152, 73d Cong., 2d Sess., pp. 66–72 (1934); Koontz, H. D., "Transport Competition and Proposed Repeal of the Long-and-short-haul Clause," *Journal of Political Economy*, vol. 46, pp. 153–175 (April, 1938); and United States Senate, *Short and Long Distance Hauls*, Senate Document no. 50, 68th Cong., 1st Sess. (1924).

Intercarrier Rate Relations

THE development of truck and bus transportation, the revival of transportation by water, the increased movement of oil and gasoline by pipe lines, and the growth of commercial aviation have put new emphasis upon intercarrier rate relations. To the problem of adjusting rates with reference to competition between carriers of the same type has been added that of adjustment with reference to rivalry between different types. Regulation of competitive rate making was described by Commissioner Eastman as one of the most difficult problems the Commission has ever had to face. Evidence of its increased significance is the widespread competitive readjustment of rates. Numerous charges based largely upon the value of the service have been reduced, and many special rates have been published. To some extent the character of rate proceedings has changed. Since 1930 the Commission has increasingly applied its minimum rate powers; and the number of formal complaints filed with the Commission has declined, while the number of investigation and suspension cases, in which the protestants are generally carriers rather than representatives of the public, has increased. In 1941 the Commission received 1926 protests seeking suspension of proposed changes in rates.[1] Railroads protested over 860 adjustments of motor rates and a few adjustments of water rates; motor carriers protested 175 adjustments of railroad rates; and water carriers protested 60 adjustments of railroad rates.[2] Most of the proposals looked toward reductions in rates, although a substantial number anticipated increases.

General Statement of the Problem

The problem of intercarrier rate relationships arises from the variation in the service characteristics, costs, and revenue needs of the different carriers and from the large volume of traffic moving under competitive conditions. Reference has already been made to the strong and weak railroad. Essentially the same situation occurs when the carriers of unequal

[1] *Annual Report of the Interstate Commerce Commission*, 1941, p. 135.

[2] Nine-tenths of the rail and motor protests were filed by associations of carriers.

ability to operate at a given level of rates are dissimilar in type. If all types are to be permitted a share of the competitive traffic, so as to encourage competition, rates must in the long run be high enough to enable the less efficient carriers to earn a reasonable return. But this means rates higher than justified by the costs of the most efficient, to the disadvantage of shippers served thereby.[1] On the other hand, if rates are made by the stronger carrier, direct competition tends eventually to disappear. Unless it enjoys an adequate volume of noncompetitive traffic, the high-cost carrier will be driven out of business, perhaps depriving its shippers of transport service. Possibly the rival carriers will combine to restrain competition.

During the thirties the relative importance of competitive traffic increased, and the rivalry between the several modes of transportation for a larger share thereof assumed extraordinary proportions. Under the impact of a declining total volume of business on the one hand and excess transport capacity on the other, competition became so severe in the opinion of the Commission as to threaten the solvency of all carriers. On the average only pipe lines had been earning a reasonable profit.

In addition to threatening the transportation service, it was believed that competition such as that of the thirties failed to distribute traffic in the most economical manner; *i.e.*, according to the relative economy and fitness of the carriers. Maldistribution reputedly arose in part from forces beyond the Commission's authority, such as public aids, taxation, and labor standards. It was also said to be caused by indefensible relationships between rates and carrier costs. For example, it was alleged that the railroads published rates below out-of-pocket costs, especially on less-than carload shipments and long hauls, thereby handling traffic that could have moved more advantageously by truck or water lines.[2] Similarly, truck and water carriers were believed to be taking business that should have fallen to the railroads.

Assuming the truth of the foregoing allegations, how can the regulatory authorities promote a more reasonable allocation of traffic? One method would be for the Commission to determine the services for which each carrier or means of transportation is best fitted, and to limit the fields of activity accordingly. For example, merchandise hauls of less than a few hundred miles might be given to truckers. An almost conclusive objection to this policy is that the conditions surrounding transportation service vary so widely and change so often as to make a reasonable general delimitation by a commission impracticable. A more acceptable way is to permit the allocation of traffic by shippers through the medium of regu-

[1] We assume that subsidies are not granted to the weak.

[2] Spokesmen for the trucking industry say that the less-than-carload traffic of the railroads is subsidized by the carload traffic.

lated rates quoted by the carriers on a flexible basis according to the circumstances of particular situations. In order for rates best to direct the flow of traffic, rate regulation must of course be supplemented by the control of service, interagency combination, and other matters. Attention must also be given to questions of policy outside the scope of regulation.

Congressional Policy

Congress has laid down certain directives bearing upon the regulation of intercarrier rate relations. These directives, which have been referred to in other connections, may be briefly summarized for the purpose of explaining the Commission's administration thereof. They are found in general statements of policy, rules of rate making, regulations on discrimination, and in other provisions of the Interstate Commerce Act.

(1) The declaration of national transportation policy in the Interstate Commerce Act provides that all forms of transportation shall be impartially regulated so as to recognize and preserve the inherent advantages of each, to promote efficient service and sound economic conditions in transportation and among the several carriers, and to encourage the establishment of reasonable nondiscriminatory rates without unfair or destructive competitive practices. This declaration must be considered in administering every provision of the act.[1] (2) Section 500 of the Transportation Act of 1920 declares it to be the policy of Congress to promote transportation by water and to preserve in full vigor both rail and water transportation. (3) The rule of rate making for railroads, Sec. 15*a* of the Interstate Commerce Act, directs the Commission in prescribing rates to consider the effects of rates upon the movement of traffic, the need for adequate railway service at the lowest rates consistent with such service, and the need of the carriers for revenue. (4) The rule for motor carriers, Sec. 216*i*, refers to similar factors and in addition requires consideration of the inherent advantages of motor transportation. (5) The rule for water carriers, Sec. 307*f*, is practically identical with that for railroads. (6) The Long- and Short-haul Clause provides that the Commission shall not permit the establishment of a rate to or from a distant point that is not reasonably compensatory, prohibits recognition of merely potential water competition, and prevents the railroads from raising rates reduced to meet water competition without a finding by the Commission that a proposed increase rests upon changed conditions other than the elimination of water competition. (7) The sections dealing with joint rates authorize the Commission to prescribe the terms and conditions applicable thereto, including the division of revenue and the establishment of

[1] See Eastern-Central Motor Carriers Association *v.* United States, *321 U. S.* 194 (1944).

differentials between rail and water rates. Differences between rail and water rates shall not be deemed to constitute unjust discrimination, or an unfair or destructive competitive practice. A similar principle applies to variations among the rates of all types of carriers, the intent of Congress being to preserve the inherent advantages of each.

By these directives and the provisions of the Interstate Commerce Act dealing with certificates and combination, Congress has emphasized the encouragement of competition in transportation. At the same time, Congress has placed upon the carriers the burden of proving that proposed reductions in rates are just and reasonable, stressing the promotion of sound conditions in the transportation industry and the preservation of the inherent advantages of particular modes of transport. To some extent the directives are contradictory. Their reconciliation and interpretation constitute the Commission's basic problem in regulating intercarrier relations.

Rate Controls Affecting Competition

Competition and the distribution of traffic among the carriers are affected to some extent by rate adjustments of all kinds. Fixing the maximum general level of rates determines the ability of the companies concerned to offer better service, or to finance capital improvements designed to reduce costs. Maximum rates on particular commodities or classes of commodities, when in excess of fully allocated costs, enable the carriers to quote lower rates on other traffic. Of similar effect is the prescription of joint rates and the divisions thereof.

Competition is also affected by the prescription of exact rates in regulating discrimination. As explained in the two preceding chapters, lawful rate relationships are based in part upon demand factors. Insofar as a carrier is permitted to charge relatively high rates on valuable commodities or short hauls, greater freedom is allowed in competing with another carrier for low-grade traffic and long hauls. Many of the cases of defensible discrimination involve interagency competition.[1]

The foregoing types of rate controls have been exercised with only incidental reference to competition and the flow of traffic. Maximum general rate levels have been based upon cost, although competition has not been ignored. Reasonable maxima on particular commodities and hauls have been determined by numerous factors, among which competition is only one. Fixation of exact rates in preventing discrimination, while affected by competition, is limited to situations where undue preference and prejudice can be established. More direct controls of competition are rail-water differentials and minimum rates.

[1] Cf. p. 388.

Rail-water Differentials

The Commission has been specifically authorized to prescribe interagency rate differentials only in the case of rail and water transportation where it has power to establish through routes and joint rates. Section 307*d* of the Interstate Commerce Act provides that "the Commission shall prescribe such reasonable differentials as it may find to be justified between all-rail rates and . . . joint rates in connection with . . . common carrier by water." The Commission also has authority to fix the divisions of rail-water rates.

In determining these differentials the Commission is of course subject to the general declaration of Congress with reference to the promotion of competition, preservation of the advantages of the two modes of transport, and encouragement of waterways.[1] According to the Commission, this means that the differentials should be based upon cost; but in the absence of adequate cost data, the differentials have sometimes been based more upon the differences in the value of rail and water services than upon relative economy.[2] In other words, they have been designed largely to offset the slowness and other disadvantages of water transportation.[3]

The typical differential on inland waterways has been 20 per cent, as adopted by the United States Railroad Administration during the First World War. This is based upon the theory that the charge for the water part of the haul should be 80 per cent of the railroad rate. Stated more exactly, the rail-water rate is ordinarily, though not always, four-fifths of the all-rail rate via the most direct all-rail route between origin and final destination.[4] It will be observed that computing the saving of 20 per cent on the basis of the direct all-rail route makes the rail-water rate lower than the all-rail rate, regardless of the circuity of the rail-water route. For this reason the Commission's limitations on the circuity of through routes between railroads and water carriers, described in Chap. XVI, are especially significant. If the differential were deducted from the all-rail rate via the point of interchange with the water carrier, the joint rail-water rate might be higher in cases of very roundabout routes than the direct all-rail rate. Differentials should decrease as circuity increases,[5] and it is probable that the propriety of the typical rule should be reexamined.

Divisions of joint rates are matters of bargaining between the carriers, but the Commission is authorized to decide the divisions where necessary.

[1] *238 I. C. C.* 415, 417 (1940).
[2] *77 I. C. C.* 317, 322 (1923); *151 I. C. C.* 126, 144 (1929); *172 I. C. C.* 525, 528 (1931).
[3] *153 I. C. C.* 129 (1929).
[4] *178 I. C. C.* 224 (1931).
[5] *231 I. C. C.* 255, 258 (1938).

In doing so the Commission must give due consideration to the efficiency with which the carriers are operated, to the revenue needs of the carriers, and to the importance of the service. As a rule, the water carrier is required to bear the burden of the differential.[1] The water line is to assume the expense of transfer from rail to water, and the railroad is entitled to the same revenue as it would receive if the traffic moved all rail via the point of interchange.

Since the extension of the Commission's authority over water carriers in 1940, and the declaration of a national transportation policy, more weight may be given to costs when establishing rates for competing rail and water lines, in order to avoid the encouragement of uneconomic transportation. Equalization of service factors tends to conflict with the preservation of the inherent advantages of each means of transport. In a 1945 case the Commission refused to prescribe rates on ex-barge traffic which would extend to barge-rail transportation most of the advantages of all-rail shipment.[2]

Minimum Rates

Minimum rates have been the chief tool of interagency rate regulation. Reference is made primarily to the prescription of minimum rates, not with the object of eliminating unjust discrimination, but for the purpose of controlling competition, protecting the rate structure, and preserving the advantages of the various carriers.

The Commission was given authority to prescribe minimum rates for railroads by the Transportation Act of 1920; for motor carriers by the Motor Carrier Act of 1935; and for water carriers by the Transportation Act of 1940. Prior to 1920 Commission authority was limited to the establishment of maximum rates, and in general the carriers were free to reduce rates to such figures as they saw fit, except in the case of long and short hauls.[3] Such powers as the Commission had over minimum rates were indirect.[4] One deterrent was that the Commission might accept reduced rates as evidence that other rates were too high. A more important influence over low rates was the Commission's authority to eliminate discrimination. In exercising this authority, the Commission could not force an increase in a reduced rate; but if the carriers chose to continue such charge, a reduction in the high rate was necessary. Obviously this method of controlling minimum rates was ineffective. The carriers could elect the

[1] *77 I. C. C.* 317, 325 (1923); *100 I. C. C.* 491 (1925).

[2] *262 I. C. C.* 7, 31 (1945).

[3] The Commission had long before pointed to the need for control of minimum rates. *Annual Report of the Interstate Commerce Commission*, 1893, pp. 38–39; 1898, p. 23.

[4] *249 U. S.* 557, 565–566 (1919). The common law does not recognize that rates may be too low.

alternative of reducing the high rate. Moreover, the publication of low rates by no means always created undue preference and prejudice. It is essential for the Commission to have direct authority over minimum rates.

The power of the Commission to regulate minimum rates has been upheld by the courts.[1] In 1928 a federal court pointed out that the Commission may prescribe minima where proposed rates are unreasonable in themselves, where they are so low as to cast a burden on other traffic, and where they are not sufficiently high to guarantee reasonable earnings either to the carriers directly concerned or to competing carriers.[2] As in the case of maximum rates, the Commission has authority to pass upon the reasonableness of minimum rates per se, as well as upon their relationships.

It should not be inferred that reasonable minimum rates are equivalent to reasonable maximum rates, or that the Commission can necessarily make them so. The former may properly be lower than the latter.[3] The Supreme Court has recognized a zone of reasonableness within which a carrier is ordinarily at liberty to adjust rates itself and in thousands of cases the Commission permits the carriers to exercise this privilege.[4] Frequently the zone is wide.

Recognition of a zone within which the carriers can fix rates implies limitation of the Commission's power to place a floor under rates. In the Milwaukee Case the Supreme Court declared that the carriers should be allowed to decide the lower level of a rate unless the rate clearly created unjust discrimination or definitely menaced steady and efficient service.[5] It was pointed out that every rate change disrupts rate structures to a certain extent, and that the fear of reduced earnings through rate wars engendered by the publication of low rates may prove to be illusory.

Although the foregoing decision was followed by another upholding a similar rate order,[6] it is clear that the Commission's minimum-rate authority must be exercised with care. For the prescription of minimum rates tends to raise the level of service charges. It also constitutes to some extent an authoritative allocation of traffic among carriers and a similar division of markets among producers. It is probably because of these far-reaching effects and the absence of clearly defined standards that the Commission has of its own volition proceeded cautiously in passing on minimum rates. In the sugar cases of 1922 the Commission made the following statement, which has been repeated in substance on numerous

[1] *295 U. S.* 476 (1935). See also *263 U. S.* 515, 525 (1924).
[2] *25 F. (2d)* 462, 471 (1928).
[3] *245 I. C. C.* 617, 634 (1941).
[4] *294 U. S.* 499, 506 (1935).
[5] *Ibid.*
[6] *295 U. S.* 476 (1935).

subsequent occasions: "We believe, however, that this power should be sparingly exercised and only in cases where it clearly appears that its exercise is necessary in order that substantial public injury may be avoided."[1] This was a railroad case, but the Commission has followed a corresponding policy toward motor carriers, generally refusing to prescribe increased minimum rates except on a clear showing of need.[2] Some of the circumstances that determine need are indicated under the next heading.

Protection of the Rate Structure.[3] Minimum rates are sometimes prescribed as a result of general investigations initiated by the Commission, but they more often become an issue through suspension proceedings.[4] As already indicated, proposed rates will be disapproved if they are noncompensatory, or if they result in creating undue preference and prejudice.[5] Low rates on intrastate traffic will be condemned if they cause unjust discrimination against interstate commerce.[6] Again, minimum rates will sometimes be disallowed if it appears that the carriers proposing reductions will lose more revenue therefrom than will be gained from traffic stimulated by the reduction. This was one basis for denying railroads relief from Sec. 4 in a transcontinental rate case.[7]

We are chiefly interested at this point in the prescription of minimum rates on other grounds; namely, to prevent breakdown of the rate structure so as to protect carrier credit. The fundamental issue involved is not whether the rates fail to cover out-of-pocket costs, create discrimination, or cause the carrier to lose revenue, but whether they will lead to a chain of reductions which will disrupt the rate system, drive rates as a whole below total costs, and endanger the transportation service. Rates barely equivalent to or less than out-of-pocket costs may have these undesirable results, but so may rates at higher levels. To condemn proposed rates only when they place a burden on other traffic would mean a severe limitation of the minimum-rate power; for the carriers do not ordinarily wish to quote rates below out-of-pocket costs. "We were given power to fix minimum rates . . . primarily for the purpose of preventing destructive

[1] *81 I. C. C.* 448, 472 (1923). See also *123 I. C. C.* 503, 504 (1927); *195 I. C. C.* 198, 202 (1933); *211 I. C. C.* 307, 309 (1935); *219 I. C. C.* 501, 510 (1936); *241 I. C. C.* 21, 41 (1940).

[2] *31 M. C. C.* 536, 538 (1941).

[3] We refer to protection of the rate structure as the equivalent of conserving carrier revenues, although some minimum rate cases have stressed maladjustments as well as earnings. See *69 I. C. C.* 589, 610 (1922).

[4] Since suspension cases may be decided on more than one ground, it is sometimes difficult to determine the extent to which the Commission has relied upon its minimum rate power.

[5] Cf. pp. 351–353.

[6] *182 I. C. C.* 537 (1932); *231 I. C. C.* 755 (1939).

[7] Cf. p. 397. See also *238 I. C. C.* 729 (1940).

competition in rates and promoting the financial stability of the transportation agencies. Our duty in the exercise of that power is not done, therefore, if we allow competitive rates to gravitate to the lowest possible level. Minimum rates should be fixed, if it can be done, at levels which are consistent with some degree of carrier prosperity. . . . "[1]

The principle that the Commission's minimum-rate power is not confined to situations where rates are below a strictly compensatory level has been upheld by the courts.[2] The right to prevent ruinous rate wars and to promote reasonable earnings, not only for the carriers directly involved but also for competing carriers, has come to be regarded as settled law.[3] However, this rule cannot be carried so far as to nullify the advantages of more economical means of transportation.[4]

Minimum rates to protect the rate structure have generally been prescribed for railroads or motor carriers. Few water-carrier cases have yet arisen. However, in 1940 the United States Maritime Commission fixed minima to prevent rate wars in the intercoastal trade.[5] These minima were later modified by the Interstate Commerce Commission in order to permit the intercoastal carriers to meet competition from all-rail routes.[6]

One of the first instances involving minimum rates for railroads occurred when the carriers serving competitive producers in Kansas, Louisiana, Michigan, and New York were quoting unduly low rates in affording outlets for salt.[7] In this case "the rate was condemned as too low, not on the ground that it would cause loss to the publishing carrier, but because of its harmful effect upon the rate structure in general."[8] Soon afterward, reduced rates on iron ore were disapproved because they threatened railroad earnings.[9] More recently, proposed rates on gasoline and coal were disallowed for similar reasons.[10] In these cases competition from water carriers was a factor. Still more recently, low rates on export grain were set aside as dangerous to the rate structure.[11]

Regulation of the minimum rates of motor carriers has been especially important because of the highly competitive character of the industry, large numbers of operators, different service obligations, varying costs,

[1] *234 I. C. C.* 609, 637 (1939). This principle was repeated in *246 I. C. C.* 579, 582 (1941).
[2] *25 F. (2d)* 462 (1928).
[3] *259 I. C. C.* 475, 535 (1945).
[4] *241 I. C. C.* 21, 43 (1940).
[5] *2 U. S. M. C.* 285 (1940).
[6] *253 I. C. C.* 331 (1942).
[7] *92 I. C. C.* 388 (1924).
[8] *123 I. C. C.* 503, 505 (1927).
[9] *Ibid.*
[10] *198 I. C. C.* 683, 695 (1934); *198 I. C. C.* 535, 538 (1934).
[11] *235 I. C. C.* 655, 672 (1940).

presence of three types of carriers, lack of experience in fixing rates, disunity of action among the companies, and other factors. These conditions have led to irresponsible rate cutting and wide variations in rate levels. In order to stabilize rates and to create greater uniformity, common-carrier trucking associations have published minima, commonly called "stops." But these minima have led to difficulties. Since they have been based upon railroad rates and classifications, the effect has been to deprive commodities rated lower than the minimum classes of their more favorable transportation characteristics.[1] Another disadvantage is that the minima frequently do not apply to all lines. Some carriers maintain stops higher than others. This often causes shippers to pay through rates based upon the high stops. The shipper might elect another route over which a low minimum governs, but it would be necessary to examine many tariffs in order to determine the most economical route. All carriers might be forced to charge the same minima, but this would tend to ignore variations in carrier costs.

Minima have been prescribed for motor carriers on a territorial basis for a large number of companies, as well as on a more restricted basis. Territorial decisions have fixed rates in the Middle Atlantic states, New England, Central Territory, Trunk-Line Territory, and Midwestern Territory.[2] The rates put into effect were of an emergency character, being approved by the Commission in most instances as proposed by the associations of carriers, without careful analysis of costs or particular services. Many of the rates were the same as or definitely related to railroad rates. Insofar as influenced by motor-carrier costs, the rates were based upon the average costs of all carriers.[3]

These summary decisions of the Commission were criticized on the ground that shippers were unfairly deprived of low rates. But the Commission justified its action by the situation facing the motor-carrier industry, which was found to be too critical to permit the delays involved in a more careful determination. While the carriers had been slashing rates, costs had been rising, so that revenues were generally barely equal to or less than operating expenses. As a result, adequate and dependable motor-carrier service was endangered.[4]

In passing judgment on the Commission's procedure, the impartial observer, though conscious of the strong efforts of the organized carriers to protect themselves even from legitimate competition, should take into

[1] See *44 M. C. C.* 367, 385 (1945). Minima have been fixed by specifying the lowest class rating that shall govern.

[2] *4 M. C. C.* 68 (1937); *8 M. C. C.* 287 (1938); *8 M. C. C.* 233 (1938); *24 M. C. C.* 501 (1940); and *27 M. C. C.* 297 (1941).

[3] *8 M. C. C.* 233, 256 (1938).

[4] *4 M. C. C.* 68, 77 (1937); *8 M. C. C.* 233, 253 (1938).

consideration the fact that the minimum rates were looked upon as standards from which subsequent departures could take place.[1] Motor operators were expected to ascertain costs and to develop a system of rates related as closely as possible thereto. Individual carriers able to justify rates lower than the territorial minima were to publish such rates, although wholesale departures from the general standards would obviously defeat their purpose.[2] Those proposing lower rates were merely required to show that the proposed rates would be reasonably compensatory.[3]

In many instances the Commission has modified the territorial decisions, and in 1943 it vacated its orders establishing rates in the proceedings for Trunk-Line, Central, New England, and Midwestern territories, having found that the rate cutting in practice at the time the cases began had practically ceased.[4] The Commission has declared that only the most impelling reasons justify the maintenance of general minima.[5]

In the more restricted proceedings dealing with minimum rates for motor carriers, decision generally turns on considerations already discussed in connection with the reasonableness of rates, such as whether the rates are sufficiently above out-of-pocket costs,[6] whether the rates are necessary to meet competition,[7] and how the rates compare with the charges of other motor carriers.[8] In some instances, however, proposed rates are condemned as threats to the rate structure and service in general.[9]

Minimum-rate Standards for Traffic Distribution. Another objective of minimum-rate regulation besides the protection of the rate structure is the promotion of an economical division of traffic. The two ends are not the same, for the carriers might be enabled to earn a reasonable return without the distribution of traffic according to relative economy. We refer specifically to the allocation of traffic among the separate modes of transportation, although the principles involved apply whether the carriers are alike or unlike in character.

The foregoing purpose of minimum-rate control was briefly outlined by Commissioner Eastman in the following words: "There are, I believe,

[1] *27 M. C. C.* 297 (1941).
[2] *22 M. C. C.* 385, 388 (1940).
[3] *17 M. C. C.* 255, 258 (1939); *24 M. C. C.* 794, 800 (1940).
[4] *Railway Age*, vol. 115, p. 705 (Oct. 30, 1943).
[5] *32 M. C. C.* 339, 344 (1942). See also *43 M. C. C.* 289, 304 (1944).
[6] *4 M. C. C.* 187 (1938).
[7] *4 M. C. C.* 641 (1938).
[8] *8 M. C. C.* 547, 548 (1938); *24 M. C. C.* 419 (1940).
[9] *17 M. C. C.* 601, 604 (1939); *22 M. C. C.* 171, 175 (1940); *44 M. C. C.* 90, 93 (1944).

sound grounds for holding that we were given the minimum-rate power for the purpose of . . . promoting within reason the use, to the extent that our jurisdiction permits, of the different modes of transportation for the services to which they are economically best fitted and discouraging their use under reverse conditions. . . . "[1] This statement sets forth a basic purpose of the national transportation policy, which must be considered in all rate proceedings.

As a means of allocating traffic, minimum rates might be based upon (1) the value of the service, (2) out-of-pocket costs, or (3) average costs. Should average costs be adopted, every agency could be required to adhere to its own costs, or the low-cost carrier could set the standard, with permission for the other carriers to meet the rate, provided they could do so without cutting below their out-of-pocket costs. Although these alternatives are not all acceptable from the standpoint of the public, each has been advocated.

1. When based upon the value of the service, minimum rates do not necessarily reflect costs. Where possible, rates are fixed high enough on the business in question and are so related as to enable all agencies to participate at a profit. In order to allow each carrier to handle a share of the traffic without direct loss, rates must be at least equal to the highest out-of-pocket cost represented. This standard is equivalent to the traditional method of rate making in the railroad industry. It also applies in the motor-carrier industry, insofar as motor rates are based upon rail rates. As already pointed out, the organized motor carriers have favored rates adjusted to railroad tariffs in order to secure protection from competition within their own field. In the absence of protection, rates gravitate toward the cost levels of the most efficient carriers. Frequently the floor is fixed by a contract operator who specializes in handling the most remunerative traffic.

The principal argument in behalf of the value-of-the-service standard is that it promotes the financial stability of all modes of transportation and encourages competition. Prior to the Transportation Act of 1940, it was applied in some instances by the Interstate Commerce Commission. In the leading case of petroleum between Washington, Oregon, Idaho, and Montana, involving the competition of rail, water, and motor carriers, the Commission discarded the idea that minimum rates should reflect the costs of particular agencies.[2] Notwithstanding the fact that the proposed railroad rates were found to be compensatory, considering all costs, and were below the rates of the other agencies, the Commission prescribed minima near the costs of handling the traffic by river and truck. It stated that it would approve minima which "will promote a

[1] *235 I. C. C.* 723, 737 (1940).

[2] *234 I. C. C.* 609 (1939). See also comments on this case in *259 I. C. C.* 475, 536 (1945).

somewhat healthier degree of prosperity for all the carriers concerned, by rail, by highway, and by water."[1] This decision was sustained by a lower court and affirmed by the Supreme Court.[2]

The Commission has also followed the value standard in permitting motor carriers to adopt railroad classifications.[3] Irrespective of the fact that there appears to be relatively little room for the use of demand factors in the adjustment of motor rates, the Commission said in the Central Territory Case, "It requires no great penetration, however, to perceive that such a method of making motor-carrier rates cannot produce satisfactory results so far as earnings are concerned, unless the rates of competitors are constructed in a similar manner. . . . It may be that it will ultimately be found that both railroad and motor-carrier rates should conform to cost-of-service principles, but it is clear that as matters now stand motor-carrier rates cannot reasonably be constructed without regard to the competitive rates of other carriers."[4] Had the Commission been prescribing motor-carrier rates under more normal conditions, it might have been less willing to approve the railroad scheme.

The great objection to the value basis for minimum rates is that it protects high-cost industries. Where costs vary, rates may be fixed above the levels at which the traffic could well be handled. Such rates are generally unfair to shippers, who are entitled to service by the most efficient agency. Rates should be no higher than that agency could afford to charge were the traffic involved its only business, and as a rule they should be even lower because the carrier will profit from other business. The value of the service would seem to be a valid factor only in prescribing rates for the low-cost carrier, and then only when its consideration reduces that carrier's average unit costs. If nearly all the carrier's expenses are variable and if little is gained from operation on a larger scale, rates should be based upon costs even in the case of the low-cost agency.

Another disadvantage of minima adjusted according to the value of the service is that they invite contract and private transportation. This makes more difficult profitable operation by the common carrier. Within limits, the latter should be encouraged, as provided for in the Interstate Commerce Act and as recognized in various decisions of the Interstate Commerce Commission.[5]

[1] *Ibid.*, p. 637.

[2] *32 F. Supp.* 995 (1940); *312 U. S.* 661 (1941).

[3] Some state commissions have required truckers to adopt railroad classifications, possibly on account of the lack of information on motor costs, but possibly also to protect the railroads.

[4] *8 M. C. C.* 233, 249–250 (1938).

[5] *1 M. C. C.* 628, 629 (1937).

The force of these objections to minima that ignore costs led the Commission to reject the value standard in a number of cases even before the Act of 1940 became effective. In another petroleum case where motor-carrier costs exceeded rail costs, the Commission denied the contention that railroad rates should be increased to a basis that would permit the motor carriers to participate in the traffic. The Commission said, "To direct the low-cost agency in these circumstances to increase its rates would be to disregard the admonition of both the Interstate Commerce Act and the Motor Carrier Act to give due consideration 'to the need in the public interest of adequate and efficient . . . transportation service at the lowest possible cost consistent with the furnishing of such service.' It would be regulation in the interest of the high-cost agency rather than in the public interest."[1] This decision followed the first petroleum case, which had been severely criticized on the ground that the Commission had held an "umbrella" over motor and water carriers. It is interesting to note that the Commission has also been accused of adjusting motor rates so as to protect the railroad industry. Although the Commission's minimum-rate policy does not appear to have been clearly defined in these early cases, there is little evidence of partiality toward any form of transportation.

After the Transportation Act of 1940 took effect, the Commission definitely adopted the principle that the rates of each agency should be determined according to the facts and circumstances attending the movement of traffic by that agency. For example, rail rates must not be held up to a particular level to preserve a motor-rate structure, or vice versa. In the Seatrain Lines Case the Commission pointed out that Congress had enacted separate rate-making rules for each means of transportation, and that the implication of these rules seems to be that no carrier should be required to maintain rates that would be unreasonable, judged by other standards, for the purpose of protecting the traffic of a competitor.[2] A similar doctrine was enunciated in a motor-carrier case, in which the minimum rates of a contract carrier were under attack.[3]

In the case of New Automobiles in Interstate Commerce the Commission explained its policy at considerable length.[4] It stated that there have been occasional deviations from the general rule, but that most of these have occurred in investigation and suspension proceedings, evidently because the Transportation Act of 1940, for the first time, placed upon the carriers the burden of showing that reduced rates are just and

[1] *241 I. C. C.* 21, 43 (1940).

[2] *243 I. C. C.* 199, 214 (1940).

[3] *30 M. C. C.* 651, 665 (1941). See also *32 M. C. C.* 273 (1942), and *41 M. C. C.* 435 (1942).

[4] *259 I. C. C.* 475, 534–539 (1945).

reasonable.[1] Cost exhibits presented in the proceedings did not demonstrate that the proposed rates were reasonably compensatory.

2. Adoption of the out-of-pocket cost basis for rate making would be virtually equivalent to the renunciation of minimum-rate control. If necessary to hold traffic, all the carriers would reduce their rates to the lowest levels possible without direct loss of revenue. Unless overhead costs could be recovered from noncompetitive traffic, often a highly doubtful possibility, no agency of transportation would be able to earn an adequate return; traffic would not be distributed in accordance with the relative costs of service; and discrimination would occur against traffic not enjoying depressed rates. Such was the experience of the thirties. The Commission was empowered to regulate minimum rates primarily for the purpose of preventing the reduction of charges to unremunerative levels, and it seems reasonable to conclude that neither the people nor the carriers would approve a consistent application of the out-of-pocket cost standard. Individual carriers, however, sometimes favor this basis.

Although the Commission allows the carriers to meet competition, it will not approve minimum rates lower than necessary for this purpose.[2] With reference to rates based upon out-of-pocket costs the Commission has said, "Some persons contend that any rate that produces earnings in excess of the out-of-pocket costs of handling traffic without allocating thereto anything for other costs or return on investment is a minimum reasonable rate. Out-of-pocket costs may be indicative of the extent to which carriers may go in meeting competition without financial loss, and we have found such rates to be compensatory and not unreasonable per se when made to meet compelling competition. It is apparent, however, that if all or a large proportion of railroad rates were brought down to such a level, the vitality of the railroad system would be destroyed. The Transportation Act of 1940 imposes on us the duty to scrutinize rates purportedly made on the out-of-pocket cost or minimum-rate theory to meet alleged competition and to reject them even if they yield something above all costs when they are less than prevailing reasonable rates prescribed by us, in the absence of proof that they are required to meet the compelling competition, and that they will not foster unsound economic conditions in transportation among the several carriers or otherwise contravene the policy declared by the Congress in the 'national transportation policy.' In the absence of convincing evidence that special rates are justified by the facts and circumstances in par-

[1] Examples of contrary holdings are *251 I. C. C.* 361 (1942); *245 I. C. C.* 617 (1941); *255 I. C. C.* 85 (1942); and *8 M. C. C.* 287 (1938). Upholding the policy of the Seatrain Case are *245 I. C. C.* 334 (1941); *245 I. C. C.* 339 (1941); and *32 M. C. C.* 339 (1942).

[2] *245 I. C. C.* 535, 541 (1941).

ticular situations, every rate should bear its fair share of the transportation burden."[1]

3. The most economical and practicable standard for minimum rates appears to be fully allocated costs. The costs of particular services cannot be determined with absolute accuracy, and they should not be adhered to blindly; but it is possible to make reasonably close approximations from which departures can be permitted when desirable. According to the Commission, the predominant element to be considered in determining a reasonable minimum rate is whether the rate is reasonably compensatory; *i.e.*, whether it covers the out-of-pocket costs plus a proper return on investment.[2]

Assuming a sufficient volume of traffic, average cost, with some consideration for the value of the service, is the only rate basis which in the long run would assure the public the lowest rates consistent with adequate transportation service. Rates would not be so low as if based on out-of-pocket costs, but they would be as low over a period of time as the public could expect and still receive service of acceptable character. Not necessarily every carrier or agency would continue to function, but those economically worth while would survive.

A strict application of this criterion would require minimum rates based upon the average costs of each agency. On traffic handled at about the same cost, minima for the different types of carriers would be equal and traffic would be distributed largely according to service advantages. On other traffic, minima would be unequal, and if services were comparable the traffic would move by the agency of lowest cost. One advantage of this method of fixing rates would be the allocation of traffic according to a reasonably definite standard. So long as an agency is allowed to depart from cost in publishing rates, judgment is involved in deciding the extent of departure and the share of traffic to be moved by that agency. Discretion is of course required in the ascertainment of costs, but there is less need for the exercise of opinion than when adjusting rates on the basis of demand. Another advantage of requiring each agency to charge rates based on its own costs would be the reduction of wasteful transportation. As explained in connection with local discrimination, permitting a high-cost carrier to divert traffic from a low-cost carrier often results in economic waste, even though the less efficient carrier may gain thereby. What one gains the other loses. Only if the additional expense of handling traffic by the high-cost agency were less than the corresponding expense of the low-cost agency would it be economical for traffic to move via the means of transportation with the higher average cost.

[1] *251 I. C. C.* 361, 367 (1942).
[2] *259 I. C. C.* 475, 538 (1945).

The immediately preceding statement suggests the desirability of departure from the average-cost basis under certain conditions. When both of two modes of transportation have unutilized capacity, traffic should move by the one with the lower direct cost. Its minimum rate should be limited by that cost, and the agency with the higher direct cost should not be allowed to meet the rate. Otherwise, labor and capital would be wasted. Likewise, if one of the means is fully utilized and the other is not, the minimum rate for the latter should be based upon direct cost, while the rate for the former should be based upon fully allocated costs. New plant should not be constructed to handle additional traffic unless the full cost allocable to the traffic is less than the direct cost when traffic moves by an alternative means already in existence.

The other cost policy that might reasonably be followed in prescribing minimum rates envisages minima based upon the fully allocated costs of the low-cost agency, with other agencies granted limited opportunity to meet the minima. This plan differs from the policy of basing the rates for each agency upon its own average costs in that the traffic priced by the low-cost agency is shared with its competitors so long as no rate falls below a reasonable level. It differs from the measurement of minima by out-of-pocket costs in that rates are kept high enough to enable at least one agency to operate at a profit, on the assumption that the agency's average costs are less than the out-of-pocket costs of competing agencies on a sufficient number of commodities and hauls.

Regulation of minimum rates according to the foregoing plan involves some degree of arbitrariness in allocating traffic. It might also be necessary to adjust rates upward on certain traffic in order to enable any one agency to earn a reasonable return. Nevertheless, this policy has several advantages. First, it conforms to a large extent with the rate-making procedures of the past. Cases have already been cited in which the Commission has permitted a high-cost carrier to meet the rates of a low-cost agency.[1] Second, it encourages competition, thus conforming to Congressional policy. Minima based on the full costs of each agency allow competition only insofar as average costs are equal. Third, under some conditions it makes possible more economical transportation. As explained above, where a high-cost agency's plant is not fully utilized, it may be desirable to permit that agency to quote rates based upon direct costs. Fourth, an opportunity to meet the rates of a competitor is sometimes the only means whereby a high-cost but justified agency can remain in business. Illustrations given in Chap. XVI showed that the diversion of traffic from a low-cost carrier to a less economical route may not seriously harm shippers served by the former and at the same time may make it possible for the latter to continue in business.

[1] Cf. p. 387.

The right of a high-cost agency to meet the rates of a low-cost carrier should be limited. First, in no case should the former be permitted to reduce its rates below out-of-pocket costs. Second, in order to conserve revenue and prevent depression of the controlling rate, the high-cost agency should make its rates no lower than necessary to meet competition. Where it possesses service advantages, its charges should be above the rates of the controlling carrier. Third, the high-cost agency should not be allowed to meet the lower rate when doing so would result in unduly wasteful transportation. These limitations have generally been recognized by the Commission.[1] Desirous of diverting traffic from the railroads, truckers argue that the Commission has permitted the railroads to quote such low rates on less-than-carload traffic as to place a burden upon carload traffic, but it has not been demonstrated that less-than-carload traffic is transported at a loss or that railroad earnings would be greater if the traffic moved by truck.

In order to facilitate reduced costs for the low-cost agency, and thus the lowest rates for the public, it would be desirable to permit that agency, within limits, to quote promotional rates. By so doing, average costs could be reduced, through the utilization of such excess capacity as might exist and through the promotion of such economies of large-scale production as might be realizable. But rates should not be reduced merely to divert traffic from another carrier, and plant should not be expanded to handle additional traffic unless the added business will cover average costs.

Conclusion

Emphasis upon average cost seems essential to the establishment of sound intercarrier rate relationships. Nevertheless, the carriers tend to quote rates on a short-run basis according to out-of-pocket-costs; and the Commission has sometimes permitted high-cost agencies to charge the same as low-cost carriers.[2] Among the factors that explain the failure to adhere more closely to full cost are the following: the tradition of charging what the traffic will bear, opposition of the carriers to the collection of information on costs, the Congressional policy of encouraging competition, the inherent limitations of cost data, the particularistic approach to regulation, and restrictions upon the Commission's authority. At present, however, the settled policy of the Commission seems to be that minimum rates should be determined on the basis of the conditions surrounding the traffic of particular agencies. This means that rates will not be held up to protect high-cost agencies, and the future will probably see a wider and more consistent use of the cost standard, especially if the

[1] Cf. pp. 395–400.

[2] *235 I. C. C.* 723, 734 (1940).

carriers themselves favor it. In order to secure fuller information on costs the Commission has expanded a cost-finding unit in its Bureau of Statistics.[1]

Some deviation from the cost basis should and doubtless will be permitted in particular cases, so as to permit a reasonable degree of flexibility in quoting rates. This appears necessary to the promotion of healthy competition and to the realization of more economical service. The decision of the Supreme Court in the Eastern-Central Case apparently condemns the determination of minimum rates altogether on the basis of costs and without consideration of competitive factors.[2]

REFERENCES

The references at the close of Chap. XXIV on national transportation policy are useful in connection with this chapter.

Congressional policy and the Commission's task in the regulation of intercarrier rate relations are analyzed at some length in Oppenheim, S. C., *The National Transportation Policy and Inter-carrier Competitive Rates* (1945). Standards for the regulation of interagency rates are discussed in *Annual Report of the Interstate Commerce Commission*, 1939, pp. 24–29; Eastman, J. B., "The Adjustment of Rates between Competing Forms of Transportation," *American Economic Review*, vol. 30, part 2, pp. 124–129 (March, 1940); Johnson, W. S., *Study of the Problem of Establishing Just, Reasonable and Non-discriminatory Minimum Rates* (California Railroad Commission, 1937); and Locklin, D. P., "Coordinating and Systematizing Transportation Rates," *Proceedings of the First Transportation Conference Held at the University of Nebraska*, pp. 5–12 (1939), and "Transport Coordination and Rate Policy," *Harvard Business Review*, vol. 15, pp. 417–428 (Summer, 1937).

Commission policies in regulating minimum rates are described in Interstate Commerce Commission, "New Automobiles in Interstate Commerce," *259 I. C. C.* 475, 534–539 (1945); Mansfield, H. C., "The Minimum Rate Power and the Control of Carrier Competition," *Yale Law Journal*, vol. 45, pp. 1406–1425 (June, 1936); National Resources Planning Board, *Transportation and National Policy*, pp. 108–122 (1942); and Sharfman, I. L., *The Interstate Commerce Commission*, part 3, vol. B, pp. 626–656 (1936).

[1] *Annual Report of the Interstate Commerce Commission*, 1939, p. 27.

[2] *321 U. S.* 194 (1944).

CHAPTER - - - - - - - - - - - - - EIGHTEEN

Regulation of Service

IN TRANSPORTATION, adequate service is as important as reasonable rates. The fact of service, indeed, is even more important than rates, as an occasional shortage of facilities dramatically reveals. The first consideration is service of sufficient quantity and quality to meet the needs of commerce, and rates should be adjusted to that end. Service may of course be overemphasized, at the cost of unnecessarily high rates, but low rates also may be unduly stressed, at the expense of poor service.

It is desirable, within the limits of the prerogatives of management, to regulate service as well as rates. Even though the companies can generally be relied upon to furnish proper service voluntarily, private interest may at times run counter to the public welfare.[1] Competition may lead to an unwise extension, duplication, or elaboration of service, causing waste of capital and high rates. The carriers may be unwilling to maintain or extend relatively unprofitable but necessary services. Individual lines, in an effort to reserve business for themselves, may hamper the free flow and interchange of traffic. Under conditions of monopoly, the carriers may allow service to deteriorate in quality or may seek to avoid responsibility for the safe movement of freight and passengers. They may also render service in a discriminatory manner. Insofar as service is below expected standards, the objectives of rate regulation tend to be defeated.

Common carriers are obligated to furnish adequate service by the common law. They must also meet requirements specified by statute and commission, as in the case of rates. Legislative provisions restating or extending the common-law duties have been incorporated in the laws of the federal government and of the states. As our review of legislation indicated, Congress has dealt with the services of all types of carriers. The Commission's authority over railroad freight service is now substantially coextensive with its power over rates. Motor- and water-carrier services are subject to the Commission in lesser degree. The details of the

[1] The marked progress made by the carriers toward safety, adequacy, and economy of service has been described in Chap. II.

federal acts and the Commission's policies thereunder will be explained in connection with the following service problems: extension of service, coordination, special services, abandonment, and emergencies. Some of these problems are largely peculiar to railroads; others are common to all modes of transportation.

Extension of Service

Logically, the first question involved in the regulation of service is its inauguration. Shall the carriers be required to secure the permission of the regulatory authorities before extending service? Shall they be ordered to extend service, and if so to what extent? We refer to regulation for economic as distinguished from police purposes.

Voluntary Extension

Congress and the states have answered the first question affirmatively by requiring carriers for hire to secure certificates of public convenience and necessity, or permits, as a condition for operation, from a federal commission in case of anticipated service in interstate commerce and from state authorities in the case of service confined solely to intrastate commerce.[1] The primary purpose in demanding certificates and permits is to prevent unnecessary duplication of facilities. Experience shows that uncontrolled construction leads to excess facilities, inadequate earnings, and impaired service. As the Supreme Court declared, "Congress undertook to develop and maintain, for the people of the United States, an adequate railway system. It recognized that preservation of the earning capacity, and conservation of the financial resources, of individual carriers is a matter of national concern; that the property employed must be permitted to earn a reasonable return; that the building of unnecessary lines involves a waste of resources and that the burden of this waste may fall upon the public; that competition between carriers may result in harm to the public as well as in benefit; and that when a railroad inflicts injury upon its rival, it may be the public which ultimately bears the loss."[2] Congress has also undertaken to promote other means of transportation, and the foregoing words apply in principle to all carriers.[3]

Railroads were first required to obtain certificates from the Interstate Commerce Commission by the Transportation Act of 1920. Such control as the Commission had over the inauguration of service before that time was indirect. However, many states had long demanded certificates as a means of guarding existing lines against "holdups" by promoters, who organized railroads for the sole purpose of being "bought off." The West

[1] Certificates have not been required of crude- and refined-oil pipe lines.

[2] *270 U. S.* 266, 277–278 (1926).

[3] See *1 M. C. C.* 190, 203 (1936); *9 M. C. C.* 712, 713 (1938).

Shore, for example, was projected to force purchase by the New York Central. New York used certificates as early as 1892.[1]

Section 1, Par. (18) of the Interstate Commerce Act provides that "no carrier by railroad . . . shall undertake the extension of its line of railroad, or the construction of a new line of railroad, or shall acquire or operate any line of railroad, or extension thereof, or shall engage in transportation . . . over or by means of such additional or extended line of railroad, unless and until there shall first have been obtained from the Commission a certificate that the present or future public convenience and necessity require or will require the construction, or operation, or construction and operation, of such additional or extended line of railroad. . . . "[2] The Commission is authorized to grant or refuse certificates, in whole or in part, and to attach to the issuance of certificates such terms and conditions as in its judgment the public convenience and necessity may require. Certificates need not be obtained for the construction of spur, industrial, team, switching, or sidetracks, located wholly within one state, or for the improvement of existing lines.[3] But certificates from the Commission are necessary for new lines that engage in interstate commerce, even when the lines lie within the boundaries of a single state. State authority is superseded by that of the federal government,[4] but the states have a right to be heard in certificate cases.

Motor- and water-carrier services were subjected to federal authority, respectively, by the Motor Carrier Act of 1935 and the Transportation Act of 1940. Certificates were required of common carriers, permits of contract carriers. Sections 206–208 of the Interstate Commerce Act make it unlawful for a common carrier by motor vehicle to operate in interstate commerce without a certificate of public convenience and necessity issued by the Commission, excepting carriers operating solely within a state and holding a certificate granted by a board of the state.[5] Certificates shall specify the service to be rendered, and the routes, points, and territory to be served. As with railroads, the Commission may attach such terms and conditions to the issuance of certificates as the public interest may require, provided that the right of the carrier to add to its equipment and facilities within its specified field of service shall not be restricted.[6]

[1] Mosher, W. E., and Crawford, F. G., *Public Utility Regulation*, p. 93 (1933).

[2] It should be noted that the words "convenience" and "necessity" are used separately and are not synonymous in implication.

[3] Spurs mean short tracks, typically a few hundred feet in length. *111 I. C. C.* 660 (1926).

[4] *270 U. S.* 266, 277–279 (1926).

[5] In contrast with the requirements for railroads, the exception covers intrastate operators engaged in interstate commerce. See *1 M. C. C.* 45 (1936).

[6] According to a recent Supreme Court decision, the Commission can authorize service greater than the carrier asks. See *Traffic World*, vol. 73, p. 1052 (Apr. 15, 1944). Service

Section 209 makes it unlawful for contract carriers to operate without permits, and the provisions relating thereto are similar to the provisions applicable to certificates. Dual operation under both a certificate and a permit is forbidden except with the permission of the Commission. During emergencies the Commission may grant temporary operating authority. Certificates and permits may be transferred under regulations prescribed by the Commission. Sections 309–312, which provide for water-carrier certificates and permits, parallel the sections dealing with motor carriers.

Air carriers were required to obtain certificates of public convenience and necessity from the Civil Aeronautics Authority by Sec. 401 of the Civil Aeronautics Act of 1938. Before that act certificates were not necessary except in connection with the transportation of mail. In issuing certificates the Authority (Board) can attach such terms and conditions as it believes justified in the public interest, and certificates may be modified, suspended, or transferred after issuance. As in the case of motor and water carriers, provision is made for temporary certificates and emergency operation. Foreign lines must secure permits.

The reader will observe that the commissions have been given broad discretion in the issuance of certificates and permits. Since the requirements of public welfare vary according to the circumstances of particular cases, Congress has wisely left the detailed shaping of the transportation system to administrative authorities. The law merely provides that certificates be issued when service is required by the public convenience and necessity and that permits be granted when service is consistent with the public interest. Appropriate provision has been made under "grandfather" clauses for the issuance of certificates and permits as a matter of right to carriers in bona fide operation at the time of the passage of the regulatory statutes.

Although the commissions are free from detailed restrictions in determining public convenience and necessity, a carrier proposing service must of course be qualified to provide it. The statutes relating to motor, water, and air transportation specify that the applicant be fit, willing, and able to perform the service proposed and to conform to the necessary rules and regulations. The question of competency to serve does not ordinarily arise when the applicant is a railroad, but the closely related matter of soundness of financial plan is sometimes a factor.[1] Competency becomes an issue more often in the case of motor and water transportation because of the relative ease of entering business. Lack of financial resources, inadequacy of equipment, and inexperience have been listed by the Com-

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referred to intermediate points. Chicago, Saint Paul, Minneapolis and Omaha Railway Company *v.* United States of America, *322 U. S.* 1, 3 (1944).

[1] *70 I. C. C.* 110, 114 (1921); *99 I. C. C.* 389, 403 (1925).

mission as grounds for refusing motor certificates.[1] Persistent violation of the law has also led to denial,[2] although unlawful operation does not necessarily preclude a certificate.[3] The requirements of fitness, willingness, and ability to serve apply to both common and contract carriers.[4]

Assuming the applicant to be qualified for proposed services and the plan of financing to be acceptable, the principal questions considered by the commissions in the regulation of voluntary extensions to new areas are (1) whether the proposed extension is likely to prove self-sustaining and (2) whether it will divert traffic from existing lines without offsetting advantages in the form of economies or increased competition. If prospective costs, traffic, and other factors indicate profitable operation, without undue harm to established carriers or contravention of general transportation policy, the Interstate Commerce Commission generally decides that a proposed service is required by the public convenience and necessity.[5] If the prospects are unfavorable, the Commission ordinarily refuses to grant a certificate.[6] The test is ability to operate at a profit rather than absolute necessity. Cases of doubt tend to be resolved in favor of the promoters, since it is not the prerogative of the Commission to assume the functions of management or the responsibilities of investors. Earnings have also been accepted by the Civil Aeronautics Authority as a major test of public convenience and necessity.[7] A related factor in air transportation is the cost of proposed new service to the government.

The policy of the Interstate Commerce Commission as regards the question of profitableness of operation has been set forth as follows: "Ability to earn is not the sole test of public convenience and necessity, although always a factor to be given consideration. When such ability is shown to exist a strong presumption may arise that public need for the new facility exists. When not shown to exist it may frequently be concluded that such need is too slight to warrant the expenditure necessary for the proposed construction. When it is established, however, that a project will render important public service, and its sponsors are willing to assume the risk of loss in the expectation of ultimate gain either directly

[1] *3 M. C. C.* 284 (1937).

[2] *4 M. C. C.* 695 (1938).

[3] *2 M. C. C.* 573 (1937).

[4] Regulation of the extension of service with special reference to the contract motor carrier is described in George, J. J., "Authorization of Contract Motor Carriers by the Interstate Commerce Commission," *Cornell Law Quarterly*, vol. 26, pp. 621–644 (June, 1941).

[5] *72 I. C. C.* 55, 57 (1922); *99 I. C. C.* 201 (1925); *154 I. C. C.* 215 (1929); *162 I. C. C.* 237 (1930).

[6] *67 I. C. C.* 204, 207 (1921); *71 I. C. C.* 233, 234 (1922); *158 I. C. C.* 535 (1930).

[7] *C. A. B.*, Docket nos. 131, 232 (Mar. 6, 1940).

through the property or indirectly through benefits to themselves and to the shipping community, the requirements as to the public interest may be fully satisfied, although losses to investors seem more probable than gains. We are to consider what is best in order to foster, build, and make efficient transportation facilities as a whole in the interest of the greatest number. Where only the private aspect is involved, individuals are at liberty to take risks. So far as the public is concerned, the advantages of new or better service may be so great as to justify increasing the burden upon shippers generally by the amount necessary to sustain the facility. If it should prove later, however, that the line, because of competitive conditions, lack of business, or other circumstances, can not be operated profitably under fair divisions and fair rates, the burden of the loss would properly fall upon the investors and not upon the shipping public. Our approval of a new enterprise neither constitutes nor requires a finding that such enterprise will prove successful. Our responsibility is to determine the public interest involved in the construction of the line. The history of railway construction illustrates that prospective tonnage depending for its development upon transportation facilities, rather than tonnage immediately in view, has been the main justification for railway construction. Progress has involved risks. It is not to be presumed that the Congress contemplated discarding, as insufficient, conditions which in the past have furnished the warrant for a constructive policy in the upbuilding of the system of transportation. It is rather to be presumed that the Congress did not contemplate an interpretation of its enactment which, applied as a policy in the past, would have prevented the construction of many railway properties now serving the public interest in an important way."[1]

Although this liberal interpretation of the need for service is consistent with the promotional policy of the past, it has given rise to dissent within the Commission and may not be altogether sound.[2] For the burden from unprofitable operation may fall upon the public as well as upon investors. It would seem that projects should not be approved unless success in the long run is reasonably certain. In a later case, further extension of the line referred to in the quotation was disallowed, the company having suffered losses from expansion.[3]

The public interest is not necessarily promoted by the issuance of certificates even when profitable operation by the applicant is virtually assured. If profit is to be derived merely through the diversion of traffic from existing lines, new construction may cause unjustified duplication.[4]

[1] *90 I. C. C.* 237, 255–256 (1924).
[2] *Ibid.*, pp. 258–259.
[3] *150 I. C. C.* 386, 390 (1929).
[4] *187 I. C. C.* 598 (1932). This case involved a line across the state of Pennsylvania.

Speaking of railroads, a member of the Commission has said, "Desire to avoid any undue restriction of enterprise ought not to lead us to approve new construction which involves needless, costly, and wasteful duplication of existing facilities."[1] The Commission's position on motor-carrier certificates is similar.[2] "We think that, in order to foster sound economic conditions in the motor-carrier industry, existing motor carriers should normally be accorded the right to transport all traffic which they can handle adequately, efficiently, and economically in the territories served by them, as against any person now seeking to enter the field of motor-carrier transportation in circumstances such as are here described."[3]

It is with this principle in view that the Commission in granting motor-carrier certificates has placed restrictions upon the commodities handled, the routes traversed, the points or territories served, the types of equipment utilized, the seasons worked, the classes of service rendered, and the shippers served. However, limitations such as these can be carried too far, increasing the cost of transportation and checking the flexibility of motor service. The Board of Investigation and Research recommended that the regulatory restrictions upon interstate motor carriers of property be relaxed.[4]

If the applicant shows that existing service is inadequate and that the proposed service is of superior quality, can be furnished at reduced costs, will develop new traffic, or will stimulate efficiency, a certificate will generally be issued. Congressional policy has been to encourage competition, and the Commission has endeavored to promote controlled rivalry.[5] In a typical railroad case the Commission stated, "Competition, within reason, rather than monopoly, is in the public interest."[6] Similarly, in a motor-carrier decision it said, "Public regulation can enforce what may be called reasonable standards of safe, continuous, and adequate service, but it can hardly be expected to take the initiative in experimentation and the development of new types of service. In fact the carriers would probably resist regulation in the courts, if it did not undertake to follow such a line, on the ground that it was an invasion of managerial preroga-

[1] *138 I. C. C.*, 363, 401 (1928). See also *162 I. C. C.* 5, 25 (1930).

[2] See George, J. J., and Boldt, J. R., "Certification of Motor Common Carriers by the Interstate Commerce Commission," *Journal of Land and Public Utility Economics*, vol. 17, pp. 196–206 (May, 1941).

[3] *1 M. C. C.* 329, 332 (1936). See also *32 M. C. C.* 89, 100 (1942).

[4] Board of Investigation and Research, *Federal Regulatory Restrictions upon Motor and Water Carriers*, House Document no. 637, 78th Cong., 2d Sess. (1944).

[5] Promotion of competition without duplication has in some cases been hindered by the Commission's inability to order the joint use of lines. *124 I. C. C.* 114, 115 (1927).

[6] *111 I. C. C.* 3, 38 (1926). In one case the Commission allowed the Great Northern to build a line 204 miles long between Oregon and California largely to promote competition with the Southern Pacific.

tives and discretion. Competition is the best-known spur to such endeavor and we are not persuaded that Congress intended to eliminate it in the motorbus field any more than in the railroad field."[1]

The granting of certificates where extensions stimulate efficient operation, furnish alternative services, and provide a more diversified car supply, has received judicial approval as a reasonable interpretation of the Interstate Commerce Act.[2] But it should be emphasized that the issuance of certificates to encourage competition tends to cause excess transport capacity. This is especially true in view of the fact that "grandfather" clauses have automatically kept alive many motor and water carriers.

The policy of the Civil Aeronautics Board is not greatly different from that of the Interstate Commerce Commission. The Board has stated that there is no necessary merit in increasing the number of air companies, and that existing lines are to be given an opportunity to expand their services.[3] On the other hand, the Board, in the light of Congressional policy, has refused to ensure established carriers complete freedom from competition.[4] It has distinguished between competition that is destructive and that which is beneficial.

The extension of the Commission's jurisdiction has raised the important question of the extent to which a certificate should be denied to one type of carrier in order to protect another type. This problem, although essentially the same as that involved when the existing and the new carriers are alike in character, has assumed especial significance in connection with railroad and motor competition. If certificates are issued freely to motor carriers without reference to the effect upon railroads, as in certain states,[5] traffic may be diverted from the railroads and divided between the two forms of transportation so that neither can operate at a profit. If motor certificates are refused, in order to protect the railroads, as in certain other states, the public may be deprived of a superior or cheaper transportation service. Moreover, the attempt to shield the railroads may be futile on account of the tendency of large shippers to provide their own transportation.

Neither extreme appears to be consistent with the national transportation policy. The Commission has stated that it is incumbent upon motor carriers to show that proposed new service will improve established railroad or motor service.[6] The Commission has also recognized the va-

[1] *1 M. C. C.* 190, 208 (1936). See also *44 M. C. C.* 535, 548 (1945).

[2] *283 U. S.* 35, 42 (1931).

[3] *C. A. B.*, Docket no. 162 (Jan. 30, 1941). See also Docket nos. 5-401 (B)-1 and 222 (Mar. 21, 1940).

[4] *C. A. B.*, Docket no. 238 (July 12, 1940).

[5] Federal Coordinator of Transportation, *Regulation of Transportation Agencies*, Senate Document no. 152, 73d Cong., 2d Sess., pp. 179–181 (1934).

[6] *3 M. C. C.* 93, 94 (1937).

rious advantages of motor carriers and the force of potential competition, issuing motor certificates over the protests of the railroads.[1] The marked differences between railroads and motor carriers of course make difficult the proper evaluation of the two services. Relative economy and fitness depend upon numerous factors that vary according to the circumstances of particular cases.

The Commission sometimes allows railroads to operate motor vehicles. The Pennsylvania and the Southern Pacific have an interest in the Greyhound Lines; the Missouri Pacific owns the Missouri Pacific Transportation Company; and a number of leading railroads provide extensive truck service. In some instances railroad participation in the motor-carrier industry has come about as a result of "grandfather" rights. For example, in the Thompson Case of 1944 the Supreme Court decided that a railroad which neither owned, leased, nor employed its own personnel in the operation of any motor trucks but did hold out to the public a single coordinated rail-motor transportation service, which it supplied through the use of trucks operated by others under contract, was a common carrier by motor vehicle entitled, as such, to a "grandfather" clause certificate as provided for by the Motor Carrier Act of 1935.[2]

When a railroad proposes to operate as a motor carrier, the question is primarily the protection of the motor industry rather than the railroads. If it appears that the railroad can reduce rates or improve service through paralleling or extending its lines by motor vehicle, certificates may be granted.[3] If the territory is already adequately served by motor carriers and if little is to be gained through the coordination of services by the railroad, certificates will be denied.[4] Railroads may operate pickup trucks within terminal areas without special authority from the Commission. But for motor service outside prescribed pickup zones, certificates, or joint rates with common-carrier truckers, are necessary.[5]

In a number of cases the Commission has limited coordinated rail-motor service to that auxiliary to, or supplemental of, rail service to points that are stations on the rail lines, and to shipments moving under through bills of lading covering in addition to motor movement a prior or subsequent rail movement.[6] In a few cases, however, the Commission has allowed a railroad to use motor vehicles in handling traffic which had not had and would not receive a rail haul.[7] Such instances have

[1] *1 M. C. C.* 589, 591 (1937); *2 M. C. C.* 599 (1937); *3 M. C. C.* 173, 176 (1937).

[2] *321 U. S.* 19 (1944).

[3] *3 M. C. C.* 711 (1937); *32 M. C. C.* 141, 145 (1942).

[4] *9 M. C. C.* 712 (1938). See also *10 M. C. C.* 221 (1938).

[5] *248 I. C. C.* 385, 386 (1942).

[6] *32 M. C. C.* 141, 145 (1942); *43 M. C. C.* 729 (1944).

[7] See *Railway Age*, vol. 110, p. 531 (Mar. 22, 1941). The reference was to *Motor Carrier Docket 61,438*. See *28 M. C. C.* 5 (1941).

involved service to points not adequately covered by other transport agencies.

Another phase of the problem of unlike carriers arises within the motor and water fields. The chief issue in this instance is protection of the common carrier from the contract carrier, while giving proper scope to the latter. Although the common carrier sometimes has an advantage over the contract operator because of better balanced hauls in opposite directions, the common carrier is obligated to provide general service and cannot always confine operations, as can the contract carrier, to the better paying traffic. Since common-carrier service is often needed, especially by the small shipper, it is desirable to place some restraint upon the contract operator. The Commission has pointed out that the primary purpose in requiring permits is to promote the common carrier, and that the latter should be protected against the contract operator who takes the cream of the traffic and makes difficult the continuation of the broader service.[1] But the contract carrier is recognized by law and has a place in the transportation system, often providing a superior service to which shippers should have access. Permits have been issued to contract carriers on the grounds of greater speed, provision of specialized equipment, and service to points not on common-carrier routes.[2]

The private carrier has also created a difficult problem. Carriers that are in reality of a contract nature have in some instances sought a private rather than a for-hire status in order to avoid the jurisdiction of the Commission. In passing upon cases of this kind the Commission has based its decision upon the nature of the operator's primary business. If that business is transportation and is not incidental to or in furtherance of a commercial enterprise other than transportation, the operator will be subjected to the Commission. Corporate entities are not necessarily controlling and may be disregarded.[3]

Compulsory Extension

Regulation of service should not be altogether negative. It is desirable to prevent unnecessary duplication of facilities, but it may also be expedient to order the establishment of service that the carriers do not see fit to furnish voluntarily. For this reason the Interstate Commerce Commission has been given limited authority to require the extension of lines. So far as railroads are concerned, Sec. 1, Par. (21), states that "The Commission may, after hearing . . . order any carrier by railroad . . . to provide itself with safe and adequate facilities for performing as a common carrier its car service as that term is used in this part, and to extend its

[1] *1 M. C. C.* 628, 629 (1937); *1 M. C. C.* 161, 165 (1936).
[2] *2 M. C. C.* 379, 381 (1937); *2 M. C. C.* 70, 72 (1937).
[3] *44 M. C. C.* 171 (1944).

line or lines."[1] Prerequisite to such order, the Commission must find (1) that the extension is in the interest of public convenience and necessity; and (2) that it will not impair the ability of the carrier to perform its duty to the public. On its face, this paragraph is sweeping. Subject to the prerequisite findings, the Commission might conceivably order a railroad to "extend its line or lines" into altogether new territory, in fact, across the United States. On the other hand, the Commission might limit its orders to extensions within the undertaking of the carrier to serve.

In the only important case bringing in question the scope of compulsory authority under Par. (21) the Commission ordered the Oregon-Washington Railroad and Navigation Company to build a connecting road in Oregon about 187 miles long at an estimated cost of $9,000,000, after finding that the line was reasonably required in the public interest and that it would not impair the ability of the carrier to perform its duty to the public.[2] Prospects for earnings were favorable, and the connection was expected to be of substantial benefit to an area inadequately served by railroad. The Commission stated that the public convenience and necessity do not depend upon the willingness of the carriers to provide facilities, and concluded, with dissent, that the Act unambiguously authorized it to require construction when requested by shippers just as it might permit construction when requested by the carriers, even in cases of comparatively long extensions into new territory.

This order of the Commission was set aside by the Supreme Court on the basis of statutory construction.[3] Taking into consideration the context of the law and its probable unconstitutionality if broadly interpreted, the majority of the Court decided that the power granted by Par. (21) was confined to extensions within the undertaking of the carrier to serve and could not be extended to embrace the building of what is essentially a new line to reach new territory. Under this interpretation, the Commission's authority under Par. (21) is severely restricted; for most extensions involve service to off-line points. Justices Cardozo, Brandeis, and Stone objected to the narrow view, stating that the purpose of the Transportation Act of 1920 was to promote an adequate transportation system, that the duty to construct extensions was a logical part of the act, and that this duty could not be appropriately defined by distinguishing between big and little extensions.[4] We believe that the construction of the majority was somewhat strained, but we also question the wisdom of empowering a commission to order extensions, except within relatively narrow limits. The danger in such delegation of power is the discouragement of invest-

[1] Car service is defined very broadly.
[2] *159 I. C. C.* 630 (1929).
[3] *288 U. S.* 14 (1933).
[4] *Ibid.*, pp. 43–51.

ment. Under conditions such as applied in the Oregon Case, where it is evident that needed service will not be established other than by an existing carrier, positive orders may sometimes be appropriate.

Coordination

Chapter III indicated that the services of the various transport agencies and companies should be coordinated. In a restricted sense, and as used at this point, the term "coordination" means joint service by two or more carriers. We shall discuss the supply of equipment, interconnection and interchange of traffic, through routes and joint rates, and joint use of terminals.[1]

Supply of Equipment

The common-law service obligation embraces the supply and use of cars, trains, vehicles, vessels, terminals, and other equipment. The Interstate Commerce Act defines transportation facilities comprehensively and makes it the duty of rail, motor, and water carriers to provide facilities upon reasonable request therefor. Under the terms of the Esch Car-service Act of 1917 and the Transportation Act of 1920 the Commission may lay down service rules.[2] During emergencies the rules may be prescribed in summary fashion.

Referring to the car service of railroads, a source of shipper-carrier dispute, Sec. 1, Par. 14 (*a*), of the Interstate Commerce Act empowers the Commission, after hearing, on complaint or upon its own motion, to establish reasonable rules, regulations, and practices with respect to such service. "Car service" embraces the use, control, supply, movement, distribution, exchange, interchange, and return of locomotives, cars, and other vehicles used in the transportation of property, including special types of equipment and the supply of trains. It will be observed that the definition, though broad, specifies instrumentalities for the transportation of property; hence, the Commission does not have jurisdiction over passenger-train service. Such service has been regulated, however, by many of the states.[3]

In administering its authority over railroad-car service the Commission has generally proceeded cooperatively with the carriers, emphasizing the elimination of misunderstandings and the promotion of efficiency

[1] These and other means of coordination, such as the pooling of less-than-carload traffic, the creation of clearinghouses for accounting, and the consolidation of ticket offices, were reported on by the Federal Coordinator of Transportation.

[2] The Commission has not been authorized to prescribe similar rules for motor and water carriers.

[3] In normal times the Commission has had little occasion to control train service. *152 I. C. C.* 77 (1929).

through heavier loading, increased car-mileage, reduced number of bad-order cars, less crosshauling of empty cars, prompter release of cars, better scheduling of the demand for cars, and closer observance of car-service rules.[1]

Numerous details of adequacy have been involved. The carriers have been expected to make available a sufficient number of cars to meet normal needs, but cannot be required to furnish enough equipment to handle peak demands.[2] The railroads must also provide specialized equipment, such as refrigerator cars, if the demand is adequate, although they need not necessarily meet special needs of individual shippers.[3] Cars must be properly equipped.[4] Here, too, the principle of reason applies.[5] In time of shortage, rules are to be devised for the fair distribution of cars, as in connection with coal and grain.[6] Demurrage charges may be imposed upon shippers in order to encourage the prompt release of cars, and minimum weights may be fixed so as to promote heavier loading.[7] Some of the states have passed reciprocal demurrage laws penalizing the railroads for failure to furnish cars; but the Commission has not prescribed such rules, and the state laws have proved to be unsatisfactory because they place an unreasonable burden upon the carriers in time of car shortage.[8] Under conditions of congestion, embargoes and priorities may be enforced.[9] On account of the commingling of cars used for both interstate and intrastate purposes, car-service rules issued by the Commission take precedence over rules promulgated by state authorities.

The business depression and keen competition of the thirties, focusing attention upon the need for increased economy of transportation, especially in the railroad industry, resulted in proposals for the pooling of railroad cars. Although the adoption of car-service rules had brought about pooling to a certain extent, it was believed that an outright pool through the ownership of cars by a single independent agency controlled by the carriers would make possible substantial economies. The Coordinator pointed out that existing rules failed to stimulate the prompt return of cars to their owners in time of active demand; caused carriers originating a large volume of traffic to invest in additional equipment so as to be assured of an adequate supply at all times; required the same payment for

[1] See reports of the Bureau of Service in the *Annual Reports of the Interstate Commerce Commission.*

[2] *237 U. S.* 121 (1915).

[3] *11 I. C. R.* 129 (1905); *104 I. C. C.* 19, 22 (1925).

[4] *26 I. C. C.* 681 (1913).

[5] *43 I. C. C.* 276 (1917).

[6] Cf. p. 347.

[7] *11 I. C. R.* 166, 169 (1905).

[8] *66 I. C. C.* 653, 656 (1922).

[9] *Annual Report of the Interstate Commerce Commission,* 1926, pp. 61–62.

an old car as for a more valuable new one; and resulted in wasteful crosshauling of empty cars.[1] Total annual savings in operating expenses and carrying charges realizable through the pooling of all types of freight cars were estimated to be about $100,000,000.

The Coordinator's estimates were severely criticized by the Association of American Railroads as being much too liberal.[2] It was said that the proposed plan would be impracticable and confusing; that underequipped roads would not be assured of an adequate car supply; and that the administration of the pool would result in large additional expenses for supervision and accounting. The Coordinator's computations of unnecessary empty mileage were alleged to be excessive, and the estimated savings from the elimination of crosshauling were found to be more than four times as great as could reasonably be expected. The conclusion of the carrier spokesmen, who were doubtless influenced by the tradition of individualistic management, was that substantial savings could not be realized through the pooling of cars, and the Coordinator's plan was not put into effect.

It is difficult for a person not thoroughly acquainted with all the problems of operation to pass judgment upon the negative response of the carriers. At the time, economic conditions were not propitious for innovations, and the labor restrictions on coordination tended to neutralize efficiency measures; but it would seem that the chances for real gains through cooperative action were and still are favorable enough to warrant the adoption of a car pool, at least on a limited scale. That pooling is not impracticable appears to be borne out by the experiences of large railroad systems which have created their own pools through the process of consolidation. An example of pooling has been set in the passenger field by the Pullman Company.

Interconnection and Interchange of Traffic

The free flow of traffic obviously requires interconnection between carriers. The Act of 1887 directed the railroads to afford reasonable facilities for the interchange of traffic among their respective lines. Notwithstanding this provision, the railroads sometimes refused to establish track connections with each other, and the courts held that the Commission could not compel them to do so.[3] In 1910 the Mann-Elkins Act partly closed the gap in authority, empowering the Commission to direct a railroad to construct, maintain, and operate upon reasonable terms switch connections with lateral branch lines of railroad and with private side-

[1] See Federal Coordinator of Transportation, *Report on Freight Car Pooling* (1934).

[2] Association of American Railroads, *Report on the Plan for Box Car Pool Proposed by the Federal Coordinator's Section of Car Pooling* (1935).

[3] *63 Fed.* 775 (1894).

tracks. Orders were made contingent upon a showing that connections were reasonably practicable, could be installed with safety, and would furnish sufficient business to justify construction. This additional authority, now Sec. 1, Par. (9) of the Interstate Commerce Act, made possible compulsory switch connections with industrial sidings already constructed and with lateral branch lines of railroad,[1] but not with railroads that were more than branch lines.[2] Not until the Transportation Act of 1920 enlarged the Commission's jurisdiction over new construction and car service did the courts uphold orders compelling the construction of interchange facilities between interstate railroads in the broader sense.[3] Such orders have been issued on various occasions.[4] However, where the volume of interchange traffic has not warranted the expenditure required for connections[5] or where traffic has merely been diverted from one line to another,[6] the Commission has refused to require interconnection.

The Interstate Commerce Act, Sec. 6 Par. 11 (*b*), also provides for physical connection between railroads and water lines. Subject to the restrictions applicable to certificates of public convenience and necessity, the Commission may require the railroad, the water carrier, or both, to construct tracks joining the rail line and the dock at which interchange of passengers or property is to be made. This authority was given to the Commission by the Panama Canal Act of 1912, primarily for the purpose of promoting water transportation and of encouraging rail and water competition.

Correlatively with physical interconnection, power is vested in the Commission to require the reasonable interchange of traffic moving in interstate commerce. Section 3 (4) directs the railroads to provide proper means for this purpose, and Sec. 305 (*d*) imposes a similar duty upon water carriers. Other sections of the act make it unlawful for the railroads to enter into any combination to prevent the continuous carriage of freight, require the carriers to route traffic as directed by shippers, and provide for the establishment of through routes and joint rates. On many occasions the Commission has held that a shipper cannot be compelled to unload and reload railroad traffic at points of interchange.[7] The railroads are expected to make satisfactory provision for the transfer of cars from

[1] *68 I. C. C.* 260 (1922). The Commission cannot compel the railroads to construct sidings and spurs, since the Interstate Commerce Act specifically exempts spur, industrial, team, switching, and sidetracks, located wholly within a state, from the requirements as to certificates of public convenience and necessity.

[2] *226 U. S.* 14 (1912).

[3] *271 U. S.* 244 (1926).

[4] *157 I. C. C.* 350 (1929); *220 I. C. C.* 475 (1937).

[5] *190 I. C. C.* 201 (1932).

[6] *181 I. C. C.* 457 (1932).

[7] *26 I. C. C.* 226, 234 (1913).

line to line and for the prompt return of cars to their owners. Per diem rentals for foreign cars and other rules have long been established with the objective of promoting a quick return, but the regulations have not prevented the railroads from retaining cars belonging to other lines when the supply of owned equipment is short.[1]

With respect to the interchange of cars the Commission has said, "It is not many years since the railroad which originated freight transferred at its junctions to the cars of the connecting road. Each railroad was thus made to supply its own equipment. This was an uneconomical and time-wasting method, and so out of their own necessities and to give a prompter service the railroads developed the practice which generally obtains today of permitting cars to pass onto the tracks of their connecting roads and making a per diem charge therefor. Under this system the present method of hauling freight over several connecting lines has made possible that great body of through transportation which is perhaps the most distinctive feature of American railroading."[2] Where through routes have been established, the Commission can require the railroads to interchange cars with water carriers.[3]

Through Routes and Joint Rates

Through routes and joint rates are especially important instruments for facilitating the free and economical flow of traffic. A through route is an arrangement by connecting carriers for the continuous movement of goods from a point of origin on the line of one carrier to a destination on the line of another.[4] The establishment of a through route implies a through rate, though not necessarily a joint rate.[5] A through rate is simply the total charge from origin to destination agreed upon by the carriers forming the through route, and it may be a single rate or a combination of rates. A joint rate is a single rate applying all the way. Joint rates are usually lower than combination rates and, when published, take precedence over combinations. Joint rates are quoted by railroads, motor carriers, and a few water lines, to apply sometimes among carriers of the same type and sometimes among those of different type.

In the absence of through or joint rates, the originating carrier quotes a rate to the terminus of its own line, leaving to the shipper the ascertainment of the rate to be charged by the connecting carrier. Through routes and rates are thus an obvious advantage to the shipper. They may also

[1] *42 I. C. C.* 657 (1917). For years the per diem charge was generally $1, but it was later increased to $1.15.

[2] *12 I. C. C.* 561, 573 (1907).

[3] *248 I. C. C.* 109, 110 (1941). This case involved the interchange of cars between the railroads and the Seatrain or car ferry company.

[4] *245 U. S.* 136, 139 (1917).

[5] *12 I. C. C.* 163 (1907); *32 M. C. C.* 31, 37 (1942).

reduce wasteful transportation, by facilitating the movement of traffic over shorter routes.[1] Furthermore, when alternative avenues are opened, through routes and joint rates tend to encourage carrier competition. Again, they are sometimes the only means whereby particular carriers can function at a profit. Finally, through routes and rates are an important means of coordination between different modes of transportation.

Notwithstanding the advantages to shippers and the public, the establishment of through routes is often, though not always, opposed by the carriers. From the point of view of an individual line, such arrangements may be disadvantageous. The opening up of an alternative route may deprive the line of a portion of the haul and reduce its revenue. The carrier may possess an especially favorable terminal site for the attraction of traffic, or lines tapping productive territory, and under these circumstances it naturally objects to weakening its competitive position by turning over traffic which it can haul to other lines. In some cases, as in interchanges between railroads and waterways, through routes impose additional expense upon the originating carrier.

Under the common law a carrier is not obligated to arrange through routes or joint rates,[2] and Congress has been slow to force their establishment through Commission order.[3] The Act of 1887 forbade the railroads to prevent the continuous movement of traffic, but it did not provide for compulsory through routes.[4] The Hepburn Act of 1906 legalized Commission prescription only to a limited extent. It directed the carriers to arrange through routes and joint rates, and authorized the Commission to require establishment subject, however, to the condition that no reasonable or satisfactory route existed.[5] This limitation, removed by the Mann-Elkins Act in 1910, was replaced at the same time by another restriction, now in Par. 4 of Sec. 15, designed to prevent the short hauling of a carrier forming part of a through route unless the inclusion of substantially the entire length of its line between the termini would make the through route unreasonably long. The Transportation Act of 1920 modified the restriction of 1910, by making it inapplicable during emergencies, or when the failure to establish a through route results in discrimination between connecting carriers. The Transportation Act of 1940 further liberalized the short-haul provision by adding Par. 4 (*b*) of Sec. 15, which gave the Commission power to order the establishment

[1] The Federal Coordinator of Transportation found that the average carload moves 11 per cent farther than would be necessary if it moved by a direct-line route in common use. Federal Coordinator of Transportation, *Freight Traffic Report*, vol. 1, p. 77 (1935).

[2] *110 U. S.* 667 (1884).

[3] Federal Coordinator of Transportation, *Regulation of Transportation Agencies*, Senate Document no. 152, 73d Cong., 2d Sess., pp. 92–94 (1934).

[4] *192 U. S.* 568 (1904).

[5] *216 U. S.* 538 (1910).

of through routes under certain conditions even though the haul of one or more carriers is shortened. These conditions and other provisions of the law, including the fuller authority of the Commission when one of the carriers is a water line, will be fully explained presently. Although the Federal Coordinator of Transportation and the Commission have recommended that the restriction of 1910 be completely removed, Congress has not seen fit to take action.[1]

The Interstate Commerce Act and the Civil Aeronautics Act make obligatory the establishment of reasonable through routes and joint rates between like common carriers in rail, water, and air transportation and in the motor-passenger industry.[2] Through routes and joint rates must also be arranged between railroads and common carriers by water.[3] They *may* be instituted between the following: common carriers of passengers by motor vehicle and railroads or water carriers;[4] common carriers of property by motor vehicle;[5] common carriers of property by motor vehicle and railroads, express, or water carriers;[6] and air carriers and other common carriers.[7] Matters relating to through services between air lines and carriers subject to the Interstate Commerce Act may be referred to joint boards composed of a like number of representatives from the Commission and the Civil Aeronautics Board.

Relief of motor carriers of property from the duty of establishing through routes and joint rates with other such carriers has been justified on the ground that many truckers render a specialized service, operate over irregular routes, employ unstandardized equipment, and differ in financial strength or ability to provide service.[8] It may prove necessary, however, to make through routes mandatory for truckers.

Through routes and joint rates between common and contract carriers have been prohibited. The Commission has ruled that a contract carrier may not interchange traffic with a common carrier under joint through rates without changing its status to that of a common carrier.[9] This principle is consistent with the general policy of preventing dual operation, although it may result in less effective use of equipment.

In cases where it is the duty of the carriers to establish cooperative arrangements, the Commission may prescribe through routes and joint

[1] Federal Coordinator of Transportation, *op. cit.; Annual Report of the Interstate Commerce Commission*, 1937, p. 106.

[2] Secs. *i* (4), 305 (*b*), and 216 (*a*).

[3] Sec. 1 (4).

[4] Sec. 216 (*c*).

[5] Sec. 216 (*c*).

[6] Sec. 216 (*c*) and 305 (*b*).

[7] Civil Aeronautics Act, Sec. 1003 (*b*).

[8] *32 M. C. C.* 31, 36 (1942).

[9] *41 M. C. C.* 143, 146 (1942).

rates after hearing upon complaint or upon its own motion.[1] During emergencies, hearings and the short-hauling prohibition may be disregarded in fixing through routes and joint rates for railroads.[2] The Denison Act of 1928 authorized the prescription of through routes and joint rates between railroads and water carriers without hearing in normal times, but the Commission has accorded the railroads the right to be heard.[3] The Commission cannot order through arrangements between trucks and water carriers, since the provisions of the act in this connection are only permissive.[4] The same rule applies between truckers and railroads,[5] or between truckers themselves. But through bus routes can be prescribed, without respect to the long-haul provisions of Sec. 15 (4).[6] These provisions have no counterpart in Part II of the Interstate Commerce Act.

In prescribing through routes between railroads the Commission cannot require a railroad, without its consent, to embrace in a route substantially less than the entire length of the railroad which lies between the termini of the proposed through route (*a*) unless the inclusion of lines would make the through route unreasonably long as compared with another practicable route, or (*b*) unless the Commission finds that the route to be established is needed in order to provide adequate and more efficient or more economic transportation.[7] This is the limitation enacted in 1910 as subsequently modified. The (*a*) clause was added in 1910 and 1920, the (*b*) clause in 1940. Limitation does not apply, as indicated above, in times of emergency, or in cases of discrimination between carriers under Sec. 3. Such discrimination can arise when a company refuses to establish through routes[8] or joint rates and the divisions thereof[9] on equal terms.

Strictly interpreted without the qualifying clauses, the limitation of 1910 frequently made impossible the establishment of a through route; for any route would short haul one or more railroads. The Commission therefore decided to protect only the originating carrier, thereby facilitating the opening up of more routes.[10] This interpretation was set aside by the Supreme Court in the Subiaco Case, which held that protection of haul should extend to carriers anticipating receipt of traffic from connections.[11]

[1] Secs. 15 (3), 216 (*e*), and 307 (*d*).
[2] Sec. 1 (15).
[3] Prescription without hearing may be unconstitutional. See *291 U. S.* 457 (1934).
[4] *253 I. C. C.* 535, 537 (1942).
[5] *31 M. C. C.* 455, 458 (1941).
[6] *43 M. C. C.* 51, 54 (1943).
[7] Sec. 15 (4).
[8] *33 I. C. C.* 76, 86 (1915).
[9] *55 I. C. C.* 71 (1919).
[10] *28 I. C. C.* 621 (1913).
[11] *278 U. S.* 269 (1929).

It was in order to renarrow the long-haul limitation that Congress passed the amendment of 1940. When needed to provide adequate or more economical service, through routes that short haul carriers can now be prescribed.[1] The Commission is directed, however, to give reasonable preference to the carrier originating traffic, insofar as consistent with the public interest, and no through route or joint rate shall be established for the purpose of assisting any carrier to meet its financial needs. As implied, the last restriction is applicable to the initial establishment of through routes and joint rates, but not to their cancellation.[2]

In determining the divisions of joint rates, Sec. 15 (6) of the Interstate Commerce Act provides that "the Commission shall give due consideration, among other things, to the efficiency with which the carriers concerned are operated, the amount of revenue required to pay their respective operating expenses, taxes, and a fair return on their railway property held for and used in the service of transportation, and the importance to the public of the transportation service of such carriers. . . . " In 1922 the Commission construed this provision to mean that within limits it could order the division of the revenue from joint rates so as to aid the weak railroads,[3] and this interpretation was upheld by the Supreme Court. In the New England Divisions Case the Court pointed out that the division of rates according to revenue needs was not a partition of property and that the mere fact that a carrier collected revenue did not necessarily make the revenue its own.[4] The proceeds of rate increases, according to the Court, were paid by the community and could be employed for the promotion of transport service as a whole in keeping with the philosophy of the Transportation Act of 1920. In 1941 the Commission handed down a similar decision, which was likewise sustained by the Supreme Court.[5]

Although Sec. 15 (6) can be utilized to assist the weaker carriers, as a solution of the weak and strong road problem it is subject to several qualifications. A very important limitation is that the amount of revenue to be divided, which depends upon the level of rates and the volume of joint traffic, may be inadequate. A second restriction is that a connecting carrier cannot be required to make confiscatory divisions. Other limiting factors are as follows: the weaker carriers sometimes hesitate to antagonize strong connecting roads by demanding more liberal divisions; a line wishing to avoid such divisions can induce shippers to consign traffic over

[1] *255 I. C. C.* 333, 343 (1943). See also *323 U. S.* 588 (1945).
[2] *245 I. C. C.* 183, 188 (1941).
[3] *66 I. C. C.* 196 (1922).
[4] *261 U. S.* 184, 196 (1923).
[5] *245 I. C. C.* 183 (1941), and *323 U. S.* 588 (1945).

other routes; and, unless prevented by the Commission, the route in question can be closed.

Congress has made special provision for through routes and joint rates between railroads and common carriers by water, because of the great importance of rail-water arrangements to the water carriers and because of the reluctance of the railroads to enter into such arrangements.[1] Section 1 (4) of the Interstate Commerce Act specifically directs the railroads to establish through routes and joint rates when one of the carriers is a water line. The Denison Act of 1928 authorized common carriers on the Mississippi River and its tributaries to apply to the Commission for certificates of public convenience and necessity, and directed the Commission to order all connecting railroads to institute through routes and joint rates with the carriers receiving certificates. The Panama Canal Act of 1912 removed the long-haul protection for railroads when the participant in a through route is a water carrier, and gave the Commission jurisdiction over proportional rates by rail to and from ports.[2] Proportional rates were defined as rates different from local rates and applying to the rail portion of a rail-water haul. The Commission has held that a railroad may be required to establish through routes and joint rates with a water carrier without regard to the long-haul limitation of Sec. 15 (4) even when the water line is controlled by another railroad.[3]

Although the Commission has full authority to prescribe through routes between railroads and water carriers, it has recognized limitations to such routes. The railroads have argued that through routes should not be established if the effect is to reduce railroad traffic, but the Commission, in keeping with a similar principle announced when only railroads are concerned,[4] has refused to accept the argument.[5] To accept would sometimes deprive the public of cheaper transportation. However, the Commission will not order through routes and joint rates if the rail-water route is unduly circuitous, or if the distance between the points of origin and interchange is about as great as the direct distance by rail between the points of origin and final destination.[6] The requirement of through arrangements under these conditions would save little or nothing and would add to the cost of service the expense of transshipment. A case of extreme circuity illustrating the Commission's policy occurred in 1929 when the Inland Waterways Corporation requested the establishment of

[1] See *77 I. C. C.* 317, 324–325 (1923).

[2] *49 I. C. C.* 176 (1918).

[3] *231 I. C. C.* 295, 300 (1938).

[4] *13 I. C. C.* 460, 466 (1908).

[5] *182 I. C. C.* 521, 524 (1932); *251 I. C. C.* 745, 760 (1942). A large portion of the rail-water arrangements voluntarily established by the railroads involves carriers on the oceans and Great Lakes.

[6] *182 I. C. C.* 521, 529–530 (1932).

a through route from Mobile, Ala., to Columbus, Ga.[1] Transportation was to take place by barge from Mobile to Birminghamport, thence by one railroad to Birmingham, and finally by another railroad to Columbus. The all-rail distance from Mobile to Columbus by two other railroads was 269 miles. The distance by water from Mobile to Birminghamport was 419 miles, and from the latter point to Columbus the railroad haul was 301 miles. The total length of the proposed through route was thus 720 miles, and after moving by water a shipment would have been 32 miles farther from Columbus than when it started.[2]

Joint Use of Terminals

The cost, speed, and convenience of service depend to a large extent upon the transport terminal, especially in railroad and air transportation. The railroad terminal of a large city is generally an expensive, complicated mechanism occupying a substantial area of valuable land.[3] The freight terminal, usually separate from that for passengers, must accommodate through traffic, carload local traffic, and less-than-carload local traffic. There are required switching and storage tracks and devices for the spotting of cars, and for the make-up and breakdown of trains; public tracks and spurs to private industries for loading and unloading carload traffic; and inbound and outbound houses for the receipt and delivery of less-than-carload traffic. Special facilities are also needed for the servicing of cars and engines. It is not surprising that the railroads have invested hundreds of millions of dollars in terminals. About half the cost of railroad freight service is alleged to be chargeable to terminal operation, and the average car is said to spend 3 hours in the terminal for 1 hour on the road.[4]

If all traffic originated and terminated on the lines of a single railroad, the terminal problem, except as related to city planning, would be largely a matter of management, like other phases of operation. Because of the importance of terminals in attracting and handling traffic, the carriers could be expected to provide adequate terminal facilities for all purposes. But much traffic is shipped from or consigned to points on the lines of different railroads.[5] And the terminal best located for the origination and termination of traffic is often controlled by one carrier, some-

[1] *151 I. C. C.* 126, 132 (1929).

[2] The circuity rules followed by the Commission in establishing through routes between railroads and river carriers are set forth in detail in *172 I. C. C.* 525, 529 (1931).

[3] Some terminals are electrified, as in New York City.

[4] See Federal Coordinator of Transportation, *Report on Economy Possibilities of Regional Coordinating Projects*, p. 12 (1935).

[5] Three-fourths of all freight carload traffic requires the service of more than one road. Federal Coordinator of Transportation, *Second Report on Economy Possibilities of Regional Coordination Projects*, p. 3 (1935).

times by the company first in the field.[1] Naturally this carrier may endeavor to reserve competitive line-haul traffic for itself, by declining to switch cars for the other companies, or by refusing to allow the other lines to use its facilities. Additional terminals can sometimes be constructed only at the expense of unnecessary duplication. Frequently other terminals are not feasible, on account of physical limitations or prohibitive costs.

The availability of terminals can be increased through the operation of open terminals. These are terminals which are used by all carriers, as distinguished from closed terminals, which are reserved for particular lines. Terminals may be opened or unified in two ways. One method is reciprocal switching, an arrangement whereby a railroad retains the ownership of its terminal but accepts from or turns over to other railroads entering a city the cars consigned to or from industries served by the proprietary company. Reciprocal switching is facilitated by the establishment of belt lines connecting with all railroads, as in Chicago. The second method is the organization of terminal companies. Under this plan terminals are operated by a separate company or association in the interest of the participating carriers. The terminal company may be municipally controlled, as in the case of the belt railroads of New Orleans and San Francisco, or it may be controlled by the cooperating railroads, as in the case of the Terminal Railroad Association of St. Louis.

Terminal unification, trackage rights, common ownership of belt lines, and joint switching arrangements have already been established on a considerable scale, although in the opinion of many students much remains to be done. In 1938, according to the Assocaition of American Railroads, there was joint use of 24,000 miles of track, 1,902 passenger stations, 1,366 freight stations, 618 yards, 472 large bridges, and 263 engine terminals.[2] Although these figures have been criticized, it is evident that coordination is by no means inconsequential. Some of the unifications have been in successful operation for years.

Open terminals are favored by the public, while closed terminals are approved by the railroads, at least by the strongly entrenched lines. Arguments in behalf of the open terminal are that it encourages competition by giving shippers greater freedom in the choice of routes, reduces the investment and labor required to handle a given volume of traffic, creates a more effective car supply, and lessens the danger of discrimination. The Federal Coordinator of Transportation estimated potential savings from terminal unification to be more than $50,000,000 per year.[3] The Interstate Commerce Commission has said, "All terminal properties

[1] The Soo line, for example, has little terminal property in Chicago.

[2] Association of American Railroads, *Address by M. J. Gormley* (Mar. 25, 1938).

[3] Federal Coordinator of Transportation, *op. cit.*, p. 2.

should be thrown open to all users on fair and equal terms so that every industry on whatever rails located shall have access to all lines radiating from that terminal, and every line carrier reaching that terminal shall similarly have access to all terminal tracks within the terminal area."[1]

The chief argument for the closed terminal is that it protects the competitive advantage of the foreseeing or fortunate carrier. This argument, greatly weakened by the development of motor transportation, is supplemented by other contentions. It is said that operation on a closed basis increases the efficiency of management, because of the more direct interest of the owner; promotes competition in terminal services; and, on account of complicated switching, may facilitate the delivery of traffic by the shipper at the nearest point almost as well as the open terminal. Unifications proposed by the Coordinator were not put into effect, representatives of the carriers finding the projects to be impractical, unnecessary in the light of adequate individual facilities, unwarranted by probable savings, and too costly in capital expenditure and dismissal compensation.

Though strongly advocated, terminal unification cannot be required by the Commission except under limited conditions. The Act of 1887 directed the railroads to afford all reasonable facilities for the interchange of traffic without discrimination, but specifically provided that a carrier could not be ordered to give the use of its tracks or terminals to another carrier. Closed terminals could therefore not be opened against the owner's will.[2] However, if an owning carrier permitted any other railroad to use its terminal, the terminal was said to be open, and all carriers were entitled to use when the circumstances and conditions were similar.[3] If the owner switched traffic for one railroad, it had to switch for others.[4]

The Transportation Act of 1920 authorized the Commission to require the joint use of terminals even when a railroad does not make its facilities available to any outside carrier. Opening orders are subject to these limitations: It must be shown that joint use is in the public interest. It must also be established that joint use is practicable without substantially impairing the ability of the owner to handle its own business. In case the carriers cannot agree upon compensation, to which the owner is entitled, the Commission can decide the terms. Payment must be based upon the principles governing condemnation proceedings, *i.e.*, according to loss to the grantor rather than value to the grantee.[5] Since terminal privileges are highly regarded, this means such liberal compensation as largely to eliminate the advantage of joint use, except when conditions are non-

[1] *159 I. C. C.* 522 (1929).
[2] *26 I. C. C.* 240 (1912). See also *226 U.S.* 14 (1912).
[3] *29 I. C. C.* 114 (1913); *236 U. S.* 351 (1915).
[4] *58 I. C. C.* 647 (1920).
[5] *107 I. C. C.* 208 (1926).

competitive. The Commission has held that it has no power to relieve a using carrier from an onerous contract with the owner of a terminal.[1] In times of emergency the foregoing restrictions upon the joint use of terminals do not apply.

The Commission has exercised its authority over terminals only in a few cases of secondary importance and at certain times of traffic congestion. In one case the Commission ordered reciprocal switching throughout a city when the carrier switched for other lines in a part of the city.[2] In another instance the Commission directed a railroad to allow a competitor to use a terminal connecting track.[3] On the other hand, the commission has refused to require the joint use of a warehouse when both the carriers concerned had depots in the same city.[4] It has also declined to force a carrier to enter into reciprocal switching agreements.[5] The constitutionality of compulsory terminal unification appears to be doubtful, and it is difficult to decide upon mutually satisfactory terms of joint use. The relative importance of this problem in the future depends upon the course of railroad consolidation.

Special Services

There are a number of important ancillary services connected with the movement of goods between cities by railroad. Among the special services which should be briefly discussed are the following: (1) pickup and delivery, (2) diversion and reconsignment, and (3) transit privileges.[6] The Commission has jurisdiction over these services and over the charges therefor, which are published in tariffs.[7] Services and charges must be reasonable and nondiscriminatory.

1. Pickup and delivery, sometimes referred to as store-door delivery, collection and delivery, or completed transport, means the pickup of freight by the carrier from the door of the shipper and its delivery to the door of the consignee.[8] Service from door to door has long been customary in Canada and England except with respect to heavy goods, but prior to the thirties the railroads of the United States generally furnished a completed service only through the spotting of cars on industrial tracks. Less-than-carload shipments not handled by trap car, and team-track carload traffic, were ordinarily brought to and from the railroad freight

[1] *211 I. C. C.* 291 (1935).
[2] *107 I. C. C.* 219 (1926).
[3] *161 I. C. C.* 699 (1930).
[4] *195 I. C. C.* 287 (1933).
[5] *80 I. C. C.* 314 (1923).
[6] Other services are ventilation and refrigeration.
[7] See Secs. 1 and 3 of the Interstate Commerce Act.
[8] See Lynch, E. S., "Railroad Pick-up and Delivery," *Journal of Land and Public Utility Economics*, vol. 14, pp. 120–132 (May, 1938).

house or track by the shipper and consignee. Only in a few isolated cases was less-than-carload freight handled like express.

About 1925 certain railroads began to experiment more seriously with pickup and delivery, primarily for the purpose of recapturing traffic lost to truckers. In 1931 the railroads throughout Southern and Western territories introduced limited service, and during the next 2 years many of the railroads in Eastern Territory followed suit. In 1936 free pickup and delivery became universal for less-than-carload freight at stations where traffic moved in sufficient volume.[1] Initially the new service was generally furnished without charge only on traffic moving 260 miles or less, but the short-haul limitation was soon removed. In 1936 the Commission approved free pickup and delivery regardless of length of haul under station-to-station tariffs subject to a minimum rate of 45 cents per 100 pounds.[2] Shippers and consignees were accorded the privilege of providing their own pickup and delivery, receiving therefor a rebate from the line-haul rate of 5 cents per 100 pounds for pickup and an equal concession for delivery.

As a rule pickup and delivery have been furnished by the railroads through subsidiary companies, contracts with truckers, or the Railway Express Agency. Service must be confined within terminal limits[3] and must be made available in a nondiscriminatory manner.[4] Whether it should be established or, when provided, whether it should be compensated for in the line-haul rate is determined by the evidence in each particular case.[5] Although the Commission has no authority to order the institution of pickup and delivery, service voluntarily offered becomes subject to the jurisdiction of the Commission.[6] In case free pickup and delivery unduly deplete the revenue of a carrier, the Commission can require withdrawal.[7] Motor carriers confining their operations solely to pickup and delivery are subject to Part I of the Interstate Commerce Act rather than to Part II.

Pickup and delivery appear to have increased the less-than-carload traffic of the railroads, but whether they have meant greater profits is an open question. The chief arguments for the service are that it facilitates the rapid clearing of freight houses, reduces trucking costs through better loading, tends to eliminate terminal congestion, and enables railroads without strategically located terminals to compete more effectively for traffic. Contrary arguments are that pickup and delivery invade the field

[1] *218 I. C. C.* 441 (1936).
[2] Actually the service was not free.
[3] *206 I. C. C.* 436 (1935).
[4] *24 I. C. C.* 629 (1912).
[5] *258 I. C. C.* 697, 703 (1944).
[6] *206 I. C. C.* 18, 22 (1934).
[7] *Ibid.*

of the trucking industry, eliminates free storage for shippers, and tends to increase carrier costs and responsibility. Spokesmen for the railroads have stated that the savings may not offset the costs and that gains will be realized, if at all, from the increase in the volume of traffic.

2. Diversion and reconsignment are interchangeable terms referring to the practice of changing the billing or destination of a shipment either before or after it reaches the originally billed destination.[1] There may be change in name of consignee, name of shipper, route, or destination. An essential feature of diversion and reconsignment is the movement of freight from the diversion point to final destination at the balance of the through rate from origin to such destination. Since the through rate is ordinarily less than the sum of the rates to and from the diversion point or points, reconsignment enables the shipper to start shipments on their way and then divert the goods, taking advantage of changes in prices, saving storage and handling, eliminating unnecessary transportation, etc., without having to pay a higher combination rate. In marketing fresh fruit, livestock, lumber, coal, and other products, reconsignment has come to be more or less general and of considerable commercial importance. Frequently traffic is diverted more than once, especially when the haul is long.

Reconsignment is recognized as a service for which the railroads may assess a fee, to cover the additional clerical expense, switching, and delay made necessary in locating, handling, and holding cars to be diverted. The charge is often $2 per car. Rules approved by the Commission regulate the number of diversions that may be ordered; and in case of extra reconsignments, combination rates may be charged. Rules have also been devised to prevent undue delays and back hauls.[2] In some instances the Commission has required provision for reconsignment over the protests of the carriers, at the same time upholding the propriety of a charge for the service.[3] Charges may be published in diversion and reconsignment tariffs, special-service tariffs, or in the regular tariffs setting forth rates.

3. Transit privileges are rights temporarily to withdraw goods en route and later put them back into the flow of traffic, subject to the condition that the total rate to and from the point of withdrawal shall be the through rate from the original shipping point to ultimate destination.[4] The full local rate from origin to transit point is generally paid on the incoming goods, and the balance of the through rate is applied to the outgoing traffic.[5] In order to prevent fraud, incoming and out-

[1] See especially *21 I. C. C.* 257 (1911) and *47 I. C. C.* 590 (1917).

[2] When cars are held, demurrage charges may be levied.

[3] *38 I. C. C.* 551 (1916).

[4] See Wilson, G. L., *Transit Services and Privileges* (1925), and *24 I. C. C.* 340 (1912).

[5] Traffic must move out within prescribed limits of time, usually 12 months.

going traffic is compared; and while the identity of each shipment is not preserved, the amount that can move out at the balance of the through rate is reduced according to the loss of weight at the transit point. Usually, though not always, there is assessed a specific charge for the stopover privilege, to cover the cost of checking and extra terminal service at the intermediate location.

Transit privileges are of great value to certain industries, especially when the industries are not located at rate-breaking points.[1] In general their objectives are to permit the intermediate storage of finished goods and to facilitate the processing en route of raw materials or semifinished products. Among the typical in-transit services may be mentioned the milling, mixing, cleaning, and storage of grain; milling of forest products; fabrication of iron and steel articles; concentration of packing-house products; compression of cotton; and storage of agricultural implements, wool and mohair, and fresh fruits and vegetables. Transit implies substantial identity of incoming and outgoing products, but in cases such as the milling of grain into flour two different commodities move under one rate.[2]

Transit arrangements have been established by the railroads voluntarily, primarily to meet competition, and when reasonable are not unlawful.[3] But according to the Commission, transit constitutes a privilege, often too liberally extended, which the carriers cannot be ordered to grant.[4] However, where the failure to allow transit results in discrimination, as when it is denied at noncompetitive places and permitted at competitive points, the Commission will require establishment, even though a back haul is made necessary.[5]

Abandonment

Abandonment of service means its complete cessation as distinguished from curtailment.[6] It has become an important problem in the railroad industry, especially since 1930.[7] Approved railroad abandonments from 1920 through 1943 amounted to nearly 30,000 miles of line, of which more than half were authorized after 1934.[8] The majority of the abandonments represented the discontinuance of branches, although some consisted of

[1] *24 I. C. C.* 340, 349 (1912).
[2] *164 I. C. C.* 619, 708 (1930).
[3] *10 I. C. R.* 193 (1904).
[4] *20 I. C. C.* 43, 47 (1910); *22 I. C. C.* 1, 3 (1911).
[5] *63 I. C. C.* 89 (1921).
[6] *187 I. C. C.* 66, 72 (1932).
[7] See Trumbower, H. R., "Railroad Abandonments and Additions," *Journal of Political Economy*, vol. 34, pp. 37–60 (February, 1926); Moulton, H. G., and Associates, *The American Transportation Problem*, Chap. 8 (1933); and Cherington, Charles, "Railroad Abandonment in New England, 1921–1937," *Journal of Land and Public Utility Economics*, vol. 14, pp. 40–55 (February, 1938), 191–200 (May, 1938).
[8] Cf. p. 35.

entire railway systems.[1] In either case the lines were seldom longer than 100 miles. The average length in 1943 was 12 miles.[2]

The reason generally advanced to warrant abandonment has been the decline of traffic, resulting from a variety of causes. According to testimony of Commissioner Splawn, the dominant causes, 1935 to 1943, were highway competition, exhaustion of natural resources, rationalization of railroad plant, and relocation or cessation of industry.[3] Although more than one of the foregoing factors often received weight in a single case, highway competition was estimated to be responsible for about half of the abandonments. Percentages for the other causes were, respectively, 21, 12, and 10. The remaining 7 per cent of cases were explained by miscellaneous forces, including the removal of lines in connection with public improvements, and competition from railroads, water carriers, and pipe lines. Comparison with estimates for the period 1920 to 1932 indicates an increase in the significance of highway competition.[4]

When traffic declines and earnings drop, the railroads naturally wish to discontinue unprofitable lines. Even though abandonments generally cause some loss of traffic, the savings in operating expenses may more than offset the reductions in receipts. On the other hand, the people served by the lines frequently oppose abandonments, because of anticipated loss of service, relocation of industry, unemployment, fall of property values, and the like.[5] Within limits, the claims of both the carriers and the public are legitimate, common carriers being recognized by the common and statutory law to be quasi-private in nature. Until it is shown that a line is uneconomical, a carrier is obligated to serve the communities dependent upon it.

In explaining the circumstances under which a railroad may abandon service, it is desirable to distinguish between complete and partial abandonment. We shall assume unprofitable operation, for the abandonment of profitable lines is of little significance. The carriers would seldom, if ever, wish to discontinue paying services. We refer first to the common law.

If a railroad is unable to earn a reasonable return, complete abandonment of service must be permitted. The courts have held that an independent line cannot be compelled to operate when there is no reasonable prospect of profit. "The usual permissive charter of a railroad company does not give rise to any obligation on the part of the company to operate

[1] An example of complete abandonment was the Chicago, Peoria and St. Louis, a road 234 miles long running from Pekin to Grafton, Ill. The line was paralleled by a concrete highway and operated in a territory served by stronger railroads. *76 I. C. C.* 801 (1923).

[2] *Annual Report of the Interstate Commerce Commission*, 1943, p. 167.

[3] *Traffic World*, vol. 73 p. 1230 (May 6, 1944).

[4] Moulton, *op. cit.*, p. 151.

[5] About half the abandonments proposed in 1943 involved protests. *Annual Report of the Interstate Commerce Commission*, 1943, p. 68.

its road at a loss. . . . The company, although devoting its property to the use of the public, does not do so irrevocably or absolutely, but on condition that the public shall supply sufficient traffic on a reasonable rate basis to yield a fair return. And if at any time it develops with reasonable certainty that future operation must be at a loss, the company may discontinue operation and get what it can out of the property by dismantling the road. To compel it to go on at a loss or to give up the salvage value would be to take its property without the just compensation which is a part of due process of law."[1]

Partial abandonment may or may not be permitted. If a branch performs a useful service, it cannot necessarily be discontinued even though operated at a loss.[2] Decision depends upon the relative strength of the interests of the carrier and of the public. When the railroad as a whole earns a profit notwithstanding the loss, abandonment is less apt to be allowed, although a strong road cannot be expected to support an unprofitable branch indefinitely merely because it is convenient to the public.[3] But if the loss from the branch makes the entire system unprofitable, the rule seems to be that abandonment must be approved.[4] Under such circumstances it would be unreasonable to insist upon the retention of the burdensome arm. If necessary, the carrier could claim the right of complete abandonment.

Although a railroad can abandon service under conditions such as those outlined, it is not free to do so altogether at its own discretion. The Supreme Court has said, "A rule of a state public service commission that railroad switching service to which shippers are entitled . . . shall not be discontinued without the consent of the commission after notice and hearing, is reasonable and within the police power of the state."[5] This principle may entail delay, but it protects the public against the caprice of management and affords shippers an opportunity to make readjustments.

The Transportation Act of 1920 gave the Commission jurisdiction over railroad abandonments as well as over railroad extensions.[6] Section 1 (18) of the Interstate Commerce Act provides that "no carrier by railroad subject to this part shall abandon all or any portion of a line of railroad, or the operation thereof, unless and until there shall first have been obtained from the Commission a certificate that the present or future public convenience and necessity permit of such abandonment."

[1] *264 U. S.* 79, 85 (1924). See also *251 U. S.* 396 (1920).
[2] *267 U. S.* 330 (1925); *242 U. S.* 603, 607 (1917).
[3] *251 U. S.* 396, 399 (1920).
[4] *Ibid.*
[5] *267 U. S.* 493 (1925).
[6] The Commission has not been given authority over abandonments by motor and water carriers.

Spur, industrial, team, switching, and sidetracks, located wholly within one state, are exempt. Likewise excluded are street, suburban, and electric railways not operated as a part of a steam railroad system.

The authority of the Commission is practically exclusive. In effect it extends not only to abandonments by railroads located in more than one state, but also to those of lines confined wholly within the borders of a single state. Cessations of service by railroads of the latter sort come under the Commission insofar as their interstate operations are concerned;[1] and although the Commission has no direct jurisdiction over their intrastate operations,[2] it can approve the cessation of such service, over the opposition of a state, if the service places a burden upon interstate commerce and if the carrier continues to handle traffic crossing state boundaries.[3] Since few railroads could discontinue all interstate business and still operate at a profit, permission to abandon by the Commission is virtually final.

The decisions of the Commission follow and supplement the common-law rules. Complete abandonment by an independent line when future prospects indicate continued loss is practically always permitted.[4] Partial abandonment is decided according to the circumstances of particular cases. Neither loss to the carrier nor inconvenience to the public is necessarily conclusive.[5] Branches can be abandoned when they endanger the solvency of an entire railroad system, but they can also be discontinued even if the system continues to be operated at a profit.[6] Decision frequently turns upon the availability of alternative services.[7] In some instances the Commission has approved abandonments on condition that the applicant substitute motor-carrier service.[8] If future prospects are uncertain, abandonment may be denied temporarily.[9] It should perhaps be added that abandonment will be allowed if the special needs occasioning the line have disappeared,[10] or if the resources providing traffic have been exhausted.[11]

The Commission has authority to impose conditions for the protection of employees displaced by railroad abandonments.[12] In cases of abandon-

[1] *271 U. S.* 153 (1926).
[2] *258 U. S.* 204 (1922).
[3] *271 U. S.* 153 (1926); *284 U. S.* 360 (1932).
[4] *76 I. C. C.* 801, 806 (1923).
[5] *71 I. C. C.* 795, 799 (1922); *184 I. C. C.* 253, 260 (1932); *138 I. C. C.* 213, 219 (1928).
[6] *145 I. C. C.* 355, 361 (1928); *184 I. C. C.* 687, 692 (1932).
[7] *70 I. C. C.* 441 (1921); *79 I. C. C.* 431 (1923); *162 I. C. C.* 474 (1930).
[8] *145 I. C. C.* 355, 361 (1928); *150 I. C. C.* 413, 415 (1929); *162 I. C. C.* 363, 376 (1930); *175 I. C. C.* 163, 166 (1931).
[9] *166 I. C. C.* 470, 492 (1930).
[10] *70 I. C. C.* 425 (1921).
[11] *71 I. C. C.* 389 (1922).
[12] *315 U. S.* 373 (1942).

ment of entire lines it has declined to prescribe protection, but in proceedings involving the abandonment of portions of railroad systems, where it appears that employees may be affected, the Commission has required protective arrangements.[1] Sometimes dismissal wages have been ordered.[2] Other typical allowances include the following: continuance of such benefits as free transportation, pensions, and hospitalization; expenses for moving; and reimbursement for losses suffered from the sale of a home.

The Commission has approved the great majority of the requests for abandonment. Cases denied have been relatively unimportant, involving in all a comparatively small mileage. As with extensions, the responsibility for discontinuing unprofitable lines rests primarily upon the carriers. Frequently the Commission has interfered only because of hopes for improvement, or because prospective losses have not been adequately demonstrated. This seems to be a sound procedure, for unprofitable branches should generally be sloughed off as soon as possible, so that the railroads can be strengthened. In view of the rise of alternative means of transportation, the public is now usually less dependent upon particular lines than formerly. Bills have been introduced in Congress designed to prevent abandonments until it is shown that the efficiency of the national transportation system is increased thereby, but such a showing would be difficult and might retard necessary readjustment. Lines that impair the ability of a carrier to perform its duty to the public should be discontinued.

Emergencies

The Interstate Commerce Act authorizes the Commission during emergencies, such as those brought about by traffic congestion or car shortages, to exercise upon complaint or its own initiative, without hearing or formal pleading, special controls over railroad service.[3] The Second War Powers Act of 1942 gave the Commission certain emergency powers over motor carriers.[4] As to railroads, the Commission can (1) suspend car-service rules or practices, (2) order the pooling of locomotives and cars, (3) require the joint use of terminals, including main-line tracks for a reasonable distance outside of terminals, (4) establish priorities, embargoes, and transportation under permits, and (5) route traffic so as to relieve congestion and promote improved service. The Commission's directions may be carried out through such agencies as it specifies.

The Commission has exercised its emergency powers on several occasions. One instance occurred in 1920, when unusual business activity and

[1] *242 I. C. C.* 9 (1940); *254 I. C. C.* 303 (1943).
[2] *247 I. C. C.* 285 (1941).
[3] Sec. 1, Pars. 15–17.
[4] *Annual Report of the Interstate Commerce Commission*, 1942, p. 45.

the switchmen's strikes reduced the effective supply of cars. At that time the railroads were ordered to forward traffic by the most direct routes, without respect to the ownership of cars; equipment was relocated between the Eastern and Western carriers; and priorities were established to facilitate the shipment of coal.[1] Another occasion for resort to similar emergency measures developed in 1922 at the time of the general strike by coal miners.[2] Less significant emergencies have arisen from time to time.[3]

During the Second World War the Commission issued a larger number of emergency-service orders than at any time in its history.[4] Their purpose was to facilitate the movement of the huge volume of wartime traffic, particularly by railroad. At the time of the outbreak of war the physical plant of the railroads was in relatively good condition, the carriers had increased the average speed of trains, funds for improvements could be obtained from the Reconstruction Finance Corporation, and there had been created for the control of service the Car Service Division of the Association of American Railroads and numerous shippers' advisory boards. But the railroads faced the demands of war, and the burden thrown upon them as a result of the diversion of tankers and the curtailment of motor transportation, with a reduced supply of freight cars and locomotives. Since materials and labor for the construction of additional rolling stock were inadequate, it was essential to make the most effective use possible of existing facilities and to lessen the work required wherever practicable.

Among the more important orders were those which provided for the following: application of the carload rate to amounts of freight in excess of a full carload; suspension of the rules permitting the substitution of a larger car for a smaller car ordered, or of two or more smaller cars for a larger car; prohibition of the use of cars for the shipment of carload freight not subject to established carload minimum weights; loading in a car of the minimum weight specified therefor, or the payment of rates based upon such weight; pooling of livestock cars at stations or terminals served by more than one railroad; limitation of the number of reconsignments and diversions of specified kinds of traffic; procurement of permits for the movement of certain types of freight; setting aside state laws or carrier and employee agreements limiting the length of trains; control of the distribution and icing of refrigerator cars; rerouting of transcontinental traffic; elimination of the unnecessary weighing of cars; and the levy of increased demurrage charges.

[1] *Annual Report of the Interstate Commerce Commission*, 1920, pp. 11–23.

[2] *Annual Report of the Interstate Commerce Commission*, 1922, pp. 9–16.

[3] For a brief list of these see Sharfman, I. L., *The Interstate Commerce Commission*, part 3, vol. A, p. 66 (1935).

[4] For a review of these orders see *Annual Report of the Interstate Commerce Commission*, 1942, pp. 15–21, and 1943, pp. 51–55.

The Commission's emergency powers were exercised in cooperation with the carrier and shipper organizations referred to above, with various departments and bureaus of the government, and with the Office of Defense Transportation. The last agency was created by order of the President of the United States on Dec. 18, 1941, in the Office for Emergency Management, and had as its first director Commissioner J. B. Eastman, who was at that time chairman of the Interstate Commerce Commission. It was the Office of Defense Transportation which assumed chief governmental responsibility for directing the war efforts of transportation agencies.[1] Its authority extended to all modes of transport, including private passenger cars and trucks, and its orders were not subject to judicial review. Notwithstanding its broad powers, the Office of Defense Transportation, like the Interstate Commerce Commission, sought to accomplish its objectives primarily by encouraging cooperation between all interests involved. Measures were taken designed to promote, among other things, the following: pooling of freight and passenger cars, intercompany loans of locomotives, direct routing of trains, curtailment of competitive traffic solicitation, substitution of tank trucks for tank cars on short hauls, postponement of car loading until the prospects for unloading were favorable, prompt unloading, coordination between movements toward ports and ship departures, higher minimum carloads, pooling of particular types of freight, reduction of bad-order equipment, diversion of certain traffic to water lines, elimination of crosshauling, off-peak movements of coal and other commodities, substitution of busses for local trains, discontinuance of lightly used trains and branch lines, discouragement of pleasure travel, better maintenance of motor vehicles, reductions in motor-vehicle speeds and trips so as to conserve equipment, and prohibition of the sale of Pullman tickets for trips of short length.[2]

The efforts of the Commission, the Office of Defense Transportation, the carriers, and shippers resulted in moving the wartime traffic without serious congestion and with general satisfaction on the part of all interests at stake. As indicated elsewhere, this was in sharp contrast with results during the First World War.[3] Between 1941 and 1943 the freight ton-miles per loaded car-mile of Class I railways increased from 28.4 to 33.3; freight-car-miles per train-mile from 32.1 to 33.5; passenger-miles per car-mile from 15 to 31; and passenger-car-miles per train-mile from 7.7 to 9.2.[4]

[1] See Eastman, J. B., "Performance of the American Railroads," *Proceedings of the Academy of Political Science*, vol. 20, pp. 2–12 (January, 1943).

[2] Many of these and other measures were made effective through the issuance of general orders.

[3] Cf. pp. 171, 572–574.

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CHAPTER - - - - - - - - - - - - - - NINETEEN

Control of Securities and Reorganization

A TRANSPORT corporation normally secures most of its permanent capital through the sale of securities: capital stock, bonds, and notes.[1] The issuance of these obligations, which is a matter of public concern, constitutes the subject of this chapter. The problem is discussed with special reference to railway securities, but the underlying principles apply to all forms of transportation.

Brief Description of Railroad Securities

The capital structure of a carrier may be simple or involved; that of a railroad is typically very complex. Most railroad companies are combinations of preexistent corporations, each with its own financial structure, and many of the carriers have gone through one or more receiverships. The structure of a trucking company, on the other hand, is likely to be relatively simple.

Slightly more than half the capitalization of the railroads consists of funded debt, which includes bonds and notes.[2] Bonds may be classified according to means of security as follows: mortgage, collateral trust, equipment, income, and debenture. Mortgage bonds, which amount to about seven-eights of the total, are secured by mortgages on physical property and usually embrace several issues. Some of the issues constitute first or second liens on parts of the property; others represent general mortgages covering all the property. Collateral trust bonds are generally secured by the stocks and bonds of subsidiary railroads, and they are often issued to acquire control of underlying properties or to raise funds for extensions when the securities of the subsidiaries are not well known. Equipment obligations are secured by rolling stock and are sold for the purpose of providing funds for the purchase of equipment. Title to the cars and locomotives is generally vested in trustees pending

[1] Capital may also be obtained through the reinvestment of earnings, government loans, and gifts.

[2] Until recently, funded debt constituted considerably more than half the capitalization; from 1900 down to 1926 it increased to three-fifths. An irregular decline then reduced the figure to 51 per cent by 1943. Long-term debt in default was not included in computing this percentage.

satisfaction of a contract of lease between the trustees and the railroad company which utilizes the rolling stock. The terms of this contract usually make the equipment trust a security of the highest grade. Income bonds are sometimes secured by a mortgage, but the interest need not be paid unless it is earned. This provision as to interest explains the chief use of income bonds; *i.e.*, in connection with reorganizations, where the object is to reduce the fixed charges. The debenture has no mortgage security, and for that reason it is not popular in the United States. But the claim upon income is not contingent and is prior to that of preferred stock.

Notes are much less important than bonds, though they sometimes constitute a significant element in the capitalization. The notes usually run for a term of 3, 4, or 5 years and are normally issued to meet a maturity, or to provide cash when the capital market is unfavorable to the issuance of long-term obligations. Notes are ordinarily paid off through the flotation of bonds.

The remainder of the capitalization, after allowing for the funded debt, is composed of capital stock. Among the railroads as a whole, four-fifths of the stock, or about one-third the total capitalization, is common stock. This usually has a par value of $100, although of recent years no-par stock has been utilized to some extent, especially in reorganizations. One-fifth of the capital stock, or about one-tenth of the aggregate capitalization, consists of preferred stock, which is either cumulative or noncumulative.[1] Most of the cumulative stock is of comparatively recent origin and is outranked in importance by the noncumulative. The latter, like income bonds, usually originates in connection with reorganizations, where it is used to replace mortgage bonds and thus to reduce fixed charges.

Overcapitalization

The aggregate par value of a company's securities is generally known as its capitalization.[2] This will correspond to the capital assets according to the basis of valuing these assets. If the par value is greater than the valuation, there is overcapitalization. Of the possible standards of appraisal we shall consider four.

One standard is the original contribution of security holders in cash or its equivalent. If rigidly adhered to, this basis would assure at least $1 of investment for every dollar of stocks and bonds; and to the extent that earnings are reinvested, it would result in the accumulation of a surplus. The great merit of the investment criterion, therefore, is that it

[1] Preferred stock generally has equal voting power with common stock.

[2] The word "capitalization" sometimes refers to a company's liabilities, or to its total assets.

furnishes a record of the actual contribution of the investors. Another advantage of this standard is its stability.

A second basis is the original cost of the property, as defined in the chapter on Valuation. This differs from the first basis in that it includes undistributed earnings. Profits can either be retained in the business or they can be paid out in the form of cash dividends, according to the decision of the directors; if they are retained, they may be capitalized. In practice, a company would often refuse to reinvest its earnings if it were not allowed to issue stock dividends.

Since it is not directly affected by fluctuations in the price level, the original-cost basis, like the initial investment of security holders, has the advantage of stability. Another advantage is that it reveals the true rate of earnings on the actual cost of the property. The chief disadvantage of the original cost is that it is sometimes difficult to ascertain.[1] A second disadvantage is that it may give an appearance of excessive earnings, in case the original cost is less than the rate base. But the rate base should be measured by the original cost; and if it is so measured, a semblance of unreasonableness will not occur.

A third basis for the capitalization is the cost of reproducing the property. The principal argument for this standard assumes that it constitutes the proper criterion for rates. Granting the assumption, the cost of reproduction is said to be superior to all other bases because it will not distort the rate of earnings. Against this alleged advantage must be placed the fluctuating character of the cost of reproduction. This makes difficult the maintenance of a close relationship between the capitalization and the rate base. If prices move upward, it may be feasible to increase the capitalization; but if they move downward, it will be highly impractical to scale down the capital structure, particularly if it is necessary to reduce the funded debt.

A fourth basis for the capitalization is capitalized earnings. For example, if a company earns $6,000,000 per year and if the fair rate of return is 6 per cent, the capitalization would be $100,000,000. The chief argument for this measure is that it corresponds to the standard said to be appropriate for private industry. The principal contrary argument is that capitalized earnings conceal the relation between rates and profits. If rates and earnings are unreasonably high and if the earnings are capitalized at the going figure, the return on the capitalization will be moderate, whereas the profit on cost will be excessive. To illustrate, suppose that the original cost of a carrier is $100,000,000, that its cost of reproduction is $200,000,000, and that it regularly earns $18,000,000. If the fair rate of return is 6 per cent and if the capitalization is based upon earning power,

[1] Cf. p. 247.

the company will be capitalized at $300,000,000. It will show a profit of only 6 per cent on its capitalization; yet the return on the original cost of the property will be 18 per cent, and that on the cost of reproduction will be 9 per cent.

Another disadvantage of market value is its instability. When earnings change, as they frequently do, their capitalized value changes. As in the case of the cost of reproduction, it may be feasible to increase the capitalization when profits rise or when interest rates fall; but it may not be so easy to decrease the capitalization under opposite conditions. This is not to imply, of course, that the capitalization of a carrier should be entirely unrelated to earnings. If it proves to be impossible in the long run to earn a reasonable return on a capitalization based upon cost, the company should be reorganized and the capitalization should be reduced, so that the credit of the concern can be strengthened.

Of the four bases analyzed, the original cost appears to be the best, and it is the standard generally favored by the Interstate Commerce Commission.[1] The original cost should be accepted, however, subject to one qualification. Earnings over and above a fair return should not be capitalized. On the contrary, they should be placed in a dividend reserve against lean years. The only items appropriate for capitalization consist of the cash contributed by the bondholders and stockholders and that portion of the retained earnings which comes from a fair return. However, the Supreme Court has not specifically approved the principle of an average return.

A capitalization in excess of the original cost of the property is prejudicial to the public interest primarily for two reasons: it encourages high rates and it tends to impair service. Overcapitalization also has a number of harmful collateral effects. From the point of view of the general public, it promotes business failures and panics, tends to divert funds from legitimate channels to "stock jobbers," and induces gambling in stocks. From the point of view of labor, it exercises a depressing influence upon wages, by making it appear that earnings are low. From the point of view of stockholders, it facilitates speculative manipulation, reduces the value of stock as collateral, increases the chance of losses through reorganization, and may enhance stockholder liability for the difference in par value and value as determined by the courts. From the point of view of the corporation, it endangers credit, leads to the neglect of reserves, encourages excessive indebtedness, and sometimes adds to the tax burden.

Overcapitalization leads to high rates because it increases the demand upon company earnings. According to official statements of the courts and commissions, it has no effect upon rates; but in practice overcapi-

[1] *170 I. C. C.* 403, 407 (1931).

talization affects both the rate base and the rate of return.[1] The capitalization may be taken as evidence of the investment; persuasive arguments may be offered in behalf of innocent investors in watered securities; or, of more importance, it may be necessary to allow an overcapitalized company to earn a more liberal return in order to pay interest or dividends. If the overcapitalization is extreme and affects the bonds, a receivership might be forced upon the company should the return not be increased. And even if the bondholders are not involved, the income on the capital stock may be so low as to prevent the sale of additional securities. Confronted with a practical situation such as that outlined, the regulatory authorities may be virtually forced to close their eyes to the overcapitalization. As the Interstate Commerce Commission said, "It has frequently been urged that capitalization exercises no influence upon rates, but such an assertion is at best a partial truth."[2]

It may be observed that the connection between overcapitalization and rates occurs where the transport market is semimonopolistic. Under strictly competitive conditions, or under unregulated monopoly, there would be no effect upon rates. Under competitive conditions rates as a whole would be based upon cost, irrespective of the volume of securities outstanding, for an overcapitalized carrier could exact rates no higher than adequate to yield a normal return on cost incurred by a competitor. Under monopoly a carrier would charge rates designed to yield the greatest monopoly profit, and the rates that produce this result would be the same whether the company were overcapitalized or conservatively capitalized.[3] Nothing in the capitalization would affect the ability of the traffic to bear rates.

That overcapitalization is detrimental to service is generally conceded. Investors naturally clamor for interest and dividends regardless of the capitalization; and although these demands can conceivably be ignored, a company will usually endeavor to meet the claims not only of the bondholders but also of the stockholders. Unless the bondholders are paid their interest, the concern may be forced into a receivership—a contingency which seriously impairs credit and which the management will make every effort to avoid. If the stockholders are not paid, the results may be less disastrous; but the company will nevertheless declare dividends if it can on both preferred stock and common stock. Failure to pay a return on either will react unfavorably upon the credit of the company, thereby making it difficult to sell new stock and promoting resort to bonds. In the case of cumulative preferred stock, the passing

[1] But see Moulton, H. G., and Associates, *The American Transportation Problem*, p. 28 (1933).

[2] *Annual Report of the Interstate Commerce Commission*, 1908, p. 86.

[3] This assumes that the company does not pursue a shortsighted policy.

of dividends will pile up claims at the expense of common-stock dividends in the future.

From what source can a company meet the excess demands that arise from overcapitalization? One source is higher rates. But suppose, as frequently happens, that it proves to be impossible to charge the high rates, either because of competition or because of commission disapproval. In this case the only remaining source of funds consists of earnings that would normally be devoted to maintenance. The company is therefore likely to skimp on repairs and renewals, at the expense of good service. If the company were conservatively capitalized, the incentive to neglect service would not be so strong; for the total revenue required for expected capital charges and maintenance would be less, and the rates permitted by competition or commission order might well provide the smaller revenue. The relation between overcapitalization and undermaintenance is illustrated by the unfortunate experiences of the New York, New Haven and Hartford during 1912 and 1913.[1]

Opponents of regulation sometimes say that the Commission will force an overcapitalized company to keep up its service, notwithstanding the clamor of investors. To this argument it may be replied (1) that commission control over service is incomplete; (2) that a commission is less likely to insist upon services of high quality, if the result is the passage of interest and dividends; (3) that commission orders are less powerful than the will toward good service on the part of the companies; and (4) that a standard prescribed by a commission will prove quite ineffective if the credit of a company is such that it cannot raise the capital necessary to fulfill the requirement.

Establishment of Security Regulation

Experience has shown that the issuance of securities should be regulated. Regulation is desirable from a negative point of view in order to prevent or eliminate overcapitalization and to promote balanced financial structures. It is desirable from a positive point of view because commission approval of security issues enhances the value of securities in the eyes of investors, thereby tending to reduce the cost of capital. Sometimes a commission directly aids in reducing the cost of capital.

Security regulation began in the states. Massachusetts legislated at an early date, but the regulatory movement did not gain much headway until after the passage of the Texas stock and bond law in 1893. The Texas law was passed as the result of a decision by the United States Supreme Court which led the people to fear that railroad rates were to

[1] Ripley, W. Z., *Railroads: Finance and Organization*, p. 283 (1915).

be based directly upon capitalization.[1] Though this fear proved groundless, the Texas example greatly stimulated the regulatory movement. By the time Congress took action in 1920, about half the states had already provided for regulation.

As applied to transportation companies, state regulation was unsatisfactory; after 1920 it was subjugated to a position of minor importance. The great disadvantage of state control was the lack of uniformity. Certain states did not regulate securities, and those which did provide for regulation had laws of varying provisions, some being too drastic, others unduly lenient. From the point of view of the general public, this was unsatisfactory in that it permitted the companies to escape regulation. For example, the New Haven Railroad was chartered by both Massachusetts and Connecticut.[2] Massachusetts, which had long regulated railway securities, made commission approval a prerequisite to the issuance of obligations; while the latter state imposed no such restriction upon railroad companies. Consequently, the New Haven carried out its financing under the Connecticut charter, thereby avoiding control. During the 10 years beginning June 30, 1903, the company increased its capitalization from $93,000,000 to $417,000,000. Most of the $324,000,000 of new securities were issued for the purpose of making investments in outside enterprises, which eventually brought disaster to the railroad. If the Interstate Commerce Commission had been in control, this result could have been prevented.

State regulation was also disadvantageous from the standpoint of the railroads. Occasionally the companies found it virtually impossible to effect sound financial plans, since the requirements of one state were sometimes in direct conflict with those of a second. In addition, state regulation unnecessarily increased the cost of financing. This resulted in part from nonuniformity; yet even if the laws of the various states had been the same, it would have been time-consuming and expensive to secure the consent of a multitude of state authorities. The issuance of bonds constituting a lien on property located in more than one state might require the approval of every state involved, and in the case of a leading carrier the number of states concerned was frequently large.

Despite the ineffectiveness of state regulation and the repeated recommendations of the Interstate Commerce Commission, federal regulation was not begun until 1920. Public opinion, aroused by the exposure of financial abuses, strongly favored Congressional action at an earlier date; but the Railroad Securities Commission of 1910[3] reported adversely on

[1] See Potts, C. S., "Texas Stock and Bond Law," *Annals of the American Academy of Political and Social Science*, vol. 53, pp. 162–171 (May, 1914).

[2] See Jones, Eliot, *Principles of Railway Transportation*, pp. 322–323 (1924).

[3] Cf. p. 166.

federal control, and in 1914 the outbreak of war in Europe interfered with legislation. By the time the war was over, however, practically all opposition to effective regulation had ceased, and the need for action was as great as ever. As a result, national supervision of railroad securities was established by Sec. 20*a* of the Interstate Commerce Act.[1] As for the security issues of other types of carriers, federal regulation is still incomplete. Only the larger issues of motor carriers are regulated, and the securities of water, pipe-line, and air carriers are not regulated at all.[2]

Problems of Security Regulation

Security issues come before the commissions through company applications.[3] In passing judgment upon applications, the regulatory authorities encounter various problems. Among the most significant questions are the following: determination of capitalizable assets; treatment of overcapitalized corporations; prevention of overcapitalization through construction, combination, replacements, and sale of securities below par; capitalization of surplus through the issuance of stock dividends; apportionment of stocks and bonds; and reorganization expedients. These matters will be discussed with special reference to the policies of the Interstate Commerce Commission.

Capitalizable Assets

The capitalization of a carrier should be related to the assets intended for the provision of transport service. If the company is allowed to issue securities for the purchase of assets not to be used for purposes of transportation, credit will be endangered. This is because the noncarrier property may fail to yield the expected revenue. When failure occurs, the effect upon the credit of the company will be the same as if the return on the rate base had been inadequate. In point is the experience of the New Haven referred to above.

The Interstate Commerce Commission usually permits "the capitalization of those assets of the carrier only which have been provided and which are intended for continuing productive use in the service of transportation."[4] These include road and equipment, organization expenses, and a reasonable amount of working capital. The securities of other companies may or may not be capitalizable. "Ordinarily a carrier may properly capitalize investments in the stock of another corporation where, and only where, the latter is the owner of operated railway property and

[1] Cf. p. 178.

[2] Cf. pp. 203, 213.

[3] For the procedural details in connection with applications see Frederick, J. H., Hypps, F. T., and Herring, J. M., *Regulation of Railroad Finance*, pp. 148–152 (1930).

[4] *76 I. C. C.* 718, 720 (1923).

the carrier's holdings are sufficient and essential to give it control of that corporation and it appears that such control will probably be permanent."[1] A similar rule applies to the capitalization of improvements on leased property.

Down to 1940 the Interstate Commerce Commission was somewhat hampered in its control over outside investments. As the law stood, the Commission could not prevent a railroad company from acquiring stock in another railroad company if the amount of stock was insufficient to give the acquiring company control; or from acquiring the stock of companies not engaged in interstate commerce, or from acquiring property of any character, so long as the acquisitions were made without the issuance of securities or the assumption of obligation in respect of the securities of other persons. One way to remedy this gap in authority would have been to prohibit investments in noncarrier property. But the Commission did not see fit to advise such drastic action. Instead, it recommended that noncarrier railroad subsidiaries be brought within its jurisdiction as to securities and accounts.[2] This recommendation was made as the result of an investigation of outside investments by the New Haven and other companies, and it was partly carried out by the Transportation Act of 1940.[3]

Overcapitalized Corporations

Granted that overcapitalization should be prevented, what should be the policy of a commission with respect to overcapitalization of the past? Suppose that an overcapitalized carrier makes application for authority to issue new securities, that the proceeds are to be invested in capitalizable assets, and that the par value of the proposed obligations equals the original cost of the additional property. Should the application be approved, or should it be denied pending the removal of the overcapitalization?

According to one policy, the application should be denied, on the ground that regulation should reduce as well as prevent overcapitalization. An advantage of this rule is quicker elimination of excess issues. But if we assume that the additional property is needed for the rendition of adequate service, the denial of the application might prevent the satisfaction of that need. Before raising new capital, it would be necessary for the company to do away with the overcapitalization; and there are only two procedures whereby this could be accomplished. One course would be to bring the capitalization down to the investment. However, since this plan would entail losses on the part of investors, the company would usually be unwilling to follow it; and the commission could not force its

[1] *Ibid.*, p. 723.
[2] *Annual Report of the Interstate Commerce Commission*, 1937, p. 24.
[3] Cf. p. 192.

adoption. The other course would be to bring the investment up to the capitalization through the retention of earnings. If the sums to be retained were over and above the interest on the bonds and normal dividends on the stock and were made available through commission approval of higher rates, on condition that the excess earnings be reinvested, the company might be willing to put the second plan into effect. But it would take time to wipe out the overcapitalization in this way, especially if the discrepancy between the investment and the capitalization were great. If the earnings could be retained only through special sacrifice by investors, the directors would not be willing to adopt the second course. The stockholders would clamor for returns, and the management would be reluctant to ignore their demands. The outcome, therefore, of the policy of refusing to approve security issues until overcapitalization has been eliminated is likely to be retarded improvements and impaired service.

The other policy, generally followed by the Interstate Commerce Commission, is to regard the past as a closed episode and to approve new issues, whether for reimbursement of the Treasury or for later expenditure, provided the additional securities themselves are not open to criticism. This procedure perpetuates overcapitalization, with its attendant evils; but it does not increase overcapitalization, and it has the great advantage of facilitating additions and betterments.

If it is sound policy for a commission to close its eyes to the past in dealing with security issues for purposes of improvements, it is also good practice to allow an overcapitalized company to issue securities for purposes of refunding.[1] To permit refunding will not increase overcapitalization, and to deny it may precipitate failure if an outstanding issue has matured.[2] Refusal may also prevent savings through the substitution of obligations bearing a low rate of interest for securities carrying a high rate of return. It is possible that the companies should not employ terminable bonds in financing, so that the strain of meeting maturities could be avoided; but so long as they do utilize such obligations, refunding operations will be necessary.

Construction, Combination, Replacements, and Sale of Securities below Par

It is seldom permissible to countenance an increase in overcapitalization. Of the various occasions on which excessive issues tend to arise we shall discuss at this point (1) construction and combination, (2) replacements, and (3) sale of securities below par. Reorganization will be analyzed under a separate heading.

1. Construction (or additions and betterments) and combination may be considered together. Construction has sometimes been the occasion for

[1] Refunding means substituting one bond issue for another.

[2] *70 I. C. C.* 354 (1921).

overcapitalization because of the practice of donating stock as a bonus to bondholders. On account of the speculative character of early railroad investments, it was said to be necessary to "bait the hook" in order to attract investors. In other instances overcapitalization arose as a concomitant of promoters' profits. These were realized through the organization of construction companies by insiders. The construction company would build the line and then transfer the property to the carrier at an inflated valuation, receiving in return an equal amount of the railroad's securities. Later these securities would be sold to the public in order to recover the construction cost plus such promoters' profits as could be realized. The Crédit Mobilier is in point.[1] A variation of this plan involved the organization of a subsidiary railroad company to be financed by the parent concern. For example, the Chicago, Milwaukee and St. Paul Railway built its Puget Sound extension through the Chicago, Milwaukee and Puget Sound Railway. The subsidiary secured the bulk of the funds for construction by means of a transfer of $200,000,000 of its own securities to the parent concern in return for $100,000,000 in cash.

Of similar character has been overcapitalization in connection with combination. Here the securities issued in effecting the combination exceed the capitalization replaced. To illustrate, in 1902 the Rock Island Company took over the Chicago, Rock Island and Pacific Railway by replacing $75,000,000 of securities of the latter with $117,000,000 in its own stock plus $75,000,000 in collateral trust bonds, or a total of $192,000,000.[2]

The foregoing examples indicate that overcapitalization through construction and combination arises from the acquisition of property at excessive prices.[3] It can and should be prevented, therefore, by scrutinizing the valuation of acquired assets. The Interstate Commerce Commission generally limits security issues for purposes of construction to the reasonable cost of the properties. It also endeavors to place a similar limit upon issues involving consolidations. In case one or more of the consolidating companies is already overcapitalized, the past may be ignored, on account of the advantages of combination; but the creation of a new concern will not ordinarily be allowed to increase overcapitalization. Sometimes, in fact, it becomes the occasion for decreasing outstanding securities.

2. Overcapitalization by way of replacements can best be explained after distinguishing between replacements, repairs, and betterments. Units of equipment or structures, such as a locomotive or a bridge, consist of numerous parts, one or more of which may from time to time need to be removed and replaced. A replacement is a substitution that

[1] Cf. p. 33.

[2] Ripley, *op. cit.*, p. 250.

[3] We assume that the expenditures are of a kind properly chargeable to capital account.

causes a substantial change in the identity of the unit, but no increase in capacity. A repair is a substitution that changes neither the identity nor the capacity. A betterment is a substitution that is in part a replacement. To the extent that it restores the same capacity, the substitution is a replacement; to the extent that it increases capacity, it is a betterment.

Replacements should be charged to income, but they have frequently been capitalized. Some carriers have made inadequate charges for depreciation, and earnings that should have been allocated to maintenance have been paid out in dividends. As plant depreciated, it became necessary sooner or later to replace unserviceable equipment; and when this occasion arose, the cost of replacements was met through the issuance of securities. The result was overcapitalization, for the replaced property was often already represented by outstanding obligations. For example, in 1913, the Kansas City Southern relocated a portion of its line in order to save operating expenses, but the relocation (replacement) resulted in overcapitalization because the company made no deduction on its books for the cost of the line replaced.[1]

In dealing with replacements a commission is placed in somewhat the same position as when passing judgment upon the issues of an overcapitalized company. If the securities designed to cover depreciated equipment are approved, a process is begun which will eventually result in a capitalization in excess of the cost of property being used in the service of the public. In the end the company may owe for several plants and yet have only one. However, in some cases it is impractical to take a negative stand. If new issues are not permitted, there may be no way of obtaining funds for necessary improvements. It is true that the company should have foreseen such contingencies and should have made provision for meeting the situation without resorting to overcapitalization; but management may not have been farsighted, or the earnings may have been too meager to cover depreciation, because of competition or the refusal of the commission to approve higher rates. In practice, then, a commission may be forced to permit the capitalization of replacements. However, when so embarrassed, the commission can appropriately require eventual elimination of the overcapitalization, either through the reinvestment of earnings equal to the cost of the replacements, or through a proportionate reduction in the capitalization itself.

3. The sale of securities (stocks or bonds) below par may or may not produce overcapitalization.[2] It causes overcapitalization only when surplus is inadequate. Yet even if overcapitalization does not follow, issues at less than par increase the capitalization more than the assets and tend

[1] Ripley, *op. cit.*, pp. 233–234.

[2] We do not refer to the sale of treasury stock.

to weaken the credit of a company. Some states prohibit such issues, especially as regards stocks; but the prohibitory laws are evaded in various ways. The Interstate Commerce Commission frequently takes the position that sales below par should be allowed.[1]

So far as bonds are concerned, they can usually be sold at par if the specified rate of interest is high enough, unless, indeed, a company has issued so many bonds that prospective earnings will not adequately cover fixed charges. But in some cases new bonds must constitute part of a larger issue controlled by the terms of a mortgage entered into at a time when interest rates were low. Moreover, the preference of investors for bonds offered at a discount may make it possible to raise capital at a lower cost if the obligations are sold at less than par. Under such circumstances as these it would be a mistake to make issuance at par a prerequisite of approval. So reasons the Interstate Commerce Commission. As a condition of approval, however, the Commission generally requires the resulting discount to be amortized by the time the bond issue matures.[2] In this way the overcapitalization is eventually eliminated, and shippers gain through the reduction in the cost of capital. Shippers must cover the amortization charges; but if investors prefer bonds issued below par, these charges will be less than the corresponding interest charge would have been had the interest rate been raised enough to cause the bonds to sell at par.

As regards stock, sales below par are more often necessary than in the case of bonds. The price at which stock can be sold, if at all, depends upon earnings; and prospective earnings may be so low that investors will not pay par for stock. If the stock to be issued is of the par variety and if earnings are inadequate, the prohibition of sales below par may have serious results.[3] It may be that capital can be raised only through the issuance of bonds, which enhances the fixed charges and, if carried too far, increases the cost of capital. If the company cannot issue bonds without dangerously raising the funded debt, it will refrain from selling securities of any kind, and service will suffer. Under unusual circumstances such as these the Commission generally approves the sale of stock at less than par, with the proviso that the difference between the par value and the cash received shall be carried on the books of the company as a discount until it has been offset by subsequent premiums on stock, assessments on stockholders, appropriations of income or surplus, or charges to profit and loss through the reacquisition of stock.

[1] *117 I. C. C.* 752 (1927).

[2] *105 I. C. C.* 331 (1926).

[3] No-par stock will produce overcapitalization if the credit to capital stock exceeds the original cost of the property acquired.

Stock Dividends

Stock dividends add nothing whatsoever to the assets.[1] But they cause overcapitalization only when a company is not already undercapitalized by an amount at least equal to the dividends. Nevertheless, stock dividends have been a common source of overcapitalization, especially among the railroads. Take the Erie Railroad.[2] Between 1868 and 1872 the shares of the Erie were increased from $17,000,000 to $78,000,000, not for purposes of investment, but primarily to facilitate manipulation in the stock market. So great were the financial abuses that the governing board of the Stock Exchange refused to permit the quotation of Erie shares. Fictitious issues such as those of the Erie are usually condemned by the Commission unless a real surplus exists to offset the dividends.[3]

The primary question in connection with stock dividends, however, is not a matter of overcapitalization, but whether surplus should be capitalized.[4] The Interstate Commerce Commission generally answers in the affirmative, provided enough surplus is left.[5] The justification for this position is that reinvested earnings stand for expenditures that improve the property. A company can finance additions and betterments, according to its choice, in either one of two ways: by means of earnings received through rates, or by means of cash received through the sale of securities. If, then, the company is free to adopt either plan and if it chooses the first, thereby withholding dividends from stockholders, there can be no legal objection to the capitalization of these earnings through the issuance of a stock dividend, whether the profits are reasonable or unreasonable.[6] Should the stock dividend not be permitted, the company might be encouraged to pursue the less conservative policy of financing all improvements through security issues, or of declaring cash dividends out of surplus.

Stock dividends may be advantageous to a company in at least four ways, even though they do not change the rights of the stockholders.[7] First, stockholders may gain through the enhancement of the total market value of their shares. Stock dividends tend to bring the market

[1] A stock dividend is a dividend paid without consideration to the stockholders of a corporation, not in cash but in stock of the corporation.

[2] Ripley, *op. cit.*, p. 228.

[3] *70 I. C. C.* 322, 323 (1921).

[4] Surpluses caused by writing up of the value of the assets, or by inclusion among the assets of intangible items of value, should ordinarily not be capitalized.

[5] *67 I. C. C.* 156, 162 (1921).

[6] In the eyes of the courts profits are not held in trust for the public.

[7] Common stockholders are entitled to all profits remaining after prior claims have been met, regardless of the amount of stock outstanding; and the issuance of a stock dividend has no immediate effect upon the gross or net earnings of a company.

value of a share of stock down to a lower level; and since investors are sometimes influenced by the face value of a share, even though irrationally, they will more readily purchase stock that sells at less than par. This serves to raise the value of the stock in the stock market. Second, by reducing the spread between market value and par value, stock dividends facilitate combination, which is frequently brought about by an exchange of securities. It is often easier to effect an exchange on a par-for-par basis. Third, stock dividends may remove the apparent unreasonableness of a dividend rate. An increase in the number of shares reduces the income per unit; and a rate of earnings which before the dividend seemed excessive may appear to be quite moderate afterward. A stock dividend should not be allowed to conceal an exorbitant rate of profit, but if the dividend brings the capitalization closer to the rate base its effect is to disclose rather than hide the true profit. Fourth, stock dividends may make it easier for a company to meet certain financial requirements. By increasing the ratio of stock to bonds, a stock dividend sometimes renders the bonds of a carrier eligible for investment by financial institutions such as savings banks. The quality of a bond as an investment may of course be weakened rather than strengthened by a stock dividend.

Notwithstanding these advantages, Commissioner Eastman favored severe limitations upon stock dividends, on the ground that the favorable arguments are generally labored and are not strong enough to outweigh the dangers involved.[1] Frequently the real reason for the declaration of stock dividends was alleged to be the concealment of surplus earnings, or the realization of speculative profits in the stock market. But even when the reasons are legitimate, the protection of surplus was said to be more important. According to Mr. Eastman, the fact that the company is entitled to a return on reinvested earnings does not mean that they should be capitalized. On the one hand, refusal to permit a stock dividend takes nothing from the equity of the stockholders, nor does it deprive them of a return on their property. On the other hand, surpluses strengthen the credit of a company, as proved by experience. Stock dividends crystallize a free surplus into a capital liability, produce an adverse effect on financial strength, and make it harder for a company to raise new capital through the sale of stock on favorable terms.

Perhaps the best procedure in connection with stock dividends is to pursue a very conservative policy. They should not be declared unless an adequate surplus will remain, and it is probably better to be conservative than liberal in determining the adequacy of the remainder. A portion should be retained as a reserve from which to pay dividends in lean years.

[1] *67 I. C. C.* 156, 175 (1921).

Indebtedness

Inasmuch as the total capitilization of a carrier is not determined by the form of its capital structure, it might appear at first sight that the relative use of different types of securities is a matter of interest solely to management. This, however, is not the case. Although the Interstate Commerce Commission usually accepts the judgment of management when the nature of the best kind of security is in doubt, it has not hesitated to deny or modify proposed issues when persuasive reasons indicated the propriety of negative action. For example, it has refused to allow the issuance of nonvoting stock, on the ground that such stock divorces ownership from control and concentrates authority in the hands of a few who may fail to protect the interests of all stockholders.[1] Similar decisions have been made with reference to preferred stock carrying contingent voting power.

Especially significant is the amount of funded debt, and it is in this connection that the Commission issues most of its negative orders. Bonds reduce the cost of capital if conservatively employed, but they increase fixed charges and lead to undesirable consequences if used to excess. In the first place, large debts and fixed charges may cause failure and receivership. During industrial depressions the traffic of the carriers falls off; rates can seldom be raised enough to make up for the loss of business; and expenses cannot be cut in proportion to the decline in gross receipts. This narrowing of the margin between revenues and expenses makes it difficult for the companies to meet their maturities and fixed charges. The result is usually undermaintenance, with harmful effects upon service, or bankruptcy and receivership, with disastrous impairment of credit. In the second place, a heavy indebtedness weakens the credit of a company and tends to increase the cost of capital, even when it does not lead to failure. If interest charges are too great, bonds can be floated only at high interest rates; and it may be impossible to market contingent obligations on any reasonable basis. In the third place, an undue proportion of bonds concentrates the control of large aggregates of capital in the hands of a few. Like nonvoting stock, it may facilitate irresponsible management.

In regulating indebtedness, some states fix statutory limits upon the amount of bonds, but the better practice is that represented by Sec. 20*a* of the Transportation Act of 1920, which leaves control within the discretionary power of the Interstate Commerce Commission. Flexible regulation is preferable because the amount of bonds that a company may appropriately issue varies too widely to be specified by statute. It varies as between types of carriers, companies, and periods of time.

[1] *105 I. C. C.* 552, 555 (1926).

A common guide for determining the amount of funded debt is the ratio of bonds to stock. Commissions and bankers frequently say that the bonds of a company shall not exceed its stock, or shall not amount to more than two or three times the stock. But the ratio of bonds to stock is not a wholly satisfactory measure. For example, the capitalization of a company may be small in comparison with the investment, so that a relatively high bond ratio would be quite appropriate. On the other hand, a company may have issued stock for an inadequate consideration, so that a high ratio would not be appropriate. Furthermore, the amount of bonds that may safely be issued depends upon the interest rate of the bonds and upon the aggregate fixed charges. A more acceptable standard is the ratio of bonds to investment. This guide, however, does not measure the burden of the interest charges on income. A third and probably the best criterion for the control of indebtedness is the relation of fixed charges to earnings. Unless interest charges are kept safely within the earning capacity of a carrier, receivership may ensue.

In 1943 the funded debt of the railroads constituted about 51 per cent of their total capitalization and slightly less than 40 per cent of their book investment in road and equipment. Though these percentages may not appear unduly high in comparison with those of industries similar to railroads, and though the ratio of funded debt to investment has in recent years been reduced through the reinvestment of earnings, the actual burden of fixed charges is heavier than the ratios indicate. For the percentages do not reflect taxes, rentals on leased property, and interest on floating debt; and they take no account of fluctuations in earnings.[1] Moreover, it is important to note that the ratios are averages for the railroads as a whole. Various individual lines have long-term debts amounting to more than three-fourths of their capitalization.

Concrete evidence of the dangerously large funded debt is found in the railroad receiverships. Had the railroads not obtained loans during the 1930's from the Reconstruction Finance Corporation and from the Railroad Credit Corporation, receiverships would have been even more pronounced. In 1932 three-fourths of the Class I railroads failed to earn their fixed charges. These lines operated nearly three-fourths of the total mileage of Class I carriers as a whole.

What is the explanation of the large railroad indebtedness? Is it the fault of management, or of public policy, or of conditions over which no one has had control? One obvious reason for the use of bonds in raising capital is that it pays the stockholders of a company to borrow, so long as the rate of earnings on the new capital exceeds the rate of interest on the new debt. The relationship between earnings and interest depends,

[1] However, the capitalization includes income bonds, which do not impose fixed charges upon the companies.

in turn, upon the volume of business, the efficiency of operation, the level of service rates, and the state of the money market. It is also affected by the policy of regulating the fair return without reference to the capitalization.

A second reason for the extensive resort to borrowing is that it has often been easier to sell bonds than stock. Many individual investors prefer bonds because of their fixed return and their real or fancied safety, especially in the case of mortgage bonds. In the early period of railroad history, equity securities were frequently disposed of only as a bonus to bondholders. Financial institutions such as savings banks and insurance companies generally cannot invest in capital stock because of statutory requirements. Furthermore, state laws may prohibit the sale of stock unless it can be marketed at par.

A third reason for the large bonded indebtedness is the use of bonds to facilitate intercorporate dealings. In consummating combinations, collateral trust bonds provide a ready means of raising the necessary capital. The stock of the combining companies can be purchased through the issuance of bonds secured by that stock, or by stock already held by the promoting company. Outright purchases for cash usually take more money than is available. In financing the capital requirements of a subsidiary, a parent concern may prefer an arrangement that will enable it to continue in full control of the subsidiary without utilizing its own funds. This can be accomplished by means of a bond issue. Were stock in the subsidiary to be sold, it would be necessary for the parent company to take part of the stock in order to retain the same degree of control over the subsidiary as it had before the new financing.

How can the funded debt of the railroads be reduced? One method that has been emphasized by the Interstate Commerce Commission is to retire indebtedness from earnings. Instead of maintaining a permanent debt, as at present, the companies could be required to set up sinking funds for the liquidation of debt. The Commission has pointed out that a sinking fund of ½ of 1 per cent would retire the $12,000,000,000 railroad debt of 1932 in about 52 years.[1] The effectiveness of this method depends, of course, upon the adequacy of earnings.[2] Unless net receipts were more liberal than during the thirties, the diversion of income to sinking funds would make it impracticable for many companies to finance additions and betterments. It would be necessary to provide for improvements through the issuance of new securities, so that there would be no net reduction in the funded debt. These objections have less weight, however, in retiring future issues of bonds, and the Commission has adopted the general policy of approving applications of weak roads for authority

[1] *Annual Report of the Interstate Commerce Commission*, 1933, p. 25.

[2] During the recent war the railroads purchased large amounts of bonds.

to issue bonds only on condition that the applicant make provision for the retirement of all or a part of the bonds before maturity.[1] With earnings at a reasonable level, this will mean no undue hardship for the companies.

A second way of reducing funded debt is to replace bonds with stock. This procedure has been followed by some of the stronger railroad companies during prosperous times, but it has not generally been practicable on a large scale; for like the creation of sinking funds, the sale of stock to retire bonds has been prevented by the inadequacy of earnings. Nevertheless, the companies should issue convertible bonds insofar as reasonable so that indebtedness can be decreased when conditions are favorable. A number of approved reorganizations provide for such bonds.

The third and most common method of reducing indebtedness and fixed charges is through financial reorganization. This constitutes the subject of the next heading.[2]

Reorganization

Reorganization usually results from inability to meet indebtedness. We shall briefly discuss the significance, causes, purposes, and procedure of reorganization, with special reference to railroads.[3]

Significance

From the point of view of the magnitude of the interests involved, railroad reorganization is peculiar in corporation finance. Failures have been more or less pronounced from the beginning of the industry, and reorganization is constantly going on.[4] The number of receiverships since 1870 exceeds 1,000, and in no year since 1873 have there been less than 20. The number was unusually large immediately after 1873 and 1884, and in 1894 it reached a peak of 192. Receiverships then declined, but during the decade before 1924 and after 1930 increased again. In 1944, 46 companies were in proceedings, several being large railroads.[5] Some of these companies have failed two or more times.

The mileage of line represented in reorganization proceedings amounted in 1894 to about 41,000, dropped to less than 800 in 1905, and reached an all-time high of 78,016 in 1938. This mileage, operated

[1] *Annual Report of the Interstate Commerce Commission*, 1936, p. 19.

[2] Between 1935 and 1944 unmatured funded debt in the hands of the public was reduced in various ways by $2,000,000,000, or 17.9 per cent.

[3] On the problems of reorganization see Buchanan, N. S., "The Economics of Corporate Reorganization," *Quarterly Journal of Economics*, vol. 54, pp. 28–50 (November, 1939).

[4] See Swain, H. H., "Economic Aspects of Railroad Receiverships," *Economic Studies*, vol. 3, no. 2 (1898); *Annual Reports of the Interstate Commerce Commission;* and *Proceedings of the National Association of Railroad and Utilities Commissioners*, 1936, pp. 119–129.

[5] *Annual Report of the Interstate Commerce Commission*, 1944, p. 146.

by 111 companies, constituted 31 per cent of the total miles in service.[1] The capitalization of the failing carriers totaled billions of dollars, and its readjustment has affected the security holdings of thousands of individuals, domestic and foreign. Insurance concerns, savings banks, and trust companies have been involved.

Causes

Superficially, railroad failures are attributable to a lack of cash, but the real causes are usually more fundamental. Among the underlying factors are (1) drastic competition, either from rival railway lines or from other types of carriers; (2) unprofitable expansion, due to construction in advance of needs, or at excessive costs; (3) cessation of demand, on account of shifts in industry; and (4) financial mismanagement, through the payment of excessive dividends and the overissue of bonds. These and other causes have varied in importance from road to road and from time to time. In the early period unprofitable expansion was perhaps the leading factor, while today competition is of great significance.

Purposes

The purpose of a reorganization is to rearrange the financial structure of a carrier so as to restore its credit. Inasmuch as inability to pay dividends on stock does not directly produce failure, the basic task is to effect a reduction of fixed charges. Secondarily and immediately, reorganization must provide for the procurement of new money.

Another objective of reorganization should be the elimination of overcapitalization. In approving the sale of obligations for purposes of property improvement, it may be best, as we have explained, for a commission to ignore overcapitalization; but security issues to implement a reorganization stand in a different light. Here credit is already impaired, and service will be better if overcapitalization is eliminated. Security holders will usually object to sacrifices, yet their claims will be largely groundless, so long as they receive an interest in a new company equivalent to reasonable expectations.

Procedure

Railroads may now reorganize under ordinary equity proceedings, or under proceedings in bankruptcy. Prior to 1933, when Sec. 77 of the

[1] *Ibid.*, 1938, p. 31. Included were the Chicago and North Western, Great Western, Milwaukee, Rock Island, Denver and Rio Grande Western, Erie, Soo, Missouri Pacific, New Haven, Frisco, St. Louis Southwestern, Western Pacific, Central of Georgia, Minneapolis and St. Louis, Mobile and Ohio, Seaboard, and Wabash. In 1944 these were still in reorganization proceedings, with the exception of the Chicago and Northwestern, Great Western, Erie, Soo, Minneapolis and St. Louis, Mobile and Ohio, and Wabash. In the meantime there had been added to the list the Central of Georgia.

Bankruptcy Act was passed, they could reorganize only under equity proceedings, *i.e.*, according to the common law.[1] Of the companies being reorganized at the beginning of 1939 about two-fifths were proceeding under common law, three-fifths under statutory law.[2] But most of the reorganizations begun after 1933 followed Sec. 77. Since equity procedure is the older, it may be described first.

Proceedings in Equity. After the reorganization of a carrier has been agreed by management to be necessary, proceedings are generally initiated by requesting a friendly creditor to file before a federal district court a bill of complaint alleging that the company owes debts which it cannot pay as due. Similar bills are simultaneously filed in other courts having jurisdiction over territory in which the debtor has properties.[3] The company admits the allegations of the creditor's bill and prays the court to appoint a receiver.[4] Thereupon the court ordinarily appoints two receivers, one of whom is likely to be an official of the failing corporation.[5] The receivers then take charge of the railroad, operating it with the old personnel, under the supervision of the court, until reorganization is effected. In this way the interests of all parties are conserved by avoiding immediate foreclosure. Sale and distribution of the property through the open market are seldom practicable. There exists no such market; and if a carrier were dismembered, it would lose the value which it has as a going concern.

The receivers operate the carrier according to their own judgment, though they must obtain court approval of major decisions.[6] Ordinarily one of the first tasks is the improvement of the property; for a company on the verge of failure generally allows its plant and equipment to deteriorate. Another duty of the receivers is to decide which debts to pay and which not to honor. Debts that represent items necessary to the routine operation of the railroad, such as wages, sums due on car trust certificates, and rentals of profitable leases, are customarily paid; the interest on mortgage bonds and the rentals of burdensome leases are permitted to go in default.[7] Since the company cannot earn enough to meet

[1] Cf. p. 186.

[2] Most of the mileage of line involved was represented in proceedings under Sec. 77.

[3] Suit is usually first brought in a district court which has jurisdiction where the principal office of the company is located. The jurisdiction of state courts is generally too limited.

[4] Receiverships requested by the management are known as "consent" or "friendly" receiverships.

[5] Suits brought by other creditors and in courts of other districts generally result in the appointment of the same receivers as selected by the first court, which is recognized as the court of primary jurisdiction.

[6] Receivers are merely agents of the court. While they are in charge, the property can seldom be disturbed by other courts or persons.

[7] Sometimes payments on mortgage bonds are authorized.

all its debts, it is only through the postponement of certain claims that the carrier can continue in service.

Funds for the improvement of the property and the payment of selected claims are frequently obtained through the issuance of receivers' certificates. New securities of the failing corporation cannot be sold, and the savings realized through the postponement of obligations may be inadequate in amount. In order to make the certificates marketable, they must be given sufficient priority with reference to other debts. As a rule, the certificates run for short terms and are sometimes secured by property.

After the receivers have taken charge, the security holders proceed to work out a plan of reorganization, which must harmonize as nearly as feasible all conflicting interests, must be economically sound, and must meet the approval of court and commission. Nothing is to be gained, and much is to be lost, through a plan that is not thoroughgoing; for the evils of insolvency can and do recur.

The first direct step in effecting a plan is the appointment of protective committees by the various groups of security holders.[1] These committees act for their clients, according to the terms of protective agreements, by virtue of the deposit of a majority of the securities with a trustee. An investor is not required to make a deposit, but it is generally to his advantage to be represented by a committee. Once selected, the separate committees customarily create a general reorganization committee. It is this central committee that assumes the ultimate responsibility for perfecting a plan, under the direction of managers representing the dominant interests at stake. In practice control is usually exercised by some large investment bank.

The joint committee works out its plan in the light of past and prospective earnings, the legal rights and strategic positions of the various classes of security holders, and the possibilities of raising new capital. As stated above, the immediate consideration is the procurement of additional funds to liquidate floating debt, to improve the property and retire receivers' certificates, to satisfy the claims of creditors who refuse to accept the reorganization plan, to meet the expenses of reorganization, and to provide current capital for the prospective new corporation.

Funds can sometimes be obtained by selling treasury assets or by floating new securities; but the committee must generally depend upon postponing the payment of fixed charges, or must arrange to secure capital by means of an assessment upon security holders. The amount of the assessment is determined by the need for funds and by the judgment of the committee as to how much the security holders will stand. If the assessment is not correctly adjusted, adequate contributions will not be

[1] There may be as many committees as groups with substantial investments at stake. One or more will represent bondholders, and one or more will speak for stockholders.

forthcoming, for security holders cannot be compelled to contribute. If the assessment is not excessive, however, the majority of investors will pay or will sell their holdings to another person who is willing to "throw good money after bad." Payment of the assessment involves a sacrifice, yet it may mean less sacrifice than a refusal to pay. Those who meet the assessment normally receive stock or rights in the new corporation and may thus recover their losses in the future, while those who do not pay may be wiped out altogether.

The reduction of fixed charges is accomplished in two ways. The most obvious means is the cancellation of burdensome contracts, such as unprofitable leases on which fixed rentals are payable. These contracts may have been allowed to go in default by the receivers, yet they remain an obligation of the old corporation, and the reorganization committee may deem it desirable to eliminate the contracts. Elimination is normally brought about by organizing a new corporation to which the property of the failing railroad is sold at foreclosure. Sale leaves the old company without means of fulfilling its obligations, thereby nullifying the contracts.[1]

The second and more important way of reducing fixed charges is to decrease interest. This is accomplished by inducing bondholders to exchange their bonds for other bonds of lower denomination or interest rate, for capital stock, or for securities having a contingent claim on earnings, such as income bonds. In order to encourage an exchange, the bondholders may be offered several kinds of securities, the total par value of which often exceeds that of the bonds given up. Like the payment of assessments, the terms of the exchange usually involve sacrifice on the part of the bondholders, excepting those in an impregnable position, but it is normally better to undergo this sacrifice than to depend upon the proceeds of a foreclosure sale. If the exchange is made, the bondholders will have an opportunity to participate in the future earnings of the railroad; if it is not made, they will likely receive a very small portion of their claims. For the foreclosure sale will usually be effected at a price based upon the capitalization of a low rate of earnings, which will net only enough cash for the bondholders most strongly secured. As a rule, holders of underlying first-mortgage bonds can demand an exchange on relatively favorable terms, but holders of junior bonds must make a substantial sacrifice. Unless they pay assessments, stockholders are frequently extinguished altogether.

After the terms of recapitalization have met the approval of the subcommittees, the plan of reorganization, together with a reorganization agreement, is published. Individuals who consent to the plan leave their securities on deposit. Those who disapprove the plan withdraw or withhold their securities. In case virtually all security holders act favorably,

[1] We assume that the leases are not secured by mortgages on the property.

the reorganization is practically complete. The old corporation retains its charter and possession of the property, the receivership is terminated by order of the court, and the management of the company again assumes control.[1]

When it is impossible to devise a plan to which all security holders will agree, it is necessary to make provision for dissenting minorities, in a way which will not allow them to prevent a needed reorganization but which will not ignore their claims. The procedure normally followed is to extinguish their claims by foreclosure sale, as in the case of onerous leases, and to distribute the proceeds of the sale according to priority of claim. Sale is generally made to the reorganization committee itself because it is the only prospective purchaser possessing enough resources to pay for the property.[2] Inasmuch as the committee is the only bidder, the court fixes the minimum price at which the property can be sold, so that the minorities may receive due consideration.[3] This price will needs be low, for the committee must generally purchase the property subject to substantial prior claims.

When the foreclosure sale is confirmed by the court, the property of the railroad passes to a new corporation, which has already been organized under a slightly different name; securities are distributed to the assenting security holders according to the reorganization plan; receivership ceases; and the new company begins operation free from all indebtedness of the old, except claims coming ahead of the bonds under which the foreclosure took place. It is assumed, of course, that the Interstate Commerce Commission has authorized the necessary issuance of securities.

Procedure under Section 77 of the Bankruptcy Act. Reorganization under equity proceedings has been disadvantageous in several respects, as explained in Chap. VII. For this reason Sec. 77 provided for important modifications of procedure. The principal steps under Sec. 77, as amended, are as follows:[4] (1) A petition for reorganization is filed in the appropriate bankruptcy court by the company itself, or by creditors holding claims aggregating 5 per cent or more of the corporation's indebtedness. The need for ancillary proceedings is removed. (2) The petition approved, the court holds a hearing, at which time it must appoint one or more trustees

[1] A reorganization of this kind, put through without resort to judicial sale, is called a "voluntary" reorganization. Otherwise, the reorganization is "involuntary."

[2] It holds the majority of the bonds. Other bidders would need more cash.

[3] The committee pays this price in the securities of the insolvent company, to the extent that they have been deposited. Nonassenting security holders are entitled to receive their portion of the upset price in cash.

[4] We include here the important changes made by the amendment of 1935. For a discussion of these changes see *Proceedings of the National Association of Railroad and Utilities Commissioners*, 1936, pp. 119–129; also *Annual Report of the Interstate Commerce Commission*, 1935, pp. 20–22.

(instead of receivers) subject to ratification by the Commission. The compensation of the trustees is fixed by the Commission, and it is definitely provided that at least one of the trustees shall not have been affiliated with the failing corporation. (3) A plan of reorganization must be filed with the court and the Commission by the company within 6 months after the approval of the petition.[1] Plans may also be filed by the trustees, by creditors, and by stockholders. Protective committees, their fees, and deposit agreements are subject to regulation by, the Commission.[2] (4) The Commission is authorized to hold public hearings on a plan or plans. In case no satisfactory scheme is proposed, the Commission may itself formulate an arrangement, or it may modify a plan that it has previously sanctioned. (5) Before approving a reorganization, the Commission must find that the plan is in the public interest, is fair to the various classes of security holders, keeps fixed charges within the probable earning capacity of the company, and makes adequate provision for execution. The Commission may determine the value of the property according to prospective earnings, with only such consideration of cost of reproduction and original cost as required by the law of the land, and can certify the valuation to the court in its report on the plan of reorganization. (6) When the Commission has approved an arrangement, it must be submitted to the court prior to submission to security holders. Should the court not accept the plan, it is returned to the Commission for reconsideration. This tends to lengthen the process of reorganization. (7) After receiving the approval of the Commission and court, a plan must be submitted for vote to such classes of security holders as may be necessary. Those investors whose securities are found by the Commission to have no value may be denied the opportunity of casting a ballot. A two-thirds vote of each class of creditors and stockholders entitled to vote binds those not voting. This eliminates foreclosure sale and the need for cash to satisfy the claims of dissenters. (8) Subsequent to acceptance by the required security holders, the court must finally confirm the recapitalization. The court may also declare a plan effective without such acceptance if it finds, after hearing, that the scheme provides for fair and equitable treatment of the interests of dissenters and that rejection is not reasonably justified in the light of these interests.[3] Upon confirmation by the court, the plan is put into effect by appropriate order and becomes binding upon the corporation, all creditors, and stockholders. The trustees are then dismissed and the company resumes operation.

[1] In practice many plans have not been filed within this period.

[2] Solicitation or use of proxies or deposit is unlawful unless authorized by the Commission.

[3] Security holders not otherwise provided for may be given options to subscribe for the securities of the reorganized company. In cases of undue delay the court may dismiss proceedings.

Although the purpose in passing Sec. 77 was to remedy certain weaknesses of the older method of reorganization, it failed to make really fundamental changes in the reorganization process. Procedure under Sec. 77 is optional; jurisdiction remains with the courts; plans are still to be formulated by and made subject to the acceptance of a majority of security holders who may commit a minority; and definite standards for the distribution of losses were not laid down, thereby leaving open the conflict which inevitably arises in reorganization cases between the theory of absolute priority of claim and of relative priority.[1] Nevertheless, it is reasonable to believe that Sec. 77 represents a step forward, primarily because of the enhanced authority of the Interstate Commerce Commission. If necessary, the Commission can formulate a plan of its own; it can regulate the expenses of reorganization; it can control the activities of protective committees; and it can give primary weight to earnings in valuing the property.

Few recent reorganizations of importance have been finally consummated under Sec. 77 except after relatively long periods, but too much should not be expected of legislation. Delay is also characteristic of proceedings in equity. The fair adjudication of the claims of numerous classes of investors in a large railroad are necessarily time consuming; companies in need of sounder financial structures are reluctant to face facts; stockholders in times of depression wish to delay proceedings until earnings improve; and the Commission and the courts labor under a heavy burden of work. In several instances stockholders and junior creditors have prevailed upon the district courts to return to the Commission for reconsideration plans already approved.[2]

Commission Policy in Reorganization

In regulating the railroad reorganizations completed between 1920 and the early thirties the Interstate Commerce Commission pursued a more or less ineffective policy.[3] The Commission usually required reductions in the total capitalization, but in some cases it approved increases. The most frequently used measure of new capitalization was its ratio to the cost of the acquired assets. The Commission also generally insisted upon lower fixed charges, although in a few instances it allowed higher charges, and in still more cases it permitted burdens too heavy for prospective earnings. Such liberalism was explained, at least in part, by the

[1] See Moore, W. H., "Railroad Fixed Charges in Bankruptcy Proceedings," *Journal of Political Economy*, vol. 47, pp. 100–127 (February, 1939).

[2] *Annual Report of the Interstate Commerce Commission*, 1943, p. 73. Resubmission was encouraged by the decision of the Supreme Court in the Milwaukee Case.

[3] See Sharfman, I. L., *The Interstate Commerce Commission*, part 3, vol. A, pp. 577–617 (1935).

fact that until 1933 the Commission had no authority to participate in the formulation of plans of reorganization. Control was only indirect, by virtue of its power to pass upon security issues.[1] Notwithstanding these extenuating circumstances, the policies of the Commission were severely criticized as not being sufficiently positive.[2] It was felt that the Commission should have insisted upon capital structures that were sound from the point of view of prospective earnings, and not merely recapitalizations that represented improvement over old structures.

After 1933 the Commission, armed with fuller authority, pursued a stricter policy. Under the 28 plans approved by the Commission, or proposed by examiners, as of Oct. 31, 1941, total capitalization was less in every instance.[3] Aggregate indebtedness was decreased from $3,994,000,000 to $1,729,000,000, or over 56 per cent. Annual fixed charges were reduced from $142,000,000 to $41,000,000, or more than 70 per cent. In no case were debts or fixed charges increased. Stock of par value was also substantially reduced. No-par shares were multiplied severalfold.

Many of the plans sanctioned by the Commission have eliminated common stockholders and have likewise set aside preferred stockholders. For example, both classes were excluded in the St. Louis Southwestern plan. In the Missouri Pacific Case the Commission announced a general rule of satisfying the claims of all creditors in full before equity holders could share in a new company. Should the proposals of the Commission be confirmed by the courts, highly significant shifts may be effected in railway ownership and control.

In order better to conserve the alleged interests of stockholders and junior claimants, the so-called Hobbs bill would require that the capitalization of a company reorganized under Sec. 77 should be no less than the capitalization of the debtor on the date of the filing of its bankruptcy petition. This bill would also empower the judge of the district court having jurisdiction over the reorganization proceedings to make an independent review of the plan approved by the Commission. In the Milwaukee Case the Supreme Court held that valuation for purposes of reorganization should be based primarily upon earnings,[4] and in the Western Pacific Case the Court left the determination of value to the Commission;[5] but the Hobbs legislation proposed to limit substantially the use of the earnings standard of capitalization and to create an opportunity for the substitution of judicial valuation for that of the Commission. Although it is argued that the Commission has given in-

[1] Cf. p. 186.

[2] See the criticism by Commissioner Eastman in *76 I. C. C.* 84, 108 (1922).

[3] *Annual Report of the Interstate Commerce Commission*, 1941, p. 75.

[4] *318 U. S.* 523 (1943).

[5] *318 U. S.* 448 (1943).

adequate consideration to the claims of stockholders, the danger in laws of this nature is that they will prevent sufficient reductions in capitalization and that they will delay the process of reorganization.

Amendment of 1939

An amendment to the Bankruptcy Act in 1939, known as the Chandler Act, provided a means whereby railroads which were temporarily unable to meet their debts, and which were not in need of thorough reorganization, could adjust their debts, interest, rents, or maturities, without resort either to equity receivership or to proceedings under Sec. 77.[1] With the approval of a court of bankruptcy, to whom application had been made by the company after securing the consent of creditors holding at least two-thirds of the aggregate amount of claims affected, a carrier so situated might postpone or modify its debts provided the Interstate Commerce Commission had authorized issuance of the necessary securities.[2] Before approving securities for purposes of adjustment, the Commission was directed to find (1) that the corporation is not in need of reorganization of the character provided for in Sec. 77; (2) that the inability to meet indebtedness is temporary only; and (3) that in the light of earnings, the plan is in the interest of the public and of each class of creditors and stockholders, is feasible, is financially advisable, is not likely to be followed by insolvency, does not provide for excessive fixed charges, leaves sufficient means for future financing, is consistent with the proper maintenance of the property, and will promote the performance of adequate service.[3] After appropriate hearings, the court could approve or modify the proposed plan; and if it modified the plan, the new arrangement was to be resubmitted to the Interstate Commerce Commission. Acceptance by three-fourths of all affected claims was necessary before final confirmation.

The nature of readjustment under the amendment may be illustrated by the plan of the Baltimore and Ohio Railroad, which was faced with a large volume of debts about to fall due at a time when the company was unable to carry out refunding operations. Briefly, the plan provided for the extension of the maturities for periods ranging from 5 to 10 years, and for the conversion of a portion of the interest charges to a basis contingent upon earnings. The deferred charges were continued as an obligation of the company, payable on or before the maturity of the

[1] *Public Law No. 242* (1939).

[2] At date of petition to the court, the company could not be in receivership or process of reorganization, and could not have been so situated within a period of 10 years. Plans might be submitted to the Commission only if approved by holders of at least 25 per cent of the affected claims.

[3] The Commission had no authority to participate in the initial formulation of plans.

respective obligations. Few plans proposed under the law have provided for the reduction of either principal or interest. Neither has the equity of stockholders been reduced.

Having expired in 1940, the Chandler Act was reenacted in 1942 to remain in force until Nov. 1, 1945. At the same time the Commission was empowered to modify plans before entering an order authorizing the issuance of securities.

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CHAPTER - - - - - - - - - - - - - - - TWENTY

Combination

CHAPTER three pointed to the large number of independent carriers in the United States and to the need for some degree of integration among them. One means of unification, cooperation in operation, was discussed in Chap. XVIII. A more certain and thoroughgoing method is combination. This looks toward the complete centralization of management, although the term "combination" is sometimes used broadly to cover various devices that leave managements more or less independent, such as community of interest between individual stockholders, agreements to maintain rates, and pools for the division of traffic or earnings. Although these schemes unify control to a certain extent, they tend to be ephemeral. We shall use the word "combination" to refer to arrangements whereby the concentration of executive power is reasonably definite and permanent.

Combination raises at least two basic questions: To what extent, if at all, should it be permitted? By what means should it be effected? The first question is the more significant insofar as the public is concerned, but the second question is important, even though it is largely a matter of management. For a form of combination advantageous to the companies is also likely to be beneficial to the public in the long run.

Types of Combinations

Combinations may be significantly classified according to territorial extent, character of business, and corporate relationship. According to the last basis, the three leading types of combination in the transportation business are lease, consolidation, and holding company.[1] Consolidation is the closest form, and the holding company is the loosest. The lease is intermediate and is the least significant of the three. It is normally used not alone but in combination with stock ownership. The lease has been widely employed, however, and should be included here for the sake of completeness of presentation.[2]

[1] The "trust" is obsolete.

[2] In 1937 leased mileage amounted to about 16 per cent of the total mileage of railroad owned.

Lease

A lease is a contract whereby the lessor company transfers the use of its property to the lessee for a stated period, or in perpetuity, in exchange for an agreement on the part of the lessee to pay to the lessor a fixed or contingent rental.[1] The chief advantage of the lease, as compared with alternative means of effecting centralized control, is that it makes possible unified operation without the cost of acquiring ownership of the property or stock of the concern with which the lessee combines. The great disadvantage of the lease (fixed type) is that it increases the fixed charges.[2] It is to overcome this disadvantage that the rental is sometimes made to depend upon the traffic interchanged, or upon the gross or net earnings from the leased line. But the flexible lease also has disadvantages. Unless the lessee has secured a controlling interest in the stock of the lessor, the stockholders of the latter will hesitate to accept a plan based upon earnings derived through outside management; and even when a contingent contract has been signed, the minority stockholders of the lessor are likely to feel that the property is being operated in the interest of the lessee, or that the lessee has made an unfair estimate of the earnings of the leased line. These points of dispute tend to promote litigation.

Another disadvantage of the lease is its relative uncertainty. There is always the chance that the lease cannot be renewed on favorable terms, or that it will be canceled for one reason or another, thereby breaking up the combination. To prevent such contingencies, it is customary to supplement the lease with partial or complete stock ownership. If a controlling interest is secured in the stock of the lessor, the lease may be made a continuing arrangement; and if all the stock is purchased, the terms of the lease become relatively unimportant. To the extent that it is necessary to acquire stock, however, the principal advantage of the lease is nullified.

Consolidation

By the term "consolidation" we refer, without distinction, to merger, statutory consolidation, and purchase of assets, or to what is sometimes called "fusion."[3] Economically all three forms of organization are alike in that the assets of different corporations are fused by being brought under the direct ownership of a single corporation. Legally, merger, consolidation, and purchase of assets may be distinguished.[4] Merger means

[1] Most railroad leases run for at least 50 years, and the fixed rental is preferred.

[2] The majority of fixed rentals take the form of payment of interest and dividends on the securities of the lessor corporation.

[3] This usage has the advantage of familiarity.

[4] For a discussion of the relative advantages of each, see Gerstenberg, C. W., *Financial Organization and Management of Business*, Chaps. 29–30 (1932).

the absorption of the property and franchises of one or more companies by another company without the creation of an additional corporation. One of the consolidating companies retains its corporate existence, and the other companies disappear. Statutory consolidation or amalgamation refers to the transfer of the entire assets of two or more corporations to a newly created concern. All the consolidating companies dissolve. Purchase of assets implies the outright purchase of the assets of one or more corporations by another corporation without loss of the corporate life of any of the vendor companies. However, since sale of the property of a public-utility company is usually held to vest the purchaser with the special franchises that give the property value, purchase of all assets leaves a vendor corporation an empty shell and has virtually the same effect as a merger or amalgamation.

In bringing about a consolidation, the consolidating company must purchase or arrange for the transfer of all the outstanding stock of the companies to be acquired. It must also meet or otherwise provide for all outstanding liabilities. Since the outright purchase of the stock and the redemption of the liabilities would normally require very large sums of money, the usual procedure, unless the property to be acquired is small, is for the consolidating company to acquire the stock by exchange and merely to assume the bonds. Stockholders agreeing to the plan receive stock in the new company; dissenting stockholders are paid cash; and the bonds are made a direct liability of the purchasing corporation.[1] The bonds are also protected by their original security.

The advantages of consolidation over its chief rival, the holding company, are substantial. One advantage is that it eliminates the expense of maintaining underlying corporate organizations. Though a consolidated concern may need to establish divisions that are more or less the counterpart of subsidiary companies, the divisions will not need a board of directors, stockholders' meetings, and separate sets of accounts and records.

A second, closely related advantage of consolidation is that it is easier to carry out executive policies. There are no legally independent subsidiary officials to contend with, and there are no obstacles from minority stockholders and creditors of separate corporations. So long as such interests remain, they can and frequently do hamper the policies of the parent concern. It will ordinarily be good practice to operate the combined properties as a unit, irrespective of the effect of unified operation upon any one part of the system. But it may be better for the minority if the welfare of a division is foremost. In the railway industry, for example, management may find it economical to route certain ship-

[1] Consolidations take place under state law, and most states require the payment of dissenting stockholders in cash.

ments over the most efficient lines, and this may deprive a formerly independent carrier of profitable traffic. Since loss of business can reduce the earnings or the safety of securities based upon that part of the system involved, conflict of interest inevitably arises. Minority stockholders are subject to limits in pushing their claims, yet they can place serious obstacles in the way of executive direction. Their removal is sometimes possible, but the purchase of securities may be costly. Minorities frequently hold out for exorbitant prices if the balance of bargaining power is on their side.

A third advantage of consolidation is relative simplicity of financial structure. In a consolidation all the outstanding stock is of one company, and all the outstanding liabilities are obligations of that company. A holding-company system, on the other hand, includes not only the securities of the parent concern but also those of subsidiaries. Other things being equal, the credit rating of the obligations of a consolidated corporation will therefore be higher. Fluctuations in earnings tend to affect stockholders less, and the absence of underlying companies largely obviates the opportunity for those in control to "milk" constituent properties. History affords abundant evidence of the harmful effects that often follow from top-heavy financial structures. In point is the experience of the railroad combination built up by the Van Sweringen interests, which failed in part because of a decrease in the earnings of subsidiaries.

A fourth advantage of consolidation is greater permanency. This is due to the fact that consolidations are harder to break up than holding companies. Under certain conditions, of course, permanency can be a disadvantage.

Holding Company

A holding company is a company in position to control the management of one or more other companies by virtue of its ownership of securities in the other company or companies.[1] It may or may not itself directly operate properties. If it does not do so, it is a pure holding company; otherwise it is a holding company of mixed type. A combination by means of the holding company is generally effected through an exchange of holding-company securities (stock or collateral trust bonds) for a controlling interest in the voting stock of the subsidiary companies, which retain their corporate identity and individual managements.[2] Complete executive control will require procurement of all the stock of subsidiaries; permanent control will necessitate securing only a majority of the stock;

[1] Bonbright, J. C., and Means, G. C., *The Holding Company*, p. 10 (1932).

[2] Outright purchase of shares at private sale or on the stock exchange is usually too expensive. It should be noted, however, that an exchange of holding-company stock may make necessary an increase in the amount of such stock and that the use of collateral trust bonds increases the fixed charges.

and, if the stock is widely held, working control can usually be exercised with considerably less than a majority.

Control over the operating companies may be direct or indirect. It is direct if the parent company itself holds their securities, and it is indirect if an intermediary company performs this function. Direct control is illustrated by the Atlantic Coast Line Company, which formerly held a controlling interest in the Atlantic Coast Line Railroad Company.[1] Indirect control is exemplified by the old Rock Island Company, which controlled the Chicago, Rock Island and Pacific Railroad Company of Iowa (holding company), which in turn controlled the Rock Island and Frisco railway systems.

Sometimes there have been several intermediate companies, and the process of pyramiding has piled security upon security to a dangerous extent. To illustrate, assume that each of two railroads has a capitalization of $100,000,000, which is composed of $50,000,000 of bonds, $20,000,000 of nonvoting preferred stock, and $30,000,000 of common stock. Full legal control of the two roads could be effected by another railroad through the acquisition of slightly more than $15,000,000 of the common stock of each company. If the stock were selling at par, this would require an outlay of about $30,000,000. But should the railroad promoting the combination so desire, it could reduce this investment to a smaller figure by organizing an intermediate holding company. It could turn over to this company the $30,000,000 of stock in exchange for the securities of the new concern, which might consist of $10,000,000 of bonds, $10,000,000 of preferred stock, and $10,000,000 of common stock. The railroad could then sell the bonds, the preferred stock, and at least $4,000,000 of the common stock of the intermediate company, thereby recovering all except $6,000,000 of its original investment, at the same time retaining control of the two operating companies. In other words, with $6,000,000 it could dominate properties worth $200,000,000. Theoretically, the process of pyramiding could be carried still further through the organization of additional holding companies, though there are generally limits beyond which it is not safe to go.[2] Sooner or later it would become impractical to market the securities of a top-heavy corporation.

[1] The Atlantic Coast Line Railroad Company is a holding company of mixed type. It operates the railroad of that name, and it also owns a majority of the stock of the Louisville and Nashville Railroad Company.

[2] Through the Alleghany Corporation the Van Sweringen interests dominated to some extent railroad companies operating nearly 30,000 miles of line, including the Nickel Plate, Chesapeake and Ohio, Erie, Pere Marquette, Chicago and Eastern Illinois, Kansas City Southern, and Missouri Pacific. The Pennroad Corporation was used by the Pennsylvania Railroad to secure an interest in the Seaboard Air Line, New York, New Haven and Hartford, Boston and Maine, Detroit, Toledo, and Ironton, and Pittsburgh and West Virginia.

What are the advantages of the holding company over consolidation? Probably the foremost advantage is the relative ease of organization.[1] In creating a combination through stock ownership it is necessary, as indicated above, to acquire only a bare majority or even less of the voting stock of each constituent corporation. And stockholder consent to the acquisition need not be secured. In fact, a combination by means of the holding company can be established without the knowledge of stockholders. A consolidation, on the other hand, involves the elimination of one or more corporations and requires the definite approval of at least a majority and usually more (two-thirds) of the stockholders. To secure approval is often difficult. It may be altogether impossible, or it may be feasible only upon payment of excessive prices for the securities needed.

Other advantages of the holding company are as follows: It facilitates control of large aggregates of capital with a minimum of investment.[2] It affords a means of combining properties which, on account of state laws, cannot legally be fused or which cannot be consolidated without loss of liberal charters. It promotes decentralized administration, which may be particularly helpful if the properties combined are widely dispersed. It insulates the parent company against liability to the creditors of the underlying corporations. Finally, it makes easier the divorce of properties after they have once been combined. This is because legal claims, accounts, and managements are not so commingled as under a consolidation.

It is the last advantage which makes the holding company especially useful as a preliminary means of combination. The point can be illustrated with reference to railroads. That the railroads of the United States could be so combined as to realize significant economies is generally conceded. What is not apparent is how the existing lines should be distributed, and how large each system should be. Since these questions can best be decided after experimentation, the holding company could be employed as an initial form of organization, thereby making it easier to modify the original combinations in the light of results.

Extent of Combination

Preceding chapters have indicated that most pipe-line, air, and railroad transportation is now provided by a relatively few large companies.[3] Concentration of control is to some extent a result of the organization and growth of continuously independent concerns, but it is also to be explained by combination. Carriers have been brought together in order to curb

[1] Prior to 1888 the states did not generally authorize their corporations to hold securities in other corporations.

[2] This can be a disadvantage from the standpoint of the public.

[3] Cf. p. 95.

competition, preserve strategic advantages, reap promoters' profits, realize economies, satisfy personal ambitions, and for other reasons.

Seven companies own 75 per cent of the mileage of crude-oil pipe lines in the United States; 14 companies control 90 per cent of the petroleum trunk lines; and 4 companies control 96 per cent of the gasoline lines.[1] Twenty-four corporations operate the certified air routes.[2] One hundred thirty-two Class I railroads operate more than nine-tenths of the line-haul mileage of the country, and 15 railways operate over half the mileage.[3] If account is taken of stock ownership, the concentration of railway control is even more pronounced. Including noncontrolling stock ownership, 14 systems embraced in 1930 approximately 90 per cent of the mileage.[4] None of these systems contained less than 9,000 miles of line. In some instances executive control is virtually complete. The Southern Pacific, for example, operates about 9,000 miles of line, but it dominates through stock ownership and lease about 15,000 miles.

The number of antecedent corporations replaced by the present companies is unknown, but it is unquestionably very large.[5] The railroads, originally detached enterprises, began to combine about 1850. It was said in 1925 that the Pennsylvania system alone is the result of consolidations, acquisitions, and leases which have reduced the number of corporations performing service from about 600 to 69.[6] The New York Central is an outgrowth of some 500 companies, the Illinois Central of more than 100. During the period 1920 to 1938 the Interstate Commerce Commission issued certificates authorizing the acquisition and operation of nearly 37,000 miles of railroad.[7] Stock ownership, lease, and similar means involved 88,000 miles. Between 1920 and 1940 the number of Class II and III railroads was reduced through consolidation by 238.[8] For a similar reason the number of Class I carriers declined by 52.

[1] Cf. p. 118.

[2] Cf. p. 70.

[3] Compiled from *Statistics of Railways in the United States*, 1943 (1945). Because of the absorption of small lines, the relative importance of Class I carriers has been increasing over the years, although the number of Class I railroads has been declining.

[4] *Regulation of Stock Ownership in Railroads*, House Report no. 2789, part 1, pp. LII, LXXI–LXXII (1931). The major systems were Van Sweringen; Great Northern-Northern Pacific; Pennsylvania; Southern Pacific; St. Louis-San Francisco; Atlantic Coast Line; Atchison, Topeka, and Santa Fe; New York Central; Baltimore and Ohio; Chicago, Milwaukee, St. Paul and Pacific; Chicago and Northwestern; Union Pacific; Southern; and Illinois Central.

[5] It is said that there have been some 6,000 independent railroad concerns in the United States at one time or another.

[6] *105 I. C. C.* 189 (1925). Most other large systems are similar.

[7] *Hearings before the House Committee on Interstate and Foreign Commerce*, House Report no. 2531, 76th Cong., 1st Sess., part 1, p. 59 (1939).

[8] Association of American Railroads, *Consolidation of Railroads*, p. IV (1945).

It is generally recognized that extensive combination has also taken place in the air industry. Numerous enterprises were launched during the aviation boom prior to 1934, and many of these were merged into the present companies.[1] Some companies organized since 1934 have likewise been combined.

A few large concerns have been created in the motor and water industries. For example, in 1942 eight eastern trucking concerns were merged into one corporation known as Associated Transport, which operated 3,300 motor vehicles over 24,000 miles of route and received annual gross revenues of about $19,000,000.[2]

Advantages of Railroad Consolidation

In discussing the advantages of combination we shall refer to the advantages of combined as compared with individual management, not to the advantages of one means of effecting combination over some other means. Consolidation rather than holding company will be assumed, although the control of two or more concerns can be centralized under the latter, especially if stock ownership is supplemented by lease. As a permanent method of unification, consolidation seems to be preferred to holding company for several reasons. First, the economies realizable through consolidation are generally greater, primarily because the most efficient grouping and operation of the carriers are likely to cut across the boundary lines of the constituent companies. Second, mere joining of corporate entities may lead to increased expense and to heavier taxation. Third, the danger of abuses is greater in the case of the holding company. Among the possible abuses are overcapitalization, unbalanced financial structures, excessive concentration of power, and exploitation of subsidiaries. The Interstate Commerce Commission has frequently disapproved combinations on the ground that the proposed method of control did not promise sufficient actual unification of properties to produce significant results.[3]

Consolidated companies may or may not be of the same kind; *i.e.*, they may be two or more railroads, two or more water lines, etc., or a railroad and a water carrier, a railroad and a motor carrier. We shall first discuss the economies of combination of like carriers, with special reference to railroads.

At one extreme, railroad consolidation could be nationwide, all existing companies being fused into a single system. This plan would facilitate realization of the economies of consolidation to the fullest extent possible.[4]

[1] See Puffer, C. E., *Air Transportation*, Chap. 9 (1941).

[2] *Annual Report of the Interstate Commerce Commission*, 1942, p. 32.

[3] *105 I. C. C.* 425 (1926); *124 I. C. C.* 401 (1927).

[4] See Miller, Carroll, *A Suggested Plan for the Solution of the Railroad Problem* (Mimeographed, 1938). Also *Report of the National Transportation Committee*, p. 4 (1933).

But it would completely eliminate railway competition and would raise serious problems of management.[1] At the other extreme, consolidation could take the form anticipated by the Transportation Act of 1920, or as exemplified in England, where the railroads were so grouped as to preserve competition within all regions of the country. The lines of the major systems would interlace, each important center being served by as many systems as possible. Although this plan would promote competition, it would call for a relatively large number of companies and would not permit as great savings. A third arrangement, of intermediate sort, would create six or seven large regional monopolies, as in France, or as proposed under the widely discussed "Prince plan" of consolidation for the United States. Such a scheme would not entirely destroy railroad competition, and it would allow the realization of some economies.[2] Its primary objective would be increased efficiency, not the creation of systems of equal earning power as under the Transportation Act of 1920, and not the control of traffic as under the "Four Party" modification of the Commission's "final" plan of consolidation.[3]

What advantages could be realized by consolidating the present railroads into a few large systems? We shall endeavor to answer this question under the following captions: economies, limitations on economies, rates and service on short lines, commodity rate adjustments, and disadvantages. The discussion under the first heading will relate chiefly to economic advantages, but it is appropriate to point out that consolidation would have an important political effect. It would promote national defense by making it easier to operate the railroad system as a unit in time of war. This was demonstrated by government operation during the First World War. Consolidation or government operation is not essential for military purposes, however, as indicated during the Second World War.

Economies

The realization of economies has not generally been the controlling consideration, or even a material factor, in the promotion of most railroad consolidations, but it is of primary importance from the public point of view.[4] The significant economies are of course the net gains, not the gains

[1] Competition between divisions would probably be less forceful than competition between separate systems.

[2] In order to realize the most substantial economies it has been found necessary in England to pool competitive traffic, thereby largely eliminating direct competition. This is a concession to the regional idea. Federal Coordinator of Transportation, *Fourth Report*, p. 92 (1936).

[3] Cf. p. 178. After modification, the Commission's plan envisioned 17 major systems and embraced 70 of the leading carriers. The Delaware and Hudson and the Seaboard Air Line were unassigned.

[4] An exemplary discussion of economies is Interstate Commerce Commission, *Railroad*

of one consolidating company at the expense of another. Many of the so-called "savings" through consolidations advocated by the companies have been of the latter variety. For example, in the proposed consolidation of New England roads with the Trunk-Line carriers it was stated that the New England lines could obtain coal more cheaply. But if the coal-using roads were joined with the coal-carrying roads, the conveying lines would lose what the consuming lines gained. Only billing and other interchange expenses could be saved.[1] The net gains may relate indirectly or directly to service.

1. Economies in management, buying, and selling would not be so significant in the railroad business as in some industries; for the average railroad is already a fairly large enterprise.[2] Taken together, however, the economies from the three sources might be substantial, especially on the part of the numerous short lines still in existence.[3] Managerial savings would take the form of reductions in staff officers and of less intercompany accounting. For example, some railroad consolidations have made it feasible to close the smaller general offices completely. It was estimated by the Eastern Advisory Committee that the annual savings in the expense of general offices and division superintendents on System No. 1 of the seven systems of the Prince plan would amount to nearly $12,000,000.[4] Economies in the purchase of supplies and equipment would arise primarily from the larger scale on which purchases could be made. It might be possible to secure more liberal quantity discounts, superior quality, and prompter delivery, because the combined concern could better afford to employ specialists who would be familiar with market conditions.[5] Standardization and centralization of stores

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Coordination and Consolidation (Mimeographed Statement, 1940). This statement was prepared by Dr. B. N. Behling.

[1] For other examples see *70 I. C. C.* 20 (1921) and *124 I. C. C.* 81 (1927). Another discussion is Association of American Railroads, *op. cit.* (1945), which includes numerous quotations from authorities.

[2] Most if not all the realizable economies were referred to in connection with the proposed unification of the Northern Pacific and the Chicago, Milwaukee, St. Paul and Pacific. Interstate Commerce Commission, *Finance Docket 12,964*, vols. 11, 13 (1922). See also the proposed consolidation of the Chicago and Northwestern and the Milwaukee. *230 I. C. C.* 548 (1939).

[3] The President of the Pennsylvania Railroad once testified that the consolidation of the Pennsylvania and the Norfolk and Western would eventually save annually $1,000,000 in overhead expenses. Interstate Commerce Commission, *op. cit.*, vol. 5, p. 545. The operation of the San Antonio and Aransas Pass as a part of the Southern Pacific was said to save half the cost of superintendence. *Ibid.* vol. 18, p. 2742 (1923).

[4] Baker, G. P., "The Possibilities of Economies by Railroad Consolidation and Coordination," *American Economic Review*, part 2, vol. 30, pp. 140–157 (March, 1940).

[5] Savings through unified purchasing, standardization, centralization of stores, and reduction in the average stocks of materials were referred to as important in connection

might be facilitated. Economies in selling would embrace fewer expenditures for competitive advertising, and reductions in the number of ticket offices and freight and passenger agencies.[1] The yearly saving in traffic expense of the system referred to above was estimated to be over $5,000,000. Another possible advantage under the head of selling would be greater facility in adjusting rates, on account of the smaller number of companies with whom it would be essential for rate-making authorities to deal. There would also be fewer tariffs. Still another gain could be a fuller development of the territory served, since it might be economical after consolidation to utilize traffic specialists. Although research is expensive, it can lead to additional traffic and thereby reduce the average unit cost of transportation.

2. The greatest advantages of consolidation involve the direct production of service. One of the chief potential savings would arise from the abandonment of routes. Many of the present railway lines have been built primarily to control traffic, to realize financial gains, or to satisfy the ambition of railway magnates. The Western Pacific followed the merger of the Union Pacific and the Southern Pacific, and the "Big Four" was Mr. Vanderbilt's answer to the strategic position of the Pennsylvania. These and other roads constructed for such reasons would doubtless never have been built under a unified plan, for traffic could have been handled with existing facilities. The capital savings from the abandonment of lines in three Western systems of the Prince plan were reported by the Western Advisory Committee to be $22,000,000.[2] Large savings in this direction were mentioned in the unification of lines in southern New Jersey,[3] and it was said that the consolidation of the Pennsylvania and the Wabash would facilitate the abandonment of lines with an operating cost of $2,000,000 per year.[4]

Similar to the abandonment of routes would be the closing of superfluous terminals, exchange points, and shops, and the elimination of duplicate, competitive trains.[5] It might also be possible to handle traffic

with the unification of certain Missouri Pacific lines in Texas. Another gain was the reduction in interline accounting.

[1] The consolidation of the Southern Pacific and the San Antonio and Aransas Pass was said to make possible the elimination of traffic expense. Interstate Commerce Commission, *op. cit.*, vol. 18, p. 2742 (1923).

[2] Federal Coordinator of Transportation, *Regulation of Railroads*, Senate Document no. 119, 73d Cong., 2d Sess., p. 111 (1934).

[3] *193 I. C. C.* 183 (1933).

[4] Interstate Commerce Commission, *op. cit.*, vol. 5, pp. 550–552 (1922). See also *105 I. C. C.* 425 (1926).

[5] Spokesmen claimed that the consolidation of passenger, freight, and engine terminals, and the reduction in empty coal-car mileage, through the unification of the Norfolk and Western and the Virginian, would save annual operating costs of $2,000,000. *117 I. C. C.* 67 (1926). See also *162 I. C. C.* 37, 47 (1930).

with a smaller total amount of rolling stock.[1] This follows from the circumstance that the maximum demands of different systems for cars and locomotives do not coincide in time. In point is the supplying of certain kinds of passenger cars for practically the entire country by the Pullman Company. Should each railroad furnish its own sleeping and dining cars, the total number would have to be increased.

Consolidation would also tend to facilitate more effective utilization of equipment. There would be more single-line movements under one supervision. If unnecessary roads were abandoned, all traffic could be routed over the most efficient routes, thereby reducing roundabout movements and saving operating costs.[2] Because of the desire of the companies to retain the long haul, present railroad hauls are sometimes more than double the minimum necessary. For example, traffic moves over the Great Northern and the Northern Pacific from Chicago to Seattle and Portland, thence down the Pacific coast to Los Angeles, although it could move much more directly over the Santa Fe. The rerouting of traffic was believed to constitute the greatest of all savings from the Prince plan. It might reduce operating expenses by $1,000,000 per year in the movement of coal alone if the Virginian were unified with the Chesapeake and Ohio.[3]

Still other ways in which consolidation would probably promote a more effective use of plant are as follows: Parallel tracks could be operated as a double-track system, and the tracks of one company might be used as a detour in case of emergency, or as a belt line to avoid passing through a congested district.[4] The principle of specialization could likewise be extended to shops.[5] Some shops could be used for heavy work, others for light work. Fluctuations in the demand for repairs could be concentrated in the least efficient, leaving the most efficient to operate at full capacity. Repairs exceeding the capacity of the shops of one company could be made in shops not being fully utilized.[6] Cars could move loaded a greater portion of the time. One possible reason for better loading

[1] Car supply was augmented through the unification of the Great Northern Pacific Railway Company and the Spokane, Portland and Seattle Railway Company. *162 I. C. C.* 37, 47 (1930).

[2] The use of the most efficient routes and the reduction in roundabout shipping would probably constitute significant gains if the New England roads were consolidated with the Trunk-Line carriers. New England Railroad Committee, *Report Submitted to the Governors of New England States by the Rhode Island Members of the Committee*, p. 87 (1931).

[3] Interstate Commerce Commission, *op. cit.*, vol. 43, p. 8333 (1923). See also *105 I. C. C.* 425 (1926) and *138 I. C. C.* 517 (1928).

[4] Double tracking was avoided through the consolidation of the Southern Pacific and the El Paso and Southwestern. *90 I. C. C.* 732 (1924).

[5] See the Nickel Plate consolidation. *105 I. C. C.* 425 (1926).

[6] Better repair of cars was mentioned as one reason for the unification of the New York Central, the Big Four, and the Michigan Central. *150 I. C. C.* 278 (1929).

would be that the railroads involved would have a preponderance of traffic in different directions. Another reason might be that fewer empty cars would move in opposite directions over the same line at the same time. This sometimes happens owing to the desire of managements to avoid per diem charges by sending foreign cars "home." Under a regional consolidation cars would be at home over a much larger range of territory. Being at home more of the time, the cars would probably be kept in better repair. Still another source of better loading might be the concentration of merchandise traffic.

Limitations on Economies

The net savings from economies of the foregoing kinds would depend upon a number of more or less variable factors. One consideration would be the expenses attached to the improvement of processes: the cost of dismissal wages and labor displacement; capital outlays required for terminal enlargement, track connections, or rearrangement of telegraph systems; and the expense of longer hauls arising from the centralization of shops. Of similar import would be the cost of improving service on weak lines.[1]

Another limiting factor would be the terms of consolidation. If the savings were not to be absorbed through an excessive capitalization, it would be necessary to acquire the various railroads at prices consistent with their earning power after consolidation. Should earning power be exaggerated, or if unification were made the means of keeping in operation properties which should be abandoned, the effect of economies upon rates would be nullified, or stockholders of the stronger companies would suffer. The danger of paying too much for properties to be consolidated is real, whether unification is voluntary or compulsory. Especially is this true if there occurs a general scramble for lines.

The extent of net savings would also be affected by the limitations of size. Up to a certain point consolidation would probably be advantageous, but sooner or later it would cease to be economical. Once a system had grown big enough to serve a diversified territory, to secure access to important terminals, and to obtain sufficient traffic to permit an adequate degree of specialization, the disadvantages of bigness would tend to outweigh the advantages. Probably the chief disadvantage would be the difficulty of management. Executive direction is exacting even for a relatively small railroad, and it would become more and more complex as the system became larger, in terms either of density of traffic or of

[1] It has been said that the leveling up of wages and increased taxes would more than offset the savings from the consolidation of the Boston and Maine, the Maine Central, and the Bangor and Aroostook. *Report of the New England Railroad Committee to the Governors of the New England States*, p. 127 (1931).

extent of territory. As management increased in scope, it would be harder to keep in touch with the details of operation and more difficult to find managers of the requisite capacity. "Harrimans are rare." It would of course be possible to subdivide the work of direction, but subdivision would create problems of coordination of policy and would complicate the task of developing an *esprit de corps* among the personnel of the company.

Certain company officials believe that some of our greatest railroads, such as the New York Central and the Pennsylvania, are already large enough for the best results.[1] Other authorities, however, point out that the Canadian Pacific and the Canadian National are managed with reasonable efficiency, and that any of the seven systems of the Prince plan, which would not be much larger, could also be operated economically. These authorities admit that small railroads are often efficiently managed, but it is asserted that much larger ones can likewise be so managed. Results would doubtless depend upon the compactness of the systems.

Notwithstanding these and other limitations, and despite the fact that centralization of control would not mean economies commensurate with those resulting from basic improvements in processes, it seems probable that the total savings through further consolidation would be of considerable magnitude. So concluded the Federal Coordinator of Transportation, after thorough study.[2] The Prince plan envisaged annual savings of $743,000,000 on the basis of the low volume of traffic in 1932. Even after this figure was reduced by more or less conservative railroad advisory committees, yearly savings amounted to $218,000,000. Three other comprehensive estimates of economies through grand plans of consolidation, by Messrs. L. A. Jenny, Carroll Miller, and Mark W. Potter, placed the total at $500,000,000, which is equivalent to 15 per cent of the operating expenses of the railroads in 1937.[3]

The estimated savings from the less comprehensive consolidations proposed from time to time by the carriers are by no means so significant, though still large. A compilation from nine proposed consolidations between railroads of about the same size indicated savings of approximately 5 per cent of 1937 operating expenses, or only a third as much as from the grand plans.[4] The less favorable showing might mean either underestimate by the carriers or overestimate by the proponents of the ambitious schemes,[5] but it might also indicate that economies are relatively

[1] Cf. p. 325.

[2] Federal Coordinator of Transportation, *op. cit.*, p. 26.

[3] Interstate Commerce Commission, *Railroad Coordination and Consolidation*, p. 164 (Mimeographed Statement, 1940).

[4] *Ibid.*, p. 170.

[5] It is significant that three proponents placed total savings at the same figure. Possibly each was influenced by the others.

more important when consolidation is comprehensive. Moreover, the savings in the nine cases might not be so large as in other limited consolidations. Much depends upon circumstances. For example, the gains from unifying parallel lines would ordinarily be greater than the economies from consolidating end-to-end lines. The savings would also be more significant where the carriers are not already fairly well integrated. In certain parts of the United States consolidation has not proceeded so far as in others.

Many of the savings could be realized through means other than consolidation, such as the unification of terminals, the joint use of tracks, the creation of clearinghouses for accounting, and the pooling of equipment; but it is the merit of consolidation that it makes the gains from integration more certain. Emphasizing the need for complete unification, spokesmen for the carriers seem to prefer consolidation to coordination. It should be pointed out, however, that coordination, or its equivalent, cooperation in operation, is a more flexible device than consolidation. In certain situations it can also be made more comprehensive than consolidation. Under either plan, potential economies can be fully achieved only in the long run, as British experience has indicated.

Comparing different modes of transportation, the economies from consolidation would probably be most marked in railroad, pipe-line, and air transport, and least marked in water and highway transportation. Good, though not conclusive, evidence to this effect is the varying extent to which consolidation has been carried in the different industries.

Rates and Service on Short Lines

Railroad consolidation is advantageous to some extent because it promotes lower rates or better service on the large number of short-line railroads, and thus encourages a more even development of the country.[1] As a class, these railroads are inherently weak and cannot provide as good service at as low rates as the larger carriers.[2] Insofar as the absorption of the weak is on the basis of commercial values and produces system economies of the kind outlined above, consolidation makes possible lower rates on the short lines without detriment to the more prosperous companies. The stronger lines sometimes appropriate the gains from consolidation for the benefit of their own patrons, but this is not necessarily fair. The short lines are entitled to their contribution to system strength, and they may be stronger as a part of a system than when standing alone.

[1] The terms "short-line" and "weak" railroads are commonly used synonymously, although not all short lines are weak, and some of the so-called "standard" lines are not strong.

[2] Federal Coordinator of Transportation, *Report on Short Line Railroads* (1937).

As independent enterprises, the short railroads are frequently weak because they are unable to secure sufficient traffic. Inability to secure adequate traffic is sometimes due merely to the smallness of the area served, or to the lack of access to important points where traffic originates or is exchanged.[1] Consolidation generally enlarges the area served and gives better access to sources of traffic.

Lower rates on short lines might also be brought about through a reduction in monopoly profit. Some strategically located railroads use the strength of their position to exact an unfair division of joint rates. This practice unnecessarily enriches the strong company and keeps the other carrier poorer than it ought to be. Should two companies of unequal bargaining strength be combined, the incentive toward monopoly profit of one at the expense of the other would be removed. Both carriers would be parts of the same system, and it would be to the interest of management to maintain rates on the formerly weak line in accordance with the importance of that line to the system as a whole. Not to do so would be to sacrifice the full development of the territory served by the short line. A better development of territory was one of the principal reasons for the consolidation of railroads in England.

Consolidation would sometimes be advantageous to the short lines even if there were no economies. It would enable these roads more readily to raise their rates. An adequate level of rates is now frequently out of the question owing to competition with stronger lines that quote rates on a lower level. Rates could possibly be raised on the stronger railroads, but this might unduly increase the earnings of the strong. They can earn a fair return under a lower level of rates, and the areas they serve should be allowed the benefit of such rates in order that the natural advantages of location be not destroyed.

It is said that consolidation is a poor solution for the weak-road problem because it sustains railroads that are unjustified, but if the short lines are weak on account of the exhaustion of the resources of the territory served, circuitous or improperly conceived routes, overconstruction, unbalanced financial structures, or poor management, the weakness should not be made good by drawing upon the resources of strong companies. The appropriate remedy in these instances is suggested by the nature of the ill. In abandoning short lines, however, action should be taken from the point of view of the railroad system as a whole. There may be no more reason to insist that the utility of a short line should be decided on the assumption that it is an entirely independent enterprise than to decide the fate of a branch line on a similar basis. For even if the short line is below the average in profitableness, it is possible that

[1] Half the companies that operate railroads in the United States control less than 30 miles of line.

the gain from its operation will outweigh the product of the operating labor and capital when employed elsewhere.

Consolidation for the purpose of maintaining weak railroads is also alleged to be unfair to the strong. Insofar as the absorption of the weak places a burden upon the more fortunate carriers, the criticism has weight, but consolidation will not necessarily have this effect if the less prosperous lines are purchased at their commercial value. Even if more than the capitalized value of expected earnings is paid, there will be no injustice to the extent that the inclusion of weak properties in the rate base results in higher rates than the stronger railroad could lawfully charge by itself. The increased earnings thus made possible may fairly be turned over to the needier companies. As we indicated in connection with the division of joint rates, this would not constitute an appropriation of funds belonging to the stockholders of the strong.[1]

Commodity Rate Adjustments

A third kind of advantage from railroad consolidation is the facilitation of commodity rate adjustments. At present it is sometimes impossible to reduce rates on certain goods without causing excessive losses on the part of railroads which depend primarily upon such commodities for revenue. Under consolidation traffic tends to be diversified so that rates can be fixed more in accordance with the value of the service. Rates on other traffic may have to be increased, but this is precisely the point. In the absence of combination, there sometimes exists little other traffic to which a carrier can turn.

Disadvantages of Consolidation

A distinction should be made between the obstacles to consolidation and the disadvantages thereof. The obstacles depend in part upon whether consolidation is voluntary or compulsory. Probably the most serious obstacle under voluntary combination is the conflict of company interests. More than one carrier is likely to want the strategically located lines, in order to control traffic, while no company will want the weaker railroads.[2] So vital is this obstacle that many students believe that consolidation should be made compulsory. However, compulsion would not eliminate all the problems.[3] One remaining difficulty would be the proper division and apportionment of lines.

[1] Cf. p. 442.

[2] It has been shown that the Great Northern and the Union Pacific are reluctant to consolidate with the Milwaukee except on their own terms. Interstate Commerce Commission, *Finance Docket 12,964*, vol. 24, p. 3687 (1923).

[3] *Annual Report of the Interstate Commerce Commission*, 1938, pp. 15–16.

A second obstacle is the difficulty of working out a financial plan that is satisfactory to all security holders. Comprehensive consolidation would involve the reorganization of virtually every railroad company in the United States, and reorganizations are hard to effect.[1] Security holders of the stronger companies would favor absorption of the weaker carriers on terms more favorable to themselves than those to which the security holders of the smaller lines would be willing to agree.

A third obstacle is the resistance of business interests.[2] Some localities now served by an independent railroad oppose consolidation on the ground that a line less dependent upon the localities would not be so interested in building up their traffic.[3] Other places object to the local unemployment that might be caused by consolidation.

A fourth obstacle to consolidation is the opposition of labor, which arises from the loss of jobs incident to unification. It was estimated by the Advisory Committee on System No. 1 of the Prince plan that consolidation would release 35,000 out of the 467,000 employees and would dislocate 70,000. Unemployment and dislocation on such a scale as this are actively opposed, even though labor as a class might gain in the long run. Opposition can be reduced, though by no means eliminated, through inaugurating a system of dismissal wages.

The true disadvantages of railroad consolidation do not appear to be very great, provided the systems do not become too large for efficient management. Probably the chief drawback is the uneven restriction of railroad competition.[4] So long as consolidation is not nationwide, it will likely increase the number of noncompetitive points and concentrate competition at a few major locations. For example, the Prince plan would eliminate competition throughout practically the entire state of Florida, at Philadelphia, and at Baltimore; while it would intensify competition at St. Louis and Chicago, which would be served by two or more of seven systems. This accentuation of the present unevenness of competition would tend toward the concentration of population and industry at the favored points. Commission regulation of rates and service could remedy the inequality only to a limited extent. Furthermore, competition from nonrailroad carriers would not be wholly effective. Trucks, busses, water carriers, and air lines do not furnish active competition for certain classes of traffic. In addition these competitors might be largely concentrated at points of most active rail rivalry.

[1] Cf. p. 476.

[2] This was stressed in the Associated Railways Company Case. *228 I. C. C.* 277 (1938).

[3] See Johnson, E. R., "Obstacles to Railroad Consolidation in Eastern Territory," *Proceedings of the Academy of Political Science*, vol. 13, pp. 359–368 (June, 1929).

[4] Federal Coordinator of Transportation, *Regulation of Railroads*, Senate Document no. 119, 73d Cong., 2d Sess., p. 28 (1934).

Regulatory Policy

The most important laws dealing with combination are those of the federal government. State legislation has been of varying character and limited efficacy. The discussion of regulatory policy will therefore be confined to the federal statutes and will be outlined under three heads: railroads, other means of transportation, and interagency combination.

Railroads

Prior to 1920 the general policy of the federal government was to enforce competition. Aside from the prohibition of railroad pooling by the Act to Regulate Commerce (1887), no special laws were passed to prevent unification, but combinations in the transportation field were subjected to legislation applicable to monopoly in general. The chief law of such character was the Sherman Antitrust Act of 1890, which prohibited the restraint of trade or commerce among the states. This act was first extended to railroads by the Supreme Court of the United States in 1897 and in 1898, respectively, in the Trans-Missouri Freight Association and the Joint Traffic Association cases.[1] Though the two decisions dealt with mere agreements to maintain rates, they indicated, as later proved to be the case, that the monopolization of commerce by the railroads through consolidation, or by any other device, was illegal. In 1904 in the Northern Securities Case a railroad holding company of pure type was held to be in undue restraint of trade, and in 1912 in the Union Pacific-Southern Pacific Case a similar ruling was applied to a holding company of mixed type.[2] In 1922 in the Southern Pacific-Central Pacific Case a combination by means of stock ownership and lease was declared to be unlawful.[3] These and other decisions checked railroad combinations. Unification was permissible only when it did not restrain competition, notwithstanding the fact that competition often led to uneconomic rate cutting, discrimination, wasteful hauling, and duplication of plant.

The Transportation Act of 1920 relaxed the historic policy of enforced competition. As already indicated, the act provided for combination under two separate sets of provisions and exempted the carriers from the operation of the antitrust laws, federal and state, insofar as necessary to implement proposed combinations approved by the Interstate Commerce Commission. The first set of provisions authorized a carrier to acquire control of a connecting or competing line through lease, stock ownership, or other means not involving actual consolidation, provided the acquisition received the sanction of the Commission. In giving its

[1] *166 U. S.* 290 (1897); *171 U. S.* 505 (1898).
[2] *193 U. S.* 197 (1904); *226 U. S.* 61 (1912).
[3] *259 U. S.* 214.

approval, the Commission was allowed wide discretion; it had only to find the combination to be in the public interest. Congress apparently expected mere acquisitions of control to be temporary and preliminary to consolidation, so that definite restrictions upon the Commission were limited primarily to the latter.

Consolidation, the heart of the new policy, was provided for in the second set of regulations. Here the requirements were elaborate, for Congress wished to mold railway unifications along certain preconceived lines. Though consolidation was not made compulsory, it was *ultra vires* unless in conformity with stated conditions. A plan of consolidation into a limited number of railroad systems was to be prepared and adopted by the Commission.[1] This plan had to be so drawn as to meet three specifications: (1) preserve competition as fully as possible; (2) when practicable, maintain existing channels of trade; and (3), so far as feasible, arrange the railroads so that the costs of transportation as between competitive systems and as related to the values of their properties would be the same. The law said nothing about economies, the chief purpose of Congress being to promote the organization of a number of systems of equal earning power under a uniform level of rates.

Carrying out the mandate to furnish a pattern, in 1921 the Commission published a tentative plan of consolidation which called for 19 major systems.[2] After hearings and some delay, in 1929 it adopted a "final" plan of 19 systems.[3] This was of course final in a figurative sense only, for the Commission could modify the scheme at will.[4] In 1932 it did so modify the plan of 1929 by permitting four instead of five systems in the eastern part of the country, exclusive of New England. In 1940 Congress, recognizing the tentative nature of a plan and the difficulty of devising a comprehensive system, relieved the Commission of its obligation to prepare a formal scheme.

The preparation of a plan constituted only the first step toward consolidation. Particular projects were to be initiated by the companies through applications to the Commission, which could approve a proposed consolidation only if it (1) was in harmony with the Commission's complete plan; (2) provided for stocks and bonds which at par did not exceed the value of the properties to be combined, as determined by the Commission under the Valuation Act of 1913; and (3) was found by the

[1] The specification of a limited number of systems rather than one system shows that the policy of maintaining competition had by no means been abandoned.

[2] The plan was based primarily upon a scheme worked out by Prof. Ripley of Harvard University. For a description of the plan see Splawn, W. M. W., *Consolidation of Railroads*, Chaps. 2–3 (1925).

[3] If certain lines operating in Canada are included, there were 21 systems.

[4] The final plan differed from the tentative one mainly in that it recognized the acquisitions of control that had been effected between 1921 and 1929.

Commission to be in the public interest. Obviously, the limitations upon consolidation were more exacting than those relating to acquisitions of control.

The consolidation provisions of the Act of 1920 did not prove very successful. Since the companies were not compelled to act, they seldom consolidated except in minor ways. Leading causes of inactivity were the lack of a powerful incentive, an unsettled railroad future, and serious practical difficulties in applying the Act of 1920. It was expected that the recapture clause would furnish a strong motive toward consolidation, but such was not the case.[1] For one reason or another, large recapturable profits did not materialize.

The provisions relating to acquisitions of control were more productive. In 1934 the Coordinator of Transportation listed 27 fairly large railroads that had been acquired. But these provisions were also unsatisfactory. Unifications thereunder were not thoroughgoing and were so consummated as to work against an orderly disposition of the railroads as a whole. Some companies were tied together almost as effectively through lease and stock ownership as they could have been through consolidation, thereby making difficult any other alignment of the carriers more in harmony with the plan of the Commission. In particular, the unifications made inadequate provision for weak lines. Disregarding leniency of policy by the Commission, the chief reason for the lack of harmony was that the Commission had no jurisdiction over holding companies. Moreover, the Commission could not regulate minority stock holdings, since such holdings were deemed not to constitute control.

It was to remedy these shortcomings of the law that the combination clauses of the Emergency Railroad Transportation Act of 1933 were enacted. This law strengthened the arm of the Commission and made the regulation of combinations more flexible. It eliminated the distinction between acquisitions of control and consolidation; brought holding companies definitely under the jurisdiction of the Commission; removed the requirement that the capitalization of the consolidating corporation should not exceed the value of the consolidated properties; and set up a single uniform standard of decision for all types of combination. The Commission was authorized to approve a unification on two conditions: (1) that it is in harmony with the plan of consolidation and (2) that it will promote the public interest. Such terms and conditions might be attached to a proposed combination as the Commission saw fit, and it was made unlawful for the companies to effect a common control of two or more properties in any way not approved by the Commission. The act did not relieve the Commission of the obligation to prepare a plan, nor did it modify the specifications for the plan. The policy of keeping competition alive was not completely abandoned.

[1] This [illegible]

The Commission's obligation to prepare a final plan was eventually removed by the Transportation Act of 1940, as indicated above. In passing upon proposed unifications under the provisions of this law, the Commission is required to give weight to the following considerations: (1) the effect of the transaction upon adequate transportation service, (2) the effect of the inclusion or omission of other railroads, (3) the total fixed charges resulting from the transaction, and (4) the interest of the carrier employees affected. As to the last condition, the Commission in its order of approval must include such terms as will not result, within a period of 4 years from date of order, in placing the employees of the carriers affected in a worse position with respect to employment, unless the carriers and employees have otherwise agreed. This provision, the so-called "Harrington" amendment, may seriously retard consolidation.[1]

Notwithstanding the legislation of 1933 and 1940, railway unification proceeded slowly. One of the chief reasons for the lack of progress was the depression of the thirties, but question arises as to whether public policy was at fault. It is frequently said that railway consolidation should be made compulsory. Against this policy it can be urged that compulsion runs counter to natural evolution, might be unconstitutional, and has the great disadvantage of opposition from management, which fears that compulsory consolidation would be a step toward public ownership.[2] Endless litigation would probably arise. It would also be extremely difficult for any person to decide how the railroads ought to be combined and how large the separate systems ought to be. Furthermore, public sentiment seems to be opposed to compulsion, so that there is no immediate prospect of exercising force.

In the absence of compulsion, what changes, if any, should be made in the law or its enforcement in order to facilitate voluntary combination? One constructive change suggested is the curbing of the power of a minority to block consolidations approved by the Commission. Another aid would be modification of the Harrington amendment. Still another would be reduction of taxes upon security issues resulting from consolidation.

Other Means of Transportation

Combinations among water, highway, pipe-line, and air carriers are subject in general to the antitrust laws, like railroads. They are also controlled by transportation law. Water- and motor-carrier unifications come under the Interstate Commerce Act, as provided by the Trans-

[1] Subsequent to the passage of the Act of 1940 the Commission reversed a decision approving the consolidation of the Fort Worth and Denver City and the Colorado and Southern on the ground that the Harrington amendment made the amount of future savings problematical. *247 I. C. C.* 119 (1941).

[2] It has been suggested that compulsory combination might be tried out on a small scale.

portation Act of 1940, although motor unifications not involving more than 20 vehicles are exempt.

Air-carrier combinations are governed by the Civil Aeronautics Act of 1938, which allows consolidations, mergers, and acquisitions of control, subject to the approval of the Civil Aeronautics Board. The Board is directed to allow a proposed combination on condition that it will not create a monopoly and thereby restrain competition or jeopardize another air carrier not a party to the combination. Like the Interstate Commerce Commission, the Board has approved some proposed unifications, while it has disapproved others.[1] Although recognizing the advantages of consolidation, it has often favored the encouragement of competition.[2]

Interagency Combination

Since 1930 interagency combination has attracted increasing attention, and the discussion of unification within particular industries has somewhat subsided. The shift in interest has been due to several factors. Railroad, pipe-line, and air-carrier consolidation has already made considerable progress. The years since 1930 have witnessed a rapid growth of competing forms of transportation. Serious business depression has emphasized the need for coordinated service. The Federal Coordinator's reports indicated the possibility of substantial economies through unification. The Transportation Association of America has been organized, largely for the purpose of promoting the creation of integrated transportation companies. Such a company is one which uses the instrumentalities of two or more carriers of different classification.

The settled national policy toward interagency combination has been to maintain separation of ownership and operation. The Panama Canal Act of 1912 made it unlawful after July 1, 1914, for a railroad to own, lease, operate, control, or have any interest whatsoever (by stock ownership or otherwise, either directly, indirectly, through any holding company, or by stockholders or directors in common, or in any other manner) in any common carrier by water with which the railroad does or might compete for traffic. The Interstate Commerce Commission could permit railroad control of steamship lines only if it found that the service was in the public interest, was of advantage to commerce, and would not exclude, prevent, or reduce competition by water. Under no conditions could the Commission allow railroad control of water lines that operated through the Panama Canal. This policy was restated by the Transportation Act of 1940.[3]

Consolidations between railroads (or other carriers) and truck or bus

[1] See Civil Aeronautics Board, *Docket No. 454* (December, 1940); also *Docket No. 270* (June, 1940).

[2] See Puffer, *op. cit.*, Chap. 9.

[3] For instances of railroad control of water carriers see p. 198.

companies are also subject to severe limitations, although the railroads can establish a financial interest in motor carriers.[1] The Motor Carrier Act of 1935 provides that if an applicant for unification with a motor line is not a motor carrier, the Commission shall not approve the application unless it finds that the transaction will promote the public interest by enabling the applicant to use service by motor vehicle to public advantage in its operations, and will not unduly restrain competition. It is necessary to show, not only that the proposal is consistent with the public interest, but that it will actively promote the public interest by allowing better service.[2] These restrictions do not apply where a railroad merely purchases and operates motor vehicles, but in such cases the rules governing certificates of public convenience and necessity take effect. It would be difficult, of course, for the railroads completely to monopolize highway transportation, on account of potential competition from the owner-operator. Furthermore, the Commission can protect competition to some extent through rate regulation.

Restrictions likewise apply to unifications between air lines and other types of carriers. The Civil Aeronautics Act provides that, if an applicant wishing to unify is a carrier other than by air, the Civil Aeronautics Board must find that the proposed transaction will promote the public interest and will not restrain competition. Similar regulations govern combinations between air lines themselves, but interagency unifications are specially mentioned.

The policies of the Interstate Commerce Commission and of the Civil Aeronautics Board with reference to interagency competition have been discussed in Chap. XVIII. Although that chapter dealt with the regulation of service, like principles apply to the control of unifications. It was shown that the Commission will not generally allow the railroads to enter into the water- or the motor-carrier business unless the operation of water or motor lines effectively supplements railroad service without substantially destroying competition. In an early motor acquisition case the Commission set forth the following interpretation of the law: "It is the obvious intent of the act that special safeguards shall surround acquisitions of motor carriers by carriers engaged in other forms of transportation, and no doubt railroads were particularly in mind. The proof

[1] In 1940, 44 Class I railways had a financial interest in 120 motor-vehicle enterprises. *Annual Report of the Interstate Commerce Commission*, 1942, p. 135. Between 1935 and 1940 the financial interest of the railroads in motor transportation increased rapidly. Interstate Commerce Commission, *Highway Motor Vehicle Enterprises in Which Steam Railroads Had a Financial Interest* (1941).

[2] In the Pennsylvania Truck Lines Case the Interstate Commerce Commission pointed to the dangers of railroad control of motor lines, but in the Santa Fe Trails Stages Case it permitted the Santa Fe Railroad to acquire control of two stage lines which operated as feeders of the railroad. *1 M. C. C.* 101 (1936); *1 M. C. C.* 225 (1936). The leading case on railroad control of motor carriers is *10 M. C. C.* 221 (1938).

in such cases must show, not merely that what is proposed is *consistent* with the public interest, but that it will actively *promote* the public interest and in a particular manner, namely, by enabling the acquiring carrier 'to use service by motor vehicle to public advantage in its operations.' The proof must further show that the acquisition will not 'unduly restrain competition.'"[1]

The Civil Aeronautics Board has adopted a similar policy. In the American Export Airlines Case,[2] involving the control of an air line by a water carrier, the Board said, "Economic regulation alone may not be relied on to take the place of the stimulus which competition provides to the advancement of technique and service in air transportation. Competition invites comparisons as to equipment, costs, personnel, methods of operation, solicitation of traffic, and the like, all of which tend to assure the development of an air-transportation system properly adapted to the present and future needs of the foreign and domestic commerce of the United States, of the Postal Service, and of the national defense." This decision referred to foreign air service, but it has been applied in principle to domestic service in the Atlantic Seaboard Case.

The stricter policy toward interagency unifications has been justified on the ground that the net gain from combining two or more carriers of different types is likely to be less than that from unifying carriers of the same type. It is quite possible that agency competition may in the long run promote greater economy than agency combination, even though the latter would not necessarily eliminate competition between companies. This is particularly true where the carriers are of unequal financial strength and where one agency has "sunk" much greater sums in transport plant. The reader will recall the experience of water lines with the railroads.[3] Among the dangers in allowing the creation of large companies protected from agency competition are higher rates, poorer service, greater indifference to improved methods, more political interference, and, ultimately, impaired public relations. On the other hand, the establishment of integrated transportation companies might check indefensible competition and promote the coordination of services.

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[1] *1 M. C. C.* 101, 109 (1936). See also *43 M. C. C.* 307, 315 (1944).

[2] Civil Aeronautics Board, *Docket No. 319* (July 12, 1940).

[3] In fairness to the railroads it must be said that if they destroyed water transportation on the Mississippi River the destruction was not due to railroad ownership of boat lines thereon. Probably the most important factors were railroad rate cutting and expedited railway service.

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CHAPTER - - - - - - - - - - - - TWENTY-ONE

Labor

TRANSPORT employment, while of immediate concern to management and labor, is of significance to shippers and the public. Its general importance has been recognized by Congress. The commissions have been given little or no direct authority over wages, hours, and working conditions, but the national transportation policy provides that all modes of transportation shall be so regulated as to promote, among other things, "fair wages and equitable working conditions." In addition, special laws have been passed to facilitate the settlement of labor disputes and to afford social security.

One way in which shippers and the general public are affected by transport labor is that the standards governing employment influence service rates. In 1942 there were regularly employed in intercity commercial transportation approximately 2,127,000 persons, about 69 per cent of whom worked for the railroads, 26 per cent for truck and bus companies, 3 per cent for inland water and Great Lakes carriers,[1] 1 per cent for pipe lines, and 1 per cent for airways.[2] The wages paid to these employees amounted to a substantial fraction of all operating expenses. In the railroad business wages and salaries normally constitute over 50 per cent of expenses, and in the other fields of transportation the corresponding ratios fall between 30 and 40 per cent.[3] If wages rise without improvement in the quantity or quality of labor, operating expenses increase and service rates tend to be forced upward, especially if the higher wages apply to all carriers. Rates are also likely to be adversely affected

[1] If coastal and intercoastal employees were included, waterway employment would be relatively more important. Separate data for this group of workmen are not available.

[2] This estimate was supplied by Mr. Otto S. Beyer of the Office of Defense Transportation as of July, 1942. Including local transit, public warehousing, taxis, and transport services and deep-sea shipping, there were employed 2,689,000 workmen. If casual, short-time employees were added and if all persons employed in private transportation were included, the foregoing figure would probably be doubled.

[3] Much data on transport labor may be found in Federal Coordinator of Transportation, *Comparative Labor Standards in Transportation* (1937). Wages are relatively more important in the railroad industry partly because of the need for large maintenance forces. Pipe lines require comparatively little maintenance, and the right-of-way expenses of other forms of transportation are met primarily from public funds.

if wages are unreasonably reduced, for it will be difficult to attract capable and diligent workmen.[1]

Another way in which the terms of employment affect the public is through their relation to the continuity of transport service. As explained below, some groups of employees in the field of transportation are strongly organized; and if wages, hours, and working conditions are unacceptable to labor and cannot be improved through agreement with the companies, these employees will sometimes endeavor to better their lot by means of the strike. Many carriers and thousands of miles of route may be involved. Key railroad workmen, for example, have at times called strikes on a nationwide basis. Strikes on such a scale so disturb economic life that the President of the United States has more than once intervened to prevent interruptions to service.

Railroad Labor

We have observed that the railroad labor force is large. In 1942 it had a membership of 1,469,000, which exceeded the employment of all other forms of intercity transportation combined.[2] The number of railway employees is normally only about half as great, however, as it was a quarter century ago.[3] The decline has been due in part to the contraction of railway service, in part to the introduction of labor-saving devices induced by rising labor costs per unit of output. Labor-saving devices include longer trains, automatic signals, mowers, ditch-digging machines, printing telegraphs, etc.

It is important to note also that the railroad labor force embraces a great number of separate occupations differing widely in degree of skill, stability of employment, and strategic position.[4] The Interstate Commerce Commission recognizes six major classifications:[5] The first or executive group includes top-ranking executives and general and divisional officers, together with staff assistants. The second or professional and clerical group consists of clerks, stenographers, traffic agents, inspectors, engineers, attorneys, accountants, etc. The third and second largest group embraces employees who maintain way and structures, such as section laborers, carpenters, painters, ironworkers, inspectors, and

[1] During the period 1938–1943 railway wages were three-fifths of operating expenses. *Statistics of Railways in the United States*, 1943, p. 91 (1945).

[2] This figure was provided by the Office of Defense Transportation.

[3] At the peak in August, 1920, the railroads employed 2,197,000 workmen. *Report of the Federal Coordinator of Transportation, 1934*, House Document no. 89, 74th Cong., 1st Sess., p. 67 (1935). During recent normal years the number of employees has been about 1,000,000.

[4] This makes it difficult to draw significant conclusions from comparisons of wage rates.

[5] The Commission recognizes altogether 128 classes.

electricians.[1] The fourth and largest group covers workmen who maintain equipment and stores, such as helpers, carmen, general laborers, and machinists. The fifth group consists of dispatchers, station agents, truckers, loaders, and others who aid in train loading and movement but do not actually operate trains. The sixth group embraces train-service employees, including yard masters, switchers, conductors, engineers, firemen, brakemen, flagmen, helpers, and baggagemen.

Labor Organizations

Railroad employees today have some of the most effective labor organizations of the country, but in the early period of railroading there were no unions, except on a limited local basis, and labor bargaining was primarily an individual matter. Railroads were small, detached enterprises which employed few men; the internal division of labor had not been carried very far; class consciousness was not marked; and general communication was poor. During the fifties one railroad was able to publish the names of its employees in its annual report, and paid its president only $1,280 more per year than its enginemen.[2]

About the time of the Civil War labor began to organize on a broader basis. Factors promoting organization were the creation of larger railroad systems, the increase in the number of employees per company, keener railway competition, better communication, the broadening scope of business and union organization in the industrial field, and the Civil War itself. The War caused prices to rise, thereby tending to undermine the standard of living, as in 1917 and 1941.

The first employees to organize permanently were those engaged in train service. In 1863 the engineers created the Brotherhood of the Footboard, which has been known since 1864 as the Brotherhood of Locomotive Engineers.[3] In 1868 the conductors organized the Order of Railway Conductors. In 1873 the firemen formed the Brotherhood of Locomotive Firemen and Enginemen. And in 1883 the brakemen established the Brotherhood of Railroad Trainmen.[4]

These four unions are popularly known as the "Big Four" of the railway brotherhoods. They are powerful, and for that reason have remained independent of the American Federation of Labor. Their power is due primarily to thoroughgoing organization and strategic position. Thoroughgoing organization is largely a result of the character of membership, and

[1] Section laborers constitute the largest single occupation in the industry. In 1943 group three was outranked by train-service employees.

[2] Healy, K. T., *Economics of Transportation in America*, p. 325 (1940).

[3] The National Protective Association of Locomotive Engineers of the United States had been organized in 1855, but this union was not permanent.

[4] This organization includes train brakemen and baggagemen, and yard conductors, brakemen, and switch tenders.

the strong position arises from the essential nature of transportation and the special skills which are difficult to replace in time of strike.

Most of the other national craft unions in the railroad industry were organized about 1900, though not very effectively until the First World War. In contrast with the Big Four, the majority of these "nonservice" unions are affiliated with the American Federation of Labor. Among those so affiliated, the shop-craft unions are members of the Railroad Employees Department of the Federation, which acts in some degree as a substitute for organization on an industrial basis. It handles matters of common interest to the unions and deals with jurisdictional disputes.

Excepting the Brotherhood of Railroad Trainmen, the 21 so-called "standard" train and nontrain unions are now loosely united through the Railway Labor Executives' Association. This association was created in 1929 to deal with matters concerning railroad labor as a whole. It conducts wage negotiations for all classes of labor and represents the employees in the halls of Congress.

The policies of the association and the unions it represents are on the whole conservative, especially in the case of the Big Four. The strike is actually used by the brotherhoods sparingly, though it is adhered to as a weapon of collective bargaining.[1] In fact, strike ballots have not even been issued on many occasions, even in the face of substantial reductions in wages. In 1942, however, votes were taken, strike dates fixed, and stoppages of work avoided only through extraordinary proceedings.

Labor Standards

Organized labor has made substantial gains in railroad transportation, though advancement has been achieved to some extent at the expense of unemployment. The principle of collective bargaining is now almost universally recognized. Working hours have been shortened to 8 per day and 48 per week.[2] Rates of pay have been standardized and increased, averaging in 1940 about 78 cents per hour for all employees; $2.08 for the highest paid group of engineers; 84 cents for important classes of journeymen; and 42 cents for section men.[3] Seniority rules have been established. A federal employer's liability law has been enacted. Hospitalization has been provided for. A minimum monthly amount of employment has been guaranteed in some cases. Federal-state unemployment-

[1] Between 1877 and 1890 the conductors had a nonstrike clause in their charter, and the engineers have not had a serious strike since 1888.

[2] In 1934, however, 13 per cent of all employees other than train and engine service worked longer. Federal Coordinator of Transportation, *op. cit.*, p. 54.

[3] Board of Investigation and Research, *Hourly Remuneration Rates by Occupations in the Transportation Industry*, House Document no. 623, 78th Cong., 2d Sess., pp. 76–81 (1944). Figures are based upon hours worked by employees of Class I carriers.

compensation plans have been put in force, and retirement annuities have been created.

Much of the improvement in wages, hours, and working conditions took place during and subsequent to the First World War. In 1916 the basic 8-hour day was established by the Adamson Law.[1] During 1917 and 1918, substantial increases in wage rates were granted by management and by the United States Railroad Administration. In 1920 another increase was approved by the Railroad Labor Board. Although this advance was partly offset by reductions in 1921 and 1922, the general trend in wages was upward throughout the twenties, especially in the case of train and engine service. In 1932 temporary cuts were agreed upon, but by 1935 these had been restored. In 1937 further advances occurred, and in 1938 management was induced not to enforce a general reduction. Upward revisions also took place during the Second World War, in 1941, and in 1943–1944. Gains in the field of social security will be outlined below.

Legislation Governing Labor Disputes

Labor disputes can be settled through collective bargaining on a purely voluntary basis, but experience has shown that the bargaining process can be facilitated by legislation. Railroad controversies have been subject to six major federal laws: (1) the Act of 1888,[2] (2) the Erdman Act of 1898,[3] (3) the Newlands Act of 1913,[4] (4) the Adamson Law of 1916,[5] (5) the Transportation Act of 1920,[6] and (6) the Railway Labor Act of 1926, as amended in 1934.[7] It is desirable to discuss briefly the experience with these acts, in order to emphasize certain factors that affect the success of legislation.[8]

1. The Act of 1888 was an outgrowth of serious railroad strikes of the seventies and eighties, during one of which federal troops were called out.[9] The act provided for two methods of settling disputes: voluntary arbitration, and investigation. At the request of either party, and on condition that the other party agreed, disputes were to be submitted to

[1] Congressional power to fix the hours of labor was upheld by the Supreme Court in a close decision. Wilson *v.* New, *243 U. S.* 332 (1917).

[2] *25 Statutes at Large*, pp. 501–504.

[3] *30 Statutes at Large*, pp. 424–428.

[4] *38 Statutes at Large*, part 1, pp. 103–108.

[5] *39 Statutes at Large*, part 1, pp. 721–722.

[6] *41 Statutes at Large*, part 1, pp. 456, 469–474.

[7] *44 Statutes at Large*, part 1, pp. 1447–1452; *48 Statutes at Large*, part 1, pp. 1185–1197.

[8] See *First Annual Report of the National Mediation Board*, 1935, pp. 59–65; also Wolf, H. D., *The Railroad Labor Board*, Chap. 1 (1927).

[9] These strikes were chiefly by "nonstandard" unions. Those of the eighties were prosecuted by the Knights of Labor.

a board of three arbitrators, one each for either side and a chairman selected by the two. Neither contestant was required to arbitrate, and no provision was made for enforcing awards.[1] In case arbitration was not accepted, the President of the United States was authorized at his discretion to appoint a temporary investigatory commission, which was expected to submit a report concerning the merits of the controversy. Such report merely had the force of public opinion, neither party being required by law to honor its findings.

During the 10 years when the Act of 1888 was in force, the arbitration provisions were never used, although it had been anticipated that they would become the most important feature of the law. The investigatory provisions were applied only once, ineffectively in the famous Pullman strike of 1894. An important reason for the lack of success was that the law made no provision for mediation and conciliation, which have generally been more useful tools of settlement than arbitration.

2. As a result of the failure of the law of 1888 to keep peace, the Erdman Act of 1898 was passed. Applying only to employees who actually operated trains, the Erdman Act was narrower in scope than the law repealed.[2] It also made no provision for an investigatory commission. But the principal difference between the Erdman Act and the earlier statute was that the former inaugurated for the first time government mediation and conciliation. The United States Commissioner of Labor and the Chairman of the Interstate Commerce Commission were required, upon request of either party in a controversy seriously interrupting or threatening interstate commerce, to undertake settlement of the dispute through mediation. If the commissioners were unsuccessful in their efforts (they could not intervene on their own initiative), they were directed to propose voluntary arbitration. For such purpose a board of three was to be appointed, as under the previous act; and if the two party arbitrators could not agree on a neutral chairman within 5 days, he was to be selected by the two conciliation commissioners.[3] Arbitration awards were final and were to remain in effect for 1 year.[4] While arbitration was pending, the status existing immediately prior to the dispute was to continue; the carriers could not discharge employees, and workmen were to refrain from striking.

Throughout more than half its life the Erdman Act was no more successful than the law of 1888. The first attempted application, made by conductors and trainmen in 1899, broke down because of the refusal

[1] Organized labor was in general opposed to compulsion, and the companies objected to governmental machinery of any kind.

[2] Other classes of employees were not strongly organized.

[3] It is often difficult for two partisan representatives to agree upon a third arbitrator.

[4] Awards might be enforced in equity.

of the carriers to enter into any proceedings. For 8 years the act lay in complete disuse. Beginning in 1906, however, after a change in carrier policy, the machinery of the Erdman act was frequently employed. From that date until 1913 when the act was repealed, 61 cases were settled under its provisions, 26 by mediation alone, 10 by mediation and arbitration, and 6 by arbitration.[1] No serious strike was threatened in which settlement was not sought under the act, and no award was repudiated by either party. Probably the chief explanation of success was the skill and shrewdness of the two commissioners of conciliation, who effectively utilized the press in molding public opinion.

Although the Erdman Act was reasonably successful, it was not wholly satisfactory to either side, especially during its last 2 or 3 years. The carriers objected that the gravity of the issues, when many roads were involved, was too great for decisions by so small a board of arbitration. The employees, growing in power, began to feel that they could accomplish more through direct action.[2] The situation was aggravated by the inability of the mediators to intervene on their own initiative, and by the heavy burden of work placed upon their shoulders. There was need for a full-time, permanent board of mediators, as well as for machinery covering the interpretation of agreements and awards.

3. Partly to remedy the foregoing weaknesses, but especially to meet a threatened strike of service employees, in which neither side would turn to the existing law, the Newlands Act of 1913 was passed. This legislation emphasized the desirability of mediation by a specialist. The President was directed to appoint a commissioner of mediation and conciliation who was to give his full time to the work and who was to serve with two additional commissioners designated by the President from among other officers of the government.[3] In addition, the arbitration provisions of the old law were changed by permitting the appointment of six arbitrators instead of three, and by extending the time for arbitration beyond the existing limit of 30 days. The Newlands Act also authorized the Board of Mediation and Conciliation, upon application of either party, to act as a board of interpretation in certain kinds of disputes.

Until the government took over the railroads in 1917, the Newlands Act was fairly successful. The Board of Mediation brought about a settlement of 58 of the 71 controversies in which it served. Fifty-two of these disputes were settled by mediation alone, six by mediation and arbitra-

[1] Of the remaining 19 cases, some were settled, after appeal for mediation, by the parties themselves. Others were dropped for various reasons.

[2] In the early period the employees favored, and management opposed, government intervention. But by 1910 their positions were reversed.

[3] The Board was definitely authorized to proffer its services to disputants. The permanent commissioner was to serve for 7 years.

tion. The act failed, however, in the famous concerted movement of the four service brotherhoods in 1916 for the 8-hour day.[1] The carriers offered to arbitrate under the existing machinery, but the brotherhoods would not agree, insisting that the 8-hour day was not an arbitrable question. The employees also asserted that some of the awards under the Newlands Act were unfair; that the so-called "neutral" arbitrators were not really neutral; that the railroads had aroused public opinion against labor; and that managements had assumed the prerogative of interpreting all agreements and awards. It will be recalled that the act had made only limited provision for interpretation.

4. After all efforts to eliminate the nationwide threat to the continuity of rail service had failed, Congress passed the Adamson Law. This enactment provided that beginning Jan. 1, 1917, 8 hours was to be deemed a day's work in train service and the measure or standard of a day's work for the purpose of reckoning compensation. Since the companies claimed that the railroads could not be successfully operated under an 8-hour rule, the President was directed to appoint a commission of three to observe its effects. Pending the report of such commission, wages for the 8-hour day could not be reduced below the existing standard day's wage.

Notwithstanding the fact that the Adamson Law gave the service brotherhoods what they wanted in principle and thus helped to avert the strike, the 8-hour controversy was actually settled through mediation. Immediately after passage, the law was attacked in the courts; and this attack constituted dilatory tactics in the eyes of the employees.[2] The brotherhoods again threatened to strike in order actually to enforce the 8-hour rule before the United States should declare war. Thereupon the President appointed a special committee of mediation. It was this committee which finally persuaded the carriers to inaugurate the new standard. It first applied only to train-service employees. Not until the federal government took over the railroads was the basic 8-hour day established for all classes of workmen.

5. During the period of government operation of the railroads, the terms of employment were fixed (liberally) through agreement with the unions by the Director General, and disputes over the interpretation of agreements were settled by three national bipartisan boards of adjustment.[3] Next for consideration is the Transportation Act of 1920. The

[1] The term "concerted movement" refers to joint union action against numerous companies.

[2] A lower court declared the Adamson Law unconstitutional, but it was finally upheld in a divided opinion by the Supreme Court. *243 U. S.* 332 (1917).

[3] Upon recommendation of the specially created Railroad Wage Commission of 1918, the Director General of railroads ordered general increases in wages. And to advise with respect to further changes in wages and working conditions, this Commission, which was

labor provisions of this act, like much of the legislation already discussed, were passed to meet a threatened emergency. In this instance organized labor, unimpelled by patriotic motives after the armistice was signed, threatened to strike unless wages were sufficiently increased to offset the marked rise during 1918–1920 in the cost of living.[1] Since it was generally understood that the railroads would soon be returned to private ownership, the United States Railroad Administration had refused to make the concessions necessary to satisfy railroad employees.

The Act of 1920 reflected the influence of the machinery set up during the period of government operation, and it represented a compromise between the principle of voluntary settlement and that of compulsory arbitration with prohibition of the right to strike.[2] The act provided, first, that all controversies should be considered initially in conference between representatives of the carriers and employees. In case disputes concerning grievances, rules, or working conditions could not be settled through conference, the two parties might set up local, regional, or national boards of labor adjustment.[3] Second, there was created a tripartite Railroad Labor Board of nine members; three representing labor, three management, and three the general public.[4] The Labor Board was required to hear wage disputes that could not be settled through conference, as well as disputes concerning grievances, rules, or working conditions which were not disposed of by agreement or by adjustment boards.[5] Decisions of the Labor Board were by majority and merely had the force of public opinion. In determining wages and working conditions, the Board was directed to take into consideration the scale of

temporary in nature, was replaced by the bipartisan Board of Railroad Wages and Working Conditions. Labor was also represented in the United States Railroad Administration by a Division of Labor, which was headed by an appointee of the employees, and which was placed on a par with other divisions of the Administration. All these arrangements were based upon the right of labor to organize without interference and to engage in collective bargaining on a broad basis.

[1] A demand for increased wages was made under similar conditions in 1941.

[2] Other methods looked toward conciliation, as provided for by the Newlands Act; compulsory investigation, with postponement of strike, as under the Canadian Industrial Disputes Act; determination of wages by a wage board, with prohibition of the right to strike; and control of wages, hours, and working conditions by the Interstate Commerce Commission.

[3] Disputes could come to the adjustment boards upon application of the chief executive of any railroad or employees' organization, by written petition signed by not less than 100 unorganized employees, through the adjustment board's own motion, or upon motion of the Railroad Labor Board.

[4] Members of the first two groups were appointed by the President from lists drawn up by the respective parties. Members of the public group were appointed directly by the President. The term of office was 7 years, and the yearly salary was $10,000.

[5] Cases could be brought before the Board in a manner similar to the procedure in the case of adjustment boards.

wages paid for similar kinds of work in other industries, the relation between wages and the cost of living, the hazards of the employment, the training and skill required, the degree of responsibility, the character and regularity of the employment, and inequalities in pay growing out of previous wage orders.

It will be observed that the Transportation Act of 1920 gave little heed to principles of adjustment already fairly well established by experience. No provision was made for mediation. The mediation clauses of the Newlands Act were not repealed, but that law was rendered virtually useless by a provision in the Act of 1920 to the effect that the jurisdiction of the board of mediation and conciliation should not extend to any dispute received by an adjustment board or by the Railroad Labor Board. The Act of 1920 continued the attempt to fix wages and working conditions by a nonmandatory board rather than through mutual agreement, notwithstanding the fact that neither employers nor employees desired wage determination by public authority.

The Railroad Labor Board was largely a failure, and the machinery set up by the Act of 1920 proved of no avail in stopping the disastrous nationwide strike of railroad shopmen in 1922. Aside from the complexity of the problems with which it was confronted, and the inopportune time during which it was forced to function, the Board's failure arose primarily from four factors: First, the carriers and employees could not agree upon adjustment boards. The former wanted local boards; the latter held out for national boards. As a result, the Labor Board was so overwhelmed with minor cases that it could not render prompt decisions or devote attention to major issues. Second, the Board lacked authority to enforce its findings. It could operate successfully only if it enjoyed the support of both management and labor. This it did not receive, and there were numerous violations of the orders of the Board. Third, the Board was unable to maintain a judicial attitude in reaching decisions, two-thirds of its membership being partisan. This difficulty was apparently intensified by the character of certain appointees to the Board. Fourth, some of the decisions announced by the Board were distasteful to labor and appeared unjustified by the evidence. Eventually the Act of 1920 was largely ignored, an increasing number of disputes being settled entirely outside its provisions.

6. It soon became obvious that new machinery was needed. This was provided by the Railway Labor Act of 1926, which, as amended in 1934 and 1936, is now in effect.[1]

[1] The amendments of 1934 strengthened the right of employees to organize and select their own representatives; levied fines for the violation of agreements; substituted the National Mediation Board for the United States Board of Mediation; and, most important of all, created the National Railroad Adjustment Board. The amendment of 1936 partly

Recognizing the complexity of labor relations, the Railway Labor Act prescribes elaborate procedures.[1] It distinguishes between the various types of disputes; creates separate agencies for handling each type; and affords nearly every possible device, short of compulsory arbitration, for the settlement of controversies.[2] Provision is made for no less than four steps through which a dispute involving changes in pay, rules, or working conditions may be carried: (1) conference between the disputants, (2) appeal to a permanent board of mediation, (3) submission to a temporary board of arbitration, and (4) investigation and report by an emergency board. Disputes under agreements must be discussed first in conference and then carried to a permanent adjustment board.

The act presupposes collective bargaining and emphasizes conference and conciliation as the primary methods of settling disputes. To this end it provides that all controversies shall first be considered and decided, if possible, with expedition directly by the parties, and that carriers and representatives of employees must give at least 30 days' written notice of an intended change in existing agreements. To the same end, employees are specifically granted the right to organize, without interference in any way by management, and to bargain collectively through representatives of their own choosing, who need not be persons in the employ of a carrier concerned.[3] These representatives and those of a carrier must be designated by the respective parties without hindrance, influence, or coercion by either party, and neither party is allowed in any way to interfere with, influence, or coerce the other party. In case of disagreement among employees as to their representatives, it is the duty of the National Mediation Board to make an investigation, utilizing a secret ballot or other method, and to certify the names of the individuals or organizations designated. Upon certification, such individuals become the employee agents with whom the carrier is obligated to treat for purposes of the act. Violations of the right to organize and interference with the choice of representatives are made misdemeanors, punishable by fine or imprisonment or both.

If a dispute involving changes in rates of pay, rules, or working con-

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extended the Railway Labor Act to common carriers by air. See McNatt, E. B., "The Amended Railway Labor Act," *Southern Economic Journal*, vol. 5, pp. 179–196 (October, 1938).

[1] See Fisher, C. O., "The New Railway Labor Act: A Comparison and an Appraisal," *American Economic Review*, vol. 17, pp. 177–187 (March, 1927); Ellingwood, A. R., "The Railway Labor Act of 1926," *Journal of Political Economy*, vol. 36, pp. 53–82 (February, 1928). The latter article explains the provisions of the act in some detail.

[2] It embodies all the major devices of earlier statutes except the quasi-judicial Railroad Labor Board.

[3] This provision is designed to prevent the carriers from refusing to deal with outside representatives.

ditions cannot be settled in conference, the National Mediation Board is required, upon request of either party, or upon its own motion in cases of emergency, to communicate with the parties and to use its best efforts to bring them to agreement. This Board is composed of three members appointed for 3 years by the President with the advice and consent of the Senate. Each of its members and any of its staff may act for the Board in the mediating capacity.

When the National Mediation Board is unable to work out a settlement acceptable to both parties, it must endeavor to bring about an arbitration. Should this solution, which is not compulsory, be agreed upon, there may be created for the particular controversy a temporary board of arbitration of three or six members, one or two to be appointed by each side. The party arbitrators in turn are required to choose the third or the two; but if they fail to name these, the National Mediation Board is authorized to act. A board of arbitration is empowered to compel the attendance of witnesses and the production of evidence, and its award is binding.

If arbitration is refused by either party and if the dispute remains unsettled and threatens to interrupt interstate commerce seriously, the National Mediation Board is required to notify the President, who at his discretion may appoint an emergency board to investigate and report upon the facts of the dispute within 30 days. Members of the board are now selected from the National Railway Labor Panel, established by executive order in 1942 for the purpose of obviating the strike vote presupposed by the Act of 1926.[1] After the creation of an emergency board and for 30 days subsequent to its report to the President, no change, except by agreement, shall be made in the conditions out of which the dispute arose. Such waiting period is designed to afford further opportunity for the settlement of controversies without resort to force.[2] The findings of an emergency board are not binding, but they are likely to receive the support of the public and thus to carry great weight.

Disputes growing out of grievances or the interpretation and application of agreements must be carried for final and binding decision to the National Railroad Adjustment Board, if they cannot be disposed of through conference. This Board is composed of 36 members, 18 selected by the carriers and 18 by the national organizations of employees. Headquarters of the Board are at Chicago, and it is divided into four bipartisan divisions, each with jurisdiction over different classes of railroad employment. If any division cannot agree on an award, it is required to select a neutral referee to sit with the group until a decision is reached. If it fails

[1] *Annual Report of the National Mediation Board*, 1942, p. 3. Appointments from the Panel may be made by its chairman.

[2] Postponement of the right to strike represents a concession on the part of labor.

to select a referee, the National Mediation Board is directed to make the appointment within 10 days.

Though not a certain means of settling controversies, the Railway Labor Act has been reasonably successful and has been in force longer than any preceding legislation. During the 8 years ended June 30, 1934, there were received by the United States Board of Mediation 2,682 cases. Of these, 967 involved changes in rates of pay, rules, or working conditions, or other disputes not decided in conference; and 1,715 involved grievances or interpretations and applications of agreements.[1] Of the 967 cases, 321 were disposed of by mediation, 73 were settled by arbitration, 268 were withdrawn, 149 were closed because of refusal to arbitrate, 65 were retired due to other causes, and 91 remained open. Of the 1,715 cases, 405 were disposed of by mediation, 465 were settled by arbitration, 384 were withdrawn, 226 were closed because of refusal to arbitrate, 9 were retired owing to other causes, and 226 remained open.

During the 6 years ended June 30, 1940, the National Mediation Board disposed of 740 mediation disputes, 633 representation controversies, and 9 interpretation questions—a total of 1,382 cases.[2] Of the 740 disputes, 354 were disposed of by mediation, 11 were settled by arbitration, 290 were withdrawn prior to or during mediation, 62 were closed after refusal to arbitrate, 9 were reported upon by emergency boards, and 14 were dismissed. During the same period there were filed with the Board 4,193 wage and rule agreements.[3] And during the year ended June 30, 1940, the National Railroad Adjustment Board disposed of 1,801 cases.[4]

The foregoing figures represent only a portion of the total number of controversies occurring. As contemplated by the Railway Labor Act, most disputes are settled by direct negotiation between the contesting parties so that the services of the agencies created by law need not be invoked except in the more difficult matters. In reviewing the act, the National Mediation Board concluded in 1940 "that the law is entirely adequate and that where there is full compliance with the letter and spirit of its provisions there is no practical necessity for strikes."[5] The chief criticism of the law is said to be that it does not afford the public sufficient protection against unjustified concessions to labor.

During the recent war it was necessary to resort to measures not provided for by the Act of 1926. In two important disputes organized labor

[1] *Annual Report of the United States Board of Mediation*, 1934, pp. 4–5.

[2] *Sixth Annual Report of the National Mediation Board*, 1940, p. 12. Cases pending and unsettled in 1940 came to 101. Representation cases usually concern disputes between national and system labor organizations.

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

[4] *Ibid.*, p. 31. Cases on hand totaled 4,542.

[5] *Ibid.*, p. 5.

repudiated the findings of emergency boards.[1] The first case occurred in 1941 when the unions demanded substantial increases in wages which were refused by the carriers. Mediation and arbitration failed, and an emergency board was created. The board recommended increases of about 7½ per cent for operating employees and about 13½ per cent for nonoperating. These advances were unsatisfactory to labor, and the unions set strike dates. The President of the United States then called the union and carrier officials in conference, after which the emergency board was reconvened. Upon reconsideration the board proposed increases of about 10.6 and 15.6 per cent, respectively, which were accepted both by employees and management. Nominally this controversy was settled under the machinery of the act, but actually the intervention of the President was required in a manner not specified in the act.

The second case involved more drastic measures. In the fall of 1942 the five brotherhoods[2] asked for wage increases of 30 per cent, the nonoperating employees for advances of 27 per cent or 20 cents per hour. Mediation and arbitration again failed, and emergency boards were appointed early in 1943. Increases of only 4½ per cent were approved by the board for the operating employees; for the Director of Economic Stabilization had reduced the demands of the nonoperating workmen, as required by the "Little Steel" formula and the President's "hold-the-line" order to prevent inflation.[3] Although acceptable to the Director, the 4½ per cent increase was rejected by the brotherhoods, and the union leaders voted to submit a strike ballot.

Advances of about 10⅘ per cent or 8 cents per hour were recommended by the board considering the nonoperating dispute, but the Director ruled that the nonoperating employees were not entitled to higher wages under the Little Steel formula except to correct maladjustments. In the meantime the unions had proposed pay at the rate of time and one-half for hours over 40 per week, or an increase of approximately 6 cents per hour, in addition to the 8 cents. The President indicated his support for the revision of overtime pay, and the Director, while still insisting that the flat increase of 8 cents should not become effective, suggested that the emergency board might reconsider its decision. The chairman of the board replied that he had no authority to reconvene. The President then appointed a new board from the National Railway Labor Panel, which advised graduated increases varying from 4 cents for employees receiving 97 cents and over per hour to 10 cents

[1] Our account of these disputes is taken from the files of *The New York Times* and the *Traffic World.*

[2] Conductors, engineers, firemen, switchmen, and trainmen.

[3] The Director had been authorized by executive order to pass upon the recommendations of emergency boards.

for those receiving less then 47 cents. These advances were sanctioned by the Director, but management and the unions had already reached an agreement substantially in accord with the conclusions of the original emergency board. A strike ballot had been submitted after the Director's ruling, and the union leaders refused to stop the balloting. The Senate passed a bill validating the agreement, yet the Director stood firm.[1]

At this juncture the President proposed to the union officials that they submit the two disputes to him for arbitration. This proposal was accepted by the engineers and trainmen and, as regarded overtime pay, by the nonoperating employees, who had finally agreed to the graduated increases. The strike orders of these unions were canceled, but the strikes of the conductors, firemen, and switchmen were merely postponed. The President then took control of the railroads on Dec. 27, 1943, so as to avoid a strike,[2] and proceeded to hand down his own decisions. For the operating employees not agreeing to arbitration the President allowed increases identical in money terms with those he had already awarded to the engineers and trainmen: 5 cents per hour in lieu of overtime and expenses while away from home, and a week's paid vacation. This was in addition to the basic increase recommended by the emergency board, so that the over-all advance was about 9 cents per hour. The nonoperating employees were awarded the graduated increases proposed by the new emergency board plus from 1 to 5 cents in lieu of overtime.[3] The total advances thus ranged from 9 to 11 cents per hour. Having granted these increases, which were accepted by all parties, the President relinquished control of the railroads on Jan. 18, 1944.

Employee Security

Included under the head of employee security are (1) accident and sickness, (2) unemployment, and (3) old age. Protection against these contingencies has been provided partly through private arrangement by the companies or organized employees, partly through state and federal legislation.

1. Although employee death and injury rates have declined, railroading is a hazardous occupation.[4] More than 500 workmen are killed,

[1] In extending the Emergency Price Control Act of 1942 Congress made the findings of agencies under the Railway Labor Act final, thereby eliminating interference by the Director of Economic Stabilization.

[2] The Smith-Connally Act of 1943 prohibited strikes in industries placed under government control.

[3] This additional allowance was recommended by the emergency board after it had been reinstated by the President.

[4] The death rate declined from 0.37 per million man-hours in 1922 to 0.23 in 1935, and the injury rate fell from 27.47 to 7.11. Interstate Commerce Commission, *A Review of Steam Railway Accident Statistics, 1922–1935* (1936).

and more than 15,000 are injured almost every year. Accidents to employees engaged at the time of accident in operations involving interstate commerce are governed by the Employer's Liability Act of 1908, while those occurring in connection with operations in intrastate commerce fall under the laws of the various states. Settlements usually occur without resort to court judgment, however, and average payments are relatively small.[1]

In addition to relief through liability and compensation laws, the employees of most railroads are protected against loss from accidents and sickness through welfare arrangements financed by the companies and employees or by one or the other. These plans provide hospitalization and pensions. Hospitalization is supported by assessments upon employees, while pensions are normally paid by the companies. In some cases benefits are derived from group insurance underwritten by an insurance company.

2. Certain classes of employment, especially in the case of workmen low in seniority, are quite unstable.[2] Railroad labor is necessarily vulnerable to changes in seasonal and cyclical conditions, and for some years the secular trend in the volume of employment has been downward.[3] Unemployment arising from seasonal and cyclical fluctuations may be relieved by means of insurance; that caused by technological changes requires a system of dismissal wages. Seasonal and cyclical unemployment involves only temporary layoffs and is therefore a cost that should be borne currently by the industry, but technological unemployment involves permanent separations the burden of which should not rest entirely upon the industry.[4]

Unemployment insurance was established by the National Railroad Unemployment Insurance Act of 1938.[5] This act replaced the Social

[1] In 1932 death payments averaged $4,561, and the average payment for all accidents was $645. Federal Coordinator of Transportation, *Comparative Labor Standards in Transportation*, p. 111 (1937).

[2] See *Report of the Federal Coordinator of Transportation, 1934*, House Document no. 89, 74th Cong., 1st Sess., pp. 67–74 (1935).

[3] Seasonal unemployment is most pronounced for maintenance-of-way workers. The depression of 1921 brought about a reduction of about 350,000 in the total number of railroad employees, and during the 4 years following 1929 about 600,000 job opportunities were lost.

[4] In 1936 representatives of the Association of American Railroads and the Railway Labor Executives Association entered into a 5-year agreement covering unemployment arising from unification and coordination projects. This agreement provided that a displaced employee should be paid a dismissal allowance of 60 per cent of the wages he had been receiving, for a period of time, up to 60 months, determined by the length of service of the employee.

[5] *52 Statutes at Large*, part 1, pp. 1094–1113. For the amendment of 1940 see *Public Law* no. 833.

Security Act and the unemployment insurance acts of the states. The Insurance Act is administered by the Railroad Retirement Board of three members appointed by the President. As amended in 1940, it applies to suspended or dismissed railroad employees who have not found substitute employment, provided the employee received not less than $150 during the preceding year[1] and had been unemployed 14 consecutive days within 6 months prior to the year in which payments become due.[2] Benefits are allowed for every day of unemployment in excess of 7 and vary, according to the rate of earnings of an employee, from a minimum of $140 per year to a maximum of $400.[3] Funds are derived from a tax of 3 per cent upon such compensation of employees as does not exceed $300 per month, payable by employers into the Treasury of the United States. Neither the employees nor the government contribute, though the tax is probably shifted in last analysis to wages.

3. The problem of old age is serious in the railroad industry because the average age of employees is relatively high, and the proportion of those aged sixty-five and over is comparatively large.[4] This condition is explained by the maturity of the industry itself and by the operation of seniority rules. These arrangements have covered most train and engine service employees for many years.

Prior to 1937 aged and disabled employees were usually cared for under pension plans financed by the companies.[5] In that year retirement allowances were liberalized and made general by the passage of the National Railroad Retirement Act and the Carriers Taxing Act.[6] The Railroad Retirement Act, administered by the Railroad Retirement Board, makes all employees eligible to life annuities at sixty-five years of age; and entitles those who have completed 30 years of service, or who have become totally and permanently disabled, to annuities at the age of sixty.[7] Annuities are computed by multiplying an employee's years of service by the following percentages of his average monthly compensation not in excess of $300: 2 per cent of the first $50, 1½ per cent of the next $100, and 1 per cent of the next $150. Since no more than 30 years can

[1] This was designed to eliminate the extremely casual laborer.

[2] This waiting period excludes occasional unemployment.

[3] Benefits are not payable to employees who have resigned or who have been discharged for misconduct. The maximum is $4 per day for 100 days. Prior to 1940 it was $3 per day for 80 days.

[4] *Report of the Federal Coordinator of Transportation, 1934,* House Document no. 89. 74th Cong., 1st Sess., p. 80 (1935). The mean age of all employees in six main occupational groups in 1934 was slightly over forty-four years, and nearly 4 per cent of the employees were sixty-five years of age or more.

[5] Pensions typically amounted to 1 per cent of the average earnings of an employee during the 10 years preceding retirement multiplied by his years of service.

[6] *50 Statutes at Large,* part 1, pp. 307–319; 435–440.

[7] The beginning date was Aug. 29, 1935.

be counted, the maximum annuity is $120 per month. The minimum is $40, except in the case of an employee who has been receiving a monthly compensation of less than $50. A workman may shift from one railroad company to another without losing his pension rights, and the annuity can be reduced during life so that its remaining actuarial value becomes payable upon death. But an employee leaving the railroad industry cannot withdraw the accumulations.

The Carriers Taxing Act finances pensions by means of an income tax on employees and an excise tax on carriers, both payable by employers into the Treasury.[1] The income tax is based upon wages, and the excise tax is levied upon pay rolls. In both cases the percentages are the same—2¾ per cent for 1937, 1938, and 1939, after which they rise gradually to a permanent level in 1949 of 3¾ per cent. These rates are higher than those of the Social Security Act.

Labor in Other Transport Industries

Our discussion of labor in the water-, pipe-line-, motor-, and air-carrier industries will include a description of labor forces, organization, and standards of employment.[2] Labor disputes in these industries fall under the National Labor Relations Act and are not subject to special federal machinery, excepting certain types of controversies involving common carriers by air which were brought within the terms of the Railway Labor Act in 1936.[3] Employee security is likewise covered by laws applicable to labor in general.[4] Factors explaining the failure to provide special arrangements are the following: youth of the industries (aside from water and highway transportation in early forms), lack of thoroughgoing union organization, relative unimportance of strikes from the point of view of indispensability of service, and less pressing problems of social security.[5]

[1] The object in passing this act separately from its companion was to avoid constitutional prohibitions against taxation for special ends. Should the act be contested, however, this plan may not suffice.

[2] See Federal Coordinator of Transportation, *Comparative Labor Standards in Transportation* (1937).

[3] The act applies to air carriers except with reference to the National Railroad Adjustment Board. Disputes under agreements may be handled through adjustment boards, with appeal to the National Mediation Board.

[4] Longshoremen are subject to federal workmen's compensation laws, and seamen fall under the Employers' Liability Act of 1908. Employees of pipe-line, motor, and air carriers are embraced by the Social Security Act.

[5] This last statement is of course subject to qualifications. As regards accidents, the rate is unusually high in the air-carrier business. Data covering the other industries are not available, though it is known that water and motor transportation are hazardous. Pipe-line transportation, on the other hand, involves the least risk of all. With respect to unemployment, pipe-line transportation is comparatively stable, and air and motor

Waterways

In 1942 inland water-transport employees numbered about 49,000.[1] These and deep-sea workmen may be divided into vessel and shore groups. Vessel personnel includes deck, engine, and steward's department employees; and shore personnel, which constitutes about three-fifths of the total, is composed mainly of longshoremen and freight handlers. Organization is less complete than in the railroad field, owing largely to the traditions of the industry, unskilled and casual nature of the work, individualistic character of seamen, and widely dispersed employment. However, there are several unions, and since 1933 organization has increased. Licensed officers are represented by the National Association of Masters, Mates and Pilots of America; the National Marine Engineers' Beneficial Association; and the United Licensed Officers' Association of the U. S. A. The first is affiliated with the American Federation of Labor. Unlicensed seamen are organized into the International Seamen's Union of America, and shore workers are served by the International Longshoremen's Association. Both of these unions are also affiliated with the American Federation of Labor. Much of the organization occurred during the thirties.

Partly because of the lack of strong organization, wages, hours, and working conditions for jobs of equal responsibility and skill are apparently not so favorable as in the railroad industry, even after making allowances for subsistence. Wages are lower and hours are longer on the average, and they vary widely from place to place. Within the past 10 years, however, standards have been greatly improved.[2] In descending order of remuner-

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transportation have grown so fast as to obscure the effects of cyclical influences; but water transportation as a whole is somewhat similar to the railroad business. In the case of carriers on the Great Lakes, employment is probably less stable than in any field of transportation, at least from season to season. As for old age, the problem appears to be less pronounced in all the industries than in the railroad business, especially in the air- and motor-carrier fields.

[1] This figure was provided by Mr. Otto S. Beyer of the Office of Defense Transportation. It referred to Great Lakes and inland-water carriers. Including transport services and deep-sea shipping, the total number of water-carrier employees was approximately 265,000.

[2] See Federal Coordinator of Transportation, *op. cit.*, pp. 37–40, 74, 69. Average hourly earnings of vessel employees in June, 1933, varied according to occupation from 20 to 58 cents in the Atlantic-Gulf-Coastwise trade; from 21 to 51 cents on the Great Lakes; and from 16 to 38 cents in the Atlantic-Inland service. Corresponding figures for shore employees were 38 to 65, 38 to 69, and 34 to 49. Licensed officers on common-carrier vessels of over 1,000 gross tons worked on an 8-hour schedule in all trades except in the Atlantic-Coastwise and Great Lakes services, where hours were longer. Of the unlicensed employees, 68 per cent were scheduled for 8 hours; 12 per cent for over 8 and less than 12 hours; and 20 per cent for 12 hours. Owing to irregular employment, shore workers frequently worked

ation rates, the various divisions of the water-carrier industry in 1940 were deep-sea, Great Lakes, coastwise, Mississippi and Ohio rivers, New York State Barge Canal, and inside Gulf and Atlantic coasts.[1]

Pipe Lines

In 1942 pipe lines employed about 22,000 workmen, most of whom were highly skilled and worked in and about the offices and pumping stations.[2] Since the number of employees is small and since only a few workers are to be found in any one locality, union organization is not strong. Most of the unionized employees belong to an industrial organization known as the International Assocaition of Oil Field, Gas Well and Refinery Workers of America, although no less than 21 unions claim jurisdiction. Notwithstanding lack of organization, the labor standards of most pipe-line companies are high.[3]

Motor Carriers

The labor force of intercity bus and truck companies in 1942 consisted of approximately 554,000 workmen, 511,000 of whom worked in the trucking business.[4] Important job classes were drivers and helpers, workers who maintain and service equipment, and station and office employees. About three-fourths of the workmen were in the first class. Owing to the larger size of individual operations, specialization is carried further in the bus than in the trucking industry.

Since the intercity motor-carrier industry is new and is conducted on a relatively small scale, unionization and collective bargaining are incomplete. The employees have not created their own organizations but are under the jurisdiction of other unions, some of which date back to the period before motor vehicles. Among the other unions are the following: the Amalgamated Association of Street and Electric Railway and Motor Coach Employees of America; the International Brotherhood of Team-

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more hours in a day than vessel employees, but fewer hours in a week. In June, 1933, longshoremen and freight handlers in the employ of carriers in the Atlantic-Inland, Atlantic-Gulf-Coastwise, and Great Lakes trades worked on the average about 33 hours per week. The average day was therefore unusually short.

[1] Board of Investigation and Research, *op. cit.*, p. 7. Available information on water transportation was incomplete.

[2] From correspondence with Mr. Otto S. Beyer. See also Federal Coordinator of Transportation, *op. cit.*, pp. 15, 22, 52, 85, 142.

[3] In 1934 few employees received less than 42 cents an hour, and the average pay for all employees varied according to location from 65 to 82 cents per hour. Seventy-six to 91 per cent of the employees worked less than 40 hours per week, and from 9 to 19 per cent worked from 40 to 44 hours.

[4] This figure was estimated by Mr. Otto S. Beyer. See also Federal Coordinator of Transportation, *op. cit.*, p. 15.

sters, Chauffeurs, Stablemen and Helpers; the Brotherhood of Railroad Trainmen; and the International Association of Machinists. The second confines itself to the trucking industry; the third, along with the first, covers the bus business. The fourth includes automobile mechanics.

Until recently, labor standards have been relatively low and have varied widely.[1] This has been especially true among the unorganized operators in the truck field. As a rule, standards have been higher in the bus than in the truck business, possibly because the former is better organized than the latter or because more skilled workmen are employed.

Air Lines

The number of employees of scheduled air carriers is comparatively small, amounting in 1942 to about 19,000.[2] The working force may be divided between flight personnel and ground personnel, over four-fifths being in the latter. Most of the employees in both classes are highly skilled. Substantially all pilots are members of the Air Line Pilots' Association, organized in 1931 and affiliated with the American Federation of Labor.[3] Ground-service employees are not so well organized, although many radio operators belong to the American Radio Telegraphists' Association. Pilots are the highest paid employees in the transportation industry (leaving aside high-ranking executives), and the wages of most other workmen are relatively high.[4] Hours of work are likewise quite favorable.[5]

Comparison of Labor Standards

Entering significantly into the cost of service, labor standards affect the competitive ability of the carriers. Insofar as the various modes of transportation pay unequally for equivalent grades of work, and to the extent that high wages are not offset by labor-saving developments, competition is uneven.[6] Differences in labor costs, in fact, can influence

[1] See Federal Coordinator of Transportation, *op. cit.*, pp. 41, 43, 75, 78. According to a field study of 1933, intercity bus employees received on the average 53 cents per hour, and truck employees received 45 cents per hour. Both intercity bus operators and truck employees averaged about 50 hours per week.

[2] From correspondence with Mr. Beyer. See also Federal Coordinator of Transportation, *op. cit.*, p. 15.

[3] The Air Pilots Association also sometimes works with the Railway Labor Executives' Association.

[4] Federal Coordinator of Transportation, *op. cit.*, pp. 81–85. In 1935 pilots received an average of $8.97 per flight-hour; in 1933 chief mechanics made 96 cents per hour; and in 1933 ground-service employees received 59 cents per hour.

[5] *Ibid.*, pp. 49–52. Pilots and copilots are subject to government limitation as to hours, and in 1934 could legally work 8 hours per day and 30 hours per week. In 1935 ground-service employees usually worked 44 hours per week.

[6] The railroads allege that their labor costs are unnecessarily increased by make-work rules of railway unions.

opportunity in the transport market even more than inequalities in public aids or tax burdens.

Reasonably comprehensive recent data showing comparative average remuneration rates throughout the country have been gathered only for Class I railroad, bus, and truck carriers.[1] In 1940 the average for the railroads was 78 cents per hour.[2] Averages for bus and truck companies as of March, 1941, were, respectively, 75 and 68 cents. These figures indicate somewhat higher standards in the railroad business, but it should be emphasized that the transport industries are not comparable technologically, in types of services performed, or on the basis of the proportions of skilled and unskilled labor employed. Since over-all averages may be misleading, conclusions as to the extent of real inequality must await a classification and evaluation of jobs at different levels.

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[1] Data for the other carriers as of 1933–1935 have been given in preceding footnotes. More recent information is either fragmentary or is based upon wage rates indicated in bargaining agreements, which do not accurately reflect actual earnings, on account of overtime, special allowances, and similar factors.

[2] Board of Investigation and Research, *op. cit.*, p. 95.

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CHAPTER - - - - - - - - - - - - TWENTY-TWO

Public Aids to the Transport Industries

ALL major forms of transportation in the United States have been financed in part through public aids, which may be defined as pecuniary grants made by governments without direct consideration therefor.[1] Grants have been extended over a long period of years by federal, state, and local agencies, usually for the specific purpose of promoting transportation.[2] By encouraging the provision of facilities under circumstances of time and place unfavorable to private enterprise, public bodies have sought to assure to the people the general advantages of better transportation as well as to realize certain other gains.[3]

Public aids have taken complex forms, and they have been granted more or less indiscriminately to the various modes of transportation in unequal amounts.[4] As a result, the aids give rise to difficult questions of measurement and of public policy. This chapter has for its purpose the exploration of rational answers to these questions. It is not expected that clear-cut answers can be given in every case, for all the issues cannot be assessed in categorical terms. We shall discuss (1) the measurement of public aids, (2) aids to particular industries, (3) benefits and evils of public aids, and (4) problems of policy arising from public aids.

Measurement of Public Aids

When reduced to dollars, public aids can be measured in two ways. One way is to cumulate the individual grants from the beginning, stating the aid as a lump sum after deducting the compensations that should be offset against the grants. Although this method shows the total funds received by an industry during a given period, it does not furnish a figure of much present significance. It ignores the economic lives of facilities

[1] Prior to the recent war, aid to pipe lines was nominal. They were allowed rights of way across public lands, but the easement value of occupancies plus the value of lands used for other purposes has been estimated to be only $76,921. Federal Coordinator of Transportation, *Public Aids to Transportation*, vol. 1, p. 34 (1940).

[2] In some instances aids have been by-products of measures having other objectives, such as relief of unemployment.

[3] These gains are explained later in connection with aids to particular industries.

[4] We make no distinction between public aid and subsidy.

and makes no allowance for interest charges. Many items of plant made available by public aids have long since been abandoned and can have no direct effect on competitive relationships today. Other items now in service will last for years, and they should not be charged in their entirety to present operations.

The other way of measuring public aids places them on a current basis. This method, usually referred to as the "annual-cost" plan, omits property no longer useful and spreads capital outlays over the entire lives of the facilities provided. Annual cost includes: expenditures, if any, for current maintenance and operation; a share of the capital to be amortized; and an interest charge on the unamortized investment remaining at the beginning of the year. For example, assume that 5 years ago a carrier received property valued at $1,000,000 and estimated to last 20 years; that the going rate of interest is 5 per cent; and that the government makes no expenditure for maintenance and operation. The public aid for the current year on an annual cost basis would be $87,500 (amortization charge of $50,000 plus interest of $37,500 on an unamortized investment of $750,000). On a cumulative basis the aid would amount to $1,000,000.

Objection has been raised in connection with public aids to water and highway transportation that an interest charge should not be included in annual cost, unless interest is actually paid out or earned. Such a charge is said to be unreal and to serve no useful purpose.[1] But interest on the investment is a true economic cost, regardless of whether it is paid or earned. It is a cost borne in the long run by taxpayers and must be included if the funds devoted to transportation are to reflect the product that could have been realized had the capital been utilized for other purposes.

The computation of annual cost as outlined has also been criticized because of the omission of taxes on the government's investment. But the general policy is not to levy taxes on public property, and for that reason, as well as because of the varying objectives of taxation, it hardly

[1] Mr. C. E. Childe of the Board of Investigation and Research said, "In much of the recent discussion of the subject, statements are made, and apparently uncritically accepted by economists and others, representing costs of public works as including implied or imaginary interest. Unless the fallacy of this is understood, it might lead to heavy over-taxation of the users of public facilities, under the guise of assessing taxes merely to recover their cost. If taxes were collected for the use of public highways, waterways, and airways, on the basis of such computed annual costs, there would be returned to the Treasury billions of dollars in excess of the actual public outlay for construction and maintenance. Obviously, it is inaccurate and misleading to say that the cost of public transportation facilities includes an increment above the actual cost of providing and maintaining them." Board of Investigation and Research, *Public Aids to Domestic Transportation*, House Document no. 159, 79th Cong., 1st Sess., p. 34 (1945). Overlooking opportunity cost, this statement is clearly fallacious.

seems logical to include taxes that might have been imposed.[1] Taxes should not be ignored, however, in comparing the competitive position of two or more modes of transportation, for one means may enjoy the use of tax-free public facilities, while the other means may have no such advantage.

Another question involved in estimating public aids is whether an aid should be measured by its cost to the donor or by its value to the recipient. For example, the railroads have argued that their land grants should be valued according to the cost to the government, and that this was nothing because of the increase in the value of unalienated lands caused by the railway construction resulting from the aids. The Federal Coordinator of Transportation contended that the grants should be measured according to their value to the carriers.[2] That the Coordinator's position is sounder in principle seems evident. A grant may cost the donor a great deal or practically nothing, or it may be the source of a handsome profit, yet these considerations are largely immaterial from a transportation standpoint. The significant factor is what the recipient can realize from the grant, for it is this which measures the effect upon transportation. Certain aids, such as donations of cash, materials, and services, or exemptions from taxation, are for practical reasons best based upon the cost to the government, but no sacrifice of principle is involved. What the donor gives is the equivalent of what the donee receives.

Loans of money or guarantees of securities by the government represent public aid to the extent of the difference between the interest actually accrued and that which would have accrued on the recipient's own loans or securities issued without public assistance.[3] Aids through government subscription to stocks and bonds should be computed in a similar manner. In practice this method of measuring aids from loans and securities involves conjecture, for it is difficult to say what alternative costs would have been.

In applying the principle of value to the donee, a special problem arises in connection with land grants. Is the aid from railroad land grants equivalent to the market value of the land when received, as claimed by the railroads, or does it include later increments in the value of the land, as contended by the Coordinator? On grounds of principle it would seem that the answer depends upon the extent to which future increases in the value of the land were anticipated when the grants were made. It hardly

[1] Publicly owned enterprises sometimes make payments in lieu of taxes, as in the case of the Tennessee Valley Authority.

[2] By value to the carriers we refer to the value of the aid when granted, not to the benefits derived therefrom.

[3] Another view is that aids from loans should be measured in terms of the net cost to the government. Board of Investigation and Research, *op. cit.*, p. 182.

seems logical to count as a gift an unforeseen gain. The simplest solution of the matter is to follow the railroads, yet future increases were almost certainly expected. In many cases they were realized.

Still another problem of measurement is the determination of the compensations to be offset against grants-in-aid. This is often a difficult matter from a practical point of view, although the general principle is clear. When the donee must assume a financial obligation in order to receive aid, the value of the consideration should be subtracted from the gross value of the grant. For example, the value of the railroad land grants should be reduced by the savings realized through the transportation of government property at subnormal rates. An analogous situation occurs in federal payments to air lines for the transportation of mail. Here the public aid is not measured by the excess of payments over government receipts from air mail, but by the excess of payments over the costs incurred by the air lines in transporting mail. In the case of highway transportation, users reimburse the government in whole or in part through the payment of gasoline, license, or other taxes; and the public aid is equal to the excess of expenditures for construction and maintenance over the total tax contributions other than for the support of the general functions of government.[1] Highway users should of course be charged only for those expenditures which can fairly be allocated to transportation.[2] Similarly, in the improvement of waterways for purposes of flood control, power generation, and transportation, there should be charged to the latter only its reasonable share of the joint expenditures.

Sometimes it is contended that the indirect benefits from government assistance should be considered in determining the amount of public aid. To illustrate, there is said to be no subsidy to water transportation if the savings realized by shippers from waterway improvements equal or exceed the public expenditures thereon. But this argument confuses means and end. Unless wasted, aids presumably encourage cheaper transportation, create wealth, improve the national defense, etc.; nevertheless, these gains cannot logically enter into the calculation of the aid. The indirect benefits decide the wisdom of public grants, but the net advantage or disadvantage derived therefrom cannot be weighed until the amount of the aid has first been determined. Without knowledge of relative gain, reasonable subsidization becomes impossible.

[1] It can be argued that all taxes paid by highway users should be offset against highway expenditures; but from the standpoint of competitive equality among the various modes of transportation, only user taxes should be so offset.

[2] On the allocation of costs see Allen, E. D., "The Theory of Highway Costs and Their Allocation," *Journal of Land and Public Utility Economics*, vol. 15, pp. 269–276 (August, 1939), and pp. 404–415 (November, 1939).

Aids to Particular Industries

Our discussion of the amount of public aid to particular forms of transportation will include more than one estimate. There are differences in the conclusions of the various authorities, one of whom may be as nearly "right" as another. Chief reliance will be placed upon the reports of the Federal Coordinator of Transportation and of the Board of Investigation and Research.[1]

Railways

According to the Federal Coordinator of Transportation, the railroads have received public aid in the following forms, which are listed in order of magnitude from greatest to least: donations of land; loans of government securities and cash; grants of rights in the public domain and streets; subscriptions to railroad stocks and bonds; contributions of cash, material, equipment, construction, labor, and securities; guarantees or endorsements of railroad bonds; tax exemption by state and local governments; remission of import duties on railway iron; and grants of banking privileges to railroad corporations. The bulk of the aid other than loans from the federal government occurred during the 20 years beginning with 1850. Most of the federal loans were made during the depression of the thirties by the Reconstruction Finance Corporation and the Federal Emergency Administration of Public Works.

Land Grants. Lands were granted to the railroads by the federal government and by the states, in order to promote the general development and defense of the country as well as to increase the value of the unalienated public lands. Grants on a much smaller scale were made by local governments, individuals, associations, and private corporations, who hoped thereby to reap financial gains through the extension of markets and through the enhancement of the value of privately held lands.[2] At the time of the majority of the land grants, the railroads had become an effective means of transportation, and it was believed that they should be built as rapidly as possible.

The most famous and important land grants were made by the federal government to facilitate the financing of construction. The first such grant went to the Illinois Central in 1850.[3] Though certified first to

[1] The reports of the Board will be those utilized as a basis for its hearings on public aids. Figures taken therefrom may differ from those shown in its final report, which was not available when this manuscript was completed.

[2] Grants from purely private sources for private purposes should not be counted as public aids. But see Federal Coordinator of Transportation, *op. cit.*, vol. 2, p. 53 (1938).

[3] In 1830 and 1833 Congress had authorized the use in aid of railroad construction of two grants of land previously made to Illinois and Ohio for canals, and had included railroads in the list of internal improvements which could be aided from the grants of 500,000

the state of Illinois and then turned over to the railroad, the grant to the Illinois Central furnished the model for subsequent gifts.[1] It provided a right of way 200 feet wide through the public domain and alternate sections of land in a strip 6 miles wide on each side.[2] Every other section, kept by the government, was expected to increase in value so as to compensate for the sections going to the railroad. In later grants the right of way was widened in some cases to 400 feet, and the number of sections varied according to the total acreage granted. The Union Pacific, for example, was given alternate sections extending back 20 miles on each side of the road.

Nine states also made substantial grants in aid of construction. However, excepting Texas and Maine, which gave away their own lands, the state grants consisted primarily of swamplands previously received from the federal government. Texas granted the railroads about 35,000,000 acres, or 69 per cent of the total acreage donated by all the states.

Down to June 30, 1940, the 79 land-grant railroads had received from federal and state grants in aid of construction (not including rights of way) all told 179,284,978 acres of the public domain, after making allowance for lands lost because of forfeiture, conflicting titles, or errors in patenting.[3] The total consisted of 130,401,606 acres from the federal government and 48,883,372 acres from the states. This acreage, representing an area larger than the state of Texas, included about one-fourth of Minnesota and Washington; one-fifth of Iowa, Kansas, Montana, North Dakota, and Wisconsin; one-seventh of Nebraska; one-eighth of California; and one-ninth of Pennsylvania. The Northern Pacific alone received about 41,000,000 acres; the Southern Pacific, 30,000,000; the Santa Fe, 19,000,000; the Union Pacific, 19,000,000; the Missouri Pacific, 17,000,000; the Chicago and Northwestern, 8,000,000; the Illinois Central, 5,000,000; and the Chicago, Burlington and Quincy, 4,000,000.[4] Most of the acreage lay west of the Mississippi River.

The last of the construction grants went to the Missouri Pacific system in 1871. The discontinuance of grants at that time is to be explained by several forces. One factor was the conflict of interest between the newer and the older states, the latter urging that they were entitled to

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acres to certain states in 1841; but no grants prior to 1850 were made for the sole purpose of railroad aid.

[1] Before 1862 the grants were made through the states, thereafter directly to the railroads.

[2] In case any of the sections falling to the railroad were already occupied, the company could select an equal acreage within 15 miles of the road.

[3] Federal Coordinator of Transportation, *op. cit.*, p. 32; Board of Investigation and Research, *Exhibit no. R-4*, p. 2 (Mimeographed, 1942). Figures are based upon government records. The Coordinator's acreage was 179,187,040 as of 1933.

[4] These figures include grants made to the predecessors of the companies named.

as much of the rapidly dwindling public domain as the railroads. Other factors were the rising opposition to railroads in general; numerous disputes between the railroad companies and settlers as landowners;[1] and failures on the part of the land-grant lines to live up to the terms of their agreements with the government.

Although the total acreage of lands received by the railroads was large, its value at the time of grant was relatively low. Land was abundant and much of that donated to the carriers was mountainous or semi-arid in character. Railroad spokesmen estimate the combined value of all grants to have been $169,424,305;[2] the Federal Coordinator of Transportation quotes a sum of $174,264,999.[3] These figures are in substantial agreement and do not indicate so much aid as the reader might reasonably have expected. It should be emphasized, however, that the sums are not based upon what the railroads realized from the grants.

Measured according to the ultimate value of the lands to the recipients, the *gross* public aid from land grants approximates the proceeds realized by the railroads through the sale of granted lands, plus the present value of land held for sale, less the expenses incurred by the companies in administering the lands (including taxes). By Dec. 31, 1941, the railroads had disposed of all except 16,163,629 acres.[4] The receipts from sale were $598,970,978 and the expenses for administration were $167,637,867, leaving net proceeds of $431,333,111.[5] Adding to the proceeds $60,684,032—the value of grant lands held for sale—gives a total of $492,017,143.[6] The Coordinator's figure was $489,337,199.[7]

In order to determine the *net* public aid from land grants in aid of construction, it is necessary to consider the value of the rate concessions required of the land-grant lines. Most of the carriers receiving lands were declared to be "a public highway for the use of the government of the United States, free from all toll or other charge upon the trans-

[1] The land-grant policy conflicted with the homestead policy.

[2] Board of Investigation and Research, *op. cit.*, p. 3. The railroad figure is based upon a value of 94.5 cents per acre, which is said to represent the average price received by the government from all land sales during the period from 1850 to 1871.

[3] Federal Coordinator of Transportation, *op. cit.*, p. 36. The Coordinator used a base figure of 97.2 cents per acre, which was derived from sales of about 63,000,000 acres between 1850 and 1871 from the states or territories wherein the lands received by the railroads were located. The figure of $178,057,803 shown in the Coordinator's report is based upon an acreage of 183,187,040.

[4] Practically all the remaining acreage was owned by the Southern Pacific, Northern Pacific, Santa Fe, and Union Pacific. Of this acreage 16,071,300 acres were held for sale and 92,329 acres were used or reserved for carrier purposes. Board of Investigation and Research, *op. cit.*, p. 6.

[5] *Ibid.*, p. 8.

[6] *Ibid.*, p. 9.

[7] Federal Coordinator of Transportation, *op. cit.*, vol. 1, p. 14.

portation of any property or troops of the United States." Other land-grant carriers were required to transport troops and property without charge; to perform service at prices set by Congress; or to carry for the government at rates not in excess of those paid by private parties. Rates for the transportation of mail were to be fixed by Congress.

As interpreted by the Supreme Court, the provisions relating to "free-toll" lines prohibited the collection of a toll for the use of the road but allowed a charge to cover the cost of movement.[1] In accordance with this decision, the rates levied on government traffic by the free-toll railways have usually been 50 per cent of the regular rates.[2] The same basis has been allowed by Congress on other land-grant roads, and "full-charge" lines competing with the aided carriers have voluntarily quoted similar rates. Mail rates were fixed by Congress in 1876 at 80 per cent of the rates applying on nonaided railroads. It should be noted that the reduced rates relate only to transportation over the land-grant portions, not to the entire mileage, of the aided railroads. All rate concessions applicable to mail and to government traffic other than for military purposes were canceled by the Transportation Act of 1940.[3]

The total value of the foregoing concessions from the beginning down to June 30, 1942, has been estimated to be $340,783,000.[4] This sum must be deducted before the net aid to the railroads can be ascertained; but since the figure includes the value of concessions voluntarily accorded the government by nonaided lines, it cannot be used to determine the net gain enjoyed by the land-grant railways alone. Practical difficulties make impossible the separation of the value of the rate reductions required of the latter; hence, it seems desirable to offset the entire $340,783,000 against total public aids received by the railroads as a whole from all sources. This means that the net public aid from land grants to the land-grant carriers cannot yet be computed.

Even if it were practicable to apportion to the land-grant carriers as a class the value of their rate deductions, the resultant figure would fail to reveal fully the significance of the land grants.[5] Aid to particular con-

[1] *93 U. S.* 442 (1876).

[2] The 50 per cent rule was prescribed by the Court of Claims in 1879 in connection with a suit brought by the Santa Fe.

[3] Because of the enormous increase in military traffic during the recent war, the railroads have sought the removal of reduced rates on all government traffic. So far as passengers are concerned, reduced rates have never applied to other than military or naval travel.

[4] Board of Investigation and Research, *Exhibit no. R-6*, p. 20. Over a third of the savings have been realized since 1940. The total savings of $340,783,000 were distributed as follows, insofar as a separation could be made: property, $173,755,000; mail, $76,346,000; troops, $32,251,000; and express $2,431,000.

[5] A rough estimate of the value of the obligatory rate concessions, plus certain excessive

cerns would not be indicated. Although some of the companies disposed of their land soon after receipt at relatively low prices, others held their property until much higher prices could be demanded, sometimes using it as security for loans.[1] By the close of 1927 the Northern Pacific had realized from land sales net proceeds of $100,928,000; the Southern Pacific, $54,326,000; the Chicago and Northwestern, $37,495,000; the Union Pacific, $32,343,000; the Santa Fe, $22,588,000; and the Great Northern, $18,200,000.[2] In the case of the Northern Pacific the net receipts from the sale of grant lands were substantially in excess of the first cost of the road.[3] Other railroads, of course, received much less than the Northern Pacific, but it seems probable that the land grants to the Western lines as a whole amounted to a substantial portion of their recorded investment at the close of the land-grant period.

Much less important than lands designed primarily for sale were grants for right of way. Several statutes beginning as early as 1834 made provision for right of way, but the principal act was that of 1875, which is still in effect. This law provided that any legally organized railroad could receive a right of way 200 feet wide through the public domain; could appropriate materials from near-by public lands for construction purposes; and could utilize adjacent ground for structures, not to exceed 20 acres for each station and for each 10 miles of railroad. Through these acts lands have been given to approximately 150 railroads, either in fee simple or under such conditions that freedom in use has been almost as complete as if title had been unlimited.

As of Dec. 31, 1941, the railroads held for right of way or similar purposes 643,253 acres originally in the public domain.[4] This figure included the acreage of land-grant lands reserved or used for carrier functions. The value of the right-of-way property as of date of grant was about $1,000,000, and the net proceeds of sales, plus the value of retained acreage as of Jan. 1, 1940, amounted to $66,464,872.[5] Of the latter sum only $68,872 represented sales.

Additional grants for right of way have been made by local governments, individuals, associations, and private corporations. From these sources the railroads received 839,956 acres.[6] The value of the acreage

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taxes required of the Illinois Central, was $60,000,000 as of June 30, 1934. Federal Coordinator of Transportation, *op. cit.*, vol. 2, p. 48.

[1] So long as public land was on the market at from $1.25 to $2.50 per acre, the amount that the railroads could obtain through sale was limited.

[2] Federal Coordinator of Transportation, *op. cit.*, pp. 107–111.

[3] Hibbard, B. H., *A History of the Public Land Policies*, p. 260 (1924).

[4] Board of Investigation and Research, *Exhibit no. R-5*, p. 3.

[5] *Ibid.*, p. 5.

[6] Federal Coordinator of Transportation, *op. cit.*, p. 55. This acreage included 2,429 acres donated by local governments; 315,774 acres given by individuals, associations, and

to the donors at the time of donations was $23,163,200, and the net proceeds from sales together with the present value of land retained on Dec. 31, 1941, totaled $226,829,054.[1]

By Dec. 31, 1941, the railroads had received from all sources 180,722,959 acres of land and were holding 17,483,172 acres.[2] Of the acreage on hand, 16,071,300 acres were held for sale, and 1,411,872 acres were reserved for carrier purposes. The companies had realized through the sale of land net proceeds of $433,021, 676, and the value as of Jan. 1, 1940, of all lands held at the close of 1941 was $352,289,393. Practically all the proceeds from sales had been derived from lands granted in aid of construction, while more than four-fifths of the total value of lands still held represented right-of-way grants.[3] The value of all lands at the time of grant was $202,000,000.[4]

Loans. Public loans to the railroads have consisted of loans by the federal government in aid of construction of the Pacific Railroads, loans by state and local governments, guarantees of railroad bonds by state and local governments, loans by the Reconstruction Finance Corporation, and loans by the Federal Emergency Administration of Public Works. Federal loans to the Pacific Railroads were made by Congress in the form of 6 per cent United States bonds, in order to facilitate the completion of transcontinental lines at an earlier date than was possible through promotion by land grants alone.[5] The amount of the bonds varied from $16,000 to $48,000 per mile of completed track, according to the character of the terrain through which track was laid; and the total of all issues was $64,623,512.[6] Taking into consideration the probable higher cost of an equal amount of capital raised privately by the railroads, the Federal Coordinator of Transportation estimated the public aid from the bonds, practically all of which were eventually repaid, to be $48,000,000.

Excepting the Pacific Railroads, loans and guarantees of bonds prior

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private corporations; and 521,753 acres classified as "apparent aids." The term "apparent aids" is applied to lands received under conveyances reciting nominal considerations. Since the records do not disclose the amounts actually paid for such lands, the Federal Coordinator reduced by one-half the estimated value found for the lands.

[1] Board of Investigation and Research, *op. cit.*, p. 7.

[2] The Coordinator's total for federal and state grants is 183,778,858 acres, but this figure includes an indeterminate acreage subject to transfer and not actually received.

[3] In estimating right-of-way values, allowance has been made for abandoned right of way.

[4] Use is here made of the Federal Coordinator's estimate of the value of land-grant lands.

[5] The railroads aided were the Union Pacific and the Kansas Pacific, now parts of the Union Pacific system; the Central Pacific and the Western Pacific, now parts of the Southern Pacific; the Central Branch Union Pacific, now a part of the Missouri Pacific; and the Sioux City and Pacific, now a part of the Chicago and North Western.

[6] Federal Coordinator of Transportation, *op. cit.*, p. 59.

to 1930 were granted primarily by the states, especially in the South. The Atlantic Coast Line, for example, received loans of $16,032,239 and enjoyed guarantees of $19,164,800.[1] Corresponding figures for the Southern were $16,886,971 and $18,668,000. Loans amounted altogether to $88,486,743, and bond guarantees came to $48,503,425.[2] The public aid from the two sources as of Dec. 31, 1927, estimated as in the preceding paragraph, was $71,000,000.[3]

The most significant recent aid to the railroads has taken the form of loans by the federal government, not to encourage construction but for the purpose of aiding the companies to weather business depression.[4] Most of the loans have been granted by the Reconstruction Finance Corporation, which was created in 1932 with authority to advance funds to the railroads subject to the approval of the Interstate Commerce Commission. Down to Apr. 30, 1942, this organization had authorized advances aggregating $954,481,671.[5] The cost of such financing to the government cannot be determined because it is unknown at present what portion of the loans will finally be repaid. But the value to the donee through Dec. 31, 1936, has been estimated to be approximately $114,560,000.[6] Total loans authorized as of that date were $623,519,795.[7]

Loans to the railroads by the Federal Emergency Administration of Public Works occurred during the thirties, as provided by the National Industrial Recovery Act of 1933.[8] Down to Dec. 31, 1936, the P. W. A. had advanced $200,824,500. The cost to the government was $6,507,173,[9] and the aggregate saving to the railroads is estimated to have been about $46,130,000.[10] The loans were granted primarily to promote reemployment, but this does not alter the fact that they constituted, in part at least, a public aid to the railroads.

Rights in the Public Domain and Streets. In addition to donations from the public domain, the railroads have been granted rights to employ highways and streets for the operation of tracks and for other special purposes. In some cases streets have been vacated to the railroads. To the extent that the amounts paid by the carriers for such privileges are less

[1] *Ibid.*, pp. 60–61.

[2] *Ibid.*

[3] Checks indicate that no substantial aids of this type have been received in recent years. *Annual Report of the Board of Investigation and Research*, p. 18 (1942).

[4] Guarantees of earnings during the First World War should not be counted as public aids. See Federal Coordinator of Transportation, *op. cit.*, pp. 71–77.

[5] Board of Investigation and Research, *Exhibit no. R-1*, p. 1 (1942).

[6] Federal Coordinator of Transportation, *op. cit.*, p. 86.

[7] *Ibid.*, p. 80.

[8] The bulk of the loans were made before the close of 1934.

[9] *Ibid.*, p. 88.

[10] *Ibid.*, p. 89.

than the user value thereof, the grants constitute public aids, even though the railroads' rights are subservient to the paramount right of the public to use the highways and streets and even though the people have derived benefits from the grants. According to the Federal Coordinator of Transportation, the value of street occupancies to the railroads on Dec. 31, 1930, was about $118,000,000; and the estimated value of street vacations was $77,000,000.[1] These figures, based upon the experiences of the Atchison, Topeka and Santa Fe, New York Central, and Southern Railway, indicate that the public aid derived by the railroads from rights to utilize highways and streets is by no means insignificant.[2] Allowance was of course made for carrier payments in return for the rights.

Subscriptions to Railroad Securities. During the construction period the railroads received substantial public aid in the form of subscriptions to railroad stocks and bonds. Sometimes the subscriptions were made by state and local governments, as in the case of the Baltimore and Ohio which disposed of $16,635,066 of securities to such bodies.[3] In other instances the subscriptions were made by citizens acting collectively. For example, the Chicago, Milwaukee, St. Paul and Pacific exchanged $1,100,000 of its stock to farmers along the line for notes secured by mortgages on their farms.[4] Down to Dec. 31, 1927, subscriptions by the state and local governments amounted to $157,689,080, and subscriptions by citizens totaled about $290,000,000. Public aid from all subscriptions is estimated to have been $137,000,000.[5] As a rule the companies could dispose of their stocks and bonds to public bodies at much higher prices than to private investors.

Other Aids. Other public aids to the railroads have been relatively unimportant. Contributions of cash, material, equipment, construction, labor, and securities furnished aid to the extent of $63,000,000.[6] Perpetual or limited-term tax exemptions by state and local governments provided aid of approximately $13,000,000.[7] Surveys for railroads by the federal government (probably the first government aid to railways in the United States) and the remission of duties on iron used in construction constituted aid of about $6,000,000.[8] Finally, aids by the states through the

[1] *Ibid.*, p. 70.

[2] The rights to utilize highways other than city streets were not evaluated.

[3] *Ibid.*, p. 65.

[4] *Ibid.*, p. 66.

[5] *Ibid.* Subscriptions by citizens should be counted as public aids only to the extent that the citizens acted collectively for the general good.

[6] *Ibid.*, p. 57. The period covered extended to Dec. 31, 1927.

[7] *Ibid.*, p. 63. In most instances exemptions were for stipulated periods, and a number of these were terminated before the end of the authorized period through foreclosures, private sales, and mergers. Perpetual exemptions, as in the case of the Richmond, Fredericksburg and Potomac, were terminated by agreement between the states and the railroads.

[8] *Ibid.*, p. 5.

granting of banking privileges to the railroads aggregated $1,000,000.[1] The securities of a company engaged in both railroading and banking could be sold to better advantage than those of a company engaged only in railroading.

Summary. Measured historically on the basis of value to donee, all public aids to railroads, according to the Coordinator, have amounted to a grand total of $1,443,000,000.[2] This figure was arrived at after deducting $60,000,000, which represents the capitalized value of the rate concessions by the land-grant lines through 1927. As already indicated, the value of the rate reductions by all railroads to June 30, 1942, has been estimated to be $340,783,000.[3] Although this sum may be offset against total gross aids received by the railroads as of the same date, it should not be deducted from the Coordinator's grand total; for the latter does not include the aid received from loans since the completion of the Coordinator's studies.[4]

Placed on an annual cost basis, the public aid received by the railroads in 1936 was estimated by the Coordinator to have been $35,635,000, or 18.5 per cent of total public aids to all modes of transportation.[5] The railroad aids were derived as follows: loans from the Reconstruction Finance Corporation and the Public Works Administration, $26,000,000; use of waterway improvements, $2,850,000;[6] and use of the public domain, $6,785,000. Public aids from other sources, including land grants, were considered to have been "washed out" by reason of the many changes in the ownership of railroad properties which have taken place through sales, receiverships, etc., subsequent to receipt of the aids. Insofar as the aids have been washed out, they have been reflected in the prices paid for existing properties and cannot be said to confer benefits on present railroad companies.

Water Transportation

Subsidies to water transportation have generally taken the form of direct outlays for the way itself, for the construction of terminals, and for aids to navigation, such as lighthouses, buoys, and fog signals.[7] The

[1] *Ibid.*, p. 64. An example was the Georgia Railroad and Banking Company.

[2] *Ibid.*, p. 101.

[3] By June 30, 1944, the estimated figure was $820,000,000. Board of Investigation and Research, *Public Aids to Domestic Transportation*, House Document no. 159, 79th Cong., 1st Sess., p. 56 (1945).

[4] Separate data indicating the value of the recent loans are unavailable.

[5] *Ibid.*, vol. 1, p. 41. Not offset is an indeterminate amount for nonproductive expenditures, such as the cost of highway grade crossings.

[6] Railroads receive benefits from waterway improvement through the use with their marine equipment of habor improvements and to a less extent through the operation of steamship lines which they control.

[7] A small amount of aid has been conferred through loans and mail contracts to domestic shipping lines.

states took the lead in the early period, but after 1850 most of the expenditures other than for terminal facilities were made by the federal government.[1] The only important state and local outlays for waterways subsequent to that date were for the New York State Barge Canal, the Chicago Sanitary and Ship Canal, the Illinois Waterway, and certain flood-control projects.

There are hundreds of active waterway projects, if each river, harbor, or canal is counted separately, but most of the important projects fall within three groups: the Mississippi River system, seacoast harbors and channels, and lake harbors and channels. Of the total federal expenditures as of June 30, 1936, about 45 per cent had been assigned to the first group, 33 per cent to the second, 12 per cent to the third, and 10 per cent to other waterways.[2] Roughly three-fourths of the outlays were for new work, one-fourth for maintenance and operation.[3]

Total federal, state, and local expenditures on all waterways and related facilities from the beginning down to 1936 have been estimated at $3,464,000,000.[4] This sum includes federal appropriations of $1,964,000,000 for the improvement of navigation;[5] federal, state, and local expenditures of $1,000,000,000 on terminals, chiefly along the seacoast; and state and local outlays of $500,000,000 for inland waterways.[6] Apparently these figures did not include aids to navigation, by reason of the absence of data. Over the years, such aids would amount to a considerable sum; for during the period from 1931 to 1936 expenditures therefor varied from $10,000,000 to nearly $15,000,000 per year.

In determining the total public aid to water transportation on a cumulative basis there should be added to the figure of $3,464,000,000 the following: losses of the Inland Waterways Corporation and its predecessor of $15,000,000,[7] and losses on the Panama Canal of $76,000,000.[8] This

[1] As explained in Chap. II, prior to 1850 the states had disastrous experiences with internal improvements.

[2] Federal Coordinator of Transportation, *op. cit.*, vol. 3, p. 12.

[3] The distinction between capital outlays and maintenance costs has not always been carefully observed in the *Annual Reports of the Chief of Engineers of the United States Army*, upon which the figures for federal expenditures are based.

[4] Federal Coordinator of Transportation, *op. cit.*, vol. 1, p. 37.

[5] Excludes one-fourth of the appropriations for seacoast harbors and channels, which was charged to shipping in foreign commerce.

[6] The total cost of the federal waterways program to June 30, 1940, was $2,592,877,068. Board of Investigation and Research, *Exhibit no. W-2*, p. 1 (Mimeographed, 1942). The Board's exhibits did not indicate aids from sources other than the federal government.

[7] The corporation's accounts show a net income, but after including a return on the government investment, more adequate depreciation charges, and certain other costs, there is a net loss.

[8] The loss shown for the Canal is largely the result of adding to its reported costs a more adequate depreciation charge and an amortization charge. With these adjustments the Canal was found to suffer a deficit in net revenue, after deducting interest at the rate

results in a grand total gross expenditure of $3,565,000,000. According to the Coordinator there should be subtracted from the last sum $750,000,000 to cover tolls and other user payments, as for terminals, and to allow for possible duplications in outlays. Net public aid on a cumulative basis would therefore be $2,815,000,000. Although this figure is of little present significance, it does show as a matter of history that public aid to water transportation has been more than twice as great as the subsidy to rail transportation. In terms of traffic units, the difference in the amount of aid is even more pronounced.

On an annual cost basis the total public aid to water transportation in 1936 has been estimated at approximately $129,000,000, or about two-thirds of the aggregate subsidy to all means of transportation.[1] Over 98 per cent of the aid is the result of general waterway improvements. Aids from loans and mail contracts, losses on the operation of the Panama Canal, and losses of the Inland Waterways Corporation, amounted to less than 1 per cent in each instance. In computing the annual cost where joint-purpose projects were involved,[2] the Coordinator correctly considered the nature of the improvements on each project. Generally speaking, dredging and contraction works were deemed to be entirely navigation improvements, as were locks and dams except in a few instances where power was a factor.[3] Revetments were assigned half to navigation. Depreciation charges, computed according to the straight-line method, were based upon a service life of 100 years for dredging and contraction works, 66⅔ years for dams and locks, and 40 years for revetments.[4] The interest rate used was 4 per cent.[5]

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of 3 per cent. The period covered was 1921 to 1936. Omitting the interest charge, the Canal earned 1.91 per cent on the investment. The figures would be different, of course, if a portion of the cost were charged to national defense.

[1] Federal Coordinator of Transportation, *op. cit.*, vol. 3, p. 55. The annual federal cost in 1940 was $113,273,453. Board of Investigation and Research, *op. cit.* The Board's final report indicated a cost in 1940 of $125,000,000.

[2] For a discussion of various theories for the apportionment of joint costs see Board of Investigation and Research, *Exhibit W-19*, pp. 6–17 (Mimeographed, 1942). See also Tennessee Valley Authority, *Investment of the Tennessee Valley Authority in Wilson, Norris, and Wheeler Projects*, House Document no. 709, 75th Cong., 3rd Sess. (1938); and Glaeser, M. G., "Those Joint T. V. A. Costs," *Public Utilities Fortnightly*, vol. 24, p. 259–269 (Aug. 31, 1939).

[3] On the Mississippi River the Board of Investigation and Research assigned dredging floodways to flood control and dredging cutoffs half to flood control and half to navigation. In connection with the Bonneville project, the Federal Power Commission allocated 32.5 per cent of joint costs to power, leaving 67.5 per cent to be charged to navigation. The portion assigned to navigation appears to be too large.

[4] The weighted average for all improvements was 80 years. The Board of Investigation and Research used a period of 50 years. See *Exhibit no. W-1*, p. 1 (Mimeographed, 1942).

[5] *Ibid.*, pp. 25–30. The interest rate used by the Board of Investigation and Research was 3.5 per cent.

Aid varied widely from project to project. The variation can be shown by stating the annual cost of each development as a lump sum, but a more revealing procedure is to indicate the annual cost per ton-mile of traffic.[1] On this basis costs were highest on the Mississippi River system and lowest on the Great Lakes. In 1935 the total cost on the former was 8.34 mills per ton-mile, while the cost on the latter was only 0.22 mills. Still greater variation occurred among the units within the Mississippi River system. The cost on the Illinois and Mississippi Canal was $1.02 per ton-mile, and that on the Mississippi River between the Missouri River and New Orleans was 3.01 mills per ton-mile. The New York State Barge Canal had a cost of 9.04 mills per ton-mile. The cost for seacoast harbors was estimated on a tonnage instead of a ton-mile basis. Here the cost was 13.7 cents per ton, as compared with 11.5 cents on the Great Lakes and 78.4 cents on the Mississippi River system. Since the users of waterways do not pay tolls to cover the capital and maintenance outlays of the government, it is evident that the traffic moving over the high-cost waterways is subsidized far more heavily than shipments utilizing the low-cost waterways.

Highway Transportation

Most of the public expenditures in the field of highway transportation have gone for highway construction and maintenance, especially of surfaced roads, although some money has been spent for traffic control.[2] Between 1904 and 1934 the total mileage of surfaced highways increased more than sixfold. By 1940 the mileage was over 1,300,000. Of this total, 191,000 miles had high-type surfaces.

In the early period road construction and maintenance were left almost entirely in the hands of local governments, but after the advent of the motor vehicle the states came to play the major role.[3] Between 1921 and 1932 state highway expenditures increased 112 per cent, while county and local expenditures for highways decreased 13 per cent.[4] Beginning in 1916, the federal government made large appropriations in aid of construction. Recently its outlays have amounted to about one-third of all expenditures. The great bulk of federal appropriations have been disbursed by the Public Roads Administration.

[1] Federal Coordinator of Transportation, *op. cit.*, vol. 3, pp. 31–54.

[2] Total outlays for construction have been about twice as great as those for maintenance, although on secondary and local roads the cost of maintenance has exceeded the cost of construction. On primary highways construction has been about three times as costly as maintenance.

[3] At present local financing is chiefly significant in street construction.

[4] Federal Coordinator of Transportation, *op. cit.*, vol. 4, p. 10.

Between 1921 and 1932 total federal, state, and local expenditures on highways and streets amounted to approximately $22,000,000,000.[1] By 1940 the total had risen to $39,184,412,000.[2] Of this total, state and local expenditures were 83.45 per cent and federal expenditures were 16.55 per cent. Outlays on primary highways were $14,640,341,000; on secondary and local roads, $12,973,890,000; and on town and city streets, $11,168,868,000.[3] Until 1933 practically all the federal expenditures were for primary highways, but since that time the annual expenditures therefor have generally been less than for secondary or local roads and streets.[4] Primary highways are roads of high traffic density with a relatively large proportion of through as contrasted with local traffic. They include nearly all federal-aid highways and all other state highways except those which are clearly recognized as of secondary significance, or which were parts of a county or local system before becoming state roads. Total federal expenditures on all highways, roads, and streets, 1894 to 1941, were $6,999,031,000.[5]

On an annual basis the total cost of all highways, roads, and streets in 1937, according to the Board of Investigation and Research, was $1,985,165,000.[6] This was not greatly different from the figure of $2,016,415,000 estimated by the Federal Coordinator of Transportation.[7] The annual cost in 1940 was $2,085,059,00. Expenditures were discounted to allow for unemployment relief, and annual cost was computed in the manner already explained in connection with the measurement of public aids.[8] Since outlays were spread over the future, annual expenditures were in excess of annual costs, as would normally be the case in most years during rapid construction.

[1] *Ibid.*, p. 11. Data showing state and local expenditures prior to 1921 are not available.

[2] Board of Investigation and Research, *Exhibit H-I-e* (1942).

[3] Board of Investigation and Research, *Exhibits II-I-a, II-I-b, and II-I-c* (1942).

[4] Most of the expenditures on primary highways have been made by the Public Roads Administration, and most of the outlays on secondary and local roads and streets have been made by the Works Projects Administration.

[5] Board of Investigation and Research, *Exhibit II-3-d* (1942).

[6] *Ibid.*, *Exhibit II-9-d* (1942).

[7] Federal Coordinator of Transportation, *op. cit.*, vol. 4, p. 158 (1940). The variation in the figures is due largely to slightly different estimates of service lives and interest rates.

[8] The discounts were 40 per cent for the period 1933 to 1936 and 20 per cent for the period 1937 to 1940. Estimated lives of all highway elements, grading, structures, and surfacing, were as follows: primary highways from 1921 to 1930, 53.9 years; primary highways from 1931 to 1940, 56.5 years; secondary and local roads from 1921 to 1940, 35.7 years; and city streets from 1921 to 1940, 46.5 years. Interest rates were 4.25 per cent for primary highways between 1921 and 1930; 3.5 per cent for primary highways between 1931 and 1940; 5 per cent for secondary and local roads between 1921 and 1930; 3.75 per cent for secondary and local roads between 1931 and 1940; and 4.25 per cent and 3.5 per cent for streets, respectively, during the earlier and later periods.

In order to ascertain the public aid to highway transportation, it is necessary to deduct the payments made by highway users in the form of gasoline taxes and similar assessments and to allow for the diversions of user payments to other than highway purposes. According to the Federal Coordinator of Transportation, payments exceeded costs during the period 1921 to 1937 by $385,360,000, and it was concluded that subsequent to 1927 motor-vehicle users as a class paid their way.[1] A significant assumption upon which this conclusion was based, and which has been criticized as too favorable to highway transportation, was the allocation to highway users of only four-fifths of the cost of state highways and of one-fourth of the cost of local roads and streets.[2] Evaluation of the Coordinator's findings should take into account the fact that they relate to the country as a whole and not to particular regions or states. From state to state, costs and payments have varied considerably.

Of special significance from the standpoint of transportation is the public aid to commercial carriers and particular classes thereof. The Federal Coordinator concluded as of 1932 that the cost per vehicle was about equal to the payments per vehicle in the case of passenger cars, that small private trucks failed to meet their costs, but that payments exceeded costs in the case of commercial busses and most for-hire trucks.[3] Overpayment by the larger busses and trucks appeared to be substantial. The situation was found to be virtually the same in 1937 as in 1932. These findings were based upon cost-allocation formulas too complicated for explanation here.[4] Spokesmen for the railroads allege that the costs assigned to motor-vehicle users as a class and to the heavier trucks were too low. The Board of Investigation and Research concluded that in 1940 the

[1] Federal Coordinator of Transportation, *op. cit.*, vol. 1, p. 26 (1940). Estimates by the Board of Investigation and Research of net public aids to highway transportation were unavailable at the time this manuscript was completed.

[2] The exact percentages for the two periods 1921–1932 and 1933–1937 were as follows: primary highways, 80 and 83; county and local roads, 24 and 34; and city streets, 21 and 30. Estimated service lives were 40.9 years for state highways, 27 years for county and local roads, and 38 years for city streets. Interest was calculated at the rate of 4.25 per cent for state highways, 4.5 per cent for county and local roads, and 4.25 per cent for city streets. Salvage values were 20.8 per cent for state highways, 10.8 per cent for county and local roads, and 23 per cent for city streets. Federal Coordinator of Transportation, *op. cit.*, vol. 4 (1940). Figures related to investments subsequent to 1920. The staff report of the Board of Investigation and Research charged motor vehicles in the year 1940 with 85 per cent of the costs of the primary highway system, 30 per cent of the costs of secondary and local roads, and 40 per cent of the costs of city streets. Board of Investigation and Research, *Public Aids to Domestic Transportation*, House Document no. 159, 79th Cong., 1st Sess., p. 61 (1945).

[3] Federal Coordinator of Transportation, *op. cit.*, vol. 1, p. 30 (1940). Costs exceeded payments in the case of single for-hire trucks of 5 tons capacity.

[4] *Ibid.*, vol. 4, pp. 81–177 (1940).

larger vehicles did not contribute their proportionate share of highway costs.[1]

Air Transportation

Public aid has been extended to air transportation primarily through payments to the carriers for transporting mail and through the provision of auxiliary facilities and services. These facilities and services include airports, airways, weather reporting, inspection services, and other promotional work. The great bulk of the aid has been furnished by the federal government, chiefly in the form of air-mail payments. State and local aid has been confined for the most part to airports, many of which are municipally owned.

Total public aids to scheduled air transportation through 1938 were estimated by the Federal Coordinator of Transportation to be $120,431,000, divided as follows: excess of air-mail payments over the assigned costs of the carriers, 1931 to 1938, $64,654,000;[2] federal airways and related services, 1926 to 1938, $33,672,000; and airports, 1926 to 1938, $22,105,000.[3] In computing the aid it was necessary to make difficult divisions of joint costs. Expenses incurred by the carriers for mail, passenger, and express traffic, which included a reasonable profit and return on investment, were allocated on a pound-mile basis; federal expenditures for airway facilities and services were divided according to the plane-miles flown over the airways by scheduled and nonscheduled operators;[4] and airport costs were assigned to scheduled lines largely in proportion to the number of landings and passenger arrivals and departures.[5]

The significance of the aids is better shown when they are stated in terms of units of service. During the period 1935 to 1938 the total public aid on various unit bases was as follows: per revenue plane-mile, 24.6 cents; per revenue passenger-mile, 4.1 cents; per revenue pound-mile of mail, 1.3 mills; and per revenue pound-mile of nonmail traffic, 0.19 mill.[6] These figures indicate substantial aid from the point of view of volume of service.[7] It is important to note also that public assistance was much greater for some carriers than for others.

[1] Board of Investigation and Research, *op. cit.*, p. 62.

[2] No figures were given for the period prior to 1931.

[3] Federal Coordinator of Transportation, *op. cit.*, vol. 1, p. 32 (1940). The total expenditures for auxiliary aids from 1926 to 1938 were $91,816,000, and the annual cost was $86,850,000, nine-tenths of which was for maintenance and operation. The total annual cost of publicly owned airports between 1926 and 1938 was $61,287,000.

[4] The percentages of the costs of facilities and services allocated to scheduled operations were as follows: 1926–1930, 31.3; 1931–1934, 48.2; and 1935–1938, 41.2.

[5] The percentages of airport costs assigned to scheduled service were as follows: 1926–1930, 25; 1931–1934, 33.3; and 1935–1938, 36.

[6] Federal Coordinator of Transportation, *op. cit.*, vol. 1, p. 159 (1942).

[7] Aids for the period 1931–1934 were much higher.

For purposes of comparison with other forms of transportation the annual aid was stated as a lump sum for 1936.[1] On this basis the subsidy to scheduled air transportation was $13,990,000, or 7.2 per cent of total aids to all industries; and to other than scheduled air transportation it was $7,020,000, or 3.6 per cent of aggregate public contributions. It will be recalled that the aid to railroads as of 1936 was $35,635,000, or 18.5 per cent of all aids; and that the aid to water transport was $128,528,000, or 66.6 per cent of the grand total. Aid to certain groups of motor vehicles was found to be $8,000,000, or 4.1 per cent of the total.[2]

Benefits and Evils of Public Aids

It is difficult to say whether public aids to transportation, when viewed from all angles, have constituted a net gain or a net loss to the country, but it is clear that the aids have been in some respects advantageous, in other respects disadvantageous. The advantages and disadvantages vary from industry to industry.

Railroads

During the developmental period, public aids to railroads stimulated construction, especially in the West. In some instances aids made possible railways that would otherwise never have been built, and in a larger number of instances they facilitated the completion of lines at a relatively early date. It has been said that certain land-grant railroads were extended into undeveloped territory at least a decade sooner than would have been the case without public assistance.[3]

The principal disadvantages of construction aids to railroads were two. In the first place, the aids led to overconstruction. Many lines were built which were not economically justified at the time, even after making allowance for a reasonable period of development. Some projects were undertaken which were never to be justified. Frequently the chief lure to the railroad promoters was not prospective traffic, but merely the land that could be obtained.

As a result of overexpansion, rate cutting occurred, and many railroads were thrown into bankruptcy, thereby wiping out investments of private individuals as well as of public bodies. Overconstruction also caused a premature opening up of agricultural lands and waste of natural resources. Markets were frequently flooded with farm products at prices ruinous to the farmers.

[1] Total aids to scheduled air carriers in 1940 were estimated to be $22,528,248, divided as follows: air-mail subsidy, $14,475,670; federal airways, $4,272,467; and public airports, $3,780,111. Board of Investigation and Research, *op. cit.*, p. 80.

[2] The figure for these vehicles related to 1937. Federal Coordinator of Transportation, *op. cit.*, vol. I, p. 41 (1942).

[3] Riegel, R. E., *The Story of the Western Railroads*, p. 43 (1926).

In the second place, construction aids, offering rich prizes to the unscrupulous, led to fraud and corruption. Sometimes donated cash and securities were used for the private gain of promoters rather than for investment in railroad properties. In a few cases even the officers of the railroads improperly diverted aid.

Transportation by Water

Public aids to water transportation are said to have made possible cheaper service, lower railroad rates, and relief of railway congestion. Other alleged gains are improved national defense, decentralization of industry, better flood control, cheaper electric power, and purer water supplies. We shall confine the discussion primarily to the first three benefits.

Probably the greatest gain has been the creation in some cases of more economical through routes. Relatively small expenditures on harbors and channels along the coasts and on the Great Lakes have made possible the utilization of natural routes that could have been employed only to a limited extent without the expenditures. That transportation on the oceans and Lakes is cheaper than by railroad, even after allowing for public aids, has already been explained.[1] Carriers serving these routes, however, do not include the aids in their expenses; hence, rates are frequently below the true costs.

That improved waterways reduce railroad rates has been asserted for many years, as illustrated by the report of the Windom Committee in 1874.[2] The argument is that the waterways, when competitive with railroads, force the latter to reduce their rates and thus produce indirect savings measured by the difference between the old and the new rail rates. Leaving aside for the moment the question as to whether water competition does reduce railroad rates, it may be observed that the savings, when measured as indicated, can easily be overstated. In the first place, the multiplicity of factors influencing rail rates frequently prevents isolation of the effects of competition by water. For example, railroad rates on cotton in the South have been modified through truck as well as through water competition. In the second place, a decrease in rail rates on traffic subject to competition from water lines may be counterbalanced by an increase in rates on traffic not so affected. On certain types of traffic the railroads have the field more or less to themselves and can price their services according to the principles of monopoly. In the third place, savings measured according to the spread in rates make no allowance for differences in the quality of rail and water services.

Whatever the savings may be, however, it must be admitted that the improvement of waterways has led to reductions in railroad rates in in-

[1] Cf. p. 84.
[2] Cf. p. 149.

stances too numerous to mention, as regards both inland and coastal improvements.[1] Reductions in the more important cases have generally ranged from 20 to 50 per cent. It is sometimes argued by railroad spokesmen that the same results could have been secured through regulation, but this contention is only partly valid. Commissions or legislative bodies cannot order reductions to so low a level as competition forces. Rates prescribed by regulatory agencies must be reasonable, and this means that the rates must cover the cost of service, including a fair portion of the common expenses.[2]

Notwithstanding the effect of water transportation upon railroad rates, it does not necessarily follow that improvements should be made for the purpose of forcing reductions. If a waterway can be improved and at the same time pay its way by providing a more economical means of transportation, it should generally be improved, even though the railroads suffer; but to construct a waterway as a regulatory tool, irrespective of its economy, is objectionable for at least three reasons: First, the policy is normally too costly. If the desire is to force rail rates to an especially low level, a less expensive procedure would generally be for the government to pay over to the railroads the difference between reasonable rail rates and those which would be charged as a result of water competition. Second, it is unfair to force railroads to divide traffic with water carriers operating at less than cost. Third, the construction of waterways in order to reduce railroad rates tends to create excess transport capacity. As a result, the general level of railroad rates may in the end be higher than it would be without improved waterways.

The argument that improved waterways relieve railroad congestion has at times been popularly accepted, on account of occasional shortages of railroad terminal capacity or equipment, as during the two world wars. However, it is questionable, considering the location and character of waterway service, whether the improvement of waterways can ordinarily furnish the railroads much relief. During the First World War facilities on the inland waterways were not available until the supposed need therefor had virtually disappeared; and during the Second World War shortages of materials, the submarine menace, the location of defense plants at interior points, etc., prevented full employment of the waterways.

Aside from the creation of questionable competitive relationships, public aids to water transportation have led to waste on a large scale. Waste has been due in part to the piecemeal construction of waterways, in part to the development of isolated projects without reference to their place in a coordinated waterway system; but the main source of extrava-

[1] For some of these cases see Federal Coordinator of Transportation, *op. cit.*, vol. 3, pp. 162–164.

[2] *236 U. S.* 585 (1915).

gance has been the undertaking, through the pressure of local interests, of strictly uneconomic improvements. Some projects have been of practically no benefit whatsoever. Other projects have furnished a relatively cheap means of transportation, if the capital and maintenance expenditures of governments are ignored; but outlays on these waterways have placed a burden upon the general taxpayer which has not been offset by his savings in transportation. Analysis reveals that the savings usually go for the most part to the large shipper who contracts for or provides his own transportation, as in the case of coal and petroleum.[1] Excepting the Great Lakes, relatively few unprocessed farm products move by inland waterway. Analysis also indicates that the savings accrue largely within the territory contiguous to the waterways. They are spread over larger areas when joint water-rail or water-truck rates are established, but most of the water-borne traffic is handled by private and contract carriers who do not quote joint rates.

If all costs are considered, government aids have not facilitated cheaper transportation in most cases. On the contrary, public expenditures on the Mississippi River system, which constitute nearly half of all the outlays on waterways, have failed to justify themselves in terms of cost. It is true that shippers have realized so-called "savings," to the extent that traffic moves by the waterway at rates below the corresponding railroad rates; but the volume of traffic so moving has not been great enough on most of the divisions to produce large aggregate gains. According to the Federal Coordinator of Transportation, the annual savings on the Mississippi, Warrior, and Illinois rivers have been far less than the annual public aid.[2]

Highway Transportation

The benefits from government expenditures on highways are similar to the gains from construction grants to the railroads. Except where traffic is unusually dense, the improved highways could not have been quickly provided on a nationwide basis through private enterprise, because of the remoteness and uncertainty of a normal return on investment. Insofar as user payments have eliminated the element of public

[1] Federal Coordinator of Transportation, *op. cit.*, vol. 3, pp. 99–113.

[2] Federal Coordinator of Transportation, *op. cit.*, vol. 1, p. 48. For an argument that light-draft waterway transportation charges to shippers, plus the costs imputable to the federal government, are less than the rates charged shippers for equivalent service by railroad, see Kelso, Harold, "Waterways Versus Railways," *American Economic Review*, vol. 31, pp. 537–544 (September, 1941). In drawing his conclusions Mr. Kelso considers the inland and coastal waterway system as a unit, but it is questionable whether the system should be so regarded. As the author admits, his conclusions do not necessarily indicate that improvements on specific projects are economically justifiable.

aid to motor carriers, the marked advantages of highway transportation have not been offset by burdens upon the general taxpayer.

Evils from the public provision of highways appear to be less pronounced than in the waterway industry. On the whole, waste seems to have been more moderate. In some states, however, there have been extravagant improvements, especially on local roads. Waste in the early period was probably greater than at present, for highways were not so well planned as now.

Air Transportation

As in the case of waterways, the gross economic gains that have been realized through public aids to air transportation have been to some extent offset by increased burdens upon taxpayers; for most scheduled air lines have been unable to operate profitably without subsidies. Aids have of course made possible rapid realization of the advantages of airway service, and it is not unlikely that the air carriers will eventually be able to "stand on their own feet."[1] It may also be noted that public promotion of air transportation has been less disturbing to established agencies than aids to other kinds of carriers. Much airway traffic is new business; and air lines have not constituted a serious competitive threat to surface lines, except in the case of high-class passenger travel.

The military minded contend that the question of public aid to airways should not be decided on economic grounds, but on the basis of military needs. They say that civil aviation promotes the development and testing of planes and equipment useful in war, trains pilots who can be employed as fighters, and contributes to the maintenance of facilities for the production of military material. These arguments carry weight, but the subsidization of commercial aviation in order to provide for military needs should be accepted with caution. Careful analysis should be made of the actual military value of a civilian fleet and corps of pilots in time of war. It is significant to note that the military departments provide their own air services.

Public-aids Policy

The foregoing discussion has indicated that public aids have resulted in waste of government revenue, unjustified burdens upon taxpayers, overdevelopment of transportation facilities, unfair transport competition, diversion of traffic into uneconomic channels, confusion and instability in transportation rates, and impairment of transport credit and service. One suggested way to meet these evils is the discontinuance of public expenditures for purposes of promoting transportation. But this

[1] Growth of nonmail traffic has made the major lines less dependent upon subsidies.

procedure would not eliminate the subsidies already granted, and it would prevent the advancement of funds when justified, possibly under the following circumstances: when facilities are needed for the improvement of national defense or social conditions; when projects of multiple purpose, including transportation, can pay their way as a whole, yet are not attractive to private enterprise; when an infant industry, such as aviation, needs temporary support and may be able eventually to cover all its costs; when the government appears to be the only practicable agency for the collection and expenditure of moneys, as in the case of highways and waterways; and when there is need for aid during an emergency.

A second possible remedy is the granting of additional assistance to agencies of transportation now comparatively underaided, so that all would be placed on an approximately equal footing. For instance, the government might furnish all or a part of the road and structures for railroads, just as it provides highways, waterways, and airways.[1] Although this policy might promote greater competitive equality, it smacks of logrolling tactics, would tend toward excess transport capacity, and would separate ownership and operation of plant, to say nothing of the practical difficulties in determining the amount and direction of the aids required for equalization. Exactly what facilities would the government provide and what price would it pay for purchased property? How much would the government charge as recompense for aid? Would an unaided railroad be allowed to operate trains over the lines of an aided carrier?[2]

Although general adoption of the second remedy would seem unwise, it would be reasonable to repeal completely all existing land-grant rate provisions applicable to railroads, requiring the government to pay full rates on military as well as on civil traffic.[3] The total value of the deductions made by the railroads collectively already substantially exceeds the net amount realized by the railroads from land grants. In a sense the carriers have fulfilled their obligation. More important, repeal would have the following advantages: remove a burden from nongrant railroads forced to equalize rates with land-grant routes; equalize competition between the government and private citizens who pay higher rates as a result of the government concessions; give shippers not served by lines quoting reduced rates a better chance to compete with other shippers more fortunately located; eliminate the expense and uncertainty involved in determining land-grant deductions; enable motor and water carriers

[1] This has been recommended by the National Resources Planning Board.

[2] On the equalization of subsidy see Cunningham, W. J., *Equalization in Government Subsidy to Transportation Agencies* (Paper read before the Institute of Transportation, May, 1944).

[3] A law providing for complete repeal was passed by Congress in December, 1945.

to compete more effectively for government traffic; and encourage the railroads to reduce rates on traffic otherwise subject to further reductions when transported for government account.

A third conceivable solution is to allow the underaided modes of transportation, primarily railroads, to engage freely in and utilize the facilities of other types of carriers. Within limits, such permission has been granted,[1] but further exploitation of this plan has been strongly advocated. The leading proponent is the Transportation Association of America, which sponsors the organization of integrated transportation companies.[2] Under this scheme the railroads would be grouped into a limited number of competitive systems and each system would be allowed to have a highway, a water, and an air department.

The fundamental objection to this plan as a cure for the evils of public aids is that it assumes, like the second, the necessity for continued subsidization. Should aids continue, many of their drawbacks would not be counteracted, even though greater competitive equality were promoted. But the organization of integrated companies would not necessarily equalize subsidies. Whether it did so would depend upon various factors, such as the manner in which the subsidized agencies were distributed among the integrated companies, and the relative amounts of service performed by those carriers consenting to the plan and those preferring to operate independently. Even if all companies among the subsidized agencies saw fit to join an integrated system, there would probably be an insufficient number of concerns of equal importance to make possible an even distribution. For example, what water lines could be allotted to an integrated system such as might be built around the Union Pacific Railroad? Would the lines be broken into parts to fit the needs of the systems, or would integration be effected by a distribution of stock ownership?

A fourth, and in our opinion the soundest, policy is to eliminate public aid by placing all means of transportation on a user basis. Under this plan aids would be stated in terms of annual costs, and the users of publicly provided facilities would be required to cover these costs through charges as closely related to use as possible. So far as the railroads are concerned, there would be no essential change in the present methods of pricing, because rail service is already financed on a user basis. Air lines would pay fees for the use of airports and airways, and the subsidy through air-mail payments would gradually be reduced. Water carriers would pay tolls. Highway carriers would contribute user taxes, as at present, or they would pay tolls, as on the Harrisburg-Pittsburgh all-weather road. Insofar as possible it would be preferable to collect tolls,

[1] Cf. p. 431.

[2] Transportation Association of America, *The Transportation Problem* (Pamphlet, 1944).

by reason of the fact that user payments could be more closely related to the cost of particular projects.

Financing transportation on a user basis has important advantages. In the first place, it distributes the cost of transportation more equitably among the people. Those who derive direct benefits from transportation pay the cost thereof, while the general taxpayer is relieved of the burden of a service from which he may gain little or nothing. In the second place, it tends to reduce waste. When the understanding is that all expenditures for transportation are to be fully reproductive, less money is likely to be squandered on uneconomic projects. In the third place, it places all means of transportation more nearly upon a plane of competitive equality. This is not only fairer to the investors in unaided enterprises, but it also promotes the distribution of traffic according to the relative economy and fitness of carriers. User charges do not alone assure competitive equality, yet there is greater equality with such charges than without them.

It may be objected that user charges are authoritatively rather than competitively determined; and that unless tolls are employed, they are not levied on the basis of particular projects. Failing in this way to serve as an adequate guide to investment, they do not distribute traffic according to the relative economy and fitness of the carriers. To these objections the reply can be made that transportation prices are not governed strictly by competition, and that it is better to determine user charges according to informed judgment than not to determine them at all.

Another objection is that the imposition of user charges such as tolls on waterways would tend to destroy traffic and make it impossible for many carriers to operate at a profit, thus reducing interagency competition. The obvious answer to this contention is that granting aid to one form of transportation solely to relieve or compete with another is usually not in the public interest, for reasons already explained.[1] Really economic projects can stand user charges. Good illustrations of such improvements are those on the Great Lakes.

Although we believe that transportation costs should generally be collected from users, we do not believe that users should pay for all public outlays. Expenditures that are definitely required for purposes of national defense, or for some other noneconomic objective of public importance, should be met through general taxation. Examples are outlays on naval bases, military roads, and projects for the relief of unemployment. Similarly, part of the cost of highways and streets should be charged to property owners. Landowners are largely responsible for land-access roads; and some street functions, such as provision for pedestrians, drainage, and light, are unrelated to transportation. User payments

[1] Cf. p. 558.

should be based upon a reasonable classification of roadways and upon a fair distribution of costs among users. Formulas employed by the Federal Coordinator of Transportation, or by the Board of Investigation and Research, appear to be defensible.

In the case of multiple-purpose projects such as those of the federal government on the Colorado and Tennessee rivers, user charges for navigation should cover the special costs incurred for transportation plus a fair share of the common costs of all functions. Opinions differ as to the proper basis for allocating the common costs, but the plan employed by the Tennessee Valley Authority seems to be reasonable, even though necessarily somewhat arbitrary.[1] According to this scheme, each purpose should carry its special costs plus a share of the common costs equivalent to the savings which it enjoys through combination in the multiple-purpose enterprise. To the direct costs chargeable to navigation is added that portion of the common costs represented by the ratio between (1) the excess of the cost of providing for navigation alone over the direct costs for navigation and (2) the sum of the excesses for all functions.

Proper determination of user charges also requires a distinction between future and past investments. Future expenditures for transportation should not be made unless it is reasonably certain that the resultant traffic will be of sufficient volume to enable users to bear all costs, including interest on the investment. If such objective is to be attained, public bodies must define ends more rationally, exercise greater care in estimating costs, and make more accurate predictions of traffic. As for past investments, user charges should be based on what the traffic will bear. Since capital has already been sunk, user payments need not cover investment costs unless the traffic will stand all costs without being diverted or destroyed. But operating and maintenance expenses should be met. If this is not possible, the project should be abandoned.

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CHAPTER - - - - - - - - - - TWENTY-THREE

Government Ownership

THIS chapter considers government ownership and operation of transport facilities, with special reference to railroads. Throughout the book we have assumed that private ownership and operation is acceptable, but the system of private enterprise and public control is not perfect and might be discarded even in the United States. As explained later, government ownership is widespread in foreign countries and has been seriously considered from time to time in this country.

Forms of Government Ownership

Direct government participation in transportation is not new. Transport service is so important that its provision has long been regarded almost everywhere as a responsibility in some degree of the state. Publicly constructed waterways, highways, and airways have been the general rule, although there have been a few private canals and roads, such as those mentioned in Chap. II. Government promotion in connection with these forms of transportation, however, has usually been confined to the provision of the way, leaving the conduction of service to private enterprise. An exception in the United States is the Inland Waterways Corporation.

In the case of railroads the government has also sometimes owned facilities without operating them, as in Holland.[1] An example in this country is the Western and Atlantic, owned by the state of Georgia and operated by the Nashville, Chattanooga and St. Louis Railroad.[2] During the thirties government ownership and private operation of all our railways was proposed.

Occasionally the reverse procedure of private ownership and government operation has been adopted. For instance, the street and elevated railroads of Boston are owned by private companies but are operated by public trustees.[3] Other illustrations are operation of the railroads and water lines on the Mississippi River by the United States Railroad Ad-

[1] Acworth, W. M., *Historical Sketch of State Railway Ownership*, p. 27 (1920).

[2] A few municipalities, such as Cincinnati, also own railroads. Sometimes localities both own and operate lines. These carriers are relatively unimportant.

[3] Jones, Eliot, and Bigham, T. C., *Principles of Public Utilities*, p. 714 (1931).

ministration during the First World War, and of the Toledo, Peoria and Western, the Illinois Central, and a number of truck lines by the Office of Defense Transportation for limited periods during the Second World War.[1]

Although separation of ownership and operation has sometimes seemed advisable under special circumstances, government participation in railroad transportation has normally taken the form of public ownership and public operation. Only a small percentage of the total railway mileage of the world is owned by an agency different from that operating it. Division of authority involves conflicts of interest and policy between owner and operator,[2] makes difficult coordination in the improvement of the way and the vehicle, and creates the danger that the public will be forced to assume some of the transportation costs that should be borne by the users of rail service.[3]

In the discussion that follows we shall assume government ownership and operation. For the sake of convenience the shorter term "government ownership" will be used, but it should be understood to imply government operation as well. Unless otherwise indicated, when referring to the United States, government ownership will mean ownership and operation of all or substantially all the railroads by the federal government. Nationalization merely of selected key railroads is conceivable but of doubtful permanence,[4] and ownership by a state or minor government is seldom practicable on a large scale.

Extent of Government Ownership

In most countries of the world public ownership predominates over private ownership. A number of countries own all their railways, and over two-thirds of the countries own a majority of their mileage.[5] Prominent among the countries owning virtually all their railroads are Australia, Belgium, China, Czechoslovakia, Finland, Germany, Italy, Lativa, Norway, Poland, Rumania, Russia, Sudan, Turkey, and Yugoslavia.[6] Some of these, such as Australia, have never had private ownership,

[1] The Toledo, Peoria and Western was taken over by the Office of Defense Transportation because of labor difficulties. This was also true of the Illinois Central.

[2] Government ownership and private operation was tried in Italy, but conflict between lessor and lessee led in 1905 to public operation.

[3] *Report of the Transportation Conference of 1933–1934*, p. 7 (1934).

[4] Nationalization of only a portion of the main-line railroads was not permanent in France.

[5] Data are for the year 1937, corrected to include nationalization of the French railroads on Jan. 1, 1938. See *Universal Directory of Railway Officials and Railway Year Book, 1938–1939*.

[6] We name only those countries having 2,000 or more miles of railroad. Figures showing exact mileages should be used cautiously on account of changes in political boundaries and diversity in the classification of railways.

except to a limited extent; others, such as China, have nationalized their railways after a period of private enterprise.[1] Government mileage exceeds private mileage in Algeria, Austria, Brazil, British Possessions, Canada, Chile, Colombia, France, French Congo, Holland, Hungary, India, Japan, Manchukuo, Mexico, Thailand, and Union of South Africa.

In the other third of the countries of the world private ownership is more important than public. It is practically exclusive in Belgian Congo, Great Britain, Ireland, Spain, and the United States; and private mileage is greater than government mileage in Argentina, Denmark, Peru, Portugal, Portuguese Possessions, Sweden, and Switzerland. The outstanding examples of private ownership are the United States and Great Britain. Although the United States has aided the railroads, it has never owned and operated lines except in the cases of the Alaska Railroad and the Panama Railroad. The explanation of this policy is to be found largely in the following factors: the disastrous experiences of the states with internal improvements, strict construction of the Constitution, a tradition of private enterprise, and the willingness of private investors to finance railroads.[2]

Although most countries own a majority or a substantial portion of their railroads, the total government mileage is less than the private. In 1937 there were approximately 789,000 miles of railroad in the world. After allowing for the nationalization of all the main lines in France, 52.5 per cent of the world's mileage was privately owned, and 47.5 per cent was state owned. Omitting the United States, however, only 31 per cent was private. It should be emphasized also that the trend throughout the world has been toward public ownership. Nations of widely varying characteristics have from time to time nationalized private systems, but seldom have government lines been converted into private. Only in a few states, as in South America, has the latter occurred.[3] In 1913 privately owned mileage was 67 per cent of the world's total,[4] whereas in 1937 it was only a little more than half.

Reasons for Government Ownership

Government ownership has been adopted for various reasons of expediency, not as a matter of principle, and the leading considerations

[1] The Russian railway system, over 50,000 miles in length, is the largest single railroad enterprise in the world.

[2] Pipe-line transportation in the United States is even more exclusively private than rail. Subsidies to pipe lines have been negligible, the carriers being financed and operated by the major oil companies. During the Second World War a few lines were constructed and operated in the interest of national defense by the Petroleum Administration for War.

[3] Acworth, *op. cit.*

[4] *Archiv. für Eisenbahnwesen*, vol. 38, pp. 509–523 (1915).

have not been the same in all countries.[1] Military motives played an important part in the nationalization of railroads in Germany, although it may be observed that more than the one factor entered into the decision, as in other states that have adopted government ownership. Military considerations also greatly influenced Japan and Russia. Promotion of national unity has sometimes been a controlling reason. This factor led Canada to construct the Intercolonial Railway, and it motivated Bismarck in taking over the Prussian railways. Prevention of railroad control by foreign capitalists is an allied consideration, illustrated by Belgium and Switzerland. Another sort of political motive has been a desire to employ railroads to strengthen the country in international trade, as in the case of Germany.

Economic factors have often been highly significant. One such factor, an inadequate supply of private capital, caused some of the early state enterprises in the United States. Lack of capital also led Australia to construct railroads. In that continent gold mining was more attractive to investors than railroading.[2] Financial involvement of the state, as a result of government guarantees of railway securities, explains some of the more important recent cases of nationalization. The heavy drain of interest guarantees upon the treasury forced Brazil to take over certain roads.[3] The Canadian National, created in 1919, is largely an outgrowth of similar obligations assumed by the Canadian government on behalf of the Canadian Northern and the Grand Trunk Pacific, neither of which were able to operate at a profit.[4] Guarantees of interest and dividends and mounting deficits by private companies likewise led to the nationalization in 1937 of the remaining main-line railroads in France.[5]

Government Ownership Issue in the United States

The question of government ownership of railroads in the United States has been by no means a purely academic matter, even though private ownership has generally been accepted. At times of great dissatisfaction with the policies of management, or of financial embarrassment of the carriers, government ownership has been seriously considered as a solution of the railroad problem. It was recommended by the Windom Committee of Congress in 1874, in response to the complaints of the Grangers,

[1] Federal Coördinator of Transportation, *Regulation of Railroads*, Senate Document no. 119, 73d Cong., 2d Sess., p. 14 (1934).

[2] Jones, Eliot, *Principles of Railway Transportation*, p. 537 (1924).

[3] See Duncan, J. S., *Public and Private Operation of Railways in Brazil*, pp. 173–180 (1932).

[4] Fournier, L. T., *Railway Nationalization in Canada*, p. 1 (1935). Investors were unwilling to permit reorganization.

[5] Harcavi, Georges, "Nationalization of the French Railways," *Annals of the American Academy of Political and Social Science*, vol. 201, pp. 217–226 (January, 1939).

and was debated in and out of legislative halls for some years.[1] With the decline in railroad rates and the establishment of federal regulation in 1887, interest in the question gradually subsided, except at the turn of the century, until the period of the First World War. At that time the weakening of carrier credit and the accomplishments under unified operation by the United States Railroad Administration again focused attention upon government ownership. Between the signing of the armistice in 1918 and the return of the carriers to private operation in 1920, nationalization was one of the most widely discussed of the numerous proposals for the improvement of transport policy. The scheme attracting chief attention was the so-called "Plumb" plan, according to which the railroads were to be owned by the government and leased for operation to a federal corporation, which would have no investment in the industry and which would be controlled by directors chosen by the classified employees, officials, and the President of the United States. Though actively supported by organized labor, the Plumb plan was rejected. A widespread reaction against government interference in economic affairs had swept the country, and the control of wages, hours, and working conditions under the proposed plan was vested in a board composed solely of representatives of employees. For these and other reasons, strengthened regulation through passage of the Transportation Act of 1920 was believed by most authorities to be a better alternative. During the prosperous twenties, nationalization was more or less forgotten, only to be recalled with the onslaught of the depression of the thirties. After reviewing the plight of the carriers, in accordance with the Emergency Railroad Transportation Act of 1933, the Federal Coordinator stated that, logically, public ownership met the known ills of the situation better than any other remedy, although it was not recommended at the time primarily because of the serious financial condition of the country.[2] Instead of a shift in ownership, now legislation was again proposed. The Second World War brought even greater prosperity to the railroads than the twenties, and attention was once more diverted from nationalization. But the issue may well reappear in the postwar period.

The circumstances most likely to bring about government ownership in the United States are of a practical nature, as in other countries. One of the most serious threats to private enterprise would be the impairment of railroad credit and the inability of the carriers to attract necessary capital. This danger was well illustrated prior to the Second World War. As we have seen, cessation and diversion of railway traffic, inadequacy

[1] Cf. p. 149.

[2] Federal Coordinator of Transportation, *op. cit.*, p. 30. Other reasons for not recommending nationalization were that competing forms of transportation would create difficulties and that the people might not refrain from political interference with management.

of earnings, poorly balanced financial structures, uncertainty as to government policy, and other factors made it impracticable for most carriers to secure funds from the investment market and led to loans from the Reconstruction Finance Corporation amounting by 1943 to almost $850,000,000.[1] Although about half the loans had been repaid, continued lending on such a scale might so involve the government as virtually to make nationalization mandatory, duplicating the experience of Brazil, Canada, and France. Heavy demands upon the Treasury would probably not long be tolerated; and since many railroads are indispensable, the government would in all likelihood take over the losing lines. It might also gradually absorb other lines because of the difficulty in maintaining competition between the public and the private systems.

As to whether the companies can carry on without resort to the government depends upon various conditions. One factor will be the extent of the diversion of railway traffic to other modes of transportation. This in turn will be partly a matter of promotional policy toward competing forms of transport and partly a question of the ability of the railroads to reduce costs and improve service. Costs will be affected by technological improvements, the progress of rationalization, and the demands of organized labor.[2] A second factor related to credit will be the thoroughness with which a substantial number of weak roads are reorganized, and the extent to which the carriers voluntarily reduce their indebtedness.[3] Many lines have been unable during business depressions or even in normal years to support their capitalization, and restoration of credit will necessitate drastic reductions in fixed charges. A third factor affecting credit will be the policies of the Interstate Commerce Commission in regulating rates.

Government ownership of railroads could also be caused by a breakdown of regulation. Should the public become convinced that regulation has failed to prevent excessive rates or unsatisfactory service and that it cannot be made effective, nationalization would probably be adopted as the only rational alternative. Regulation is frequently alleged by the carriers to be unduly restrictive and is sometimes said to be no longer necessary, except in a very limited way, on account of interagency

[1] *Annual Report of the Interstate Commerce Commission*, 1943, p. 33.

[2] Rationalization refers primarily to the elimination of wastes through coordination and consolidation.

[3] Reorganization and purchases of bonds during the Second World War substantially reduced outstanding debts. As of Oct. 31, 1944, the Commission had approved plans of reorganization for 29 railroads which involved the reduction of long-term debt from $3,176,000,000 to $1,750,000,000, much of the latter being in the form of income bonds. During 1943 Class I line-haul railroads and their lessors, excluding companies in receivership and trusteeship, reduced their long-term debt by 4.43 per cent. *Annual Report of the Interstate Commerce Commission*, 1944, pp. 13–15.

competition; but for reasons set forth in the next chapter this does not appear to be a sound conclusion. Among the factors that will determine the success of regulation are the promptitude of regulatory authorities in adjusting laws and rulings to changing conditions, the ability and impartiality of the members of control bodies, the financial and moral support for the commissions, the maintenance of proper relationships between the administrative agencies and other branches of the government, and the attitude of the companies.

In considering the probable results of government ownership as a policy for the United States, two general types of inquiry are usually pursued: one consisting of a survey of foreign or domestic experience, the other of an analysis of the theoretical advantages and disadvantages of nationalization. The first sort of consideration would appear to be more or less useless and inconclusive. This is partly because there are various criteria of success. Government ownership has been adopted in foreign countries for a number of reasons; and it might be judged favorable on the basis of one objective, but a failure in other respects. Even if the standard of accomplishment is financial outcome, sweeping conclusions are unwarranted. In some countries, such as Prussia, state railroads have normally been operated at a profit; in others, such as Australia, deficits have been frequent. Results are also indefinite where mixed ownership occurs, as in Brazil, Canada, and France. There the government lines have generally been less profitable than the private, but the nationalized railroads have been those which could not meet their obligations under private ownership. It cannot fairly be said that the poor showing of the Canadian National in comparison with the Canadian Pacific is due primarily to the fact that the former road is publicly owned. In any case, experience abroad throws only limited light on probable results in the United States; for economic, geographic, political, and social conditions are different.[1] Although alleged differences between countries in relation to government ownership have doubtless been exaggerated, it would be difficult to select a nation wherein pertinent circumstances would be reasonably comparable with those in the United States.

Neither is our own experience with government ownership very helpful. Instances of public ownership and operation of transport facilities in the United States under normal conditions have been insignificant. Operation of the railroads by the United States Railroad Administration during the First World War is often said and popularly believed to be materially relevant to the question, but in reality this experience is not indicative of the probable outcome of nationalization. The net cost to

[1] Some of the ways in which operating conditions in the United States are different from those in the countries of western Europe are as follows: the mileage of railways is greater, the density of mileage is less, the average haul is longer, and wage rates are higher.

taxpayers of government operation from December, 1917, to March, 1920, amounted to more than $1,600,000,000, and this is cited over and over as evidence of the undesirability of government ownership, yet the argument is misleading. From an operating point of view, the Administration accomplished much, especially during the period of active conflict, and the financial deficit is to be explained primarily by the deliberate policy of keeping the level of rates low so as to check inflation. In clearing up congestion the government succeeded where the companies failed.[1] Although rates should probably have been increased more than they were, the failure to do so did not increase the cost of transportation to the country as a whole, and in times of war profit may not be the best standard for rate making. Railroads were operated at a loss in England and France as well as in America. Mr. Walker D. Hines, an authority on wartime operation, concluded: "In the interest of clear thinking, it is important to realize that Federal Control does not constitute a sound argument either for or against permanent peacetime government ownership and operation. What Federal Control does primarily is to illustrate in a particularly concrete and visible way the disrupting and destructive influences of war, strictly similar in effect to what would have been exemplified by private war-time control, though differing in various details.

"The effect of Federal Control was to provide, as to the country's war needs, and as to the interests of railroad security holders, a protection which had become impracticable on the part of private control in view of the emergencies and limitations with which it was confronted. Any fairly balanced study of the situation as a whole must lead to the conclusion that in periods of extraordinary difficulty the Government's temporary operation of the railroads accomplished with credit the objects which made resort to it imperative."[2] Other unbiased authorities have arrived at similar conclusions.[3]

The weighing of government ownership on the basis of theoretical considerations likewise leads to indefinite conclusions. Nationalization has advantages, but their realization depends upon a number of problematical circumstances. Similarly, private ownership has advantages

[1] Operating improvements included direct routing, pooling of locomotives and cars, curtailment of passenger service, store-door delivery, standardization of equipment, operation of solid trainloads, and unification of terminals. These things could be accomplished more easily under government control than under private operation because management was unified, endowed with extraordinary powers, and could act without regard to cost.

[2] Hines, Walker D., *War History of American Railroads*, pp. 237, 239 (1928).

[3] See Cunningham, W. J., *American Railroads*, Chaps. 9–14 (1922); Daggett, Stuart, *Principles of Inland Transportation*, Chap. 31 (1934); Jones, *op. cit.*, Chaps. 21–22; Miller, S. L., *Inland Transportation*, Chap. 11 (1933); and Sharfman, I. L., *The American Railroad Problem*, Chaps. 4–5 (1921).

fully accomplishable only under ideal conditions. In discussing the advantages and disadvantages of government ownership, we shall therefore make no attempt to determine whether it is or is not the most desirable policy in general. Our only endeavor will be briefly to present the arguments without bias. The reader interested in a more detailed examination should experience little difficulty in finding fuller discussions, for the literature on government ownership is voluminous. Unfortunately, much of the writing is one-sided. The Socialists find little fault with nationalization. On the other hand, the conservatives believe it to be a calamity. As Commissioner J. B. Eastman remarked, "A belief or disbelief in public ownership and operation has in fact become a shibboleth by which the conservative test political and economic sanity."[1]

Advantages and Disadvantages of Government Ownership

The advantages and disadvantages of government ownership will be analyzed under the following headings: availability of capital, cost of service, rate making, improvement and extension of service, and labor relations. The question of taxation need not be discussed, although it may be noted that tax revenues would be reduced by nationalization unless the railroad administration made payments in lieu of taxes.

Availability of Capital

An advantage of government ownership subject to little qualification is that it would make available for the railroad industry an adequate supply of capital. The carriers are said to need normally upward of a billion dollars of new capital per year; and unless the credit of the government were impaired, these large sums could be readily obtained. Funds can also be secured under private ownership, when the prospects for earnings are bright enough, but the capital supply would be more certain under government ownership. In the case of weak railroads this would be an especially significant advantage.

Cost of Service

Under ideal conditions government ownership could reduce the cost of performing railway service and make possible lower rates. First, nationalization would probably mean a saving in capital charges. Since the government's credit is ordinarily stronger than that of a private corporation, the interest on the bonds issued to purchase the railroads would tend to be less than the interest and dividends of the companies. If we assume that the railroads actually earn a return of 5 or 6 per cent

[1] *Proceedings of the National Association of Railroad and Utilities Commissioners*, 1927, p. 366.

on the investment and that the government could market its bonds at a cost comparable to that incurred during the Second World War, this saving might be substantial. However, insofar as the railroads fail to earn a normal return if privately owned, the gain would be only hypothetical. It is also true that the addition to the public debt as a result of nationalization would tend to increase the interest rate on government bonds, especially if it appeared that railway earnings would not cover costs. Moreover, total capital charges might be greater under government than under private ownership. Governments are usually generous in taking over private property, and if an excessive price were paid for the railroads the gain through reduced interest rates would be nullified.[1] The advisability of nationalization might therefore turn on the purchase price. Should the price be based upon the capitalized earnings of the railroads in normal times, it would be relatively low; but there are other standards of valuation that might be adopted. Strong arguments would be offered in behalf of purchase on the basis of the rate-making value of the carriers, which was determined by the Interstate Commerce Commission in the Fifteen Per Cent Case of 1937 to be about $21,000,000,000.[2] This was more than the original cost less depreciation, although not so much as the cost of reproduction less depreciation.[3]

Second, nationalization would make possible savings through the unification and coordination of service. Under government ownership the railroads would be controlled by a single authority, so that terminals could be unified; equipment could be pooled and standardized; circuitous routes and crosshauling could be eliminated; unprofitable lines could be abandoned; traffic expense could be reduced; and interline accounting could be curtailed. Competitive wastes could also be reduced under private ownership, by means of consolidation and cooperation; but there is much opposition to the curtailment of competition between railroads left in private hands. Under government ownership competition could be eliminated, and the resultant savings maximized, with less fear of monopolistic abuses; for the motive of the management would probably be service rather than profit.

It should be emphasized, however, that the economies of unification, although substantial,[4] might be prevented by the opposition of labor threatened with unemployment, or of communities opposing the abandonment of lines. Furthermore, the savings could be offset by the inefficiency

[1] An example of public purchase at an excessive price is the Seattle, Wash., street railway system. See Jones and Bigham, *op. cit.*, p. 738.

[2] *226 I. C. C.* 41, 62 (1938).

[3] Land values were based upon the value of contiguous land.

[4] Cf. Chaps. XVIII and XX.

of public management.[1] It would be difficult at best to manage the railroads of the United States as a single system, even though the divisional plan of organization were adopted. The government might be unable to attract and retain as capable managers as the private corporations, on account of an unwillingness to pay adequate salaries, or because of red tape and political interference with management.[2] Officials and employees might be selected through the "spoils" system. The friends of nationalization allege that these difficulties could be avoided by the creation of semiindependent public corporations, such as the Tennessee Valley Authority, and by severely penalizing appointments at the solicitation of government officers, but it is not certain that effective control could be achieved in this way.[3] It is also possible that the incentive toward efficiency would be weakened by government ownership, even though management were free from arbitrary restraints and political influences. Under private ownership results are demanded; and if they are not forthcoming, managers will not be rewarded or may be discharged. Under government ownership promotion is likely to be based upon length of service, and dismissal is apt to occur only when obviously justified. Insofar as initiative is inadequately rewarded and mediocrity is inadequately penalized, public management would tend to be less efficient than private. Those who favor government ownership say that social service is as strong a motivating force as financial results, but for the typical manager this seems unlikely to be true. They also allege that the separation of ownership and management perpetuates inefficiency in private corporations, and that the restraints of regulation counteract the incentive toward efficiency. It is reasonable to answer, however, that the owners of large corporations, at least those who hold substantial blocks of stock, still play an important part in the selection and control of managers, and that efficiency can be rewarded under a program of regulation. Instances of inefficient private operation can of course be found.

Third, government ownership would reduce the costs of regulation. Much of the outlay incurred by the government in connection with litigation and commission control would be eliminated. Expenditures of the railroad industry for these purposes would also be reduced. Less would need to go for the cultivation of a favorable public opinion. But some regulation would be necessary even under government ownership, in order to prevent unwise construction, arbitrary rate adjustments,

[1] Our discussion of efficiency of management is drawn in part from Jones and Bigham, *op. cit.*, Chap. 15.

[2] It is argued that the federal government tends to underpay important officials.

[3] It has been said that no country with a democratic constitution, Switzerland possibly excepted, has succeeded in maintaining a permanent severence between management and direct political control, Acworth, *op. cit.*, p. 103.

manipulation of accounts, and other abuses by the railroad administration. When the relatively small costs of regulation are taken into consideration, the saving would not be large in comparison with the total outlays for service. It would probably amount to less than 1 per cent of the gross receipts of the carriers.[1]

Rate Making

Government ownership could make possible lower rates other than through economies. Under private ownership overcapitalization has occurred, and this tends to increase rates through its effects upon the rate base and the rate of return. Under government ownership overcapitalization would probably disappear, since there would be little reason for security issues in excess of the investment.[2] This argument can be answered by saying that the railroads as a whole are not overcapitalized and that regulation can prevent overcapitalization. However, the prevention and elimination of overcapitalization are difficult in actual practice, as we have seen.[3] Individual lines are overcapitalized.

Another way in which government ownership could promote lower rates would be through the elimination from the rate base of the unearned increment in land values. In the past, land utilized by the carriers has been valued for rate-making purposes according to the value of contiguous land, which reflects the upward trend in values due to the increase in population and industry. The unearned increment would not be included in the rate base under private ownership if the prudent investment standard of valuation were adopted, but until recently at least the Supreme Court has not approved valuations based upon the prudent investment. In the case of terminals located in large cities, the exclusion of rising land values when prescribing rates would be of considerable significance.

Government ownership is sometimes supported from a rate-making standpoint irrespective of its relation to the level of charges. If the railways were nationalized, rates could be adjusted so as to encourage the decentralization of population, build up unprosperous areas, relieve depressed industries, and the like. An objection to this policy is that it would tend to increase taxes. It would appear to be justified only if aid through reduced rates were the best practicable procedure and if the benefits were sufficiently general to justify the tax levies. Otherwise, the users of railway service would fail to pay their fair share of the cost of transportation.

Another alleged advantage of nationalization is that it would eliminate

[1] See *Proceedings of the National Association of Railroad and Utilities Commissioners*, 1926, p. 39.

[2] Illegitimate profits through security manipulation would also disappear.

[3] Cf. p. 466.

unjustified discrimination in railroad rates. Although this gain might be realized, on account of the tendency of the government to treat all with impartiality, indefensible discrimination can be prevented, through regulation, under private ownership. Every fair-minded critic must admit that personal discrimination and the grosser sorts of local and commodity discrimination have been greatly reduced by the Interstate Commerce Commission.

Against these possible advantages of government ownership from the standpoint of rate making should be set the danger that rates would become inflexible.[1] Under private ownership rates are adjusted according to the conditions of demand so as to stimulate traffic and increase profits, but the government might accord more weight to the distance principle because of its simplicity. Although distance rates have outstanding advantages, their widespread application might reduce the total volume of traffic and greatly disturb industry, especially in the short run.

The government might also regulate rates so as to promote its own industry. Curbs might be placed upon rival modes of transportation.[2] A frequently expressed fear of the advocates of private enterprise is that public ownership of the railroads would eventually result in the nationalization of all means of transportation. But this is one of the many uncertainties of government ownership.

Improvement and Extension of Service

Since the capital supply would be adequate, government ownership might facilitate the improvement of service. Under private ownership the carriers sometimes find it difficult to modernize their plants, on account of inability to market securities. Sometimes the companies also refuse to improve service in order to pay more liberal dividends. However, public bodies tend to be conservative, and the government might not see fit to introduce improved methods. The authorities in control might desire to incur political favor by reducing rates instead of adopting better devices, since the economies of technological improvements are frequently realized only in the long run. Competition among railroads is a powerful spur toward improved devices, and under government ownership it would be lacking unless rival systems were created. Mr. W. M. Acworth, an English authority on railroads, has made the following sweeping statement: "In all the history of railway development, it has been the private companies that have led the way; the State systems

[1] It is alleged that rate structures have been rigid in New Zealand. See *Quarterly Journal of Economics*, vol. 23, p. 670 (1909).

[2] It is said that France and Germany restricted competing modes of transportation in order to protect their own enterprises. It will also be recalled that the state of New York pursued a similar policy as to the Erie Canal.

that have brought up the rear. It would be difficult to point to a single important invention or improvement the introduction of which the world owes to a State railway."[1] Although the railroad companies may be less progressive than strictly competitive enterprises, their record of technological improvements is not unimpressive, particularly since the rise of competing forms of transportation.[2]

Even if the government did adopt the best methods, it might offset their effects by unwisely extending or refusing to abandon service in response to the political demands of particular areas. The "logrolling" tactics that have characterized the improvement of our waterways indicate that uneconomic service would be a real danger of government ownership. It could be prevented to some extent through regulation, but this would mean conflict between the governing bodies.

Labor Relations

It is rather generally admitted that government ownership would lead to the improvement of labor conditions.[3] Since the government would probably be more interested in welfare than in earning profits, it might raise wages, shorten hours, and create better working conditions. Insofar as these concessions promoted more harmonious relations between management and labor, they would encourage increased operating efficiency. They would also reduce the costs involved in labor negotiations, help eliminate strikes, and promote greater continuity of service. Although no serious work stoppages have actually occurred of late, there have been disastrous strikes in the past and threatened tie-ups recently.[4] It is argued that Congress would promulgate rules prohibiting strikes, even if labor were dissatisfied with its treatment at the hands of the government.

Although nationalization would doubtless improve labor conditions, the danger is that the government would treat employees more favorably than justified by their productivity, carrier earnings, comparable employment, costs of living, or other factors. Under private ownership, management resists the demands of labor in the interest of profits, but under government ownership resistance would probably be less effective. Although much would depend upon the attitude of the public and of the existing administration, the large number of organized railroad workmen would wield a powerful influence, especially when the

[1] Acworth, *op. cit.*, p. 61.

[2] Cf. p. 36.

[3] Nationalization of the railroads in Italy and Switzerland led to higher wages and shorter hours. Similar concessions occurred in the United States under government operation during the First World War.

[4] Cf. pp. 526–528.

major parties were more or less evenly divided. Their influence might be weakened if labor were employed by an independent government corporation, yet the political power of the unions could be great enough to dictate the management and policies of the corporation, at least if supported by organized labor in general. It is conceivable, of course, that labor would gain more under private than under government ownership, on account of the general opposition to strikes in public industries. Concessions to railway labor during the First and Second World Wars were very liberal in the opinion of many, and they were secured largely through threatened strikes against private managements.

It is not certain that government ownership would eliminate strikes. In fact, tie-ups have occurred on state railways in other countries.[1] Although the strikes were there dealt with in a summary fashion, a similar policy might not be followed in a democratic country like the United States, at least during peacetimes. The advocates of nationalization sometimes point out that the postal employees have never struck and that railway labor would not do so; yet it may be observed in reply that the former workmen have never had a tradition of collective bargaining. During recent years there has been considerable opposition in the United States to curbs upon collective bargaining, which generally implies utilization in last analysis of the strike weapon.

Conclusions

We conclude that nationalization of the railroads of the United States is not now warranted on theoretical grounds. The relative advantages of government over private ownership, in the light of the political dangers involved, are not great enough. Moreover, in our opinion, nationalization is unnecessary on practical grounds. It is needed neither from a political nor a social point of view. The union is already firmly established; foreign capitalists do not control the carriers; world trade and social objectives can be promoted in other ways; and the railroads have shown, with the aid of the Office of Defense Transportation, shippers, and the Interstate Commerce Commission, that they can meet the demands of national defense when privately owned. Equipped with a reduced number of cars and locomotives, they handled the huge traffic created by the Second World War without serious congestion. Neither is nationalization required from an economic point of view. Adequate capital can be attracted in the railroad industry under private ownership, if plant and capitalization are properly readjusted, if the demands of labor are reasonable, and if rational regulatory and promotional policies are pursued. The companies are not overwhelmingly indebted to the government

[1] Among others, France may be cited as an example.

and need not necessarily be so in the future. And regulation has not yet been a failure, even though imperfect. Suggestions for the improvement of regulation and promotion are set forth in the next chapter.

It is possible, of course, that the policies essential to the maintenance of railroad credit will not be pursued and that government ownership will become imperative. Readjustments of capitalization are painful, the demands of organized labor are insistent, and sound promotional procedures are difficult to establish. Should nationalization take place, we do not believe that the results would be so calamitous as sometimes pictured, especially if regulation were retained. Although government ownership would create new problems, it would solve others and could be made, in our opinion, reasonably acceptable. Among the conditions prerequisite to success are an informed public opinion, the elimination of politics from management, fair and impartial treatment of labor, and the selection and retention of capable managers.

REFERENCES

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CHAPTER - - - - - - - - - - - TWENTY-FOUR

Future Regulatory and Promotional Policy

THIS chapter deals with the general improvement of transportation policy. The principal questions considered are the following: Is mandatory regulation now necessary? Should public control apply to all, or to only certain modes of transportation? If not relaxed, how can regulation be strengthened? What changes in promotional procedure are desirable? Answers to these questions have been implied in preceding chapters, but the suggestions there made have not been fully explained and brought together.

If private ownership is to survive, future transportation policy must be so formulated that the income of the carriers as a whole will be large enough on the average to attract adequate capital. But monopolistic earnings must be prevented. The benefits of technological progress and more effective transport methods should be shared with the public, and no mode of transportation should be arbitrarily restricted in favor of a less efficient one. All should be coordinated in the true economic sense, each occupying that field in which it is best fitted to perform, with overlapping and competition only where feasible under sound principles of pricing. Such is the intent of the national transportation policy declared by Congress.

Is Thoroughgoing Regulation Necessary?

When the supply of service is viewed as a whole, competition among the various modes of transportation is so effective, according to the belief of some persons, as to make public regulation no longer necessary. Other spokesmen, taking a moderate view, believe that the more monopolistic types of transport should be controlled, but that the competitive forms—water, highway, and possibly airway—should not be regulated. Still other authorities say that regulation should be confined primarily to the prevention of specific abuses, such as exorbitant or discriminatory rates. The positive approach to regulation should be abandoned.

It is admitted that regulation, at least of the negative kind, was essential when tne railroads practically monopolized intercity transportation; but since the rise of the railroad competitors, noncompetitive traffic

is alleged scarcely to exist. Almost all shippers in every location are said to have a choice of two or more like or unlike carriers, for virtually every variety of commodity and haul is handled by more than one independent operator. Under such conditions, it is contended that the self-interest of the companies can be relied upon to keep rates as low, or service as good, as possible. The carriers will charge the lowest economical rates in order to secure a maximum volume of business. If such rates are not charged, potential competition will prevent the movement of paying traffic. The shipper can provide his own transportation. On the other hand, it is argued that rates and earnings will not fall too low. Failure of the inefficient will in the long run so adjust the supply of service that efficient concerns can earn a reasonable return.

Thoroughgoing regulation is said to be not only unnecessary, and thus wasteful, but also positively harmful.[1] One alleged disadvantage is that regulation, by controlling the supply of service, protects vested interests, thereby keeping alive outmoded forms of transportation, preventing the abandonment of useless facilities, and delaying the readjustment of inflated capital structures. A second argument is that regulation tends to stabilize rates on a higher level, by relating them to high-cost forms of transportation, or to high-cost companies. A third claim is that regulation, by fixing rates on the basis of cost, dulls the incentive to reduce waste and improve service. Recognition of the right of the companies to earnings over and above operating costs encourages the padding of expenses. A fourth contention is that regulation involves so much delay and red tape that in effect it prevents the adjustment of rates and service to changing conditions.

Competition is of course normally more intense and more widespread in the transport industry than formerly. Nevertheless, it operates too imperfectly, in our opinion, to justify much relaxation of regulation. Although the points of regulatory emphasis may need to be modified, public control should remain comprehensive. By this we mean coterminous with the entire field of transportation, and applicable to the extension, coordination, and abandonment of service, to maximum and minimum rates, to intercorporate relations, to the issuance of securities, to accounting, and to related matters.

Competition is really effective only where the number of carriers is so large that the independent action of one has a negligible effect on the market situation, and where service is so standardized that there are no differences in the speed, convenience, reliability, or other qualities of service. Obviously, the conditions surrounding the supply of transport

[1] Regulation of the profits of public utilities is criticized in Cabot, Philip, "Public Utility Rate Regulation," *Harvard Business Review*, vol. 7, pp. 257–266 (April, 1929); pp. 413–422 (July, 1929).

service do not meet these requirements.[1] Some modes of transportation are more or less restricted as to location. Others are more ubiquitous, but many localities must depend primarily upon one mode. In some transport industries there exist a large number of companies, in others a relatively small number; but even in those industries having the largest number, operators are not evenly distributed. As a rule, there are numerous concerns only where traffic is dense. Some types of carriers have an advantage in speed on the long haul; others are faster on the short haul. Some carry almost every kind of commodity, but others specialize. Some traffic is handled by a given agency at such a low cost that other agencies cannot participate. Costs are largely constant in some industries and largely variable in other industries. Explanations and illustrations of these features of the transport market were set forth in Chaps. III and IV.

Since costs and service characteristics are different in the various industries, a considerable degree of monopoly occurs in transportation, with respect to places, length of haul, size of shipment, and kind of commodity. Competing types of carriers limit the monopoly power of any one agency, but they do not entirely eliminate it. It follows that rates on some traffic can be unduly discriminatory or unreasonably high. A given carrier will of course endeavor to secure a maximum profit and if, through the stimulation of traffic, more can be earned at low rates than at high, rates are likely to be reduced; but there is no reason to assume that rates will necessarily be so reduced as to provide no more than a reasonable profit. It would be an accident if the profits maximized between the floor of out-of-pocket costs and the ceiling of potential competition corresponded to the profits that ought to be exacted in the public interest, or to the capital charges that would need to be covered under a scheme of public ownership.[2]

Regulation is also desirable for reasons other than the prevention of monopolistic and discriminatory rates. For one thing, it is needed to prevent waste of capital and needless duplication of facilities that clutter up the highways of commerce. Without some control over entry into the transportation business, promoters of enterprises, acting independently, are virtually certain to provide more facilities than needed, as the history of almost every form of transportation shows. Especially is this true when the government encourages construction irrespective

[1] An excellent discussion of monopolistic competition in transportation is Behling, B. N., *The Nature and Control of the Transport Market* (Mimeographed, National Resources Planning Board, 1941).

[2] For discussions of this point as related to public utilities see Gray, H. M., *Journal of Land and Public Utility Economics*, vol. 5, pp. 242–248 (August, 1929); and New York, *Report of Commission on Revision of the Public Service Commissions Law*, pp. 374–377 (1930).

of an adequate demand for service. Such encouragement has occurred under relief and "logrolling" programs.[1]

Still another reason for regulation is to stabilize rate structures and protect the credit of the carriers as a whole. The provision of service under varying conditions of cost prevents the prompt adjustment of supply to demand; so that without regulation, earnings even of the efficient are depleted, rates become uncertain, and service is impaired, especially during periods of business depression and rapid technological changes. This is well illustrated by the chaotic state of the transportation market during the decade of the thirties. In an industry of such vital importance as transportation a reasonable stability is much to be desired, not only from the point of view of the day-to-day operations of shippers, but also from the point of view of the long-run interests of shippers and the public. Remunerative as well as low rates are defensible.

Finally, thoroughgoing regulation is needed in order to promote coordination in transportation. Unless all carriers are regulated, adequate facilities for the interchange of traffic will not be arranged, for the individual carrier will endeavor to protect his own haul, even though a different route may be more economical from the public point of view. Neither will traffic be divided according to the relative economy and fitness of the various modes of transportation. All types of carriers possess some degree of monopoly and tend to quote rates below cost, for one reason or another, as previously explained. Since monopolistic powers and the ability to quote rates on an out-of-pocket basis are not the same for all industries, in the absence of regulation traffic may fail to move by the most economical means of transportation. It may fail to do so in the long run as well as in the short run, because that industry best able to meet the needs of commerce and national defense may be unable to attract or keep in use the labor and capital needed for service. On the other hand, an outmoded but competitively stronger type of carrier may continue to function.

On the policy of relaxing regulation, the Federal Coordinator of Transportation concluded, "Any plan of free and unrestrained competition in transportation would be in the teeth of experience. In the case of the railroads it was given a prolonged trial and found wanting many years ago. The results were bad for both the railroads and the country. The present tendency is to place competition under some measure of restraint in industry generally. Uncontrolled competition in transportation would make rates and charges utterly unstable and undependable and invite much the same abuses as existed in the railroad 'rebate' days. It would intensify the financial demoralization of all classes of carriers. It would be particularly dangerous, if indulged in by the railroads, because there

[1] Cf. p. 558.

is still a very considerable volume of railroad traffic upon which other forms of transportation do not encroach. The tendency, as in the old days, would be to exact the last possible cent from such traffic and make rates on the competitive traffic low enough to stifle the competition. The other forms of transportation have no such reserves of noncompetitive traffic to sustain their endurance."[1] Our account in Chaps. V to VIII of the development of the legislative structure indicated that each of the major regulatory statutes have been enacted, sometimes over strong opposition, in response to real needs; and no convincing evidence has been adduced to show that the circumstances which gave rise to the legislation would not recur if the laws were repealed.

This does not mean that regulation should entirely crowd out competition, although it necessarily involves some restraint upon rivalry. Competition and regulation can function together, the latter supplementing rather than supplanting the former, according to circumstances in given cases. The same sort of regulation need not be imposed upon every type of carrier, and the same rules need not be applied to every situation. Properly administered, a system of regulation couched in general terms can be made flexible enough to permit progress in transportation, at the same time promoting an orderly development. It is possible to realize in considerable degree the advantages of competition and at the same time to avoid some of its disadvantages.

It is of course true that regulation affords protection to established carriers, as indicated in the chapter on the Regulation of Service. But as there explained, it does not necessarily prevent the institution of more efficient service. Certificates and permits are designed merely to prevent needless facilities. Regulation also tends to stabilize rates on a higher level than would apply under unrestrained price cutting, yet this is justified insofar as rates fall below reasonable minima. Acceptable minimum standards were discussed in the chapter on Intercarrier Rate Relations. A high-cost criterion was found to be indefensible. It must likewise be admitted that regulation inevitably interferes with management and leads to divided responsibility to some extent; but if wise, it will be kept within proper bounds and will reward efficiency. The courts have recognized that the regulatory authorities are not the managers of the companies, and no substantial evidence has been gathered showing that the Interstate Commerce Commission has unnecessarily invaded the field of management. In the words of the Commission, "There is gross exaggeration in the idea that every act of the railroads is subject to regulation. The railroads have a large degree of initiative in the making of their rates, and have freely made a multitude of reductions to meet

[1] Federal Coordinator of Transportation, *Regulation of Transportation Agencies*, Senate Document no. 152, 73d Cong., 2d Sess., pp. 58–59 (1934).

competition. We have no power to control their passenger service, and exercise very little control over their freight service. They select and pay their officers without supervision or hindrance. Nor do we undertake to tell them what equipment and supplies they may buy, how they shall operate their shops or maintain their tracks, what rails, ballast, and ties they shall use, what stations or other buildings they shall erect, what construction contracts they shall let, or how they shall manage their affairs in many other ways."[1] Similar statements could be applied to modes of transportation other than railroads. Although the procedures of the Commission are frequently slow, it should be emphasized that large issues are often at stake and that great care must be exercised in reaching decisions. We conclude that regulation is more acceptable than free competition, or monopoly, even though it does not always function perfectly. Doubtless most of the carriers themselves would not welcome untrammeled competition, although spokesmen for the industries are prone to criticize regulation.

Improvement of Regulation

If public control is necessary under the existing system of private enterprise, regulation should be continually improved so that it will contribute what it can toward the solution of transportation problems. Among the numerous proposed changes in present policy we shall discuss the following: (1) concentration of regulation under one agency, (2) control of carriers or functions now exempt, (3) pooling of the proceeds of railroad rate increases, (4) creation of integrated transportation companies, (5) compulsory consolidation and coordination, and (6) reorganization of the Interstate Commerce Commission. The discussion will relate primarily to federal regulation.

1. The movement of traffic today is largely a transportation problem, and not a railroad, waterway, highway, pipe-line, or airway problem. The various agencies interlock in many ways. Regulation of all modes of transportation should therefore be placed in the hands of a single commission. Since unified federal control has already been accomplished with respect to all modes except airways, this means that the authority of the Civil Aeronautics Board should be transferred to the Interstate Commerce Commission. The chief arguments in favor of separate commissions are that each form of transportation has peculiar problems which require specialized attention, and that separate bodies can act more promptly than a larger centralized agency; but these arguments can be answered through reorganization of the Interstate Commerce Commission. The case for unified regulation was succinctly stated by the Federal Coordinator of Transportation in the following words: "Separate com-

[1] *Annual Report of the Interstate Commerce Commission*, 1938, pp. 7–8.

missions would each have a partial and fragmentary insight into the situation, and each would tend to become the partisan of its own particular form of transportation, at least in its relation to others. Policies would pull in conflicting directions. Those invoking regulation would have a series of tribunals to deal with, with no assurance that what was done by one might not, in effect, be undone by another. A wholly unnecessary multiplication of bureaus and departments would become necessary. The regulation of joint rates of two or more forms of transportation would create complications."[1] It may be added that difficulties would also arise in connection with the approval of integrated transportation companies. As indicated below, we believe that limited organization of such companies should be permitted.

2. If public control is to be thoroughgoing, attention should be devoted to the closing of certain gaps in the regulatory structure. An obvious gap is the failure of the federal government to provide for the regulation of the issuance of securities by air and water lines. Other gaps relate to water- and motor-carrier exemptions. It will be recalled that the Transportation Act of 1940 and the Motor Carrier Act of 1935 made the exemption of specified kinds of water and motor transportation absolute rather than conditional upon the approval of the Interstate Commerce Commission. Although some of the exemptions appear to have been justified on the ground of reducing the burden of work upon the Commission or on account of the absence of interagency competition, other exclusions should probably now be transferred to the conditional class. Action should depend upon study and recommendation by the Interstate Commerce Commission.

Still another gap has become significant—the lack of commission jurisdiction over rate-making bureaus. Certain of these agencies have been charged by the Department of Justice with violating the antitrust laws, and in the case of State of Georgia *v.* Pennsylvania Railroad Company, decided in 1945, the Supreme Court agreed to consider an alleged conspiracy arising through the bureau method of making rates.[2] According to the dissenting opinion of four justices, this decision meant ajudication of rates before prior consideration by the Interstate Commerce Commission. In order to prevent such judicial interference by way of appeal to the antitrust laws and to preserve the advantages of cooperative rate publication,[3] rate-making bureaus should be placed under the jurisdiction of the Commission.[4] Control of rates fixed by the bureaus does

[1] *Report of the Federal Coordinator of Transportation, 1934*, House Document no. 89, 74th Cong., 1st Sess., p. 14 (1935).

[2] *89 Sup. Ct.*, Law. ed., 758.

[3] For these advantages see p. 281.

[4] This has been recommended by the legislative committee of the Interstate Commerce Commission. *Traffic World*, vol. 75, pp. 1117–1118 (Apr. 28, 1945).

not fully meet the problem; for according to the majority of the Supreme Court, complainants have no recourse against the bureaus except through the courts.

3. In order to facilitate increases in the general level of railroad rates and to strengthen needed short lines, the Interstate Commerce Commission should be authorized to require the pooling of the proceeds of horizontal rate increases. Section 5(1) of the Interstate Commerce Act permits pools of earnings, but pooling arrangements must be assented to by all the carriers involved. The case for compulsory pooling was well stated by Commissioner Eastman in the Fifteen Per Cent Case.[1] In that instance the rate increases were made necessary by the needs of weak lines and not of all carriers; the proceeds were to be used only to prevent defaults in fixed charges, so as to restore confidence in railroad securities as a whole; the proposed pool was to be temporary; and the funds remaining in the pool at the termination of the arrangement were to be distributed to the various companies in proportion to their contributions. As Commissioner Eastman pointed out, pooling is in harmony with the concept of the Interstate Commerce Act; and under the suggested plan, all participants would receive more revenue than without any increase in rates, the inequity of abnormal earnings on the part of the strongest carriers would be partly avoided, and the disturbing effects of widespread receiverships would be prevented.

Doubts as to the constitutionality of compulsory pooling seem to have been settled by the decision of the Supreme Court in the New England Divisions Case.[2] Although this case related only to joint rates and merely upheld the constitutionality of more liberal divisions thereof for the benefit of New England railroads, these lines were treated as a unit, and the Court stated that revenues could be marshaled in the interest of the transportation system as a whole. The Court also said that the people might not tolerate increased rates for weak railways if the effect were to inflate unduly the earnings of prosperous carriers; and that whether a rate is reasonable may depend upon what is done with the revenue therefrom. The mere fact that a railroad company collects revenue does not necessarily make it the owner of the income. From these statements it appears that the pooling of earnings for the benefit of the transportation service would be no more objectionable legally than the division of joint rates for a similar purpose.

Pools involve accounting expense, but the gains would doubtless more than offset this disadvantage, especially if the utilization of the revenue from rate increases were carefully safeguarded. Revenue should not be distributed in such a way as to destroy the incentive to efficiency. Neither

[1] *179 I. C. C.* 215 (1931). See also *223 I. C. C.* 657 (1937).
[2] *261 U. S.* 184 (1923).

should revenue be used to support obsolescent lines. On the other hand, it seems reasonable to believe that pooled earnings should constitute something more than a source of credit for the weak carriers. In the Fifteen Per Cent Case the railroads' plan provided only for loans, to be administered by the Railroad Credit Corporation.

4. A widely discussed proposal in the field of transportation is to permit the general creation of integrated companies, which were referred to in the chapters on service, combination, and public aids.[1] As already explained, an integrated transportation company is one which provides service by more than one mode of transport. Conceivably it might have a rail, highway, water, pipe-line, and air department. Insofar as integration was complete, competition between modes of transport would cease. Rivalry among systems would continue, the degree thereof depending upon the number of systems, their location, and the manner in which they were interlaced.

Integrated companies can be established in two ways: (1) through the mere expansion of a given agency into new fields, as in the case of railroads that substitute trucks for trains, or (2) through unification. Whichever procedure is followed, the general policy of the government has been strictly to limit the extent to which one kind of carrier can engage in another mode of transport, and the limitations upon unification appear to be more rigid than those applicable to certificates of service. For example, a railroad cannot control water carriers operating through the Panama Canal under any conditions. Neither can it control other water lines if the effect is to reduce competition by water. Again, when a railroad wishes to combine with a motor carrier, it must be shown that the railroad can use motor vehicles to advantage in its own service. Similar rules presumably apply in the reverse direction, *i.e.*, to the control of railroads by other types of carriers.

The principal argument for integrated systems is that they would facilitate the coordination of service. It is contended that an integrated company would employ the most economical means of movement, that traffic would cease to flow by wasteful methods, and that the unification of service by joint arrangements would be encouraged. When it is pointed out that joint rates and other cooperative procedures can be established without integration, the reply is that control by a single system would make coordination more certain.

The chief argument against integrated companies is that the possibilities of each mode of transportation might not be fully developed, on account of vested interests already created. An integrated concern would probably utilize that method of movement most advantageous from its point of view, but such method might not be the most economical from

[1] Cf. pp. 430, 516, 562.

the standpoint of the shipper. For example, if the company had a larger investment in railroad facilities than in motor equipment, it would tend to move traffic by rail in order to earn what it could on its investment, unless the out-of-pocket cost of rail service exceeded that by motor vehicle. This danger could be avoided insofar as the integrated company competed with an independent operator of equal efficiency.

Another argument frequently voiced against the creation of integrated companies is that competition would be eliminated. But this contention does not appear to be necessarily valid. Although competition among concerns specializing in particular kinds of transportation would probably be reduced, competition among systems could continue. Combination does not inevitably mean less competition; in fact, it may intensify rivalry. As indicated above, the effect upon competition would depend upon several variable factors.

We believe that the law should be liberalized so as to permit integrated companies, subject to the approval of the Interstate Commerce Commission, when they can be shown to be in the public interest. As Prof. Daggett points out, there is basically no more reason in the long run to prevent the consolidation of a railroad with a motor carrier than to prohibit the unification of two railroads that burn different kinds of fuel.[1] We hasten to add, however, that competition in transportation should be preserved. There should be no wholesale elimination of interagency rivalry. The economies realizable through integration as compared with the present policy can easily be overestimated. The savings that would probably result from combining a railroad and a motor or water carrier would not generally seem to be of the order of magnitude of the gains from unifying two railroads. It also appears that the advantages of integrated companies can be brought about in considerable degree as the law now stands. To illustrate, railroads can operate motor carriers when the effect is to improve rail service, and joint rates can be quoted by the two types of carriers.

5. The chapter on Combination indicated that substantial advantages can be realized through further consolidation and coordination of railroads, but the discussion also pointed out serious obstacles to unification. Because of these impediments and the slowness with which voluntary consolidation has proceeded, government compulsion has frequently been advocated. It is said that combination has been permissible with the approval of the Interstate Commerce Commission since 1920; that experience and careful studies have clearly demonstrated ample opportunities to effect real savings through unification; but that the carriers have done little, and will not consolidate on their own account, within a

[1] Daggett, Stuart, *Principles of Inland Transportation*, p. 879 (1941).

reasonable period of time, in such manner as best to promote the public interest.

On its face compulsion seems a simple way to accomplish a desirable objective, and it has been recommended by the National Transportation Committee[1] and by various individuals.[2] Nevertheless, the majority of informed opinion is apparently opposed to force. Compulsory consolidation has been considered and rejected by the Transportation Conference of 1933–1934,[3] by the Federal Coordinator of Transportation,[4] by the Committee of Three,[5] by the Interstate Commerce Commission,[6] and by certain academic authorities.[7] Disapproval has been based to some extent upon uncertainty as to the constitutionality of compulsion, but in greater part upon economic grounds.

Our opinion is that consolidation and coordination are highly desirable, but that they should be accomplished gradually on a voluntary basis under the supervision and encouragement of the Interstate Commerce Commission. We quote with approval the following: "With respect to consolidation and coordination there are two extreme points of view. On the one hand, it is proposed by law to force consolidation of the railroads into a single system, or into very few systems. On the other hand, it is proposed only to abolish the present consolidation plan, leave the initiative in consolidations and coordinations wholly to the railroads and permit them to do as they see fit, subject only to the veto of the Commission.

"We favor neither of these extremes. We do not believe that public opinion is ready for a spectacular major operation, such as is proposed in the first of these alternatives, or that its wisdom has as yet been sufficiently demonstrated. Nor do we believe that there is anything in their record which at all warrants a conclusion that the railroads can be depended upon to do what should be done wholly on their own initiative.

"The undertaking is one, we believe, which calls for active leadership by the Government, as the sole agency which has no special interests to serve but only the general public interest. At the same time, no fixed

[1] Moulton, H. G., and Associates, *The American Transportation Problem*, p. xxvi (1933).

[2] For examples see Craven, Leslie, in Federal Coordinator of Transportation, *Regulation of Railroads*, Senate Document no. 119, 73d Cong., 2d Sess., pp. 84–105 (1934); and Van Metre, T. W., *Transportation in the United States*, p. 384 (1939).

[3] *Report of the Transportation Conference*, p. 45 (1934).

[4] Federal Coordinator of Transportation, *Regulation of Railroads*, Senate Document no. 119, 73d Cong., 2d Sess., p. 30 (1934).

[5] *Immediate Relief for Railroads*, House Document no. 583, 75th Cong., 3d Sess., p. 37 (1938).

[6] *Annual Report of the Interstate Commerce Commission*, 1938, p. 22.

[7] For examples see Johnson, E. R., *Government Regulation of Transportation*, p. 345 (1938); and Miller, S. L., *Inland Transportation*, p. 777 (1933).

program is possible or even desirable."[1] Specific ways of promoting voluntary unification have already been suggested.[2]

6. The effectiveness of regulation by a commission depends in part upon the commission's organization, which may refer either to internal or to external relationships. Although we believe that the competency of the commission's personnel, the adequacy of its support, and the scope of its substantive powers are more important factors than internal structure and procedure, the question of organization assumes great significance if it is broadened to include the relations between the commission and other branches of the government.

During the thirties the place and organization of the Interstate Commerce Commission attracted considerable study, and various schemes of reorganization were advocated. Some of the proposals dealt with internal matters; others involved external. We shall confine our attention to the latter, not only because of their importance, but also because internal policy seems to be a question best decided by the Commission itself on the basis of experience. The law should make provision for Commission procedure, as explained in connection with the Transportation Act of 1940,[3] but the requirements should be flexible. No particular plan, such as organization on a functional basis or according to mode of transportation, should be specified. Either one or both schemes may prove desirable. As a matter of fact, the Commission now follows both to some extent.[4] This does not imply, of course, that the Commission's procedure cannot be improved. According to the Federal Coordinator of Transportation, the chairmanship of the Commission should be made permanent, and there should be created a central control and coordinating board composed of the chairman of the Commission and the heads of the following divisions: finance, railroads, water and pipe lines, and motor and air.[5] An increased term for the chairmanship was also recommended by the Board of Investigation and Research.[6]

The most far-reaching proposed reorganizations look to the transfer of some of the Commission's powers to another body, and to placing the Commission under the executive branch of the government. For example, the Committee of Six recommended that the issuance of certificates of public convenience and necessity, the control of securities, the regulation of intercorporate relations, and the promotion of research be transferred

[1] *Annual Report of the Interstate Commerce Commission*, 1938, p. 22.

[2] Cf. p. 509.

[3] Cf. p. 192.

[4] Cf. p. 193.

[5] *Report of the Federal Coordinator of Transportation*, House Document no. 89, 74th Cong., 1st Sess., pp. 19–24 (1935). The chairmanship of the Commission is now rotated.

[6] Board of Investigation and Research, *Practices and Procedures of Governmental Control*, House Document no. 678, 78th Cong., 2d Sess., p. 177 (1944).

to a newly created Transportation Board.[1] Since all major regulatory problems are interrelated, we believe that such a division of the Commission would be unwise. Quoting from the chairman of the legislative committee of the Commission, "We doubt the wisdom of any change which splits the Commission into largely independent parts. There is an interrelation between all phases of carrier activity, and like interrelation between the corresponding phases of public regulation. Experience with all phases is broadening and specialization is narrowing. It is of questionable public advantage to divide the field of regulation."[2]

According to some authorities, there is need for the performance of general research functions by a separate body. But a better plan would seem to be to relieve the chairman of the Commission of some of his duties and to place research and promotion in a special division under his direction. There should not be created a multiplicity of organizations such as recommended by the Board of Investigation and Research.[3] Creation of additional transportation authorities tends to conflict with the Commission, and it appears that a division of the Commission can be as objective in its approach as a separate board.

Typical of the proposals to bring the Commission within the executive branch of the government was that of President Roosevelt, who suggested that Congress consider placing all executive functions relating to transportation in the Department of Commerce, leaving the quasi-legislative and the quasi-judicial matters in the hands of a reorganized Commission.[4] These and similar schemes rest upon the assumption that the Commission is an irresponsible body, or that it illogically combines legislative, executive, and judicial functions. But it is not irresponsible. It is responsible to Congress, which can at any time change the rules or the budget under which the Commission functions. It is responsible to the federal courts, which can set aside action beyond its authority, or decisions that are arbitrary. And it is responsible to the President, in that he selects its membership, with the consent of the Senate, and has power to remove members for inefficiency, neglect of duty, or malfeasance in office.

The combination of the traditional triune functions of government is not in reality unrealistic. On the contrary, the exercise by one body of duties that partake of legislative, executive, and judicial natures seems

[1] *Report of Committee Appointed September 20, 1938 by the President of the United States*, p. 4 (1938).

[2] *Omnibus Transportation Legislation*, House Committee Print, 76th Cong., 1st Sess., p. 19 (1939).

[3] Board of Investigation and Research, *op. cit.*, pp. 176–179. The Board recommended a federal transportation authority, a public transportation counsel, and a national transportation advisory committee, in addition to the Interstate Commerce Commission.

[4] *Immediate Relief for Railroads*, House Document no. 583, 75th Cong., 3d Sess., p. 3 (1938).

to be a logical development and essential to effective regulation. When the Commission applies a general rule laid down by Congress, it exercises a quasi-legislative function. When it adjudicates controversies or awards reparations for damages caused by unlawful rates, it performs a quasi-judicial act. When it takes steps to enforce its orders, it acts in a quasi-executive capacity. Admixture of these functions comes about from the fact that they are intimately related, and it is difficult to see how the admixture could be avoided without detracting from the efficiency of the Commission's work.

Numerous departments of the government are concerned with transportation;[1] and although it is desirable to prevent conflicts and waste of effort, to transfer the Commission or certain of its functions to the Department of Commerce, or to place it under a secretary of transportation in the President's Cabinet, would be a dangerous move. The executive departments of the government are headed by appointees generally chosen according to party affiliation, and there would be a tendency toward political interference with the Commission. Unbiased students will probably agree with the Commission that in regulation the thing of supreme importance is scrupulously to avoid politics. "Domination or influence of the regulatory body by either the executive or the legislative branch of the Government is certain to bring it within the political sphere with results unfortunate if not disastrous."[2]

Promotional Policy

The improvement of future transportation policy should embrace promotion as well as regulation. The two go hand in hand. By promotion we refer to the provision and financing of transportation facilities. Unless promotional procedure is wise, reasonable rates, economy of capital, true coordination, fair competition, and perhaps even private ownership cannot be expected. Regulation alone is inadequate; for the commissions exercise only partial control over the construction and improvement of transport facilities. The commissions regulate the building of railway lines, but on the airways, highways, and waterways their authority is limited to the establishment of commercial service. The ways themselves are built and financed under the jurisdiction of legislative bodies.

[1] Some of these are the Bureau of Air Commerce, the Bureau of Navigation and Marine Inspection, the Bureau of Public Roads, the Division of Transportation of the Department of Commerce, the Department of Agriculture, the Lighthouse Service, and the United States Maritime Commission.

[2] *Annual Report of the Interstate Commerce Commission*, 1938, p. 27. The Transportation Conference, a body independent of the Interstate Commerce Commission, also stated that the Commission should not constitute a part of the executive department. *Report of the Transportation Conference of 1933–1934*, p. 52 (1934).

Our discussion of airways, highways, and waterways indicated that more effective control of construction is highly desirable.[1] In the past these facilities have too often been built for political reasons, or to provide employment for the idle, without adequate attention to the economic soundness of the various projects. We believe that wiser construction and a better allocation of productive power would be encouraged if all transportation, except for purposes of national defense, were financed on a user basis, in keeping with the long-run policy of the past.[2] This does not mean that the improvement of airways, highways, or waterways would cease altogether, but only that construction projects would not be undertaken unless the evidence showed that they would pay their way. Neither does it mean that projects should necessarily be disapproved for the purpose of protecting established carriers. On the contrary, if better or cheaper service would result, new construction should be permitted, notwithstanding the adverse effect upon agencies already operating. In order to prevent waste and at the same time to assure desirable construction, it would not be unrealistic to provide that major projects shall be presented for an expression of opinion to an unbiased body, or bodies, of transportation experts, who would function in close cooperation with the Interstate Commerce Commission. Since airways, highways, and waterways are utilized for private as well as for commercial purposes, public opinion would be unlikely to support the lodgment of veto powers in the hands of a central board; but there could be little real objection to advice therefrom. Through publicity, such counsel would tend to carry weight.

Financing transportation on a user basis implies the elimination of transportation subsidies. The chapter on Public Aids to the Transport Industries indicated that the present subsidization of water and air carriers is substantial.[3] It may also be true that particular classes of motor carriers are not paying their own way, at least in certain parts of the country. These subsidies have led to the waste of government revenues, overdevelopment of transport facilities, uneconomic diversion of traffic, unfair competition, and impairment of company credit.[4] They have made impossible transportation according to the relative economy and fitness of the carriers.

At least four plans for the solution of the subsidy problem have been suggested: the discontinuance of public appropriations altogether, subsidies to underaided industries, creation of integrated transportation companies, and the levy of user charges. Only the fourth plan will eliminate subsidies. This means the levy of tolls or fees for the use of water-

[1] Cf. pp. 556–560.
[2] Cf. pp. 16, 20, 27.
[3] Cf. pp. 556.
[4] Cf. pp. 560.

ways and airways and the collection of gasoline taxes or other charges for the use of highways, sufficient to cover the costs fairly chargeable to the respective carriers as determined by informed judgment. Complete agreement on the allocation of costs is not to be expected, but an approximation is preferable to no allocation. The principles that should govern the levy of charges were discussed in Chap. XXII. On existing improvements charges should cover operating expenses but not necessarily full capital costs. On future projects they should include all costs—operating expenses, amortization charges, and interest on the unamortized investment.

REFERENCES

Preceding references, especially those at the close of Chaps. XVII, XVIII, XX, and XXII, will prove helpful in connection with this chapter.

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Reorganization of the Interstate Commerce Commission and the creation of new bodies to deal with transportation are proposed in Board of Investigation and Research, *Practices and Procedures of Governmental Control*, House Document no. 678, 78th Cong., 2d Sess. (1944). A contrary position is taken in *Report of the Federal Coordinator of Transportation*, House Document no. 89, 74th Cong., 1st Sess., pp. 19–31 (1935). The organization and procedure of the Commission are briefly described in Van Metre, *op. cit.*, Chap. 23. A valuable general reference on the place of the Commission and similar bodies is Cushman, R. E., *The Independent Regulatory Commissions* (1941). The reorganization of administrative agencies suggested by President Roosevelt is set forth in *A Report on Reorganization of the Executive Departments of the Government*, Senate Document no. 8, 75th Cong., 1st Sess. (1937). This document should be evaluated in the light of the conclusions in Sharfman, I. L., *The Interstate Commerce Commission*, part 4, Chap. 18, and pp. 342–388 (1937).

Correlated List of Visual Aids

The following list of visual aids may be used to supplement some of the material in this book. These films may be obtained from the producer or distributor shown with each title. (The addresses of these producers or distributors are listed at the end of the bibliography.) In many cases these films may also be procured from your local film library or local film distributor.

The running time (min) of the film, whether it is silent (si) or sound (sd) or color (C) are listed with each title. All those not listed as color are black and white. All of the motion pictures are 16mm.

Each film has been listed only once, usually in the first chapter to which it is applicable. However, in many cases it can be used advantageously in several of the other chapters.

Chapter Two

Development of Transportation (EBF 10min sd). Shows development of transportation in the United States during the past 150 years.

Land Transportation (Harvard 15min si). Deals with the progression of land transportation through the ages.

Pageant of American Inland Transportation (B&O 45min si). Shows the development of transportation from Indian trails to streamliners.

Age of Flight (B&H 20min sd). Traces aviation from the Wright Brothers to the flying fortress.

Conquest of the Air (Films, Inc. 40min sd). Shows the history of man's conquest of the air.

History of Aviation (B&H 30min sd). Deals with the history of air transportation.

March of Aviation (Bailey 11min sd). Shows the history of 40 years of aviation growth.

Railroadin' (GE 30min sd C). Tells the story of railroad development with special reference to public mistrust in the early period.

Railroads in U. S. History (VES 15min si). Explains the growth and significance of railroad systems.

Streamlined (B&H 11min sd). Traces railroad progress from the Iron Horse to streamliners.

Lest We Forget (GM 10min sd). Compares the modern automobile with that of the early period.

Canals in U. S. History (VES 15min si). Maps and charts show location and importance of canals.

Waterways of Yesteryear (Gut 11min sd). Depicts canals of Pennsylvania and life on the Mississippi.

Sails and Steam (DuPont 20min sd). History of water transportation from ancient to modern times.

Chapter Three

Facts behind the News (Annis 30min sd). Describes the latest achievements in the air, on land and water in attaining speed with safety.

Port Commerce (CES 15min si). Describes principles of trade and flow of commodities.

Air Liner (B&H 20min sd). Deals with the service and operation of air lines.

Skyway across Canada (CNR 30min sd). Shows advantages of air travel.

Trail of the Olympian. (Milwaukee 23min sd C). Portrays modern passenger service by de luxe train.

Singing Wheels (DeVry 20min sd). Deals with America's motor truck service.

Great Lakes (Brandon 20min sd). Describes shipping on the Great Lakes.

Lake Carrier (OWI 8min sd). Describes the transportation of iron ore on the Great Lakes.

Transportation on the Great Lakes (EBF 15min si). Shows types of vessels and traffic organization on the Great Lakes.

Pipeline (Shell 17min sd). A picture of pipe-line construction.

Chapter Eighteen

Freight Yard (DeVry 20min sd). Describes functions performed in the railroad freight yard.

Loaded for War (Santa Fe 25min sd C). Describes the war effort of the railroads.

Life Line of the Nation (Castle 20min sd C). Shows part played by the railroads during wartime in transporting men and material.

Sources of Films Listed Above

Annis, R. B., Company, 1103 North Delaware Street, Indianapolis 2, Ind.
Bailey Film Service, 404 North Goodwin Avenue, Urbana, Ill.
B&O—Baltimore & Ohio Railroad Co., Department of Public Relations, Baltimore, Md.
B&H—Bell & Howell Company, 1801 Larchmont Avenue, Chicago 13.
Brandon Films, Inc., 1600 Broadway, New York 19.

CNR—Canadian National Railways, Motion Picture Library, Montreal, Canada.
Castle—Castle Films, Inc., 30 Rockefeller Center, New York 20.
CES—Creative Education Society, Coughlan Building, Mankato, Minn.
DeVry Films, Inc., 1111 Armitage Avenue, Chicago 14.
DuPont Semesan Company, Film Department, Wilmington, Del.
EBF—Encyclopaedia Britannica Films, 1841 Broadway, New York 17.
Films, Inc., 330 West 42nd Street, New York 18.
GE—General Electric Co., Visual Section, Publicity Department, 1 River Road, Schenectady, N. Y.
GM—General Motors Corporation, Broadway at 57th Street, New York 19.
Gut—Gutlohn, Walter O., 25 West 45th Street, New York 19.
Harvard Film Service, School of Education, Lawrence Hall 4, Cambridge 38, Mass.
Milwaukee Road, Passenger Traffic Department, 796 Union Station, Chicago.
OWI—Office of War Information, Bureau of Motion Pictures, c/o The State Department, Washington, D. C.
Santa Fe Railway, 180 East Jackson Boulevard, Chicago.
Shell Oil Company, 50 West 50th Street, New York 20.
VES—Visual Education Service, 116 Newbury Street, Boston 16.

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